NMED AIR QUALITY BUREAU
INITIAL NSR APPLICATION

TRACE MIDSTREAM

Trace Delaware Gathering LLC
Apollo Gas Plant

Prepared For:
David Dell'Osso – Chief Operating Officer

TRACE MIDSTREAM, LLC
840 Gessner
Suite 530
Houston, TX 77024
(281) 657-3632

Prepared By:
Adam Erenstein – Principal Consultant

TRINITY CONSULTANTS
9400 Holly Ave NE
Bldg 3, Ste B
Albuquerque, NM 87122
(505) 266-6611

July 2026

Project R263201.0085

Trinity Consultants

Trinity Consultants
9400 Holly Ave NE, Bldg 3 Ste B, Albuquerque, NM 87122 / P 505.266.6611 / **trinityconsultants.com**

July 17, 2026

Permit Programs Manager
NMED Air Quality Bureau
525 Camino de los Marquez Suite 1
Santa Fe, NM 87505-1816

RE: Application for Initial NSR
Trace Delaware Gathering, LLC; Apollo Gas Plant

Dear Permit Programs Manager:

On behalf of Trace Delaware Gathering, LLC, Trinity Consultants is submitting an application for the Apollo Gas Plant, formerly the Apollo Liquid Handling Facility, currently permitted under GCP-O&G No. 10335-M1. With this application, Trace seeks to convert from a GCP-O&G permit to an initial NSR permit to authorize the following changes (a detailed list of revisions is included within section 3):

- Install new units at the facility to include six (6) stabilized condensate tanks, one (1) amine treating unit, one (1) glycol dehydrator, one (1) cryogenic unit, four (4) heaters, three (3) flares, one (1) BTEX combustor, one (1) thermal oxidizer, four (4) reciprocating engines and associated compressors, two (2) electric overhead compressors, and stabilized condensate loading

The format and content of this application are consistent with the Bureau's current policy regarding initial NSR applications. Enclosed are two hard copies of the application, including the original certification. Electronic files will be provided upon request from our assigned permit engineer. Please feel free to contact me at (505) 266-6611 or by email at aerenstein@trinityconsultants.com if you have any questions regarding this application. Alternatively, you may contact David Dell'Osso with Trace Midstream at (281) 657-3632 or by email at ddellosso@tracemidstream.com.

Sincerely,

TRINITY CONSULTANTS

Adam Erenstein
Principal Consultant

Cc: David Dell'Osso (Trace Delaware Gathering, LLC)

Trinity Project File: R263201.0085

Air Permit Application
Compliance History Disclosure Form

Pursuant to Subsection 74-2-7(S) of the New Mexico Air Quality Control Act ("AQCA"), NMSA §§ 74-2-1 to -17, the New Mexico Environment Department ("Department") may deny any permit application or revoke any permit issued pursuant to the AQCA if, within ten years immediately preceding the date of submission of the permit application, the applicant met any one of the criteria outlined below. In order for the Department to deem an air permit application administratively complete, or issue an air permit for those permits without an administrative completeness determination process, the applicant must complete this Compliance History Disclosure Form as specified in Subsection 74-2-7(P). An existing permit holder (permit issued prior to June 18, 2021) shall provide this Compliance History Disclosure Form to the Department upon request.

Permittee/Applicant Company Name		**Expected Application Submittal Date**
Trace Delaware Gathering, LLC		July 17, 2026
Permittee/Company Contact	**Phone**	**Email**
David Dell'Osso	(281) 657-3632	ddellosso@tracemidstream.com

	Within the 10 years preceding the expected date of submittal of the application, has the permittee or applicant:	
1	Knowingly misrepresented a material fact in an application for a permit?	Yes No
2	Refused to disclose information required by the provisions of the New Mexico Air Quality Control Act?	Yes No
3	Been convicted of a felony related to environmental crime in any court of any state or the United States?	Yes No
4	Been convicted of a crime defined by state or federal statute as involving or being in restraint of trade, price fixing, bribery, or fraud in any court of any state or the United States?	Yes No
5a	Constructed or operated any facility for which a permit was sought, including the current facility, without the required air quality permit(s) under 20.2.70 NMAC, 20.2.72 NMAC, 20.2.74 NMAC, 20.2.79 NMAC, or 20.2.84 NMAC?	Yes No
5b	If "No" to question 5a, go to question 6. If "Yes" to question 5a, state whether each facility that was constructed or operated without the required air quality permit met at least one of the following exceptions: a. The unpermitted facility was discovered after acquisition during a timely environmental audit that was authorized by the Department; or b. The operator of the facility estimated that the facility's emissions would not require an air permit, **and** the operator applied for an air permit within 30 calendar days of discovering that an air permit was required for the facility.	Yes No
6	Had any permit revoked or permanently suspended for cause under the environmental laws of any state or the United States?	Yes No
7	For each "yes" answer, please provide an explanation and documentation.	



TRACE DELAWARE GATHERING, LLC
840 Gessner, Suite 530
Houston, TX 77024

South State Bank
P.O. Box 9602
Winter Haven, FL 33883
63-1469/631

3932

06/30/2026

PAY TO THE ORDER OF NEW MEXICO ENVIRONMENTAL DEPT AQB $ **500.00**

Five Hundred Dollars DOLLARS

Photo Safe Deposit®

Details on Back.

MEMO

NEW MEXICO ENVIRONMENTAL DEPT AQB
525 Camino de los Marquez
Suite 1A
Santa Fe, NM 87505-1816
United States

⑈003932⑈ ⑆063114030⑆ 120208402⑈

TRACE DELAWARE GATHERING, LLC 840 Gessner, Suite 530

3932

V01759--New Mexico Environmental Dept AQB
Print As: NEW MEXICO ENVIRONMENTAL DEPT AQB

525 Camino de los Marquez
Suite 1A
Santa Fe, NM 87505-1816

South State Bank
TRACE DELAWARE GATH 0402
Date: 06/30/2026

Date	Bill no	Reference Number	Amount Due	Term Discount	Amount Paid/Applied
06/30/2026	NMED_Apollo_Jun 2026		$500.00	$0.00	$500.00
Net Amount					$500.00

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		

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

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

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

☒ Check No.: 3932 in the amount of $500

☒ I acknowledge the required submittal format for the hard copy application is B B B -to- B -hole B B B B B B B B -to- B B B B B B B B B B B B B B separate page.

☒ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.

☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.72.200.D(1)(a) 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: 11632	Updating Permit/NOI #: 10335M1
1	Facility Name: Apollo Gas Plant	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits): 211130	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 2.2 mi SW of Loving		
2	Plant Operator Company Name: Trace Delaware Gathering LLC	Phone/Fax: 281-657-3632	
a	Plant Operator Address: 840 Gessner Suite 530 Houston, Texas 77024		

b	Plant Operator's New Mexico Corporate ID or Tax ID:	
3	Plant Owner(s) name(s): Trace Delaware Gathering LLC	Phone/Fax: 281-657-3632
a	Plant Owner(s) Mailing Address(s): 840 Gessner Suite 530 Houston, Texas 77024	
4	Bill To (Company): Trace Delaware Gathering LLC	Phone/Fax: 281-657-3632
a	Mailing Address: 840 Gessner Suite 530 Houston, Texas 77024	E-mail: ddellosso@tracemidstream.com
5	☐ Preparer: ☒ Consultant: Adam Erenstein, Trinity Consultants	Phone/Fax: (505) 266-6611
a	Mailing Address: 9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122	E-mail: aerenstein@trinityconsultants.com
6	Plant Operator Contact: Dustin Daugherty	Phone/Fax: 281-657-3632
a	Address: 840 Gessner, Suite 530, Houston, TX 77024	E-mail: ddaugherty@tracemidstream.com
7	Air Permit Contact: X BX °	Title: Chief Operating Officer
a	E-mail: ddellosso@tracemidstream.com	Phone/Fax: 281-657-3632
b	Mailing Address: 840 Gessner, Suite 530, Houston, TX 77024	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☒ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 10335M1
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	B B B B B B B B B reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 12.50 MMscf/hr	Daily: 300 MMscf/d	Annually: 109500 MMscf/yr
b	Proposed	Hourly: 11.45 MMscf/hr	Daily: 275 MMscf/d	Annually: 100375 MMscf/yr
2	B B B B B B B B B reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 12.50 MMscf/hr	Daily: 300 MMscf/d	Annually: 109500 MMscf/yr
b	Proposed	Hourly: 11.45 MMscf/hr	Daily: 275 MMscf/d	Annually: 100375 MMscf/yr

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 32.274436	Longitude (decimal degrees): -104.132247	County: Eddy	Elevation (ft): 3103
2	UTM Zone: ☐ 12 or ☒ 13	Datum: ☐ NAD 83 ☒ WGS 84		
a	UTM E (in meters, to nearest 10 meters): 581720.19	UTM N (in meters, to nearest 10 meters): 3571185.97		
3	Name and zip code of nearest New Mexico town: Loving, 88256			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Loving, NM head toward W Cedar St and continue for 0.2 mi. Then, turn right at the 3rd cross street into W Ash Rd and continue for 0.3 mi. Continue onto Jayders Rd and continue for 1.5 mi. After that, turn left, and after 0.8 mi, the facility will be on the right.			
5	The facility is 2.2 (distance) miles SW (direction) of Loving, NM (nearest town).			
6	Land Status of facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Government ☐ BLM ☐ Forest Service ☐ Military			
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: Loving, NM; Carlsbad, NM; Eddy County, NM;			
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:			
9	Name nearest Class I area: Carlsbad Caverns National Park			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 24.5 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:			
12	Method(s) used to delineate the Restricted Area: Continuous fencing **Restricted Area** B B B B B B B B B B Bc B B B B B continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.			
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.			
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?			

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760		
2	m B B B B B B B B B ($\frac{\text{hours}}{\text{day}}$)? Start:	☐AM ☐PM	End:	☐AM ☐PM		
3	Month and year of anticipated start of construction:					
4	Month and year of anticipated construction completion:					
5	Month and year of anticipated startup of new or modified facility:					
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No					

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☒ No If yes, specify:

a	If yes, NOV date or description of issue: N/A	NOV Tracking No: N/A
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☒ No If Yes, provide the 1c & 1d info below:	
c	Document Title: N/A	Date: N/A / Requirement # (or page # and paragraph #): N/A
d	Provide the required text to be inserted in this permit: N/A	
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☒ Yes ☐ No	
3	X B B B B BC B B B B E —CRB B B BCB BQ BB ☐ 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: TBD 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	☐ tB B B B B BC B B BC ☒ 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): David Dell'Osso	Phone: 281-657-3632
a	R.O. Title: Chief Operating Officer	R.O. e-mail: ddellosso@tracemidstream.com
b	R. O. Address: 840 Gessner, Suite 530, Houston, TX 77024	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): Dustin Daugherty	Phone: 281-657-3632
a	A. R.O. Title: Vice President - Operations	A. R.O. e-mail: ddaugherty@tracemidstream.com
b	A. R. O. Address: 840 Gessner, Suite 530, Houston, TX 77024	
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.): N/A	
a	Address of Parent Company: N/A	
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	B B B B B B B B B B B B B B B X BX ° B281-657-3632 Dustin Daugherty; 281-657-3632	
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: N/A	

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

B B B B BRX X XB B B BC4 Q B B B B

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☒ Secure electronic transfer. Air Permit Contact Name: Adam Erenstein, AErenstein@trinityconsultants.com, 505-266-6611

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 BC-3423-m (BA B as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should B BC- B core permit number B B B the facility as B B B B B B B B B B B B B B B B B B B (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the BC-3423-9- B B B B B ection # (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.
ENG-1	Caterpillar G3508B Compressor Engine	Caterpillar	G3508B	RBK01232	630 hp	630 hp	1/31/2013 4/1/2025	CAT-1 ENG-1	2-02-002-54	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
ENG-2	Caterpillar G3508B Compressor Engine	Caterpillar	G3508B	RBK01007	630 hp	630 hp	11/11/2010 4/1/2025	CAT-2 ENG-2	2-02-002-54	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
ENG-3	Caterpillar G3616A4 Compressor Engines	Caterpillar	G3616A4	TBD	5500 hp	5500 hp	TBD TBD	CAT-3 ENG-3	2-02-002-54	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
ENG-4	Caterpillar G3616A4 Compressor Engines	Caterpillar	G3616A4	TBD	5500 hp	5500 hp	TBD TBD	CAT-4 ENG-4	2-02-002-54	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
ENG-5	Caterpillar G3616A4 Compressor Engines	Caterpillar	G3616A4	TBD	5500 hp	5500 hp	TBD TBD	CAT-5 ENG-5	2-02-002-54	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
ENG-6	Caterpillar G3616A4 Compressor Engines	Caterpillar	G3616A4	TBD	5500 hp	5500 hp	TBD TBD	CAT-6 ENG-6	2-02-002-54	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
GEN-1A[5]	PSI 11.1L LPG Generator Engines	PSI	11.1L LPG	EEIOH5010623	268 hp	268 hp	9/25/2025 2/20/2026	CAT-7A GEN-1A	2-02-010-01	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SLB	N/A
GEN-1B[5]	PSI 11.1L LPG Generator Engines	PSI	11.1L LPG	EEIOH5010596	268 hp	268 hp	7/14/2025 2/20/2026	CAT-7B GEN-1B	2-02-010-01	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SRB	N/A
GEN-2	Cummins QSB5-GINR3 Generator Engine	Cummins	QSB5-GI NR3	TBD	402 hp	402 hp	TBD TBD	N/A GEN-2	2-02-010-01	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	CI	GEN-2
GEN-2	PSI D11.1L Generator Engine	PSI	D11.1L	ENG-EEIOH706837	268 hp	268 hp	12/19/2017 3/7/2025	N/A GEN-2	2-02-010-01	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ Replacement Unit ☐ To Be Modified ☐ To be Replaced	SI, 4SRB	GEN-2
TK-1	500 bbl Condensate Storage Tanks	Smith Tank	N/A	24-TK882	500 bbl	500 bbl	11/1/2024 4/1/2025	FL-3, ECD-1 FL-3, ECD-1	4-04-003-11	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-2	500 bbl Condensate Storage Tanks	Smith Tank	N/A	24-TK883	500 bbl	500 bbl	11/1/2024 4/1/2025	FL-3, ECD-1 FL-3, ECD-1	4-04-003-11	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-3	Condensate Tank	N/A	N/A	N/A	500 bbl	500 bbl	TBD TBD	ECD-1 ECD-1	4-04-003-11	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-3	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
TK-4	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-5	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-6	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-7	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-8	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
PWTK-1	500 bbl Produced Water Storage Tank	Smith Tank	N/A	24-TK884	500 bbl	500 bbl	11/1/2024 4/1/2025	FL-3, ECD-1 FL-3, ECD-1	4-04-003-15	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
HT-1	Condensate Heater	Arc Energy	N/A	0460-THR-VES-01	2.5 MMBtu/hr	2.5 MMBtu/hr	11/1/2024 4/1/2025	N/A HT-1	3-10-004-03	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-2	Amine Reboiler Hot Oil Heater	THM	TBD	TBD	57.5 MMBtu/hr	57.5 MMBtu/hr	TBD TBD	N/A HT-2	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-3	Glycol Reboiler Heater	THM	TBD	TBD	3 MMBtu/hr	3 MMBtu/hr	TBD TBD	N/A HT-3	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-4	Regen Heater	THM	TBD	TBD	15.22 MMBtu/hr	15.22 MMBtu/hr	TBD TBD	N/A HT-4	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-5	Stabilizer Hot Oil Heater	TBD	TBD	TBD	10.77 MMBtu/hr	10.77 MMBtu/hr	TBD TBD	N/A HT-5	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	N/A	N/A
AM-1	Amine Regeneration	Spitzer	TBD	TBD	275 MMSCFD	275 MMSCFD	TBD TBD	FL-1, TO-1 FL-1, TO-1	3-10-003-05	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-1	Glycol Dehydrator	Spitzer	TBD	TBD	275 MMSCFD	275 MMSCFD	TBD TBD	FL-2, COND-1, ECD-2 FL-2, COND-1, ECD-2	3-10-003-01	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-1	20 MMSCFD Flare	HeroFlare	G50VC20	N/A	20 MMSCFD	3.24 MMSCFD	11/1/2024 4/1/2025	N/A FL-1	3-10-005-05	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-2	275 MMSCFD Flare	TBD	TBD	TBD	275 MMSCFD	0.39 MMSCFD	TBD TBD	N/A FL-2	3-10-005-05	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-3	Tank/Loading Flare	TBD	TBD	TBD	1.214 MMSCFD	0.97 MMSCFD	TBD TBD	N/A FL-3	3-10-005-05	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
ECD-1	Existing Tank/Loading Combustor	Kimark	64" Combustor	N/A	280 MSCFD	27.7 MSCFD	11/1/2024 4/1/2025	N/A ECD-1	3-10-002-15	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
ECD-2	BTEX Combustor	Hero Process Solutions	C1820	TBD	10 MSCFD	4.6 MSCFD	TBD TBD	N/A ECD-2	3-10-002-15	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL-1	Condensate Loading	N/A	N/A	N/A	7980 gal/hr	7980 gal/hr	N/A 4/1/2025	FL-3, ECD-1 FL-3, ECD-1	4-04-001-50	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL-3	Stabilized Condensate Loading	N/A	N/A	N/A	7980 gal/hr	7980 gal/hr	N/A N/A	FL-3, ECD-1 FL-3, ECD-1	4-04-001-50	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SITE-SSM	Startup, Shutdown, Maintenance	N/A	N/A	N/A	N/A	N/A	N/A 4/1/2025	N/A N/A	3-10-888-11	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
FUG	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A 4/1/2025	N/A N/A	3-10-888-11	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
M	Malfunctions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	3-10-888-11	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-1	Compressor	Ariel	JGJ/4	F40611	N/A	N/A	9/16/2010 4/1/2025	N/A N/A	3-10-002-03	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-2	Compressor	Ariel	JGJ/4	F34664	N/A	N/A	10/8/2012 4/1/2025	N/A N/A	3-10-002-03	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-3	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-4	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-5	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
C-6	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
EC-1	Electric Overhead Compressor	Ariel	JGQ/2	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
EC-2	Electric Overhead Compressor	Ariel	JGQ/2	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TO-1	Thermal Oxidizer	Zeeco	TBD	TBD	20 MMBtu/hr	20 MMBtu/hr	TBD TBD	N/A N/A	3-10-002-09	☐ 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

[5] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

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.
TK-4	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-5	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-6	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-7	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-8	1,000 bbl Condensate Storage Tanks	TBD	TBD	TBD	1,000 bbl	1,000 bbl	TBD TBD	FL-3 FL-3	4-04-003-11	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
PWTK-1	500 bbl Produced Water Storage Tank	Smith Tank	N/A	24-TK884	500 bbl	500 bbl	Nov-24 Apr-25	FL-3, ECD-1 FL-3, ECD-1	4-04-003-15	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
HT-1	Condensate Heater	Arc Energy	N/A	0460-THR-VES-01	2.5 MMBtu/hr	2.5 MMBtu/hr	Nov-24 Apr-25	N/A HT-1	3-10-004-03	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-2	Amine Reboiler Hot Oil Heater	THM	TBD	TBD	57.5 MMBtu/hr	57.5 MMBtu/hr	TBD TBD	N/A HT-2	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-3	Glycol Reboiler Heater	THM	TBD	TBD	3 MMBtu/hr	3 MMBtu/hr	TBD TBD	N/A HT-3	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-4	Regen Heater	THM	TBD	TBD	15.22 MMBtu/hr	15.22 MMBtu/hr	TBD TBD	N/A HT-4	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-5	Stabilizer Hot Oil Heater	TBD	TBD	TBD	10.77 MMBtu/hr	10.77 MMBtu/hr	TBD TBD	N/A HT-5	3-10-004-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	N/A	N/A
AM-1	Amine Regeneration	Spitzer	TBD	TBD	275 MMSCFD	275 MMSCFD	TBD TBD	FL-1, TO-1 FL-1, TO-1	3-10-003-05	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-1	Glycol Dehydrator	Spitzer	TBD	TBD	275 MMSCFD	275 MMSCFD	TBD TBD	FL-2, COND-1, ECD-2 FL-2, COND-1, ECD-2	3-10-003-01	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-1	20 MMSCFD Flare	HeroFlare	G50VC20	N/A	20 MMSCFD	20 MMSCFD	Nov-24 Apr-25	N/A FL-1	3-10-005-05	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-2	275 MMSCFD Flare	TBD	TBD	TBD	275 MMSCFD	275 MMSCFD	TBD TBD	N/A FL-2	3-10-005-05	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-3	Tank/Loading Flare	TBD	TBD	TBD	1.214 MMSCFD	1.214 MMSCFD	TBD TBD	N/A FL-3	3-10-005-05	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
ECD-1	Existing Tank/Loading Combustor	Kimark	64" Combustor	N/A	280 MSCFD	280 MSCFD	Nov-24 Apr-25	N/A ECD-1	3-10-002-15	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
ECD-2	BTEX Combustor	Hero Process Solutions	C1820	TBD	10 MSCFD	10 MSCFD	TBD TBD	N/A ECD-2	3-10-002-15	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL-1	Condensate Loading	N/A	N/A	N/A	7980 gal/hr	7980 gal/hr	N/A Apr-25	FL-3, ECD-1 FL-3, ECD-1	4-04-001-50	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL-3	Stabilized Condensate Loading	N/A	N/A	N/A	7980 gal/hr	7980 gal/hr	N/A N/A	FL-3, ECD-1 FL-3, ECD-1	4-04-001-50	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SITE-SSM	Startup, Shutdown, Maintenance	N/A	N/A	N/A	N/A	N/A	N/A Apr-25	N/A N/A	3-10-888-11	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
FUG	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A Apr-25	N/A N/A	3-10-888-11	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
M	Malfunctions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	3-10-888-11	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-1	Compressor	Ariel	JGJ/4	F40611	N/A	N/A	Sep-10 Apr-25	N/A N/A	3-10-002-03	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-2	Compressor	Ariel	JGJ/4	F34664	N/A	N/A	Oct-12 Apr-25	N/A N/A	3-10-002-03	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-3	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-4	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-5	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
C-6	Residue Compressor	Ariel	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
EC-1	Electric Overhead Compressor	Ariel	JGQ/2	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
EC-2	Electric Overhead Compressor	Ariel	JGQ/2	TBD	N/A	N/A	TBD TBD	N/A N/A	3-10-002-03	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TO-1	Thermal Oxidizer	TBD	TBD	TBD	20 MMBtu/hr	20 MMBtu/hr	TBD TBD	N/A N/A	3-10-002-09	☐ 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

[5] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

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 https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/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
TK-SLOP	Slop Tank	TBD	TBD TBD	210 bbl	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-LUBE	Residue Compressor Lube Oil Makeup Tank	TBD	TBD TBD	100 bbl	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-COOLANT	Residue Compressor Coolant Makeup Tank	TBD	TBD TBD	100 bbl	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-WASTE	Residue Compressor Waste Oil Tank	TBD	TBD TBD	100 bbl	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-METHANOL-1	Methanol Storage Tank	TBD	TBD TBD	500 gal	20.2.72.202.B(5) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced
TK-METHANOL-2	Methanol Storage Tank	TBD	TBD TBD	500 gal	20.2.72.202.B(5) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-AMINE	Lean Amine Make-Up Tank	TBD	TBD TBD	100 bbl	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-RO	RO Water Storage Tank	TBD	TBD TBD	210 bbl	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-PROPANE-1	Propane Tank	TBD	TBD TBD	1000 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-PROPANE-2	Propane Tank	TBD	TBD TBD	1000 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-PROPANE-3	Propane Tank	TBD	TBD TBD	1000 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-PROPANE-4	Propane Tank	TBD	TBD TBD	1000 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-1	Sump Tank - Hot Oil	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-2	Sump Tank - Refrig	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-3	Sump Tank - TEG	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-4	Sump Tank - Amine	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-5	Sump Tank - Compressor	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-6	Sump Tank - Stabilizer	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-SUMP-7	Sump Tank - Cryo	TBD	TBD TBD	400 gal	20.2.72.202.B(2) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TL-2	Produced Water Loading	N/A	N/A N/A	7980 gal/hr	20.2.72.202.B(5) NMAC	N/A Apr-25	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced
GEN-3	30 kW Emergency Generator	TBD	TBD TBD	30 kW	20.2.72.202.B(3) NMAC	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
ROAD	Haul Road Emissions	N/A	N/A N/A	N/A N/A	20.2.72.202.B(5) NMAC	N/A 4/1/2025	☐ 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

B B B B B B B B B B' B B B B BC9 B B BC9 B B B B B B B B B B B B B B
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.		Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
CAT-1	Catalytic Converter	Apr-25	CO, VOC, HCHO	ENG-1, GEN-1A, GEN-1B	CO: 39.94% VOC: 57.31% HCHO: 50.53%	Mfg. specification sheet
CAT-2	Catalytic Converter	Apr-25	CO, VOC, HCHO	ENG-2	CO: 39.94% VOC: 57.31% HCHO: 50.53%	Mfg. specification sheet
CAT-3	Catalytic Silencer	TBD	CO	ENG-3	CO: 73.09%	Mfg. specification sheet
CAT-4	Catalytic Silencer	TBD	CO	ENG-4	CO: 73.09%	Mfg. specification sheet
CAT-5	Catalytic Silencer	TBD	CO	ENG-5	CO: 73.09%	Mfg. specification sheet
CAT-6	Catalytic Silencer	TBD	CO	ENG-6	CO: 73.09%	Mfg. specification sheet
CAT-7A	Catalytic Converter	TBD	NOx, CO	GEN-1A	NOx: 91.30% CO: 83.33%	Mfg. specification sheet
CAT-7B	Catalytic Converter	TBD	NOx, CO	GEN-1B	NOx: 91.30% CO: 83.33%	Mfg. specification sheet
FL-1	Flare	Apr-25	VOC, Total HAPs, H2S	Flash Gas Compressor Downtime	98%	Mfg. specification sheet
FL-2	Flare	TBD	VOC, Total HAPs, H2S	AM-1 (flash), DEHY-1 (flash)	98%	Mfg. specification sheet
FL-3[2]	Flare	TBD	VOC, Total HAPs, H_2S	TK-1 through TK-8, PWTK-1, TL-1, TL-2, TL-3	98%	Mfg. specification sheet
ECD-1[2]	Enclosed Combustor	Apr-25	VOC, Total HAPs, H2S	TK-1 through TK-8, PWTK-1, TL-1, TL-2, TL-3	98%	Mfg. specification sheet
ECD-2	Enclosed Combustor	TBD	VOC, Total HAPs, H2S	DEHY-1 (BTEX Overheads)	98%	Mfg. specification sheet
TO-1	Thermal Oxidizer	TBD	VOC, Total HAPs, H2S	AM-1 (still vent)	99%	Mfg. specification sheet
COND-1[4]	BTEX Condenser	TBD	VOC, Total HAPs, H2S	DEHY-1 (BTEX Overheads)	Varies	Engineering Estimate

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

[2] Existing Tank working, breathing, and standing emissions (TK-1, TK-2, PWTK-1) and truck loading emissions (TL-1, TL-2) are currently routed to ECD-1 with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by FL-1 with a 100% capture efficiency and 98% DRE.

[3] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

[4] BTEX Condenser control efficnecy varies depending on the gas process

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 & B B B B B B B B Bm B B B B B B B B B B BB B BCB B B B B B B B B B B(B B B B B B B B B B B B 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
ENG-1	0.69	3.04	4.42	19.35	2.29	10.01	0.028	0.12	0.054	0.24	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	-	-
ENG-2	0.69	3.04	4.42	19.35	2.29	10.01	0.028	0.12	0.054	0.24	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	-	-
ENG-3	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
ENG-4	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
ENG-5	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
ENG-6	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
GEN-1A[2]	6.79	29.76	7.09	31.05	0.53	2.30	2.83E-03	0.012	0.094	0.41	0.094	0.41	0.094	0.41	-	-	-	-
GEN-1B[2]	6.79		7.09		0.53		2.83E-03		0.094		0.094		0.094		-		-	-
GEN-2	0.59	2.59	1.18	5.18	0.41	1.81	0.011	0.046	0.040	0.18	0.040	0.18	0.040	0.18	8.61E-08	3.77E-07	-	-
HT-1	0.25	1.07	0.21	0.90	0.013	0.059	0.013	0.059	0.019	0.082	0.019	0.082	0.019	0.082	4.36E-08	1.91E-07	-	-
HT-2	2.31	10.10	2.34	10.25	1.10	4.84	0.31	1.35	0.76	3.32	0.76	3.32	0.76	3.32	1.00E-06	4.39E-06	-	-
HT-3	0.29	1.29	0.25	1.08	0.016	0.071	0.016	0.070	0.022	0.098	0.022	0.098	0.022	0.098	5.23E-08	2.29E-07	-	-
HT-4	0.46	2.00	0.61	2.67	0.29	1.27	0.082	0.36	0.20	0.87	0.20	0.87	0.20	0.87	2.65E-07	1.16E-06	-	-
HT-5	0.43	1.89	0.44	1.92	0.21	0.91	0.058	0.25	0.14	0.62	0.14	0.62	0.14	0.62	1.88E-07	8.23E-07	-	-
AM-1[3]	-	-	-	-	77.94	341.37	-	-	-	-	-	-	-	-	4.16	18.20	-	-
DEHY-1	-	-	-	-	36.39	159.38	-	-	-	-	-	-	-	-	2.19E-05	9.58E-05	-	-
FL-1	8.10E-03	0.035	0.016	0.071	5.00E-05	2.19E-04	9.06E-08	3.97E-07	-	-	-	-	-	-	9.82E-10	4.30E-09	-	-
FL-2	0.13	0.20	0.27	0.39	8.27E-04	1.21E-03	1.50E-06	2.20E-06	-	-	-	-	-	-	1.62E-08	2.39E-08	-	-
ḿ	0.045	0.20	0.090	0.39	2.77E-04	1.21E-03	5.02E-07	2.20E-06	-	-	-	-	-	-	5.45E-09	2.48E-08	-	-
cRX	1.26E-03		1.05E-03		1.09E-05		1.98E-08		9.54E-05	4.18E-04	9.54E-05	4.18E-04	9.54E-05	4.18E-04	2.14E-10		-	-
ECD-2	1.57E-03	6.87E-03	1.32E-03	5.77E-03	1.36E-05	5.97E-05	2.47E-08	1.08E-07	1.19E-04	5.22E-04	1.19E-04	5.22E-04	1.19E-04	5.22E-04	2.68E-10	1.17E-09	-	-
TO-1	1.74	8.59	1.46	7.21	7.54E-03	0.033	2.76E-05	1.21E-04	0.13	0.58	0.13	0.58	0.13	0.58	1.48E-07	6.49E-07	-	-
TK-1	-	-	-	-	63.17	276.70	-	-	-	-	-	-	-	-	1.54E-04	6.76E-04	-	-
TK-2	-	-	-	-	63.17	276.70	-	-	-	-	-	-	-	-	1.54E-04	6.76E-04	-	-
TK-3	-	-	-	-	2.59	11.34	-	-	-	-	-	-	-	-	9.74E-07	4.27E-06	-	-
TK-4	-	-	-	-	2.59	11.34	-	-	-	-	-	-	-	-	9.74E-07	4.27E-06	-	-
TK-5	-	-	-	-	2.59	11.34	-	-	-	-	-	-	-	-	9.74E-07	4.27E-06	-	-
TK-6	-	-	-	-	2.59	11.34	-	-	-	-	-	-	-	-	9.74E-07	4.27E-06	-	-
TK-7	-	-	-	-	2.59	11.34	-	-	-	-	-	-	-	-	9.74E-07	4.27E-06	-	-
TK-8	-	-	-	-	2.59	11.34	-	-	-	-	-	-	-	-	9.74E-07	4.27E-06	-	-
PWTK-1	-	-	-	-	0.32	1.40	-	-	-	-	-	-	-	-	3.17E-05	1.39E-04	-	-
TL-1	-	-	-	-	36.80	0.18	-	-	-	-	-	-	-	-	4.35E-05	2.09E-07	-	-
TL-3	-	-	-	-	37.69	90.48	-	-	-	-	-	-	-	-	1.42E-05	3.40E-05	-	-
FUG	-	-	-	-	13.70	59.99	-	-	-	-	-	-	-	-	2.14E-04	9.37E-04	-	-
Totals	35.78	127.54	138.03	573.55	366.42	1,366.99	1.42	6.20	3.30	14.06	3.30	14.06	3.30	14.06	4.16	18.20	-	-

[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).

[2] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[3] Hourly emissions represent worst-case emissions TO-1 downtime. The Amine Flash gas is controlled by and represented at FL-2.

[4] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

Table 2-E: Requested Allowable Emissions

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
ENG-1	0.69	3.04	2.65	11.62	0.98	4.27	0.028	0.12	0.054	0.24	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	-	-
ENG-2	0.69	3.04	2.65	11.62	0.98	4.27	0.028	0.12	0.054	0.24	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	-	-
ENG-3	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
ENG-4	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
ENG-5	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
ENG-6	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	-	-
GEN-1A[2]	0.59	2.59	1.18	5.18	0.53	2.30	2.83E-03	0.012	0.094	0.41	0.094	0.41	0.094	0.41	-	-	-	-
GEN-1B[2]	0.59		1.18		0.53		2.83E-03		0.094		0.094		0.094		-	-	-	-
GEN-2	0.59	2.59	1.18	5.18	0.41	1.81	0.011	0.046	0.040	0.18	0.040	0.18	0.040	0.18	8.61E-08	3.77E-07	-	-
HT-1	0.25	1.07	0.21	0.90	0.013	0.059	0.013	0.059	0.019	0.082	0.019	0.082	0.019	0.082	4.36E-08	1.91E-07	-	-
HT-2	2.31	10.10	2.34	10.25	1.10	4.84	0.31	1.35	0.76	3.32	0.76	3.32	0.76	3.32	1.00E-06	4.39E-06	-	-
HT-3	0.29	1.29	0.25	1.08	0.016	0.071	0.016	0.070	0.022	0.098	0.022	0.098	0.022	0.098	5.23E-08	2.29E-07	-	-
HT-4	0.46	2.00	0.61	2.67	0.29	1.27	0.082	0.36	0.20	0.87	0.20	0.87	0.20	0.87	2.65E-07	1.16E-06	-	-
HT-5	0.43	1.89	0.44	1.92	0.21	0.91	0.058	0.25	0.14	0.62	0.14	0.62	0.14	0.62	1.88E-07	8.23E-07	-	-
AM-1[3]	-	-	-	-	24.04	5.26	-	-	-	-	-	-	-	-	4.14	0.91	-	-
DEHY-1	Emissions are controlled by and represented at FL-2 and ECD-2.																	
FL-1	8.10E-03	0.035	0.016	0.071	5.00E-05	2.19E-04	9.06E-08	3.97E-07	-	-	-	-	9.82E-10	-	9.82E-10	4.30E-09	-	-
FL-2	1.39	5.69	2.77	11.36	1.44	6.30	0.036	0.16	-	-	-	-	3.89E-04	-	3.89E-04	1.70E-03	-	-
FL-3[4,5]	0.70	2.41	0.96	4.82	4.32	14.51	8.48E-04	2.96E-03	-	0.093	-	0.093	-	0.093	9.19E-06	3.20E-05	-	-
ECD-1[4,5]	0.36		0.30		3.26		8.11E-04		0.027		0.027		0.027		8.79E-06		-	-
ECD-2	0.044	0.19	0.037	0.16	0.37	1.61	2.91E-05	1.27E-04	3.38E-03	0.015	3.38E-03	0.015	3.38E-03	0.015	3.15E-07	1.38E-06	-	-
TO-1	1.96	8.59	1.65	7.21	0.25	1.09	7.71	33.76	0.15	0.65	0.15	0.65	0.15	0.65	0.041	0.18	-	-
TK-1	Emissions are controlled by and represented at FL-3 and ECD-1.																	
TK-2	Emissions are controlled by and represented at FL-3 and ECD-1.																	
TK-3	Emissions are controlled by and represented at FL-3.																	
TK-4	Emissions are controlled by and represented at FL-3.																	
TK-5	Emissions are controlled by and represented at FL-3.																	
TK-6	Emissions are controlled by and represented at FL-3.																	
TK-7	Emissions are controlled by and represented at FL-3.																	
TK-8	Emissions are controlled by and represented at FL-3.																	
PWTK-1	Emissions are controlled by and represented at FL-3 and ECD-1.																	
TL-1	-	-	-	-	0.48	2.30E-03	-	-	-	-	-	-	-	-	5.66E-07	2.72E-09	-	-
TL-3	-	-	-	-	0.49	1.18	-	-	-	-	-	-	-	-	1.84E-07	4.43E-07	-	-
FUG	-	-	-	-	13.70	59.99	-	-	-	-	-	-	-	-	2.14E-04	9.37E-04	-	-
Totals	**25.90**	**108.27**	**47.53**	**201.51**	**67.41**	**171.19**	**9.16**	**40.11**	**3.35**	**14.24**	**3.35**	**14.24**	**3.35**	**14.24**	**4.18**	**1.09**	**-**	**-**

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

[2] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[3] Hourly emissions represent worst-case emissions TO-1 downtime. The Amine Flash gas is controlled by and represented at FL-2.

[4] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

[5] Normal operating scenarios and Startup, Shutdown, and Maintenance (SSM) scenarios for control devices include pilot emissions. Normal operations and SSM operations will never occur at the same time, in the same hour.

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
SITE-SSM	-	-	-	-	6,313.36	12.82	-	-	-	-	-	-	-	-	0.17	3.50E-04	-	-
FL-1	33.08	7.28	66.03	14.53	121.03	26.51	0.19	0.041	-	-	-	-	-	-	2.05E-03	4.49E-04	-	-
FL-2	2.04	0.20	4.07	0.40	36.45	0.032	0.015	1.70E-05	-	-	-	-	-	-	1.67E-04	1.85E-07	-	-
FL-3[3]	19.60	*	39.14	*	137.78	*	0.045	*	-	*	-	*	-	*	4.86E-04	*	-	-
TO-1	2.10	8.59	1.77	7.21	2.79	0.034	0.016	1.29E-04	0.16	0.58	0.16	0.58	0.16	0.58	8.33E-05	6.91E-07	-	-
Totals	56.82	16.07	111.00	22.15	6,611.40	39.40	0.27	0.042	0.16	0.58	0.16	0.58	0.16	0.58	0.18	8.00E-04	-	-

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

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

[3] Normal operating scenarios and Startup, Shutdown, and Maintenance (SSM) scenarios for control devices include pilot emissions. SSM emissions will never be higher than normal operations.

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

B B B B B B B

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
	Totals:																

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
ENG-1	ENG-1	V	No	20	998	69.07	-	-	87.94	1.00
ENG-2	ENG-2	V	No	20	998	69.07	-	-	87.94	1.00
ENG-3	ENG-3	V	No	22	791	563.88	-	-	23.73	5.50
ENG-4	ENG-4	V	No	22	791	563.88	-	-	23.73	5.50
ENG-5	ENG-5	V	No	22	791	563.88	-	-	23.73	5.50
ENG-6	ENG-6	V	No	22	791	563.88	-	-	23.73	5.50
GEN-1B	GEN-1B	V	No	8	1215	19.10	-	-	35.30	0.83
GEN-1B	GEN-1B	V	No	8	1215	19.10	-	-	35.30	0.83
GEN-2	GEN-2	V	No	8	1350	19.10	-	-	274.00	0.29
HT-1	HT-1	V	No	25	600	17.65	-	-	5.62	2
HT-2	HT-2	V	No	30.8	493	312.55	-	-	32.49	3.50
HT-3	HT-3	V	No	17.5	600	21.18	-	-	6.74	2
HT-4	HT-4	V	No	24.3	385	73.35	-	-	19.90	2.17
HT-5	HT-5	V	No	21.5	468	57.01	-	-	32.26	1.5
AM-1	AM-1	V	No	40	120	0.069	-	-	81.70	1.00
FL-1	FL-1	V	No	50	1832	0.015	-	-	65.62	11.48
FL-2	FL-2	V	No	150	1832	2.52	-	-	65.62	2.58
FL-3	FL-3	V	No	30	1832	0.49	-	-	65.62	8.09
ECD-1	ECD-1	V	No	33	1900	54.61	-	-	2.44	5.33
ECD-2	ECD-2	V	No	25	1000	4.20	-	-	2.38	1.5
TO-1	TO-1	V	No	58	1500	249.07	-	-	13.57	4.83

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐AP		Acetaldehyde ☑ HAP or ☐ TAP		Acrolein ☑ HAP or ☐ TAP		Methanol ☑ HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Xylenes ☑ HAP or ☐ TAP		2,2,4 Trimethylpentane ☑ HAP or ☐TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	ENG-1	0.30	1.31	0.19	0.85	0.045	0.20	0.028	0.12	0.014	0.059	6.00E-03	0.026	2.38E-03	0.010	2.21E-03	9.66E-03	2.15E-04	9.40E-04	9.94E-04	4.36E-03	1.35E-03	5.92E-03
ENG-2	ENG-2	0.30	1.31	0.19	0.85	0.045	0.20	0.028	0.12	0.014	0.059	6.00E-03	0.026	2.38E-03	0.010	2.21E-03	9.66E-03	2.15E-04	9.40E-04	9.94E-04	4.36E-03	1.35E-03	5.92E-03
ENG-3	ENG-3	2.04	8.93	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
ENG-4	ENG-4	2.04	8.93	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
ENG-5	ENG-5	2.04	8.93	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
ENG-6	ENG-6	2.04	8.93	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
GEN-1A[1]	GEN-1A[1]	0.16	0.68	0.099	0.43	0.013	0.059	0.013	0.055	0.015	0.065	-	-	7.61E-03	0.033	2.69E-03	0.012	1.19E-04	5.23E-04	9.39E-04	4.11E-03	-	-
GEN-1B[1]	GEN-1B[1]	0.16		0.099		0.013		0.013		0.015		-		7.61E-03		2.69E-03		1.19E-04		9.39E-04		-	
GEN-2	GEN-2	0.067	0.29	0.042	0.19	5.76E-03	0.025	5.43E-03	0.024	6.32E-03	0.028	-	-	3.26E-03	0.014	1.15E-03	5.05E-03	5.12E-05	2.24E-04	4.03E-04	1.76E-03	-	-
HT-1	HT-1	4.63E-03	0.020	1.84E-04	8.05E-04	-	-	-	-	-	-	4.41E-03	0.019	5.15E-06	2.25E-05	8.33E-06	3.65E-05	-	-	-	-	-	-
HT-2	HT-2	0.11	0.47	4.23E-03	0.019	-	-	-	-	-	-	0.10	0.44	1.18E-04	5.19E-04	1.92E-04	8.40E-04	-	-	-	-	-	-
HT-3	HT-3	5.55E-03	0.024	2.21E-04	9.66E-04	-	-	-	-	-	-	5.29E-03	0.023	6.18E-06	2.71E-05	1.00E-05	4.38E-05	-	-	-	-	-	-
HT-4	HT-4	0.028	0.12	1.12E-03	4.90E-03	-	-	-	-	-	-	0.027	0.12	3.13E-05	1.37E-04	5.07E-05	2.22E-04	-	-	-	-	-	-
HT-5	HT-5	0.020	0.087	7.92E-04	3.47E-03	-	-	-	-	-	-	0.019	0.083	2.22E-05	9.71E-05	3.59E-05	1.57E-04	-	-	-	-	-	-
AM-1[3]	AM-1[3]	17.07	3.74	-	-	-	-	-	-	-	-	0.016	3.56E-03	11.95	2.62	4.20	0.92	0.26	0.058	0.64	0.14	1.88E-03	4.13E-04
DEHY-1	DEHY-1	Emissions are controlled by and represented at FL-2 and ECD-2.																					
FL-1	FL-1	2.18	0.48	-	-	-	-	-	-	-	-	1.09	0.24	0.41	0.089	0.16	0.034	0.012	2.65E-03	0.021	4.61E-03	0.50	0.11
FL-2	FL-2	0.24	0.20	-	-	-	-	-	-	-	-	0.097	0.033	0.042	0.10	0.029	0.039	3.59E-03	2.95E-03	8.42E-03	5.01E-03	0.055	0.013
FL-3[2]	FL-3[2]	12.94	1.13	-	-	-	-	-	-	-	-	6.92	0.57	1.49	0.18	0.67	0.076	0.049	4.79E-03	0.073	7.83E-03	3.75	0.30
ECD-1[2]	ECD-1[2]	0.23		-	-	-	-	-	-	-	-	0.11		0.037		0.016		9.37E-04		1.54E-03		0.058	
ECD-2	ECD-2	0.15	0.66	-	-	-	-	-	-	-	-	6.62E-03	0.029	0.090	0.39	0.042	0.18	2.41E-03	0.011	5.97E-03	0.026	4.82E-03	0.021
TO-1	TO-1	0.17	0.75	-	-	-	-	-	-	-	-	1.63E-04	7.12E-04	0.12	0.52	0.042	0.18	2.65E-03	0.012	6.41E-03	0.028	1.89E-05	8.25E-05
TK-1	TK-1	Emissions are controlled by and represented at FL-3 and ECD-1.																					
TK-2	TK-2	Emissions are controlled by and represented at FL-3 and ECD-1.																					
TK-3	TK-3	Emissions are controlled by and represented at FL-3.																					
TK-4	TK-4	Emissions are controlled by and represented at FL-3.																					
TK-5	TK-5	Emissions are controlled by and represented at FL-3.																					
TK-6	TK-6	Emissions are controlled by and represented at FL-3.																					
TK-7	TK-7	Emissions are controlled by and represented at FL-3.																					
TK-8	TK-8	Emissions are controlled by and represented at FL-3.																					
PWTK-1	PWTK-1	Emissions are controlled by and represented at FL-3 and ECD-1.																					
TL-1	TL-1	0.028	1.36E-04	-	-	-	-	-	-	-	-	0.016	7.56E-05	3.35E-03	1.61E-05	1.37E-03	6.60E-06	8.41E-05	4.04E-07	1.18E-04	5.68E-07	7.66E-03	3.68E-05
TL-3	TL-3	0.046	0.11	-	-	-	-	-	-	-	-	0.025	0.059	5.29E-03	0.013	2.38E-03	5.72E-03	1.75E-04	4.21E-04	2.59E-04	6.21E-04	0.013	0.032
FUG	FUG	2.06	9.04	-	-	-	-	-	-	-	-	0.56	2.46	0.19	0.85	0.27	1.18	0.059	0.26	0.12	0.55	0.86	3.75
SITE-SSM	SITE-SSM	186.02	0.39	-	-	-	-	-	-	-	-	76.55	0.16	26.89	0.057	17.36	0.037	2.49	5.28E-03	4.97	0.011	57.77	0.12
Totals:		**230.43**	**56.52**	**5.49**	**23.59**	**1.54**	**6.70**	**0.96**	**4.15**	**0.49**	**2.07**	**85.75**	**5.12**	**41.318**	**5.22**	**22.86**	**3.00**	**2.89**	**0.39**	**5.89**	**0.92**	**63.05**	**4.54**

[1] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[2] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

[3]Hourly emissions represent worst-case emissions TO-1 downtime. The Amine Flash gas is controlled by and represented at FL-2.

[4]Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

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
ENG-1	Natural Gas	Residue Gas	1067.28 Btu/scf	4839.75 scf/hr	42.40 MMscf/yr	2 gr S/100 scf	0
ENG-2	Natural Gas	Residue Gas	1067.28 Btu/scf	4839.75 scf/hr	42.40 MMscf/yr	2 gr S/100 scf	0
ENG-3	Natural Gas	Residue Gas	1067.28 Btu/scf	38036.37 scf/hr	333.20 MMscf/yr	2 gr S/100 scf	0
ENG-4	Natural Gas	Residue Gas	1067.28 Btu/scf	38036.37 scf/hr	333.20 MMscf/yr	2 gr S/100 scf	0
ENG-5	Natural Gas	Residue Gas	1067.28 Btu/scf	38036.37 scf/hr	333.20 MMscf/yr	2 gr S/100 scf	0
ENG-6	Natural Gas	Residue Gas	1067.28 Btu/scf	38036.37 scf/hr	333.20 MMscf/yr	2 gr S/100 scf	0
GEN-1A	Propane	Purchased Commercial	2516 Btu/scf	776.20 scf/hr	6.80 MMscf/yr	2 gr S/100 scf	0
GEN-1B	Propane	Purchased Commercial	2516 Btu/scf	776.20 scf/hr	6.80 MMscf/yr	2 gr S/100 scf	0
GEN-2	Natural Gas	Residue Gas	1067.28 Btu/scf	1974.46 scf/hr	16.21 MMscf/yr	2 gr S/100 scf	0
HT-1	Natural Gas	Residue Gas	1067.28 Btu/scf	2342.40 scf/hr	20.52 MMscf/yr	2 gr S/100 scf	0
HT-2	Natural Gas	Residue Gas	1067.28 Btu/scf	53875.22 scf/hr	471.95 MMscf/yr	2 gr S/100 scf	0
HT-3	Natural Gas	Residue Gas	1067.28 Btu/scf	2810.88 scf/hr	24.62 MMscf/yr	2 gr S/100 scf	0
HT-4	Natural Gas	Residue Gas	1067.28 Btu/scf	14260.54 scf/hr	124.92 MMscf/yr	2 gr S/100 scf	0
HT-5	Natural Gas	Residue Gas	1067.28 Btu/scf	10091.06 scf/hr	88.40 MMscf/yr	2 gr S/100 scf	0
FL-1	Natural Gas	Residue Gas	1067.28 Btu/scf	55 scf/hr	0.48 MMscf/yr	2 gr S/100 scf	0
FL-2	Natural Gas	Residue Gas	1067.28 Btu/scf	910 scf/hr	7.97 MMscf/yr	2 gr S/100 scf	0
FL-3	Natural Gas	Residue Gas	1067.28 Btu/scf	305 scf/hr	2.67 MMscf/yr	2 gr S/100 scf	0
ECD-1	Natural Gas	Residue Gas	1067.28 Btu/scf	12 scf/hr	0.11 MMscf/yr	2 gr S/100 scf	0
ECD-2	Natural Gas	Residue Gas	1067.28 Btu/scf	15 scf/hr	0.13 MMscf/yr	2 gr S/100 scf	0
TO-1	Natural Gas	Residue Gas	1067.28 Btu/scf	16607.68 scf/hr	145.48 MMscf/yr	2 gr S/100 scf	0

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)
TK-1	4-04-003-11	Condensate	Condensate	5.68	56.51	75.80	12.90	95.00	12.97
TK-2	4-04-003-11	Condensate	Condensate	5.68	56.51	75.80	12.90	95.00	12.97
TK-3	4-04-003-11	Stabilized Condensate	Stabilized Condensate	5.74	65.84	75.80	5.09	95.00	8.72
TK-4	4-04-003-11	Stabilized Condensate	Stabilized Condensate	5.74	65.84	75.80	5.09	95.00	8.72
TK-5	4-04-003-11	Stabilized Condensate	Stabilized Condensate	5.74	65.84	75.80	5.09	95.00	8.72
TK-6	4-04-003-11	Stabilized Condensate	Stabilized Condensate	5.74	65.84	75.80	5.09	95.00	8.72
TK-7	4-04-003-11	Stabilized Condensate	Stabilized Condensate	5.74	65.84	75.80	5.09	95.00	8.72
TK-8	4-04-003-11	Stabilized Condensate	Stabilized Condensate	5.74	65.84	75.80	5.09	95.00	8.72
PWTK-1	4-04-003-15	Produced Water	Produced Water	8.30	20.64	75.80	0.36	95.00	0.87

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			
TK-1	Apr-25	Condensate	N/A	FX	500	79	4.72	2.49	Dark Green	Dark Green	Average	76,650	3.65
TK-2	Apr-25	Condensate	N/A	FX	500	79	4.72	2.49	Dark Green	Dark Green	Average	76,650	3.65
TK-3	TBD	Stabilized Condensate	N/A	FX	1,000	159	4.72	4.62	Dark Green	Dark Green	Average	38,311,904	912.19
TK-4	TBD	Stabilized Condensate	N/A	FX	1,000	159	4.72	4.62	Dark Green	Dark Green	Average	38,311,904	912.19
TK-5	TBD	Stabilized Condensate	N/A	FX	1,000	159	4.72	4.62	Dark Green	Dark Green	Average	38,311,904	912.19
TK-6	TBD	Stabilized Condensate	N/A	FX	1,000	159	4.72	4.62	Dark Green	Dark Green	Average	38,311,904	912.19
TK-7	TBD	Stabilized Condensate	N/A	FX	1,000	159	4.72	4.62	Dark Green	Dark Green	Average	38,311,904	912.19
TK-8	TBD	Stabilized Condensate	N/A	FX	1,000	159	4.72	4.62	Dark Green	Dark Green	Average	38,311,904	912.19
PWTK-1	Apr-25	Produced Water	N/A	FX	500	79	4.72	2.49	Dark Green	Dark Green	Average	1,533,412	73.02

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 - This facility does not have any CEM Equipment									

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)**
Natural Gas	Mixed Hydrocarbons	Gas	275 MMSCFD	Natural Gas	Mixed Hydrocarbons	Gas	275 MMSCFD
				Condensate	Mixed Hydrocarbons	Liquid	2504.15 bbl/d
				Slop Water	Mixed Hydrocarbons	Liquid	100.03 bbl/d
				NGLs	Mixed Hydrocarbons	Liquid	29394.31 bbl/d

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 - This faciltiy does not have any parametric emissions measuring equipment								

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**	**265**	**28**	**22,800**	**footnote 3**										
ENG-1	**mass GHG**	2,646.53	4.99E-03	0.050											2,646.59	
	CO_2e	2,646.53	1.32	1.40												2,649.25
ENG-2	**mass GHG**	2,646.53	4.99E-03	0.050											2,646.59	
	CO_2e	2,646.53	1.32	1.40												2,649.25
ENG-3	**mass GHG**	20,799.53	0.039	0.39											20,799.96	
	CO_2e	20,799.53	10.39	10.98												20,820.89
ENG-4	**mass GHG**	20,799.53	0.039	0.39											20,799.96	
	CO_2e	20,799.53	10.39	10.98												20,820.89
ENG-5	**mass GHG**	20,799.53	0.039	0.39											20,799.96	
	CO_2e	20,799.53	10.39	10.98												20,820.89
ENG-6	**mass GHG**	20,799.53	0.039	0.39											20,799.96	
	CO_2e	20,799.53	10.39	10.98												20,820.89
GEN-1A / GEN-1B[6]	**mass GHG**	1,185.59	0.011	0.057											1,185.66	-
	CO_2e	1,185.59	3.00	1.58											-	1,190.17
GEN-2	**mass GHG**	1,011.63	1.91E-03	0.019											1,011.65	
	CO_2e	1,011.63	0.51	0.53												1,012.67
HT-1	**mass GHG**	1,280.90	2.41E-03	0.024											1,280.93	
	CO_2e	1,280.90	0.64	0.68												1,282.22
HT-2	**mass GHG**	29,460.73	0.056	0.56											29,461.34	
	CO_2e	29,460.73	14.71	15.55												29,490.99
HT-3	**mass GHG**	1,537.08	2.90E-03	0.029											1,537.11	
	CO_2e	1,537.08	0.77	0.81												1,538.66

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**	**265**	**28**	**22,800**	**footnote 3**											
HT-4	**mass GHG**	7,798.13	0.015	0.15												7,798.29	
	CO_2e	7,798.13	3.89	4.12													7,806.14
HT-5	**mass GHG**	5,518.12	0.010	0.10												5,518.24	
	CO_2e	5,518.12	2.76	2.91													5,523.79
AM-12	**mass GHG**	5,813.79	-	5.12												5,818.90	
	CO_2e	5,813.79	-	143.22													5,957.01
DEHY-1	**mass GHG**	-	-	-												-	
	CO_2e	-	-	-													-
FL-1	**mass GHG**	6,692.46	0.012	10.68												6,703.15	
	CO_2e	6,692.46	3.08	298.91													6,994.46
FL-2	**mass GHG**	5,297.48	9.10E-03	21.94												5,319.43	
	CO_2e	5,297.48	2.41	614.29													5,914.19
FL-3 / ECD-1[7]	**mass GHG**	2,143.23	3.86E-03	6.87												2,150.11	-
	CO_2e	2,143.23	1.02	192.40												-	2,174.96
ECD-2	**mass GHG**	232.29	4.38E-04	0.13												232.42	
	CO_2e	232.29	0.12	3.73													236.13
TO-1	**mass GHG**	126,523.84	0.019	28.26												126,552.12	
	CO_2e	126,523.84	5.12	791.15													127,320.11
TK-1	**mass GHG**	-	-	-												-	
	CO_2e	-	-	-													-
TK-2	**mass GHG**	-	-	-												-	
	CO_2e	-	-	-													-
TK-3	**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**	**265**	**28**	**22,800**	**footnote 3**										
TK-4	**mass GHG**	-	-	-											-	
	CO_2e	-	-	-												-
TK-5	**mass GHG**	-	-	-											-	
	CO_2e	-	-	-												-
TK-6	**mass GHG**	-	-	-											-	
	CO_2e	-	-	-												-
TK-7	**mass GHG**	-	-	-											-	
	CO_2e	-	-	-												-
TK-8	**mass GHG**	-	-	-											-	
	CO_2e	-	-	-												-
PWTK-1	**mass GHG**	-	-	-											-	
	CO_2e	-	-	-												-
TL-1	**mass GHG**	1.06E-06	-	1.20E-06											2.26E-06	
	CO_2e	1.06E-06	-	3.35E-05												3.46E-05
TL-3	**mass GHG**	3.48E-08	-	3.48E-13											3.48E-08	
	CO_2e	3.48E-08	-	9.74E-12												3.48E-08
FUG	**mass GHG**	5.99	-	125.04											131.04	
	CO_2e	5.99	-	3,501.23												3,507.23
SITE-SSM	**mass GHG**	2.24	-	30.65											32.89	
	CO_2e	2.24	-	858.20												860.44
Total	**mass GHG**	282,994.69	0.31	231.29											283,226.28	
	CO_2e	282,994.69	82.22	6,476.02												289,391.24

[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.

[6] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[7] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

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.

Trace Delaware Gathering, LLC (Trace) is submitting this initial NSR application pursuant to 20.2.72.200.A(2) NMAC for the Apollo Gas Plant (previously Apollo Liquid Handling Facility). The Apollo Gas Plant is currently authorized under GCP O&G permit No. 10335M1. The Apollo Gas Plant is located approximately 2.2 miles west of Loving in Eddy County, NM.

With this application, Trace proposes to make the following changes:

- Updating the facility name from Apollo Liquid Handling Facility to Apollo Gas Plant.
- The following new units will be installed:
  - Four (4) 5500 hp natural gas fired Caterpillar G3616 compressor engines (ENG-3 through ENG-6)
  - Six (6) 1000 bbl stabilized condensate tanks (TK-3 through TK-8)
  - One (1) 57.5 MMBtu/hr hot oil heater (HT-2)
  - One (1) 3 MMBtu/hr glycol reboiler (HT-3)
  - One (1) 15.22 MMBtu/hr regen heater (HT-4)
  - One (1) 10.77 MMBtu/hr stabilizer hot oil heater (HT-5)
  - One (1) 275 MMSCFD amine treating unit (AM-1)
  - One (1) 275 MMSCFD glycol dehydrator (DEHY-1)
  - One (1) 275 MMSCFD RSV cryogenic unit (CRYO-1)
  - One (1) 20 MMSCFD flare (FL-1)
  - One (1) 275 MMSCFD flare (FL-2)
  - One (1) 1.214 MMSCFD tank/loading flare (FL-3)
  - One (1) 10 MSCFD BTEX Combustor (ECD-2)
  - Four (4) residue compressors associated with the new engines (C-3 through C-6)
  - Two (2) electric overhead compressors (EC-1, EC-2)
  - Stabilized condensate loading (TL-3)
- The following new units will be installed, however, are exempt from permitting:
  - One (1) 210 bbl slop tank (TK-SLOP, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - One (1) 100 bbl residue compressor lube oil makeup tank (TK-LUBE, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - Two (2) 500 gal methanol storage tanks (TK-METHANOL-1 & TK-METHANOL-2, exempt pursuant to 20.2.72.202.B(5) NMAC)
  - One (1) 100 bbl residue compressor coolant makeup tank (TK-COOLANT, exempt pursuant to 20.2.72.202.B(2) NMAC)

  - One (1) 100 bbl residue compressor waste oil tank (TK-WASTE, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - One (1) 100 bbl lean amine make up tank (TK-AMINE, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - One (1) 210 bbl reverse osmosis (RO) water storage tank (TK-RO, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - Four (4) 1,000 gal propane tanks (TK-PROPANE-1 through TK-PROPANE-4, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - Seven (7) 400 gal sump tanks (TK-SUMP-1 through TK-SUMP-7, exempt pursuant to 20.2.72.202.B(2) NMAC)
  - One (1) 30 kW emergency generator (GEN-3, exempt pursuant to 20.2.72.202.B(3) NMAC)
- The following units will be modified:
  - One (1) 500 bbl produced water storage tank (PWTK-1)
  - Produced water truck loading (TL-2)
  - Haul road emissions (ROAD)
- The following unit will be replaced:
  - One (1) diesel fired generator (GEN-2) will be replaced with one (1) natural gas fired generator (GEN-2)

In addition to the changes detailed above, Trace is seeking to update the emission unit IDs for selected units at the facility. A cross-reference table selected units is included below:

Previous Unit	New Unit Number	Unit Description
OILLOAD	TL-1	Condensate Loading
PWLOAD	TL-2	Produced Water Loading
SSM	SITE-SSM	Site-wide Startup, Shutdown, and Maintenance

Currently, emissions from the existing condensate tanks (TK-1, TK-2), condensate loading (TL-1), produced water loading (TL-2), and stabilized condensate loading (TL-3) are routed to the tank/loading combustor (ECD-1). Once the Apollo Gas Plant is constructed and operational, tank emissions will be routed to and controlled by the tank/loading flare (FL-3). Hourly emissions will be conservatively represented at both ECD-1 and FL-3 with the annual emissions being represented by the maximum total between ECD-1 and FL-3.

Process Summary:
The Apollo Gas Plant will separate natural gas liquids (NGLs) from inlet gas. Inlet gas enters the facility and is directed to a 350 MMSCFD slug catcher to separate free liquids from the inlet natural gas. The facility will be designed to process only 275 MMSCFD of natural gas. The gas that enters the slug catcher can divert up to 350 MMSCFD to third party processors or process 275 MMSCFD at the Apollo Gas Plant. Downstream of the slug catcher, the inlet gas is routed either to the amine treater, dehydration and cryogenic processing equipment or to third party processors. The gas that enters the amine treater, dehydration and cryogenic processing equipment undergoes NGL separation where the NGL's are directed to an NGL pipeline or pipelines and the residue gas is directed to a residue gas pipeline or pipelines. Liquids from the slug catcher are heated (HT-1) before being separated by a three-phase separator and are then routed to the condensate stabilizer.

During plant downtime or potential outages, inlet gas can continue to flow and be routed through the inlet slug catcher and bypass the Apollo Gas Plant amine treater, dehydration and cryogenic processing equipment for delivery to third party processors as noted above. This mode of operation is how the facility is designed and is currently operating at the Apollo Liquids Handling Facility prior to construction of the Apollo Gas Plant. This minimizes the need for producers upstream to flare gas by routing to an alternate processing plant rather than flaring gas at the upstream production tank batteries.

SSM Overview:

The primary startup, shutdown, and maintenance activities at the Apollo Gas Plant are due to blowdowns, pigging, and tank degassing. Blowdowns will occur as a result of maintenance to the residue compressors, flash gas compressors, overhead compressors, glycol dehydrator, amine treating unit, pipeline, and inlet slug catcher if necessary. There are two (2) inlet pig receivers, two (2) residue pig launchers, and one (2) NGL pig launchers. Only pigging from NGLs will be controlled by FL-2, residue and inlet pigging will be vented to atmosphere.

Tank degassing will occur at the condensate, produced water, and stabilized condensate tanks. Emissions from this activity will be routed to and controlled by FL-3.

Residue, flash gas, and overhead compressors are controlled by routing to and equalizing blowdowns to suction. Blowdowns from the dehydrator, triethylene glycol (TEG) flash tank, filter coalescer, amine contactor, and amine flash tank are routed to and controlled by FL-2.

Pipeline and inlet slug catcher blowdowns are vented directly to the atmosphere. Blowdowns from the amine still vent are normally routed to the thermal oxidizer (TO-1) for control. However, during TO-1 downtime (conservatively assumed to be up to 5% of annual operating hours), the amine still vent is routed to the atmosphere. To account for this scenario, amine still vent blowdown emissions are represented at both TO-1 and AM-1, reflecting the potential for a blowdown event to occur during the assumed annual TO-1 downtime.

Emissions from SSM activities are conservatively estimated and during any given time period, is not expected to emit the full stream of emissions.

Section 4

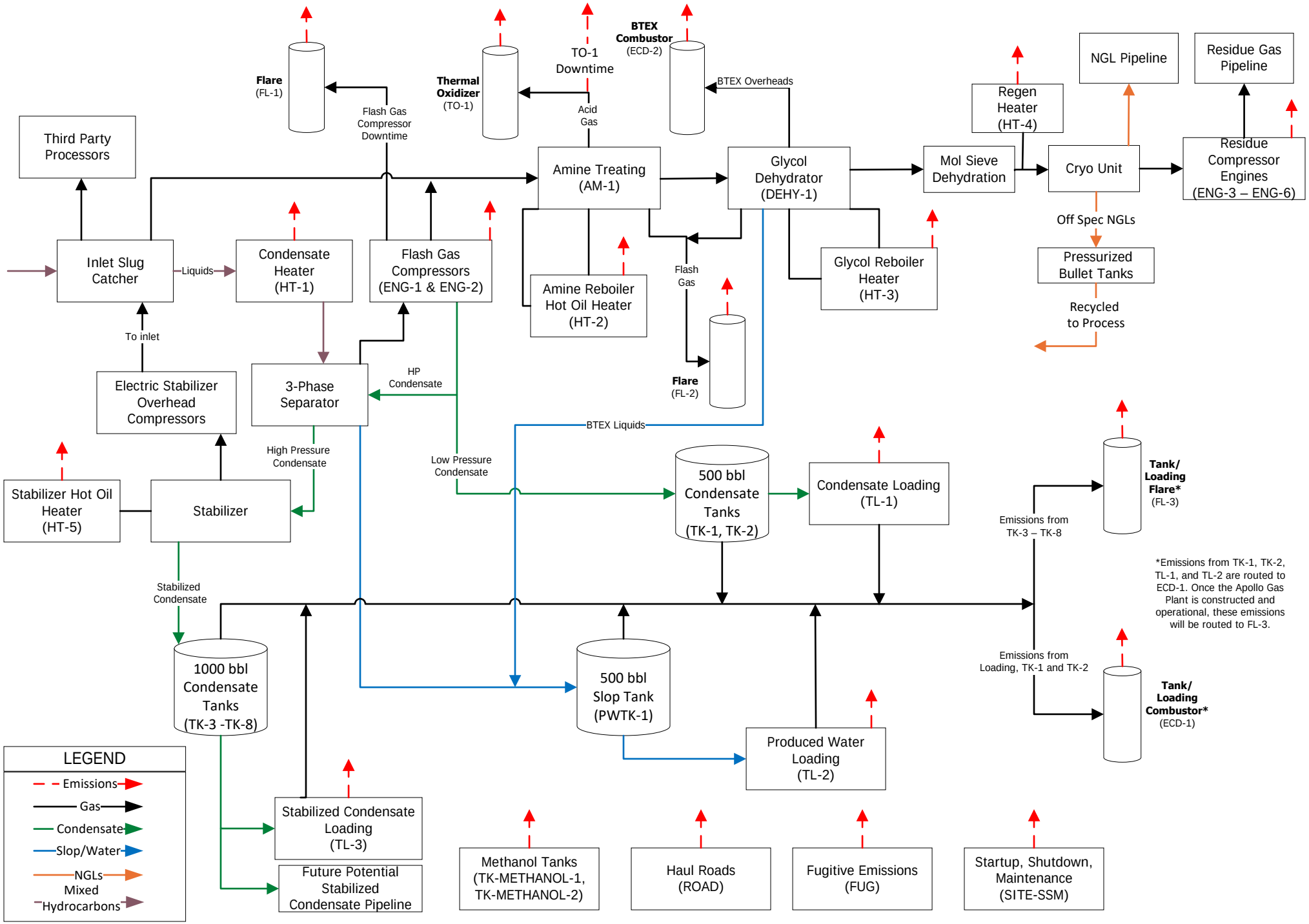
Process Flow Sheet

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 has been attached to this section.

APOLLO GAS PLANT

Trace Delaware Gathering, LLC



Section 5

Plot Plan Drawn to Scale

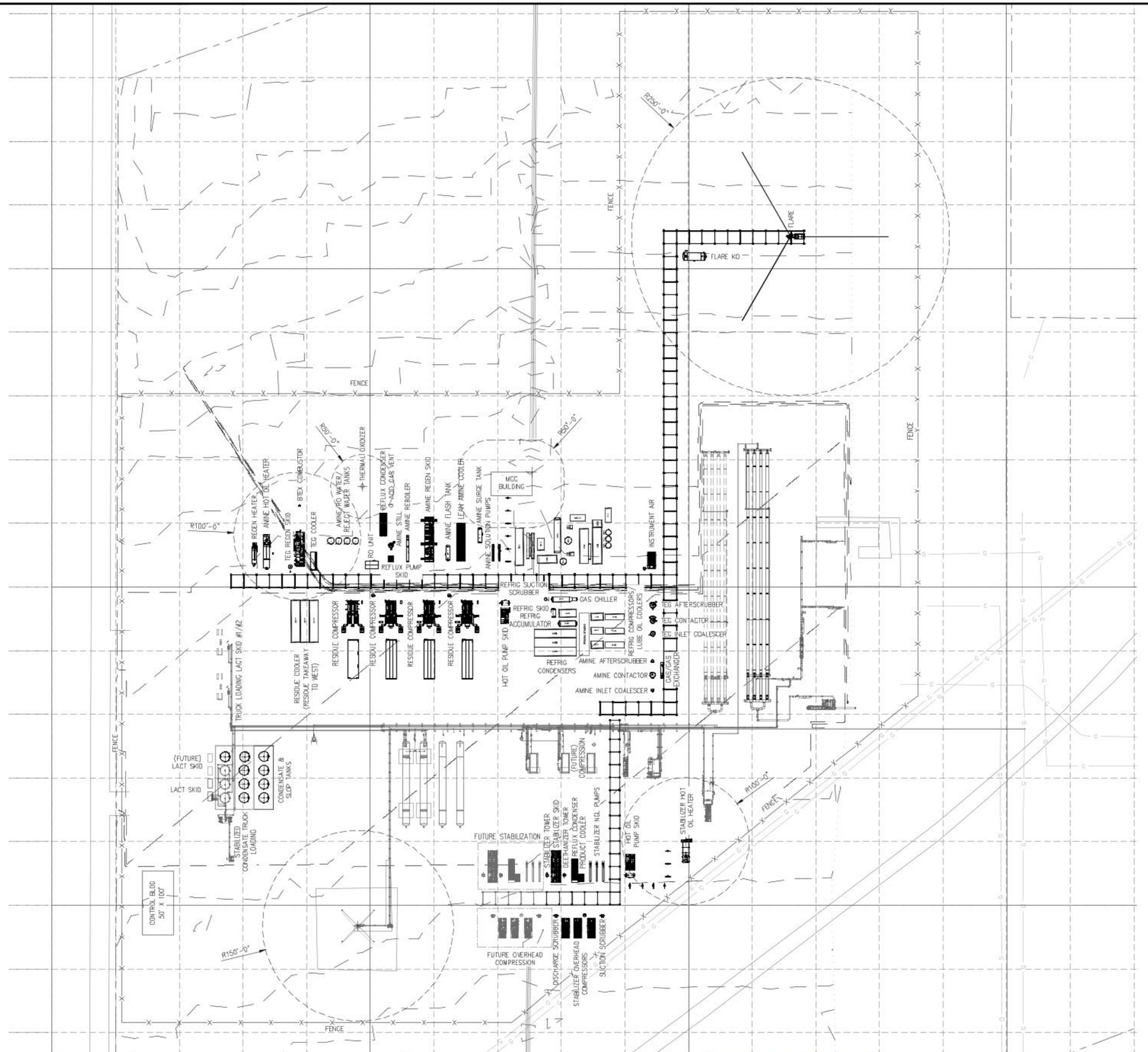
A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent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

A plot plan has been attached to this section.

THIS DRAWING AND THE DESIGN IT COVERS ARE CONFIDENTIAL AND REMAIN THE PROPERTY OF KAHUNA DESIGN, LLC AND SHALL NOT BE DISCLOSED TO OTHERS OR REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WHATSOEVER EXCEPT BY WRITTEN PERMISSION BY THE OWNER.

N

PLANT NORTH



NOTES:

REFERENCE DRAWINGS	
DWG. NO.	TITLE

REVISIONS					
NO.	DESCRIPTION	BY	DATE	APPR.	DATE
D	ISSUED FOR INFORMATION	JOG	07/08/26	RB	07/08/26
C	ISSUED FOR INFORMATION	JAL	06/25/26	RB	06/25/26
B	ISSUED FOR INFORMATION	ALM	06/10/26	RB	06/10/26
A	ISSUED FOR INFORMATION	MSP	4/16/26		

TRACE MIDSTREAM

Na` YY` %Nd%YN^e

KAHUNA
11400 Westmoor Cir. Ste. 325
Westminster, CO 80021
303.451.7374

NTACT PROCESSORS & ENGINEERING

SITE PLAN

COUNTY: EDDY	DRAWN BY: M.PHILLIPS	APPROVED:
STATE: NEW MEXICO	CREATION DATE: 4/15/26	APPR. DATE:
Proj. No. PROPOSAL	DWG. No.: 2D APOLLO CRYO	SHEET No. 1 OF 1
SCALE: NONE		D

FILE LOCATION: X:\NTACT\APOLLO GAS PLANT\02_SITE PLAN & GA'S\2D APOLLO CRYO.DWG LAST SAVED: 07/09/26 BY: Jose Gonzalez PLOT TIME/DATE: July 9, 2026

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.

Engines (ENG-1 through ENG-6)
NOx, CO, VOC, and HCHO were calculated using emission factors provided by the manufacturer and catalyst specifications. PM_{10}, $PM_{2.5}$, and HAP emissions were calculated using AP-42 2 Chapter 3.2, Natural Gas-fired Reciprocating Engines, Table 3.2-2 for four stroke lean-burn engines. It was assumed that PM(Total) = PM (filterable) + PM (condensable). SO_2 emissions are based on a fuel sulfur content of 2 gr S/100 scf. The fuel heating value and H_2S emissions are based on the site-specific residue gas calculated by BR&E ProMax.

Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Generators (GEN-1A, GEN-1B, GEN-2)
GEN-1A and GEN-1B are propane generators. NOx, CO, and VOC were calculated using emission factors provided by the manufacturer and catalyst specifications. PM_{10}, $PM_{2.5}$, SO_2 and HAP emissions were calculated using AP-42 Chapter 3.3, Natural Gas-fired Reciprocating Engines, Table 3.2-3 for four stroke rich-burn engines. It was assumed that PM(Total) = PM (filterable) + PM (condensable). The propane fuel heating value is referenced from 40 CFR Part 98, Table C-1. GEN-1A and GEN-1B are a primary and a backup generator. Only one generator will be operated at any given time.

GEN-2 is a natural gas fired generator. NOx, CO, and VOC were calculated using emission factors from the EPA Certification. PM_{10}, $PM_{2.5}$, and HAP emissions were calculated using AP-42 Chapter 3.3, Natural Gas-fired Reciprocating Engines, Table 3.2-3 for four stroke rich-burn engines SO_2 emissions are based on a fuel sulfur content of 2 gr S/100 scf. The fuel heating value and H_2S emissions are based on the site-specific residue gas calculated by BR&E ProMax.

Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Heaters (HT-1 through HT-5)
For HT-1 and HT-3, NO_X, CO, VOC, PM, and HAP emissions were calculated using AP-42 Chapter 1.4, Natural Gas Combustion, Tables 1.4-1. 1.4-2, and 1.4-3. It was assumed that PM(Total) = PM (filterable) + PM (condensable). SO_2 emissions are based on a fuel sulfur content of 2 gr S/100 scf. The fuel heating value and H2S emissions are based on the site-specific residue gas calculated by BR&E ProMax.

For HT-2, HT-4 and HT-5, NO_X, CO, VOC, PM emissions were calculated using manufacturer guarantees. The HAP emissions were calculated using AP-42 Chapter 1.4, Natural Gas Combustion, Table 1.4-3. It was assumed that PM(Total) = PM (filterable) + PM (condensable). SO_2 emissions are based on a fuel sulfur content of 2 gr S/100 scf. The fuel heating value and H2S emissions are based on the site-specific residue gas calculated by BR&E ProMax.

Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Amine Unit (AM-1)
All emissions from the amine treating unit were calculated using BR&E ProMax. The flash tank emissions are sent to the flare (FL-2) with 100% capture efficiency and 98% DRE. Acid gas emissions from the still vent are routed to the thermal oxidizer (TO-1) with 100% capture efficiency and 99% DRE. During TO-1 downtime, emissions are routed to atmosphere at the still vent (AM-1).

Controlled flash tank emissions are represented at FL-2. Controlled still vent emissions are represented at TO-1, conservatively represented as 8760 hr/yr, and AM-1 to represent 5% annual TO-1 downtime.

Dehydrator (DEHY-1)
All emissions from the dehydration unit were calculated using BR&E ProMax. Flash tank emissions are sent to the flare (FL-2) with 100% capture efficiency and 98% DRE. Non-condensable BTEX emissions from the regenerator are routed to the BTEX combustor (ECD-2) with 100% capture efficiency and 98% DRE. Controlled emissions are represented at FL-2 and ECD-2, respectively.

Tanks (TK-1 through TK-8, PWTK-1)
Emissions from the condensate and produced water tanks were calculated using BR&E ProMax.

For TK-1, TK-2 and PWTK-1, working, breathing, and flash emissions are currently routed to the tank/loading combustor (ECD-1) with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by the tank/loading flare (FL-3) with a 100% capture efficiency and 98% DRE. Controlled hourly emissions are conservatively represented at both ECD-1 and FL-3. Controlled annual emissions are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

For TK-3 through TK-8, working, breathing, and flash emissions will be routed to and controlled by the tank/loading flare (FL-3) with a 100% capture efficiency and 98% DRE. Controlled emissions are represented at FL-3.

Loading (TL-1, TL-2, TL-3)
Condensate and produced water is transferred out of the facility via truck loading. Emissions from the loading of condensate and produced water out of the facility by truck were estimated using BR&E ProMax. Calculations assume one 190-bbl truck will be loaded in one hour, and the total throughput will be loaded annually.

Loading emissions for TL-1 and TL-2 are routed to the tank combustor (ECD-1) with 98.7% capture efficiency per AP-42 Chapter 5.2.2.1.1 and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, these loading emissions will be routed to and controlled by the tank/loading flare (FL-3) with a 98.7% capture efficiency and 98% DRE. Controlled annual emissions are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility. TL-2 is exempt pursuant to 20.2.72.202.B(5) NMAC.

Loading emissions for TL-3 will be routed to the tank/loading flare (FL-3) with a 98.7% capture efficiency and 98% DRE.

Haul Road (exempt pursuant to 20.2.72.202.B(5) NMAC)
Unpaved haul road emissions were estimated based on Equations 1a and 2 of AP-42 Section 13.2.2 (11/06). Particle size multipliers and constants for these equations are found in AP-42 Table 13.2.2-2, Industrial Roads. Silt content is taken from AP-42 Table 13.2.2-1 and annual wet days is from AP-42 Figure 13.2.2-1. Parameters are based on the defaults provided by NMED guidance document entitled Department Accepted Values For: Aggregate Handling, Storage Pile, and Haul Road Emissions. The length of the haul road is estimated using Google Earth.

Flares (FL-1, FL-2, FL-3)
The plant flares are used for flaring during normal operations as well as startup, shutdown, and maintenance conditions. FL-1 controls flash gas compressor downtime. FL-2 controls AM-1 and DEHY-1 flash gas along with SSM activities. FL-3 controls the facility tanks and loading as well as Tank SSM activities.

All flares assume a 98% destruction removal efficiency (DRE) for VOC, H_2S, and HAPs. The basis of the flaring calculations is the composition and maximum expected volumes of the gas for each representative stream estimated using BR&E ProMax. NOx and CO emissions were calculated using Table A-6 TCEQ Air Permits Flare Emission Factors. SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2. The pilot/purge gas emissions are based on hourly flow rates from manufacturer specifications and the site-specific residue gas calculated by BR&E ProMax.

Flare maximum hourly emissions were conservatively calculated as the summation of emissions from normal operations and startup, shutdown, and maintenance (SSM) operations.

Emissions of greenhouse gases are calculated using methodology from 40 CFR Subpart 98.233(n).

Combustors (ECD-1, ECD-2)
ECD-1 controls the existing tanks (TK-1, TK-2, PWTK-1) and loading (TL-1, TL-2). ECD-2 controls DEHY-1 BTEX Overheads. All combustors assume a 98% DRE for VOC, H_2S, and HAPs. The basis of calculations is the composition and maximum expected volumes of the gas for each representative stream estimated using BR&E ProMax.

NOx, CO and PM emissions were calculated using AP-42 Chapter 1.4 Emission Factors. SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2. The pilot gas emissions are based on hourly flow rates from manufacturer specifications and the site-specific residue gas calculated by BR&E ProMax.

Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Thermal Oxidizer (TO-1)
The thermal oxidizer controls acid gas from the amine still vent (AM-1) with a 99% DRE for VOC, H_2S, and HAPs. The basis of calculations is the composition and maximum expected volumes of the gas for each representative stream estimated using BR&E ProMax. NOx, CO and PM emissions were calculated using AP-42 Chapter 1.4 Emission Factors. SO_2 emissions are based on the combustion of H_2S in the process streams with a 99% DRE. It is assumed 100% of the combusted H_2S convert to SO_2.

The fuel gas flow rate is calculated based on the volume needed for the 20 MMBtu/hr burner duty based on manufacturer specifications. Fuel gas composition is site-specific residue gas calculated by BR&E ProMax.

Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Fugitives (FUG)
Fugitive emissions were estimated using emission factors from Table 2-4 of EPA Protocol for Equipment Leak Emission Estimates, November 1995, EPA-453/R-95-017. The percent VOC, H_2S, and HAPs are from the inlet gas analysis dated 6/1/2026. The weight percents of VOC, H_2S, and HAPs for light oil and water/oil fugitives were calculated using BR&E ProMax; light oil was referenced from the loadout from the condensate tank, and water/oil was referenced from the loadout from the produced water tanks. Component counts were estimated as previously permitted or are based on estimated design of the new units.

Startup, Shutdown, and Maintenance (SSM)
Compressor and process vessel blowdowns will occur during routine maintenance events at the plant. Emissions are based on the volume, temperature, and pressure of the gas released during these events, all of which are conservative estimates. Emissions from blowdown events are routed to the flares or vented to the atmosphere.

Tank degassing events at the condensate, produced water, and stabilized condensate tanks will be routed to and controlled by FL-3.

Residue, full pressure, flash gas, and overhead compressors are controlled by routing to and equalizing to suction. Blowdowns from the dehydrator, triethylene glycol (TEG) flash tank, filter coalescer, amine contactor, and amine flash tank are routed to and controlled by FL-2. Pipeline and inlet slug catcher blowdowns are vented to atmosphere.

NGL pigging will be controlled by FL-2 and residue and inlet pigging will be vented to atmosphere.

Blowdowns from the amine still vent will be controlled by the thermal oxidizer (TO-1). However, during TO-1 downtime (up to 5% annually), the amine still vent is vented to the atmosphere. Controlled still vent blowdowns are represented at both TO-1, and AM-1 to account for the blowdown event occurring during 5% annual TO-1 downtime.

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)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emissions Summary

Uncontrolled Emissions																
Unit	NO_X		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		H_2S		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	0.69	3.04	4.42	19.35	2.29	10.01	0.028	0.12	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	0.50	2.18
ENG-2	0.69	3.04	4.42	19.35	2.29	10.01	0.028	0.12	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	0.50	2.18
ENG-3	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
ENG-4	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
ENG-5	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
ENG-6	3.64	15.93	27.04	118.43	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
GEN-1A[1]	6.79	29.76	7.09	31.05	0.53	2.30	2.83E-03	0.012	0.094	0.41	0.094	0.41	-	-	0.16	0.68
GEN-1B[1]	6.79		7.09		0.53		2.83E-03		0.094		0.094		-		0.16	
GEN-2	0.59	2.59	1.18	5.18	0.41	1.81	0.011	0.046	0.040	0.18	0.040	0.18	8.61E-08	3.77E-07	0.067	0.29
HT-1	0.25	1.07	0.21	0.90	0.013	0.059	0.013	0.059	0.019	0.082	0.019	0.082	4.36E-08	1.91E-07	4.63E-03	0.020
HT-2	2.31	10.10	2.34	10.25	1.10	4.84	0.31	1.35	0.76	3.32	0.76	3.32	1.00E-06	4.39E-06	0.11	0.47
HT-3	0.29	1.29	0.25	1.08	0.016	0.071	0.016	0.070	0.022	0.098	0.022	0.098	5.23E-08	2.29E-07	5.55E-03	0.024
HT-4	0.46	2.00	0.61	2.67	0.29	1.27	0.082	0.36	0.20	0.87	0.20	0.87	2.65E-07	1.16E-06	0.028	0.12
HT-5	0.43	1.89	0.44	1.92	0.21	0.91	0.058	0.25	0.14	0.62	0.14	0.62	1.88E-07	8.23E-07	0.020	0.087
AM-1	-	-	-	-	77.94	341.37	-	-	-	-	-	-	4.16	18.20	18.77	82.21
DEHY-1	-	-	-	-	36.39	159.38	-	-	-	-	-	-	2.19E-05	9.58E-05	8.10	35.49
FL-1	8.10E-03	0.035	0.016	0.071	5.00E-05	2.19E-04	9.06E-08	3.97E-07	-	-	-	-	9.82E-10	4.30E-09	9.16E-17	4.01E-16
FL-2	0.13	0.20	0.27	0.39	8.27E-04	1.21E-03	1.50E-06	2.20E-06	-	-	-	-	1.62E-08	2.39E-08	1.52E-15	2.23E-15
FL-3[2]	0.045	0.20	0.090	0.39	2.77E-04	1.21E-03	5.02E-07	2.20E-06	-	-	-	-	5.45E-09	2.48E-08	5.08E-16	9.38E-10
ECD-1[2]	1.26E-03		1.05E-03		1.09E-05		1.98E-08		9.54E-05	4.18E-04	9.54E-05	4.18E-04	2.14E-10		6.17E-06	
ECD-2	1.57E-03	6.87E-03	1.32E-03	5.77E-03	1.36E-05	5.97E-05	2.47E-08	1.08E-07	1.19E-04	5.22E-04	1.19E-04	5.22E-04	2.68E-10	1.17E-09	2.47E-15	1.09E-16
TO-1	1.74	8.59	1.46	7.21	7.54E-03	0.033	2.76E-05	1.21E-04	0.13	0.58	0.13	0.58	1.48E-07	6.49E-07	1.38E-14	6.06E-14
TK-1	-	-	-	-	63.17	276.70	-	-	-	-	-	-	1.54E-04	6.76E-04	4.56	19.99
TK-2	-	-	-	-	63.17	276.70	-	-	-	-	-	-	1.54E-04	6.76E-04	4.56	19.99
TK-3	-	-	-	-	2.59	11.34	-	-	-	-	-	-	9.74E-07	4.27E-06	0.24	1.06
TK-4	-	-	-	-	2.59	11.34	-	-	-	-	-	-	9.74E-07	4.27E-06	0.24	1.06
TK-5	-	-	-	-	2.59	11.34	-	-	-	-	-	-	9.74E-07	4.27E-06	0.24	1.06
TK-6	-	-	-	-	2.59	11.34	-	-	-	-	-	-	9.74E-07	4.27E-06	0.24	1.06
TK-7	-	-	-	-	2.59	11.34	-	-	-	-	-	-	9.74E-07	4.27E-06	0.24	1.06
TK-8	-	-	-	-	2.59	11.34	-	-	-	-	-	-	9.74E-07	4.27E-06	0.24	1.06
PWTK-1	-	-	-	-	0.32	1.40	-	-	-	-	-	-	3.17E-05	1.39E-04	0.11	0.46
TL-1	-	-	-	-	36.80	0.18	-	-	-	-	-	-	4.35E-05	2.09E-07	2.18	0.010
TL-3	-	-	-	-	37.69	90.48	-	-	-	-	-	-	1.42E-05	3.40E-05	3.54	8.50
FUG	-	-	-	-	13.70	59.99	-	-	-	-	-	-	2.14E-04	9.37E-04	2.06	9.04
SITE-SSM	-	-	-	-	17,045.28	27.89	-	-	-	-	-	-	0.22	4.17E-04	1,043.09	1.68
Total	35.78	127.54	138.03	573.55	17,411.70	1,394.88	1.42	6.20	3.30	14.06	3.30	14.06	4.37	18.20	1,098.14	225.54

Notes

* Indicates an hourly emission limit is not appropriate for this unit.

"-" Indicates emissions of this pollutant are not expected.

[1] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[2] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emissions Summary

Unit	Controlled Emissions															
	NO_X		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		H_2S		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	0.69	3.04	2.65	11.62	0.98	4.27	0.028	0.12	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	0.30	1.31
ENG-2	0.69	3.04	2.65	11.62	0.98	4.27	0.028	0.12	0.054	0.24	0.054	0.24	2.25E-07	9.86E-07	0.30	1.31
ENG-3	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
ENG-4	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
ENG-5	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
ENG-6	3.64	15.93	7.28	31.87	3.51	15.36	0.22	0.95	0.42	1.86	0.42	1.86	1.77E-06	7.75E-06	2.04	8.93
GEN-1A[1]	0.59	2.59	1.18	5.18	0.53	2.30	2.83E-03	0.012	0.094	0.41	0.094	0.41	-	-	0.16	0.68
GEN-1B[1]	0.59		1.18		0.53		2.83E-03		0.094		0.094		-		0.16	
GEN-2	0.59	2.59	1.18	5.18	0.41	1.81	0.011	0.046	0.040	0.18	0.040	0.18	8.61E-08	3.77E-07	0.067	0.29
HT-1	0.25	1.07	0.21	0.90	0.013	0.059	0.013	0.059	0.019	0.082	0.019	0.082	4.36E-08	1.91E-07	4.63E-03	0.020
HT-2	2.31	10.10	2.34	10.25	1.10	4.84	0.31	1.35	0.76	3.32	0.76	3.32	1.00E-06	4.39E-06	0.11	0.47
HT-3	0.29	1.29	0.25	1.08	0.016	0.071	0.016	0.070	0.022	0.098	0.022	0.098	5.23E-08	2.29E-07	5.55E-03	0.024
HT-4	0.46	2.00	0.61	2.67	0.29	1.27	0.082	0.36	0.20	0.87	0.20	0.87	2.65E-07	1.16E-06	0.028	0.12
HT-5	0.43	1.89	0.44	1.92	0.21	0.91	0.058	0.25	0.14	0.62	0.14	0.62	1.88E-07	8.23E-07	0.020	0.087
AM-1[2]	-	-	-	-	24.04	5.26	-	-	-	-	-	-	4.14	0.91	17.07	3.74
DEHY-1	Emissions are controlled by and represented at FL-2 and ECD-2.															
FL-1 (Normal Operations)[3]	8.10E-03	0.035	0.016	0.071	5.00E-05	2.19E-04	9.06E-08	3.97E-07	-	-	-	-	9.82E-10	4.30E-09	9.16E-17	4.01E-16
FL-1 (SSM)[3]	33.08	7.28	66.03	14.53	121.03	26.51	0.19	0.041	-	-	-	-	2.05E-03	4.49E-04	2.18	0.48
FL-2 (Normal Operations)[3]	1.39	5.69	2.77	11.36	1.44	6.30	0.036	0.16	-	-	-	-	3.89E-04	1.70E-03	0.045	0.20
FL-2 (SSM)[3]	2.04	0.20	4.07	0.40	36.45	0.032	0.015	1.70E-05	-	-	-		1.67E-04	1.85E-07	0.24	5.46E-04
FL-3 (Normal Operations)[3,4,5]	0.70	2.41	0.96	4.82	4.32	14.51	8.48E-04	2.96E-03	-	-	-	-	9.19E-06	3.20E-05	0.33	1.13
FL-3 (SSM)[3,4,5]	19.60		39.14		137.78		0.045		-	-	-	-	4.86E-04		12.94	
ECD-1[4,5]	0.36		0.30		3.26		8.11E-04		0.027	0.093	0.027	0.093	8.79E-06		0.23	
ECD-2	0.044	0.19	0.037	0.16	0.37	1.61	2.91E-05	1.27E-04	3.38E-03	0.015	3.38E-03	0.015	3.15E-07	1.38E-06	0.15	0.66
TO-1 (Normal Operations)[3]	1.96	8.59	1.65	7.21	0.25	1.09	7.71	33.76	0.15	0.65	0.15	0.65	0.041	0.18	0.17	0.75
TO-1 (SSM)[3]	2.10	8.59	1.77	7.21	2.79	0.034	0.016	1.29E-04	0.16	0.58	0.16	0.58	8.33E-05	6.91E-07	3.23E-04	1.62E-07
TK-1	Emissions are controlled by and represented at FL-3 and ECD-1.															
TK-2	Emissions are controlled by and represented at FL-3 and ECD-1.															
TK-3	Emissions are controlled by and represented at FL-3.															
TK-4	Emissions are controlled by and represented at FL-3.															
TK-5	Emissions are controlled by and represented at FL-3.															
TK-6	Emissions are controlled by and represented at FL-3.															
TK-7	Emissions are controlled by and represented at FL-3.															
TK-8	Emissions are controlled by and represented at FL-3.															
PWTK-1	Emissions are controlled by and represented at FL-3 and ECD-1.															
TL-1	-	-	-	-	0.48	2.30E-03	-	-	-	-	-	-	5.66E-07	2.72E-09	0.028	1.36E-04
TL-3	-	-	-	-	0.49	1.18	-	-	-	-	-	-	1.84E-07	4.43E-07	0.046	0.11
FUG	-	-	-	-	13.70	59.99	-	-	-	-	-	-	2.14E-04	9.37E-04	2.06	9.04
SITE-SSM	-	-	-	-	6,313.36	12.82	-	-	-	-	-	-	0.17	3.50E-04	186.02	0.39
Total	78.67	124.34	153.13	223.65	6,672.81	210.59	9.40	40.16	3.36	14.82	3.36	14.82	4.35	1.09	230.43	56.52
Total w/o Fugitives	78.67	124.34	153.13	223.65	6,659.12	150.60	9.40	40.16	3.36	14.82	3.36	14.82	4.35	1.09	228.36	47.49

* Indicates an hourly emission limit is not appropriate for this unit.

"-" Indicates emissions of this pollutant are not expected.

[1] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[2] The Amine Still vent is controlled by TO-1. During TO-1 dowtime (up to 5% annually) the Amine Still is vented to Atmosphere. Hourly emissions represent worst-case emissions TO-1 downtime. The Amine Flash gas is controlled by and represented at FL-2.

[3] Normal operating scenarios and Startup, Shutdown, and Maintenance (SSM) scenarios for control devices include pilot emissions. Normal operations and SSM operations will never occur at the same time. For hourly emissions, the maximum of the two scenarios is used for facility total emissions. For annual emissions, the summation of the two scenarios is represented.

[4] Existing Tank working, breathing, and standing emissions (TK-1, TK-2, PWTK-1) and truck loading emissions (TL-1, TL-2) are currently routed to ECD-1 with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by FL-3 with a 100% capture efficiency and 98% DRE.

[5] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emissions Summary - HAPs

Controlled HAPS Emissions																				
Unit	Formaldehyde		Acetaldehyde		Acrolein		Methanol		n-Hexane		Benzene		Toluene		Ethylbenzene		Xylenes		2,2,4 Trimethylpentane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	0.19	0.85	0.045	0.20	0.028	0.12	0.014	0.059	6.00E-03	0.026	2.38E-03	0.010	2.21E-03	9.66E-03	2.15E-04	9.40E-04	9.94E-04	4.36E-03	1.35E-03	5.92E-03
ENG-2	0.19	0.85	0.045	0.20	0.028	0.12	0.014	0.059	6.00E-03	0.026	2.38E-03	0.010	2.21E-03	9.66E-03	2.15E-04	9.40E-04	9.94E-04	4.36E-03	1.35E-03	5.92E-03
ENG-3	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
ENG-4	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
ENG-5	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
ENG-6	1.21	5.31	0.36	1.56	0.22	0.96	0.11	0.47	0.047	0.21	0.019	0.082	0.017	0.076	1.69E-03	7.39E-03	7.82E-03	0.034	0.011	0.047
GEN-1A[1]	0.099	0.43	0.013	0.059	0.013	0.055	0.015	0.065	-	-	7.61E-03	0.033	2.69E-03	0.012	1.19E-04	5.23E-04	9.39E-04	4.11E-03	-	-
GEN-1B[1]	0.099		0.013		0.013		0.015		-		7.61E-03		2.69E-03		1.19E-04		9.39E-04		-	
GEN-2	0.042	0.19	5.76E-03	0.025	5.43E-03	0.024	6.32E-03	0.028	-	-	3.26E-03	0.014	1.15E-03	5.05E-03	5.12E-05	2.24E-04	4.03E-04	1.76E-03	-	-
HT-1	1.84E-04	8.05E-04	-	-	-	-	-	-	4.41E-03	0.019	5.15E-06	2.25E-05	8.33E-06	3.65E-05	-	-	-	-	-	-
HT-2	4.23E-03	0.019	-	-	-	-	-	-	0.10	0.44	1.18E-04	5.19E-04	1.92E-04	8.40E-04	-	-	-	-	-	-
HT-3	2.21E-04	9.66E-04	-	-	-	-	-	-	5.29E-03	0.023	6.18E-06	2.71E-05	1.00E-05	4.38E-05	-	-	-	-	-	-
HT-4	1.12E-03	4.90E-03	-	-	-	-	-	-	0.027	0.12	3.13E-05	1.37E-04	5.07E-05	2.22E-04	-	-	-	-	-	-
HT-5	7.92E-04	3.47E-03	-	-	-	-	-	-	0.019	0.083	2.22E-05	9.71E-05	3.59E-05	1.57E-04	-	-	-	-	-	-
AM-1[2]	-	-	-	-	-	-	-	-	0.016	3.56E-03	11.95	2.62	4.20	0.92	0.26	0.058	0.64	0.14	1.88E-03	4.13E-04
DEHY-1	Emissions are controlled by and represented at FL-2 and ECD-2.																			
FL-1	-	-	-	-	-	-	-	-	1.09	0.24	0.41	0.089	0.16	0.034	0.012	2.65E-03	0.021	4.61E-03	0.50	0.11
FL-2	-	-	-	-	-	-	-	-	0.097	0.033	0.042	0.10	0.029	0.039	3.59E-03	2.95E-03	8.42E-03	5.01E-03	0.055	0.013
FL-3[3,4]	-	-	-	-	-	-	-	-	6.92	0.57	1.49	0.18	0.67	0.076	0.049	4.79E-03	0.073	7.83E-03	3.75	0.30
ECD-1[3,4]	-		-		-		-		0.11		0.037		0.016		9.37E-04		1.54E-03		0.058	
ECD-2	-	-	-	-	-	-	-	-	6.62E-03	0.029	0.090	0.39	0.042	0.18	2.41E-03	0.011	5.97E-03	0.026	4.82E-03	0.021
TO-1	-	-	-	-	-	-	-	-	1.63E-04	7.12E-04	0.12	0.52	0.04	0.18	2.65E-03	0.012	6.41E-03	0.028	1.89E-05	8.25E-05
TK-1	Emissions are controlled by and represented at FL-3 and ECD-1.																			
TK-2	Emissions are controlled by and represented at FL-3 and ECD-1.																			
TK-3	Emissions are controlled by and represented at FL-3.																			
TK-4	Emissions are controlled by and represented at FL-3.																			
TK-5	Emissions are controlled by and represented at FL-3.																			
TK-6	Emissions are controlled by and represented at FL-3.																			
TK-7	Emissions are controlled by and represented at FL-3.																			
TK-8	Emissions are controlled by and represented at FL-3.																			
PWTK-1	Emissions are controlled by and represented at FL-3 and ECD-1.																			
TL-1	-	-	-	-	-	-	-	-	0.016	7.56E-05	3.35E-03	1.61E-05	1.37E-03	6.60E-06	8.41E-05	4.04E-07	1.18E-04	5.68E-07	7.66E-03	3.68E-05
TL-3	-	-	-	-	-	-	-	-	0.025	0.059	5.29E-03	0.013	2.38E-03	5.72E-03	1.75E-04	4.21E-04	2.59E-04	6.21E-04	0.013	0.032
FUG	-	-	-	-	-	-	-	-	0.56	2.46	0.19	0.85	0.27	1.18	0.059	0.26	0.12	0.55	0.86	3.75
SITE-SSM	-	-	-	-	-	-	-	-	76.55	0.16	26.89	0.057	17.36	0.037	2.49	5.28E-03	4.97	0.011	57.77	0.12
Total	5.49	23.59	1.54	6.70	0.96	4.15	0.49	2.07	85.75	5.12	41.32	5.22	22.86	3.00	2.89	0.39	5.89	0.92	63.05	4.54

Notes

* Indicates an hourly emission limit is not appropriate for this unit.

"-" Indicates emissions of this pollutant are not expected.

[1] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[2] The Amine Still vent is controlled by TO-1. During TO-1 dowtime (up to 5% annually) the Amine Still is vented to Atmosphere. Hourly emissions represent worst-case emissions TO-1 downtime. The Amine Flash gas is controlled by and represented at FL-2.

[3] Existing Tank working, breathing, and standing emissions (TK-1, TK-2, PWTK-1) and truck loading emissions (TL-1, TL-2) are currently routed to ECD-1 with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by FL-3 with a 100% capture efficiency and 98% DRE.

[4] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emissions Summary - GHG

Greenhouse Gas Emissions							
Unit	CO_2		N_2O		CH_4		CO2e
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
ENG-1	604.23	2,646.53	1.14E-03	4.99E-03	0.011	0.050	2,649.25
ENG-2	604.23	2,646.53	1.14E-03	4.99E-03	0.011	0.050	2,649.25
ENG-3	4,748.75	20,799.53	8.95E-03	0.039	0.089	0.39	20,820.89
ENG-4	4,748.75	20,799.53	8.95E-03	0.039	0.089	0.39	20,820.89
ENG-5	4,748.75	20,799.53	8.95E-03	0.039	0.089	0.39	20,820.89
ENG-6	4,748.75	20,799.53	8.95E-03	0.039	0.089	0.39	20,820.89
GEN-1A[1]	270.68	1,185.59	2.58E-03	0.011	0.013	0.057	1,190.17
GEN-1B[1]	270.68		2.58E-03		0.013		
GEN-2	230.97	1,011.63	4.35E-04	1.91E-03	4.35E-03	0.019	1,012.67
HT-1	292.44	1,280.90	5.51E-04	2.41E-03	5.51E-03	0.024	1,282.22
HT-2	6,726.19	29,460.73	0.013	0.056	0.13	0.56	29,490.99
HT-3	350.93	1,537.08	6.61E-04	2.90E-03	6.61E-03	0.029	1,538.66
HT-4	1,780.39	7,798.13	3.36E-03	0.015	0.034	0.15	7,806.14
HT-5	1,259.85	5,518.12	2.37E-03	0.010	0.024	0.10	5,523.79
AM-1[2]	26,546.97	5,813.79	-	-	23.36	5.12	5,957.01
DEHY-1	Emissions are controlled by and represented at FL-2 and ECD-2.						
FL-1	1,527.96	6,692.46	2.65E-03	0.012	2.44	10.68	6,994.46
FL-2	1,209.47	5,297.48	2.08E-03	9.10E-03	5.01	21.94	5,914.19
FL-3[3,4]	489.32	2,143.23	8.80E-04	3.86E-03	1.57	6.87	2,174.96
ECD-1[3,4]	426.03		8.03E-04		1.60		
ECD-2	53.03	232.29	9.99E-05	4.38E-04	0.030	0.13	236.13
TO-1	28,939.95	126,523.84	4.41E-03	0.019	6.45	28.26	127,320.11
TK-1	Emissions are controlled by and represented at FL-3 and ECD-1.						
TK-2	Emissions are controlled by and represented at FL-3 and ECD-1.						
TK-3	Emissions are controlled by and represented at FL-3.						
TK-4	Emissions are controlled by and represented at FL-3.						
TK-5	Emissions are controlled by and represented at FL-3.						
TK-6	Emissions are controlled by and represented at FL-3.						
TK-7	Emissions are controlled by and represented at FL-3.						
TK-8	Emissions are controlled by and represented at FL-3.						
PWTK-1	Emissions are controlled by and represented at FL-3 and ECD-1.						
TL-1	2.43E-07	1.06E-06	-	-	2.73E-07	1.20E-06	3.46E-05
TL-3	7.94E-09	3.48E-08	-	-	7.94E-14	3.48E-13	3.48E-08
FUG	1.37	5.99	-	-	28.55	125.04	3,507.23
SITE-SSM	0.51	2.24	-	-	7.00	30.65	860.44
Total	90,580.22	282,994.69	0.074	0.31	76.60	231.29	289,391.24

Notes

* Indicates an hourly emission limit is not appropriate for this unit.

"-" Indicates emissions of this pollutant are not expected.

[1] GEN-1A and GEN-1B are a primary and backup generator. Only one generator will be operated at any given time.

[2] The Amine Still vent is controlled by TO-1. During TO-1 dowtime (up to 5% annually) the Amine Still is vented to Atmosphere. Hourly emissions represent worst-case emissions TO-1 downtime. The Amine Flash gas is controlled by and represented at FL-2.

[3] Existing Tank working, breathing, and standing emissions (TK-1, TK-2, PWTK-1) and truck loading emissions (TL-1, TL-2) are currently routed to ECD-1 with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by FL-3 with a 100% capture efficiency and 98% DRE.

[4] Hourly emissions are conservatively represented at both ECD-1 and FL-3. Annual emission are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emission Calculation Inputs

Site-Wide		
Description	Value	Unit
Total Gas Throughput:	234	MMscf/day
Annual Operating Hours:	8,760	hr
Daily Operating Hours:	24	hr
Site Location:	32.274436°, -104.132247°	
Site Elevation:	3,106	ft MSL

Fuel Gas			
	Value	Unit	Notes
Fuel Gross Heat Value:	1,067.28	Btu/scf	Fuel Gas - Residue
Fuel H_2S Content:	0.009941 0.001	ppmv gr H_2S / 100 scf	Fuel Gas - Residue Converted
Fuel Sulfur Content:	2	gr S / 100 scf	Engineering Estimate

Engines			
	Value	Unit	Notes
Unit(s):	ENG-1 & ENG-2		
Description:	Caterpillar G3508B Compressor Engine		
Horsepower:	630	hp	Mfg. specification sheet
Fuel Consumption:	8199	Btu/hp-hr	Mfg. specification sheet
Mfg. NO_x Limit:	0.50	g/hp-hr	Mfg. specification sheet
Mfg. CO Limit:	3.18	g/hp-hr	Mfg. specification sheet
Mfg. VOC Limit:	1.33	g/hp-hr	Mfg. specification sheet
	0.28	g/hp-hr	Mfg. specification sheet
Catalyst NO_x Guarantee:	0.50	g/hp-hr	Catalyst guarantee
Catalyst CO Guarantee:	1.91	g/hp-hr	Catalyst guarantee
Catalyst VOC Guarantee:	0.53	g/hp-hr	Catalyst guarantee
Catalyst HCHO Guarantee:	0.14	g/hp-hr	Catalyst guarantee
Unit(s):	ENG-3 through ENG-6		
Description:	Caterpillar G3616A4 Compressor Engines		
Horsepower:	5500	hp	Mfg. specification sheet
Fuel Consumption:	7381	Btu/hp-hr	Mfg. specification sheet
Mfg. NO_x Limit:	0.30	g/hp-hr	Mfg. specification sheet
Mfg. CO Limit:	2.23	g/hp-hr	Mfg. specification sheet
Mfg. VOC Limit:	0.16	g/hp-hr	Mfg. specification sheet
Mfg. HCHO Limit:	0.10	g/hp-hr	Mfg. specification sheet
Catalyst NO_x Guarantee:	0.30	g/hp-hr	Catalyst guarantee
Catalyst CO Guarantee:	0.60	g/hp-hr	Catalyst guarantee
Catalyst VOC Guarantee:	0.16	g/hp-hr	Catalyst guarantee
Catalyst HCHO Guarantee:	0.10	g/hp-hr	Catalyst guarantee
Unit(s):	GEN-1A & GEN-1B		
Description:	PSI 11.1L LPG Generator Engines		
Horsepower:	268	hp	Mfg. specification sheet
Propane Heat Value:	2516	Btu/scf	40 CFR Part 98, Table C-1
Fuel Consumption:	7287	Btu/hp-hr	Manufacturer Specification
Mfg. NO_x Limit:	11.50	g/hp-hr	Mfg. specification sheet
Mfg. CO Limit:	12.00	g/hp-hr	Mfg. specification sheet
Mfg. VOC Limit:	0.70	g/hp-hr	Mfg. specification sheet
Mfg. HCHO Limit:	N/A	g/hp-hr	Not applicable
Catalyst NO_x Guarantee:	1.00	g/hp-hr	Catalyst guarantee
Catalyst CO Guarantee:	2.00	g/hp-hr	Catalyst guarantee
Catalyst VOC Guarantee:	0.70	g/hp-hr	Catalyst guarantee
Catalyst HCHO Guarantee:	N/A	g/hp-hr	Catalyst guarantee
Unit(s):	GEN-2		
Description:	PSI D11.1L Generator Engine		
Horsepower:	268	hp	Mfg. specification sheet
Generator Heat Value:	1,067.28	Btu/scf	
Fuel Consumption (Propane):	5864	Btu/hp-hr	
Fuel Consumption (NG):	7367	Btu/hp-hr	Mfg. specification sheet
Mfg. NO_x Limit:	1.00	g/hp-hr	EPA cert page
Mfg. CO Limit:	2.00	g/hp-hr	EPA cert page
Mfg. VOC Limit:	0.70	g/hp-hr	EPA cert page
Mfg. HCHO Limit:	N/A	g/hp-hr	Not applicable
Unit(s):	GEN-3		
Description:	Generac 30kW Emergency Generator		
Horsepower:	40.23	hp	30 kW
Emergency Runtime Hours:	500	year	
Propane Heat Value:	2516	Btu/scf	40 CFR Part 98, Table C-1

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emission Calculation Inputs

Dehydrator			
	Value	Unit	Notes
Unit(s): Description:	DEHY-1 Glycol Dehydrator		
Capacity	269	MMSCFD	
Flash Tank Control Capture Efficiency:	FL-2 98.00%		
Regenerator Still Vent Control: VCU Capture Efficiency:	Condenser & ECD-2 100%		

Amine Regeneration			
	Value	Unit	Notes
Unit(s): Description:	AM-1 Amine Regeneration		
Capacity	274	MMSCFD	
Flash Tank Control Capture Efficiency:	FL-2 98.00%		
Regenerator Still Vent Control:	None		

Heaters			
	Value	Unit	Notes
Unit(s): Description:	HT-1 Condensate Heater		
Capacity: Conversion Efficiency:	2.50 98%	MMBtu/hr	 Mfg. specification
Unit(s): Description:	HT-2 Amine Reboiler Hot Oil Heater		
Capacity: Conversion Efficiency:	57.50 98%	MMBtu/hr	 Mfg. specification
Unit(s): Description:	HT-3 Glycol Reboiler Heater		
Capacity: Conversion Efficiency:	3.00 98%	MMBtu/hr	 Mfg. specification
Unit(s): Description:	HT-4 Regen Heater		
Capacity: Conversion Efficiency:	15.22 98%	MMBtu/hr	 Mfg. specification
Unit(s): Description:	HT-5 Stabilizer Hot Oil Heater		
Capacity: Conversion Efficiency:	10.77 98%	MMBtu/hr	 Mfg. specification

Controls			
	Value	Unit	Notes
Unit(s): Description:	FL-1 20 MMSCFD Flare		
Pilot Flow Rate: Destruction Rate Efficiency:	55 98%	scf/hr	Pilot and purge flow Mfg. specification sheet
Unit(s): Description:	FL-2 275 MMSCFD Flare		
Pilot Flow Rate: Purge Flow Rate: Destruction Rate Efficiency:	60 850 98%	scf/hr scf/hr	 Mfg. specification sheet
Unit(s): Description:	FL-3 Tank/Loading Flare		
Pilot Flow Rate: Purge Flow Rate: Destruction Rate Efficiency:	65 240 98%	scf/hr scf/hr	 Mfg. specification sheet
Unit(s): Description:	ECD-1 Existing Tank/Loading Combustor		
Pilot Flow Rate: Destruction Rate Efficiency:	12 98%	scf/hr	 Mfg. specification sheet
Unit(s): Description:	ECD-2 BTEX Combustor		
Pilot Flow Rate: Destruction Rate Efficiency:	15 98%	scf/hr	 Mfg. specification sheet
Unit(s): Description:	TO-1 Thermal Oxidizer		
Burner Duty: Destruction Rate Efficiency: Thermal Oxidizer Downtime:	20 99% 5%	MMBtu/hr	 Mfg. specification sheet

Trace Delaware Gathering, LLC - Apollo Gas Plant

Emission Calculation Inputs

Storage Tanks			
	Value	Unit	Notes
Unit:	TK-1 & TK-2		
Description:	500 bbl Condensate Storage Tanks		
Number of Tanks:	2		Low-Pressure Condensate
Volume:	500	bbl	
Hourly Throughput:	0.21	bbl/hr	5 bbl/day
Annual Throughput:	1,825	bbl/yr	
Primary Control[1]:	ECD-1, FL-3		
Capture Efficiency:	100.00%		
Unit:	TK-3 through TK-8		
Description:	1,000 bbl Condensate Storage Tanks		
Number of Tanks:	6		Stabilized Condensate
Volume:	1,000	bbl	
Hourly Throughput:	104	bbl/hr	2499 bbl/day
Annual Throughput:	912,188	bbl/yr	
Primary Control:	FL-3		
Capture Efficiency:	100.00%		
Unit:	PWTK-1		
Description:	500 bbl Produced Water Storage Tank		
Number of Tanks:	1		Slop/Produced Water
Volume:	500	bbl	
Hourly Throughput:	4	bbl/hr	100 bbl/day
Annual Throughput:	36,510	bbl/yr	
Primary Control[1]:	ECD-1, FL-3		
Capture Efficiency:	100.00%		

[1] ECD-1 will control the tanks until Apollo Gas Plant comes online. Once the plant is online, ECD-1 will be removed and FL-3 will control the tanks.

Loading			
	Value	Unit	Notes
Unit:	TL1		
Description:	Condensate Loading		
Hourly Loading Volume:	7980	gal/hr	One (1) 190 bbl truck / hour
Annual Loading Volume:	76,650	gal/yr	
Primary Control[1]:	ECD-1, FL-3		
Capture Efficiency:	98.7%		NSPS Leak Test
Unit:	TL2		
Description:	Produced Water Loading		
Hourly Loading Volume:	7980	gal/hr	One (1) 190 bbl truck / hour
Annual Loading Volume:	1,533,412	gal/yr	
Primary Control[1]:	ECD-1, FL-3		
Capture Efficiency:	98.7%		NSPS Leak Test
Unit:	TL3		
Description:	Stabilized Condensate Loading		
Hourly Loading Volume:	7980	gal/hr	One (1) 190 bbl truck / hour
Annual Loading Volume:	38,311,904	gal/yr	
Primary Control:	FL-3		
Capture Efficiency:	98.7%		NSPS Leak Test

[1] ECD-1 will control the tanks until Apollo Gas Plant comes online. Once the plant is online, ECD-1 will be removed and FL-3 will control the tanks.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Caterpillar G3508B Compressor Engine

Emission Unit:	ENG-1 & ENG-2
Source Description:	Caterpillar G3508B Compressor Engine
Manufacturer:	Caterpillar
Model:	G3608A4
Type:	4SLB

Fuel Consumption

Site horsepower	630	hp	Manufacturer Rating
Fuel heat value	1067.28	Btu/scf	Fuel Gas - Residue
Heat input	5.2	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	4.8	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	42.4	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	8199	Btu/hp-hr	

Emission Calculations

Uncontrolled	NO_x	CO	VOC	HCHO	SO_2[2]	PM_{10}[4,5]	$PM_{2.5}$[4,5]	H_2S[2]	Total HAPs[3]	Units	Notes
Emission Factors	0.50	3.18	1.33	0.28	-	-	-	-	-	g/hp-hr	Manufacturer Specifications
	-	-	-	-	-	9.99E-03	9.99E-03	-	-	lb/MMBtu	AP-42 Table 3.2-2
	-	-	-	-	-	0.010	0.010	-	-	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
	-	-	-	-	2	-	-	-	-	gr S/ 100 scf	
	-	-	-	-	-	-	-	0.001	-	gr H2S/ 100 scf	
Emissions	0.69	4.42	2.29	0.39	0.028	0.054	0.054	2.25E-07	0.50	lb/hr	
	3.04	19.35	10.01	1.72	0.12	0.24	0.24	9.86E-07	2.18	tpy	

Controlled	NO_x	CO	VOC[1]	HCHO	SO_2[2]	PM_{10}[4,5]	$PM_{2.5}$[4,5]	H_2S[2]	Total HAPs[3]	Units	Notes
Emission Factors	0.50	1.91	0.53	0.14	-	-	-	-	-	g/hp-hr	Catalyst Guarantee
	0.00%	39.94%	57.31%	50.53%	-	-	-	-	-		% Reduction
	-	-	-	-	-	9.99E-03	9.99E-03	-	-	lb/MMBtu	AP-42 Table 3.2-2
	-	-	-	-	-	0.010	0.010	-	-	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
	-	-	-	-	2	-	-	-	-	gr S/ 100 scf	
	-	-	-	-	-	-	-	0.001	-	gr H2S/ 100 scf	
Emissions	0.69	2.65	0.98	0.19	0.028	0.054	0.054	2.25E-07	0.30	lb/hr	
	3.04	11.62	4.27	0.85	0.12	0.24	0.24	9.86E-07	1.31	tpy	

Controlled	Acetaldehyde[5]	Acrolein[5]	Benzene[5]	E-Benzene[5]	n-Hexane[5]	Toluene[5]	Xylene[5]	Methanol[5]	Units	Notes
Emission Factors	8.36E-03	5.14E-03	4.40E-04	3.97E-05	1.11E-03	4.08E-04	1.84E-04	2.50E-03	lb/MMBtu	AP-42 Table 3.2-2
	8.75E-03	5.38E-03	4.60E-04	4.15E-05	1.16E-03	4.27E-04	1.93E-04	2.62E-03	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
Emissions	0.045	0.028	2.38E-03	2.15E-04	6.00E-03	2.21E-03	9.94E-04	0.014	lb/hr	
	0.20	0.12	0.010	9.40E-04	0.026	9.66E-03	4.36E-03	0.059	tpy	

NOTES

[1] VOC emission factor is calculated by adding aldehyde emissions.

[2] SO_2 emissions are based on fuel consumption, fuel sulfur content, fuel H_2S content, and DRE (assumed to be 95%):

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[3] HAPs emissions factors are referenced from AP-42 Table 3.2-2 (except formaldehyde: provided in mfg spec sheet).

[4] Assumes PM (Filterable + Condensable) = PM_{10} = $PM_{2.5}$

[5] AP-42 Table 3.2-2 & adjusted for 1067.28 Btu/scf.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	604.23	0.011	1.14E-03	604.85	lb/hr	kg/ MMBtu * hourly natural gas heat input
	2646.53	0.050	4.99E-03	2649.25	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg =	2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Caterpillar G3508B Compressor Engine

Emission Factors for Speciated Organic Compounds from Natural Gas Engine Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMBtu)[1]	Adjusted EF (lb/MMBtu)[2]	Hourly Emissions (lb/hr)
1,1,2,2-Tetrachloroethane	79-34-5	Y	N	4.00E-05	4.19E-05	2.16E-04
1,1,2-Trichloroethane	79-00-5	Y	N	3.18E-05	3.33E-05	1.72E-04
1,1-Dichloroethane	75-34-3	Y	N	2.36E-05	2.47E-05	1.28E-04
1,2,3-Trimethylbenzene	526-73-8	N	N	2.30E-05	2.41E-05	1.24E-04
1,2,4-Trimethylbenzene	95-63-6	N	N	1.43E-05	1.50E-05	7.73E-05
1,2-Dichloroethane	107-06-2	Y	N	2.36E-05	2.47E-05	1.28E-04
1,2-Dichloropropane	78-87-5	Y	N	2.69E-05	2.81E-05	1.45E-04
1,3,5-Trimethylbenzene	108-67-8	N	N	3.38E-05	3.54E-05	1.83E-04
1,3-Butadiene	106-99-0	Y	N	2.67E-04	2.79E-04	1.44E-03
1,3-Dichloropropene	542-75-6	Y	N	2.64E-05	2.76E-05	1.43E-04
2-Methylnaphthalene	91-57-6	Y	N	3.32E-05	3.47E-05	1.79E-04
2,2,4-Trimethylpentane	540-84-1	Y	N	2.50E-04	2.62E-04	1.35E-03
Acenaphthene	83-32-9	N	N	1.25E-06	1.31E-06	6.76E-06
Acenaphthylene	203-96-8	N	N	5.53E-06	5.79E-06	2.99E-05
Acetaldehyde	75-07-0	Y	N	8.36E-03	8.75E-03	0.045
Acrolein	107-02-8	Y	N	5.14E-03	5.38E-03	0.028
Benzene	71-43-2	Y	N	4.40E-04	4.60E-04	2.38E-03
Benzo(b)fluorathene	205-99-2	Y	N	1.66E-07	1.74E-07	8.97E-07
Benzo(e)pyrene	191-24-2	Y	N	4.15E-07	4.34E-07	2.24E-06
Benzo(g,h,i)perylene	207-08-9	Y	N	4.14E-07	4.33E-07	2.24E-06
Biphenyl	92-52-4	Y	N	2.12E-04	2.22E-04	1.15E-03
Butane	106-97-8	N	N	5.41E-04	5.66E-04	2.92E-03
Butyr/Isobutyraldehyde	78-84-2	N	N	1.01E-04	1.06E-04	5.46E-04
Carbon Tetrachloride	56-23-5	Y	N	3.67E-05	3.84E-05	1.98E-04
Chlorobenzene	108-90-7	Y	N	3.04E-05	3.18E-05	1.64E-04
Chloroethane	75-00-3	Y	N	1.87E-06	1.96E-06	1.01E-05
Chloroform	67-66-3	Y	N	2.85E-05	2.98E-05	1.54E-04
Chrysene	218-01-9	Y	N	6.93E-07	7.25E-07	3.75E-06
Cyclopentane	287-92-3	N	N	2.27E-04	2.38E-04	1.23E-03
Ethane	74-84-0	N	N	0.11	0.11	0.57
Ethylbenzene	100-41-4	Y	N	3.97E-05	4.15E-05	2.15E-04
Ethylene Dibromide	106-93-4	Y	N	4.43E-05	4.64E-05	2.39E-04
Fluoranthene	206-44-0	Y	N	1.11E-06	1.16E-06	6.00E-06
Fluorene	86-73-7	Y	N	5.67E-06	5.93E-06	3.06E-05
Formaldehyde[3]	50-00-0	Y	N	-	-	-
Methanol	67-56-1	Y	N	2.50E-03	2.62E-03	0.014
Methylcyclohexane	108-87-2.	N	N	1.23E-03	1.29E-03	6.65E-03
Methylene Chloride	75-09-2	Y	N	2.00E-05	2.09E-05	1.08E-04
n-Hexane	110-54-3	Y	N	1.11E-03	1.16E-03	6.00E-03
n-Nonane	111-84-2	N	Y	1.10E-04	1.15E-04	5.95E-04
n-Octane	111-65-9	N	Y	3.51E-04	3.67E-04	1.90E-03
n-Pentane	109-66-0	N	N	2.60E-03	2.72E-03	0.01
Naphthalene	81-20-3	Y	N	7.44E-05	7.78E-05	4.02E-04
PAH		N	N	2.69E-05	2.81E-05	1.45E-04
Phenanthrene	85-01-8	Y	N	1.04E-05	1.09E-05	5.62E-05
Phenol	108-90-2	Y	N	2.40E-05	2.51E-05	1.30E-04
Propane	74-98-6	N	N	0.04	0.04	0.23
Pyrene	129-00-0	Y	N	1.36E-06	1.42E-06	7.35E-06
Styrene	100-42-5	Y	N	2.36E-05	2.47E-05	1.28E-04
Perchloroethylene	127-18-4	Y	N	2.48E-06	2.59E-06	1.34E-05
Toluene	108-88-3	Y	N	4.08E-04	4.27E-04	2.21E-03
Vinyl Chloride	75-01-4	Y	N	1.49E-05	1.56E-05	8.05E-05
Xylene	1330-20-7	Y	N	1.84E-04	1.93E-04	9.94E-04
			Total Haps (lb/hr)			0.11

[1] Emission Factors from AP-42 Table 3.2-2

[2] Adjusted EF

[3] Manufacturer Specifications used for Emission Factor

Trace Delaware Gathering, LLC - Apollo Gas Plant

Caterpiller 3616A4 Compressor Engines - Residue Compressors

Emission Unit:	ENG-3 through ENG-6
Source Description:	Caterpillar G3616A4 Compressor Engines
Manufacturer:	Caterpillar
Model:	G3616A4
Type:	4SLB

Fuel Consumption

Site horsepower	5500	hp	Manufacturer Rating
Fuel heat value	1067.28	Btu/scf	Fuel Gas - Residue
Heat input	40.6	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	38.0	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	333.2	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	7381	Btu/hp-hr	

Emission Calculations

Uncontrolled	NO_x	CO	VOC	HCHO	SO_2[2]	PM_{10}[4,5]	$PM_{2.5}$[4,5]	H_2S[2]	Total HAPs[3]	Units	Notes
Emission Factors	0.30	2.23	0.16	0.100	-	-	-	-	-	g/hp-hr	Manufacturer Specifications
	-	-	-	-	-	9.99E-03	9.99E-03	-	-	lb/MMBtu	AP-42 Table 3.2-2
	-	-	-	-	-	0.010	0.010	-	-	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
	-	-	-	-	2	-	-	-	-	gr S/ 100 scf	
	-	-	-	-	-	-	-	0.001	-	gr H2S/ 100 scf	Engineering Estimate
Emissions	3.64	27.04	3.51	1.21	0.22	0.42	0.42	1.77E-06	2.04	lb/hr	
	15.93	118.43	15.36	5.31	0.95	1.86	1.86	7.75E-06	8.93	tpy	

Controlled	NO_x	CO	VOC[1]	HCHO	SO_2[2]	PM_{10}[4,5]	$PM_{2.5}$[4,5]	H_2S[2]	Total HAPs[3]	Units	Notes
Emission Factors	0.30	0.60	0.16	0.100	-	-	-	-	-	g/hp-hr	Catalyst Guarantee
	0.00%	73.09%	0.00%	0.00%	-	-	-	-	-		% Reduction
	-	-	-	-	-	9.99E-03	9.99E-03	-	-	lb/MMBtu	AP-42 Table 3.2-2
	-	-	-	-	-	0.010	0.010	-	-	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
	-	-	-	-	2	-	-	-	-	gr S/ 100 scf	
	-	-	-	-	-	-	-	0.001	-	gr H2S/ 100 scf	Engineering Estimate
Emissions	3.64	7.28	3.51	1.21	0.22	0.42	0.42	1.77E-06	2.04	lb/hr	
	15.93	31.87	15.36	5.31	0.95	1.86	1.86	7.75E-06	8.93	tpy	

Controlled	Acetaldehyde[5]	Acrolein[5]	Benzene[5]	E-Benzene[5]	n-Hexane[5]	Toluene[5]	Xylene[5]	Methanol[5]	Units	Notes
Emission Factors	8.36E-03	5.14E-03	4.40E-04	3.97E-05	1.11E-03	4.08E-04	1.84E-04	2.50E-03	lb/MMBtu	AP-42 Table 3.2-2
	8.75E-03	5.38E-03	4.60E-04	4.15E-05	1.16E-03	4.27E-04	1.93E-04	2.62E-03	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
Emissions	0.36	0.22	0.019	1.69E-03	0.047	0.017	7.82E-03	0.11	lb/hr	
	1.56	0.96	0.082	7.39E-03	0.21	0.076	0.034	0.47	tpy	

NOTES

[1] VOC emission factor is calculated by adding aldehyde emissions.

[2] SO_2 emissions are based on fuel consumption, fuel sulfur content, fuel H_2S content, and DRE (assumed to be 95%):

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[3] HAPs emissions factors are referenced from AP-42 Table 3.2-2 (except formaldehyde: provided in mfg spec sheet).

[4] Assumes PM (Filterable + Condensable) = PM_{10} = $PM_{2.5}$

[5] AP-42 Table 3.2-2 & adjusted for 1067.28 Btu/scf.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	4748.75	0.089	8.95E-03	4753.63	lb/hr	kg/ MMBtu * hourly natural gas heat input
	20799.53	0.39	0.039	20820.89	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg =	2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Caterpiller 3616A4 Compressor Engines - Residue Compressors

Emission Factors for Speciated Organic Compounds from Natural Gas Engine Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMBtu)[1]	Adjusted EF (lb/MMBtu)[2]	Hourly Emissions (lb/hr)
1,1,2,2-Tetrachloroethane	79-34-5	Y	N	4.00E-05	4.19E-05	1.70E-03
1,1,2-Trichloroethane	79-00-5	Y	N	3.18E-05	3.33E-05	1.35E-03
1,1-Dichloroethane	75-34-3	Y	N	2.36E-05	2.47E-05	1.00E-03
1,2,3-Trimethylbenzene	526-73-8	N	N	2.30E-05	2.41E-05	9.77E-04
1,2,4-Trimethylbenzene	95-63-6	N	N	1.43E-05	1.50E-05	6.07E-04
1,2-Dichloroethane	107-06-2	Y	N	2.36E-05	2.47E-05	1.00E-03
1,2-Dichloropropane	78-87-5	Y	N	2.69E-05	2.81E-05	1.14E-03
1,3,5-Trimethylbenzene	108-67-8	N	N	3.38E-05	3.54E-05	1.44E-03
1,3-Butadiene	106-99-0	Y	N	2.67E-04	2.79E-04	0.01
1,3-Dichloropropene	542-75-6	Y	N	2.64E-05	2.76E-05	1.12E-03
2-Methylnaphthalene	91-57-6	Y	N	3.32E-05	3.47E-05	1.41E-03
2,2,4-Trimethylpentane	540-84-1	Y	N	2.50E-04	2.62E-04	0.01
Acenaphthene	83-32-9	N	N	1.25E-06	1.31E-06	5.31E-05
Acenaphthylene	203-96-8	N	N	5.53E-06	5.79E-06	2.35E-04
Acetaldehyde	75-07-0	Y	N	8.36E-03	8.75E-03	0.36
Acrolein	107-02-8	Y	N	5.14E-03	5.38E-03	0.22
Benzene	71-43-2	Y	N	4.40E-04	4.60E-04	0.02
Benzo(b)fluorathene	205-99-2	Y	N	1.66E-07	1.74E-07	7.05E-06
Benzo(e)pyrene	191-24-2	Y	N	4.15E-07	4.34E-07	1.76E-05
Benzo(g,h,i)perylene	207-08-9	Y	N	4.14E-07	4.33E-07	1.76E-05
Biphenyl	92-52-4	Y	N	2.12E-04	2.22E-04	9.01E-03
Butane	106-97-8	N	N	5.41E-04	5.66E-04	0.02
Butyr/Isobutyraldehyde	78-84-2	N	N	1.01E-04	1.06E-04	4.29E-03
Carbon Tetrachloride	56-23-5	Y	N	3.67E-05	3.84E-05	1.56E-03
Chlorobenzene	108-90-7	Y	N	3.04E-05	3.18E-05	1.29E-03
Chloroethane	75-00-3	Y	N	1.87E-06	1.96E-06	7.94E-05
Chloroform	67-66-3	Y	N	2.85E-05	2.98E-05	1.21E-03
Chrysene	218-01-9	Y	N	6.93E-07	7.25E-07	2.94E-05
Cyclopentane	287-92-3	N	N	2.27E-04	2.38E-04	9.64E-03
Ethane	74-84-0	N	N	0.11	0.11	4.46
Ethylbenzene	100-41-4	Y	N	3.97E-05	4.15E-05	1.69E-03
Ethylene Dibromide	106-93-4	Y	N	4.43E-05	4.64E-05	1.88E-03
Fluoranthene	206-44-0	Y	N	1.11E-06	1.16E-06	4.71E-05
Fluorene	86-73-7	Y	N	5.67E-06	5.93E-06	2.41E-04
Formaldehyde[3]	50-00-0	Y	N	-	-	-
Methanol	67-56-1	Y	N	2.50E-03	2.62E-03	0.11
Methylcyclohexane	108-87-2.	N	N	1.23E-03	1.29E-03	0.05
Methylene Chloride	75-09-2	Y	N	2.00E-05	2.09E-05	8.50E-04
n-Hexane	110-54-3	Y	N	1.11E-03	1.16E-03	0.05
n-Nonane	111-84-2	N	Y	1.10E-04	1.15E-04	4.67E-03
n-Octane	111-65-9	N	Y	3.51E-04	3.67E-04	0.01
n-Pentane	109-66-0	N	N	2.60E-03	2.72E-03	0.11
Naphthalene	81-20-3	Y	N	7.44E-05	7.78E-05	3.16E-03
PAH		N	N	2.69E-05	2.81E-05	1.14E-03
Phenanthrene	85-01-8	Y	N	1.04E-05	1.09E-05	4.42E-04
Phenol	108-90-2	Y	N	2.40E-05	2.51E-05	1.02E-03
Propane	74-98-6	N	N	0.04	0.04	1.78
Pyrene	129-00-0	Y	N	1.36E-06	1.42E-06	5.78E-05
Styrene	100-42-5	Y	N	2.36E-05	2.47E-05	1.00E-03
Perchloroethylene	127-18-4	Y	N	2.48E-06	2.59E-06	1.05E-04
Toluene	108-88-3	Y	N	4.08E-04	4.27E-04	0.02
Vinyl Chloride	75-01-4	Y	N	1.49E-05	1.56E-05	6.33E-04
Xylene	1330-20-7	Y	N	1.84E-04	1.93E-04	7.82E-03
			Total Haps (lb/hr)			0.83

[1] Emission Factors from AP-42 Table 3.2-2.

[2] Adjusted EF

[3] Manufacturer Specifications used for Emission Factor

Trace Delaware Gathering, LLC - Apollo Gas Plant

PSI 11.1L LPG Generator Engines

Emission Unit:	GEN-1A & GEN-1B
Source Description:	PSI 11.1L LPG Generator Engines
Manufacturer:	PSI
Model:	11.1L LPG
Type:	4SRB

Fuel Consumption

Site horsepower	268	hp	Manufacturer Rating
Fuel heat value	2516	Btu/scf	40 CFR Part 98, Table C-1
Heat input	2.0	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	0.8	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	6.8	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	7287	Btu/hp-hr	Manufacturer Specification

Emission Calculations

Uncontrolled	NO_x	CO	VOC	HCHO[4]	SO_2[4]	PM_{10}[3,4]	$PM_{2.5}$[3,4]	H_2S	Total HAPs[2]	Units	Notes
Emission Factors	11.50	12.00	0.70	-	-	-	-	-	-	g/hp-hr	Manufacturer Specifications
	-	-	-	0.021	5.88E-04	0.019	0.019	-	-	lb/MMBtu	AP-42 Table 3.2-3
	-	-	-	0.051	1.45E-03	0.048	0.048	-	-	lb/MMBtu	AP-42 Table 3.2-3 (adjusted)
Emissions	6.79	7.09	0.53	0.099	2.83E-03	0.094	0.094	-	0.16	lb/hr	
	29.76	31.05	2.30	0.43	0.012	0.41	0.41	-	0.68	tpy	

Controlled	NO_x	CO	VOC[1]	HCHO[4]	SO_2[4]	PM_{10}[3,4]	$PM_{2.5}$[3,4]	H_2S	Total HAPs[2]	Units	Notes
Emission Factors	1.00	2.00	0.70	-	-	-	-	-	-	g/hp-hr	Manufacturer Specifications
	91.30%	83.33%	0.00%		-	-	-	-	-		% Reduction
	-	-	-	0.021	5.88E-04	0.019	0.019	-	-	lb/MMBtu	AP-42 Table 3.2-3
	-	-	-	0.051	1.45E-03	0.048	0.048	-	-	lb/MMBtu	AP-42 Table 3.2-3 (adjusted)
Emissions	0.59	1.18	0.53	0.099	2.83E-03	0.094	0.094	-	0.16	lb/hr	
	2.59	5.18	2.30	0.43	0.012	0.41	0.41	-	0.68	tpy	

Controlled	Acetaldehyde[4]	Acrolein[4]	Benzene[4]	E-Benzene[4]	n-Hexane[4]	Toluene[4]	Xylene[4]	Methanol[4]	Units	Notes
Emission Factors	2.79E-03	2.63E-03	1.58E-03	2.48E-05	-	5.58E-04	1.95E-04	3.06E-03	lb/MMBtu	AP-42 Table 3.2-3
	6.88E-03	6.49E-03	3.90E-03	6.12E-05	-	1.38E-03	4.81E-04	7.55E-03	lb/MMBtu	AP-42 Table 3.2-3 (adjusted)
Emissions	0.013	0.013	7.61E-03	1.19E-04	-	2.69E-03	9.39E-04	0.015	lb/hr	
	0.059	0.055	0.033	5.23E-04	-	0.012	4.11E-03	0.065	tpy	

NOTES

[1] VOC emission factor is calculated by adding aldehyde emissions.

[2] HAPs emissions factors are referenced from AP-42 Table 3.2-2.

[3] Assumes PM (Filterable + Condensable) = PM_{10} = $PM_{2.5}$

[4] AP-42 Table 3.2-2 & adjusted for 2516.00 Btu/scf.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	62.87	3.00E-03	6.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	270.68	0.013	2.58E-03	271.73	lb/hr	kg/ MMBtu * hourly natural gas heat input
	1185.59	0.057	0.011	1190.17	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

PSI 11.1L LPG Generator Engines

Emission Factors for Speciated Organic Compounds from Natural Gas Engine Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMBtu)[1]	Adjusted EF (lb/MMBtu)[2]	Hourly Emissions (lb/hr)
1,1,2,2-Tetrachloroethane	79-34-5	Y	N	2.53E-05	6.24E-05	1.22E-04
1,1,2-Trichloroethane	79-00-5	Y	N	1.53E-05	3.77E-05	7.37E-05
1,1-Dichloroethane	75-34-3	Y	N	1.13E-05	2.79E-05	5.44E-05
1,2-Dichloroethane	107-06-2	Y	N	1.13E-05	2.79E-05	5.44E-05
1,2-Dichloropropane	78-87-5	Y	N	1.30E-05	3.21E-05	6.26E-05
1,3-Butadiene	106-99-0	Y	N	6.63E-04	1.64E-03	3.19E-03
1,3-Dichloropropene	542-75-6	Y	N	1.27E-05	3.13E-05	6.12E-05
Acetaldehyde	75-07-0	Y	N	2.79E-03	6.88E-03	0.01
Acrolein	107-02-8	Y	N	2.63E-03	6.49E-03	0.01
Benzene	71-43-2	Y	N	1.58E-03	3.90E-03	7.61E-03
Butyr/Isobutyraldehyde	78-84-2	N	N	4.86E-05	1.20E-04	2.34E-04
Carbon Tetrachloride	56-23-5	Y	N	1.77E-05	4.37E-05	8.53E-05
Chlorobenzene	108-90-7	Y	N	1.29E-05	3.18E-05	6.21E-05
Chloroform	67-66-3	Y	N	1.37E-05	3.38E-05	6.60E-05
Ethane	74-84-0	N	N	0.07	0.17	0.34
Ethylbenzene	100-41-4	Y	N	2.48E-05	6.12E-05	1.19E-04
Ethylene Dibromide	106-93-4	Y	N	2.13E-05	5.25E-05	1.03E-04
Formaldehyde	50-00-0	Y	N	0.02	0.051	0.10
Methanol	67-56-1	Y	N	3.06E-03	7.55E-03	0.01
Methylene Chloride	75-09-2	Y	N	4.12E-05	1.02E-04	1.98E-04
Naphthalene	81-20-3	Y	N	9.71E-05	2.40E-04	4.68E-04
PAH		N	N	1.41E-04	3.48E-04	6.79E-04
Styrene	100-42-5	Y	N	1.19E-05	2.94E-05	5.73E-05
Toluene	108-88-3	Y	N	5.58E-04	1.38E-03	2.69E-03
Vinyl Chloride	75-01-4	Y	N	7.18E-06	1.77E-05	3.46E-05
Xylene	1330-20-7	Y	N	1.95E-04	4.81E-04	9.39E-04
				Total Haps (lb/hr)		0.156

[1] Emission Factors from AP-42 Table 3.2-3; Propane Emission Factors are assumed to be comparable to Natural Gas Emission Factors found in AP-42 Section 3.2, Table 3.2-3.

[2] Adjusted EF

Trace Delaware Gathering, LLC - Apollo Gas Plant

PSI D11.1L Generator Engine

Emission Unit:	GEN-2
Source Description:	PSI D11.1L Generator Engine
Manufacturer:	PSI
Model:	D11.1L
Type:	4SRB

Fuel Consumption

Site horsepower	268	hp	Manufacturer Rating
Fuel heat value	1067	Btu/scf	Fuel Gas - Residue
Heat input	2.0	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	1.8	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	16.2	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	7367	Btu/hp-hr	

Emission Calculations

Uncontrolled	NO_x	CO	VOC[1]	HCHO[5]	SO_2[2]	PM_{10}[4,5]	$PM_{2.5}$[4,5]	H_2S[2]	Total HAPs[2]	Units	Notes
Emission Factors	1.00	2.00	0.70	-	-	-	-	-	-	g/hp-hr	EPA Certification
	-	-	-	0.021	-	0.019	0.019	-	-	lb/MMBtu	AP-42 Table 3.2-3
	-	-	-	0.021	-	0.020	0.020	-	-	lb/MMBtu	AP-42 Table 3.2-3 (adjusted)
	-	-	-	-	2	-	-	-	-	gr S/ 100 scf	
	-	-	-	-	-	-	-	0.001	-	gr H2S/ 100 scf	
Emissions	0.59	1.18	0.41	0.042	0.011	0.040	0.040	8.61E-08	0.067	lb/hr	
	2.59	5.18	1.81	0.19	0.046	0.18	0.18	3.77E-07	0.29	tpy	

Controlled	NO_x	CO	VOC[1]	HCHO[5]	SO_2[2]	PM_{10}[4,5]	$PM_{2.5}$[4,5]	H_2S[2]	Total HAPs[2]	Units	Notes
Emission Factors	1.00	2.00	0.70	-	-	-	-	-	-	g/hp-hr	EPA Certification
	-	-	-	0.021	-	0.019	0.019	-	-	lb/MMBtu	AP-42 Table 3.2-3
	-	-	-	0.021	-	0.020	0.020	-	-	lb/MMBtu	AP-42 Table 3.2-3 (adjusted)
	-	-	-	-	2	-	-	-	-	gr S/ 100 scf	
	-	-	-	-	-	-	-	0.001	-	gr H2S/ 100 scf	Engineering Estimate
Emissions	0.59	1.18	0.41	0.042	0.011	0.040	0.040	8.61E-08	0.067	lb/hr	
	2.59	5.18	1.81	0.19	0.046	0.18	0.18	3.77E-07	0.29	tpy	

Controlled	Acetaldehyde[5]	Acrolein[5]	Benzene[5]	E-Benzene[5]	n-Hexane[5]	Toluene[5]	Xylene[5]	Methanol[5]	Units	Notes
Emission Factors	2.79E-03	2.63E-03	1.58E-03	2.48E-05	-	5.58E-04	1.95E-04	3.06E-03	lb/MMBtu	AP-42 Table 3.2-2
	2.92E-03	2.75E-03	1.65E-03	2.59E-05	-	5.84E-04	2.04E-04	3.20E-03	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
Emissions	5.76E-03	5.43E-03	3.26E-03	5.12E-05	-	1.15E-03	4.03E-04	6.32E-03	lb/hr	
	0.025	0.024	0.014	2.24E-04	-	5.05E-03	1.76E-03	0.028	tpy	

NOTES

[1] VOC emission factor is calculated by adding aldehyde emissions.

[2] SO_2 emissions are based on fuel consumption, fuel sulfur content, fuel H_2S content, and DRE (assumed to be 95%):

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[3] HAPs emissions factors are referenced from AP-42 Table 3.2-2.

[4] Assumes PM (Filterable + Condensable) = PM_{10} = $PM_{2.5}$

[5] AP-42 Table 3.2-2 & adjusted for 1067.28 Btu/scf.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	230.97	4.35E-03	4.35E-04	231.20	lb/hr	kg/ MMBtu * hourly natural gas heat input
	1011.63	0.019	1.91E-03	1012.67	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

PSI D11.1L Generator Engine

Emission Factors for Speciated Organic Compounds from Natural Gas Engine Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMBtu)[1]	Adjusted EF (lb/MMBtu)[2]	Hourly Emissions (lb/hr)
1,1,2,2-Tetrachloroethane	79-34-5	Y	N	2.53E-05	2.65E-05	5.23E-05
1,1,2-Trichloroethane	79-00-5	Y	N	1.53E-05	1.60E-05	3.16E-05
1,1-Dichloroethane	75-34-3	Y	N	1.13E-05	1.18E-05	2.33E-05
1,2-Dichloroethane	107-06-2	Y	N	1.13E-05	1.18E-05	2.33E-05
1,2-Dichloropropane	78-87-5	Y	N	1.30E-05	1.36E-05	2.69E-05
1,3-Butadiene	106-99-0	Y	N	6.63E-04	6.94E-04	1.37E-03
1,3-Dichloropropene	542-75-6	Y	N	1.27E-05	1.33E-05	2.62E-05
Acetaldehyde	75-07-0	Y	N	2.79E-03	2.92E-03	5.76E-03
Acrolein	107-02-8	Y	N	2.63E-03	2.75E-03	5.43E-03
Benzene	71-43-2	Y	N	1.58E-03	1.65E-03	3.26E-03
Butyr/Isobutyraldehyde	78-84-2	N	N	4.86E-05	5.09E-05	1.00E-04
Carbon Tetrachloride	56-23-5	Y	N	1.77E-05	1.85E-05	3.66E-05
Chlorobenzene	108-90-7	Y	N	1.29E-05	1.35E-05	2.67E-05
Chloroform	67-66-3	Y	N	1.37E-05	1.43E-05	2.83E-05
Ethane	74-84-0	N	N	0.07	0.07	0.15
Ethylbenzene	100-41-4	Y	N	2.48E-05	2.59E-05	5.12E-05
Ethylene Dibromide	106-93-4	Y	N	2.13E-05	2.23E-05	4.40E-05
Formaldehyde	50-00-0	Y	N	0.02	0.021	0.042
Methanol	67-56-1	Y	N	3.06E-03	3.20E-03	6.32E-03
Methylene Chloride	75-09-2	Y	N	4.12E-05	4.31E-05	8.51E-05
Naphthalene	81-20-3	Y	N	9.71E-05	1.02E-04	2.01E-04
PAH		N	N	1.41E-04	1.48E-04	2.91E-04
Styrene	100-42-5	Y	N	1.19E-05	1.25E-05	2.46E-05
Toluene	108-88-3	Y	N	5.58E-04	5.84E-04	1.15E-03
Vinyl Chloride	75-01-4	Y	N	7.18E-06	7.51E-06	1.48E-05
Xylene	1330-20-7	Y	N	1.95E-04	2.04E-04	4.03E-04
				Total Haps (lb/hr)		0.067

[1] Emission Factors from AP-42 Table 3.2-3; Propane Emission Factors are assumed to be comparable to Natural Gas Emission Factors found in AP-42 Section 3.2, Table 3.2-3.

[2] Adjusted EF

Trace Delaware Gathering, LLC - Apollo Gas Plant

Condensate Heater

Emission Unit:	HT-1	
Source Description:	Condensate Heater	
Heat Input:	2.50	MMBTU/hr
Fuel Heat Value:	1,067.28	Btu/scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	2,342.40	scf/hr
Fuel Usage:	2.34E-03	MMscf/hr
Conversion Efficiency:	98%	

Criteria Pollutant Emission Rates								
	NO_x	CO	VOC	SO_2[1]	H_2S	PM^2	Units	Notes
Emission Factors	100.00	84.00	5.50	-	-	7.60	lb/MMscf	AP-42 Table 1.4-1 & 2
	104.64	87.89	5.75	-	-	7.95	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	2.00	-	-	gr S/ 100 scf	
	-	-	-	-	6.51E-04	-	gr H2S/ 100 scf	
Emissions	0.25	0.21	0.013	0.013	4.36E-08	0.019	lb/hr[3]	
	1.07	0.90	0.059	0.059	1.91E-07	0.082	tons/year[4]	

HAP Emission Rates							
	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80	2.10E-03	3.40E-03	0.08	-	lb/MMscf	AP-42 Table 1.4-3
	1.88	2.20E-03	3.56E-03	0.078	-	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	4.41E-03	5.15E-06	8.33E-06	1.84E-04	4.63E-03	lb/hr[3]	
	0.019	2.25E-05	3.65E-05	8.05E-04	0.020	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur content (gr/100 scf)

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:

Criteria and HAPs (lb/hr) = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[4] Annual Emissions (tons/year) = Hourly emissions (lb/hr) * Operating hours (hr/yr) / 2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	292.44	5.51E-03	5.51E-04	292.74	lb/hr	kg/ MMBtu * hourly natural gas heat input
	1280.90	0.024	2.41E-03	1282.22	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Condensate Heater

Emission Factors for Metals From Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
Arsenic	7440-38-2	Y	N	2.00E-04	2.09E-04	4.90E-07
Barium	7440-39-3	N	Y	4.40E-03	4.60E-03	1.08E-05
Beryllium	7440-41-7	Y	N	1.20E-05	1.26E-05	2.94E-08
Cadmium	7440-43-9	Y	Y	1.10E-03	1.15E-03	2.70E-06
Chromium	7440-47-3	Y	Y	1.40E-03	1.46E-03	3.43E-06
Cobalt	7440-48-4	Y	Y	8.40E-05	8.79E-05	2.06E-07
Copper	7440-50-8	N	Y	8.50E-04	8.89E-04	2.08E-06
Manganese	7439-96-5	Y	Y	3.80E-04	3.98E-04	9.31E-07
Mercury	7439-97-6	Y	N	2.60E-04	2.72E-04	6.37E-07
Molybdenum	7439-98-7	N	Y	1.10E-03	1.15E-03	2.70E-06
Nickel	7440-02-0	Y	Y	2.10E-03	2.20E-03	5.15E-06
Selenium	7782-49-2	Y	Y	2.40E-05	2.51E-05	5.88E-08
Vanadium	7440-62-2	N	Y	2.30E-03	2.41E-03	5.64E-06
Zinc	7440-66-6	N	Y	0.03	0.030	7.11E-05

Emission Factors for Speciated Organic Compounds from Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
2-Methylnapthalene	91-57-6	Y	N	2.40E-05	2.51E-05	5.88E-08
3-Methylcholanthrene	56-49-5	Y	N	1.80E-06	1.88E-06	4.41E-09
7,12-Dimethylbenz(a)anthra	N/A	Y	N	1.60E-05	1.67E-05	3.92E-08
Acenaphthene	83-32-9	Y	N	1.80E-06	1.88E-06	4.41E-09
Acenaphthylene	203-96-8	Y	N	1.80E-06	1.88E-06	4.41E-09
Anthracene	120-12-7	Y	N	2.40E-06	2.51E-06	5.88E-09
Benz(a)anthracene	56-55-3	Y	N	1.80E-06	1.88E-06	4.41E-09
Benzene	71-43-2	Y	N	2.10E-03	2.20E-03	5.15E-06
Benzo(a)pyrene	50-32-8	Y	N	1.20E-06	1.26E-06	2.94E-09
Benzo(b)fluoranthene	205-99-2	Y	N	1.80E-06	1.88E-06	4.41E-09
Benzo(g,h,i)perylene	191-24-2	Y	N	1.20E-06	1.26E-06	2.94E-09
Benzo(k)fluoranthene	207-08-9	Y	N	1.80E-06	1.88E-06	4.41E-09
Butane	106-97-8	N	N	2.10	2.20	5.15E-03
Chrysene	218-01-9	Y	N	1.80E-06	1.88E-06	4.41E-09
Dibenzo(a,h)anthracene	53-70-3	Y	N	1.20E-06	1.26E-06	2.94E-09
Dichlorobenzene	25321-22-6	Y	Y	1.20E-03	1.26E-03	2.94E-06
Ethane	74-84-0	N	N	3.10	3.24	7.60E-03
Fluoranthene	206-44-0	Y	N	3.00E-06	3.14E-06	7.35E-09
Fluorene	86-73-7	Y	N	2.80E-06	2.93E-06	6.86E-09
Formaldehyde	50-00-0	Y	N	0.08	0.078	1.84E-04
Hexane	110-54-3	Y	N	1.80	1.88	4.41E-03
Indeno(1,2,3-cd)pyrene	193-39-5	Y	N	1.80E-06	1.88E-06	4.41E-09
Naphthalene	81-20-3	Y	N	6.10E-04	6.38E-04	1.50E-06
Pentane	109-66-0	N	N	2.60	2.72	6.37E-03
Phenanathrene	85-01-8	Y	N	1.70E-05	1.78E-05	4.17E-08
Propane	74-98-6	N	N	1.60	1.67	3.92E-03
Pyrene	129-00-0	Y	N	5.00E-06	5.23E-06	1.23E-08
Toluene	108-88-3	Y	N	3.40E-03	3.56E-03	8.33E-06
				Total Haps (lb/hr)		4.63E-03

[1] Emission Factors from AP-42 Tables 1.4-3 & 1.4-4

[2] Adjusted EF, per footnote a in Table 1.4-3

Trace Delaware Gathering, LLC - Apollo Gas Plant

Amine Reboiler Hot Oil Heater

Unit:	HT-2	
Source Description:	Amine Reboiler Hot Oil Heater	
Heat Input:	57.50	MMBTU/hr
Fuel Heat Value:	1067.28	Btu/scf
Operating Hours:	8760.00	hours/yr
Fuel Usage:	53875.22	scf/hr
Fuel Usage:	0.054	MMscf/hr
Conversion Efficiency:	98%	

Criteria Pollutant Emission Rates per Unit

	NOx	CO	VOC	SO_2 [1]	H_2S	PM^2	Units	Notes
	0.0401	0.0407	0.0192	-	-	0.0132	lb/MMBtu	Manufacturer Guarantees
	-	-	-	2.00	-	-	gr S/ 100 scf	
	-	-	-	-	6.51E-04	-	gr H2S/ 100 scf	
Emissions	2.31	2.34	1.10	0.31	1.00E-06	0.76	lb/hr [3]	lb/ MMscf * hourly fuel usage
	10.10	10.25	4.84	1.35	4.39E-06	3.32	tons/year [4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs [5]	Units	Notes
Emission Factors	1.80	2.10E-03	3.40E-03	0.075	-	lb/MMscf	AP-42 Table 1.4-3
	1.88	2.20E-03	3.56E-03	0.078	-	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.10	1.18E-04	1.92E-04	4.23E-03	0.11	lb/hr [3]	
	0.44	5.19E-04	8.40E-04	0.019	0.47	tons/year [4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (2 gr/100 scf). A 98% conversion of combusted H_2S to SO_2 is assumed.

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:

Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

Greenhouse Emissions

	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	6726.19	0.13	0.013	6733.10	lb/hr	kg/ MMBtu * hourly natural gas heat input
	29460.73	0.56	0.056	29490.99	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Amine Reboiler Hot Oil Heater

Emission Factors for Metals From Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
Arsenic	7440-38-2	Y	N	2.00E-04	2.09E-04	1.13E-05
Barium	7440-39-3	N	Y	4.40E-03	4.60E-03	2.48E-04
Beryllium	7440-41-7	Y	N	1.20E-05	1.26E-05	6.76E-07
Cadmium	7440-43-9	Y	Y	1.10E-03	1.15E-03	6.20E-05
Chromium	7440-47-3	Y	Y	1.40E-03	1.46E-03	7.89E-05
Cobalt	7440-48-4	Y	Y	8.40E-05	8.79E-05	4.74E-06
Copper	7440-50-8	N	Y	8.50E-04	8.89E-04	4.79E-05
Manganese	7439-96-5	Y	Y	3.80E-04	3.98E-04	2.14E-05
Mercury	7439-97-6	Y	N	2.60E-04	2.72E-04	1.47E-05
Molybdenum	7439-98-7	N	Y	1.10E-03	1.15E-03	6.20E-05
Nickel	7440-02-0	Y	Y	2.10E-03	2.20E-03	1.18E-04
Selenium	7782-49-2	Y	Y	2.40E-05	2.51E-05	1.35E-06
Vanadium	7440-62-2	N	Y	2.30E-03	2.41E-03	1.30E-04
Zinc	7440-66-6	N	Y	0.03	0.03	1.63E-03

Emission Factors for Speciated Organic Compounds from Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
2-Methylnapthalene	91-57-6	Y	N	2.40E-05	2.51E-05	1.35E-06
3-Methylcholanthrene	56-49-5	Y	N	1.80E-06	1.88E-06	1.01E-07
7,12-Dimethylbenz(a)anthracene	N/A	Y	N	1.60E-05	1.67E-05	9.02E-07
Acenaphthene	83-32-9	Y	N	1.80E-06	1.88E-06	1.01E-07
Acenaphthylene	203-96-8	Y	N	1.80E-06	1.88E-06	1.01E-07
Anthracene	120-12-7	Y	N	2.40E-06	2.51E-06	1.35E-07
Benz(a)anthracene	56-55-3	Y	N	1.80E-06	1.88E-06	1.01E-07
Benzene	71-43-2	Y	N	2.10E-03	2.20E-03	1.18E-04
Benzo(a)pyrene	50-32-8	Y	N	1.20E-06	1.26E-06	6.76E-08
Benzo(b)fluoranthene	205-99-2	Y	N	1.80E-06	1.88E-06	1.01E-07
Benzo(g,h,i)perylene	191-24-2	Y	N	1.20E-06	1.26E-06	6.76E-08
Benzo(k)fluoranthene	207-08-9	Y	N	1.80E-06	1.88E-06	1.01E-07
Butane	106-97-8	N	N	2.10	2.20	0.12
Chrysene	218-01-9	Y	N	1.80E-06	1.88E-06	1.01E-07
Dibenzo(a,h)anthracene	53-70-3	Y	N	1.20E-06	1.26E-06	6.76E-08
Dichlorobenzene	25321-22-6	Y	Y	1.20E-03	1.26E-03	6.76E-05
Ethane	74-84-0	N	N	3.10	3.24	0.17
Fluoranthene	206-44-0	Y	N	3.00E-06	3.14E-06	1.69E-07
Fluorene	86-73-7	Y	N	2.80E-06	2.93E-06	1.58E-07
Formaldehyde	50-00-0	Y	N	0.08	0.08	4.23E-03
Hexane	110-54-3	Y	N	1.80	1.88	0.10
Indeno(1,2,3-cd)pyrene	193-39-5	Y	N	1.80E-06	1.88E-06	1.01E-07
Naphthalene	81-20-3	Y	N	6.10E-04	6.38E-04	3.44E-05
Pentane	109-66-0	N	N	2.60	2.72	0.15
Phenanathrene	85-01-8	Y	N	1.70E-05	1.78E-05	9.58E-07
Propane	74-98-6	N	N	1.60	1.67	0.09
Pyrene	129-00-0	Y	N	5.00E-06	5.23E-06	2.82E-07
Toluene	108-88-3	Y	N	3.40E-03	3.56E-03	1.92E-04
			Total Haps (lb/hr)			0.11

[1] Emission Factors from AP-42 Tables 1.4-3 & 1.4-4

[2] Adjusted EF, per footnote a in Table 1.4-3

Trace Delaware Gathering, LLC - Apollo Gas Plant

Glycol Reboiler Heater

Emission Unit:	HT-3	
Source Description:	Glycol Reboiler Heater	
Heat Input:	3.00	MMBTU/hr
Fuel Heat Value:	1,067.28	Btu/scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	2,810.88	scf/hr
Fuel Usage:	2.81E-03	MMscf/hr
Conversion Efficiency:	98%	

Criteria Pollutant Emission Rates								
	NO_x	CO	VOC	SO_2[1]	H_2S	PM^2	Units	Notes
Emission Factors	100.00	84.00	5.50	-	-	7.60	lb/MMscf	AP-42 Table 1.4-1 & 2
	104.64	87.89	5.75	-	-	7.95	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	2.00	-	-	gr S/ 100 scf	
	-	-	-	-	6.51E-04	-	gr H2S/ 100 scf	
Emissions	0.29	0.25	0.016	0.016	5.23E-08	0.022	lb/hr[3]	
	1.29	1.08	0.071	0.070	2.29E-07	0.098	tons/year[4]	

HAP Emission Rates							
	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80	2.10E-03	3.40E-03	0.075	-	lb/MMscf	AP-42 Table 1.4-3
	1.88	2.20E-03	3.56E-03	0.078	-	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	5.29E-03	6.18E-06	1.00E-05	2.21E-04	5.55E-03	lb/hr[3]	
	0.023	2.71E-05	4.38E-05	9.66E-04	0.024	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur content (gr/100 scf)

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:

Criteria and HAPs (lb/hr) = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[4] Annual Emissions (tons/year) = Hourly emissions (lb/hr) * Operating hours (hr/yr) / 2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	350.93	6.61E-03	6.61E-04	351.29	kg/hr	kg/ MMBtu * hourly natural gas heat input
	1537.08	0.029	2.90E-03	1538.66	mton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

Glycol Reboiler Heater

Emission Factors for Metals From Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
Arsenic	7440-38-2	Y	N	2.00E-04	2.09E-04	5.88E-07
Barium	7440-39-3	N	Y	4.40E-03	4.60E-03	1.29E-05
Beryllium	7440-41-7	Y	N	1.20E-05	1.26E-05	3.53E-08
Cadmium	7440-43-9	Y	Y	1.10E-03	1.15E-03	3.24E-06
Chromium	7440-47-3	Y	Y	1.40E-03	1.46E-03	4.12E-06
Cobalt	7440-48-4	Y	Y	8.40E-05	8.79E-05	2.47E-07
Copper	7440-50-8	N	Y	8.50E-04	8.89E-04	2.50E-06
Manganese	7439-96-5	Y	Y	3.80E-04	3.98E-04	1.12E-06
Mercury	7439-97-6	Y	N	2.60E-04	2.72E-04	7.65E-07
Molybdenum	7439-98-7	N	Y	1.10E-03	1.15E-03	3.24E-06
Nickel	7440-02-0	Y	Y	2.10E-03	2.20E-03	6.18E-06
Selenium	7782-49-2	Y	Y	2.40E-05	2.51E-05	7.06E-08
Vanadium	7440-62-2	N	Y	2.30E-03	2.41E-03	6.76E-06
Zinc	7440-66-6	N	Y	0.03	0.03	8.53E-05

Emission Factors for Speciated Organic Compounds from Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
2-Methylnapthalene	91-57-6	Y	N	2.40E-05	2.51E-05	7.06E-08
3-Methylcholanthrene	56-49-5	Y	N	1.80E-06	1.88E-06	5.29E-09
7,12-Dimethylbenz(a)anthra	N/A	Y	N	1.60E-05	1.67E-05	4.71E-08
Acenaphthene	83-32-9	Y	N	1.80E-06	1.88E-06	5.29E-09
Acenaphthylene	203-96-8	Y	N	1.80E-06	1.88E-06	5.29E-09
Anthracene	120-12-7	Y	N	2.40E-06	2.51E-06	7.06E-09
Benz(a)anthracene	56-55-3	Y	N	1.80E-06	1.88E-06	5.29E-09
Benzene	71-43-2	Y	N	2.10E-03	2.20E-03	6.18E-06
Benzo(a)pyrene	50-32-8	Y	N	1.20E-06	1.26E-06	3.53E-09
Benzo(b)fluoranthene	205-99-2	Y	N	1.80E-06	1.88E-06	5.29E-09
Benzo(g,h,i)perylene	191-24-2	Y	N	1.20E-06	1.26E-06	3.53E-09
Benzo(k)fluoranthene	207-08-9	Y	N	1.80E-06	1.88E-06	5.29E-09
Butane	106-97-8	N	N	2.10	2.20	6.18E-03
Chrysene	218-01-9	Y	N	1.80E-06	1.88E-06	5.29E-09
Dibenzo(a,h)anthracene	53-70-3	Y	N	1.20E-06	1.26E-06	3.53E-09
Dichlorobenzene	25321-22-6	Y	Y	1.20E-03	1.26E-03	3.53E-06
Ethane	74-84-0	N	N	3.10	3.24	9.12E-03
Fluoranthene	206-44-0	Y	N	3.00E-06	3.14E-06	8.82E-09
Fluorene	86-73-7	Y	N	2.80E-06	2.93E-06	8.24E-09
Formaldehyde	50-00-0	Y	N	0.08	0.08	2.21E-04
Hexane	110-54-3	Y	N	1.80	1.88	5.29E-03
Indeno(1,2,3-cd)pyrene	193-39-5	Y	N	1.80E-06	1.88E-06	5.29E-09
Naphthalene	81-20-3	Y	N	6.10E-04	6.38E-04	1.79E-06
Pentane	109-66-0	N	N	2.60	2.72	7.65E-03
Phenanathrene	85-01-8	Y	N	1.70E-05	1.78E-05	5.00E-08
Propane	74-98-6	N	N	1.60	1.67	4.71E-03
Pyrene	129-00-0	Y	N	5.00E-06	5.23E-06	1.47E-08
Toluene	108-88-3	Y	N	3.40E-03	3.56E-03	1.00E-05
				Total Haps (lb/hr)		5.55E-03

[1] Emission Factors from AP-42 Tables 1.4-3 & 1.4-4

[2] Adjusted EF, per footnote a in Table 1.4-3

Trace Delaware Gathering, LLC - Apollo Gas Plant

Regen Heater

Unit:	HT-4	
Source Description:	Regen Heater	
Heat Input:	15.22	MMBTU/hr
Fuel Heat Value:	1067.28	Btu/scf
Operating Hours:	8760.00	hours/yr
Fuel Usage:	14260.54	scf/hr
Fuel Usage:	0.014	MMscf/hr
Conversion Efficiency:	98%	

Criteria Pollutant Emission Rates per Unit								
	NO_x	CO	VOC	SO_2[1]	H_2S	PM[2]	Units	Notes
Emission Factors	0.03	0.04	0.019	-	-	0.013	lb/MMBtu	Manufacturer Guarantees
	-	-	-	2.00	-	-	gr S/ 100 scf	
	-	-	-	-	6.51E-04	-	gr H2S/ 100 scf	Engineering Estimate
Emissions	0.46	0.61	0.29	0.082	2.65E-07	0.20	lb/hr[3]	lb/ MMscf * hourly fuel usage
	2.00	2.67	1.27	0.36	1.16E-06	0.87	tons/year[4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates							
	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80	2.10E-03	3.40E-03	0.075	-	lb/MMscf	AP-42 Table 1.4-3
	1.88	2.20E-03	3.56E-03	0.078	-	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.027	3.13E-05	5.07E-05	1.12E-03	0.028	lb/hr[3]	
	0.12	1.37E-04	2.22E-04	4.90E-03	0.12	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (2 gr/100 scf). A 98% conversion of combusted H_2S to SO_2 is assumed.

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:

Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	1780.39	0.034	3.36E-03	1782.22	lb/hr	kg/ MMBtu * hourly natural gas heat input
	7798.13	0.15	0.015	7806.14	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Regen Heater

Emission Factors for Metals From Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
Arsenic	7440-38-2	Y	N	2.00E-04	2.09E-04	2.98E-06
Barium	7440-39-3	N	Y	4.40E-03	4.60E-03	6.57E-05
Beryllium	7440-41-7	Y	N	1.20E-05	1.26E-05	1.79E-07
Cadmium	7440-43-9	Y	Y	1.10E-03	1.15E-03	1.64E-05
Chromium	7440-47-3	Y	Y	1.40E-03	1.46E-03	2.09E-05
Cobalt	7440-48-4	Y	Y	8.40E-05	8.79E-05	1.25E-06
Copper	7440-50-8	N	Y	8.50E-04	8.89E-04	1.27E-05
Manganese	7439-96-5	Y	Y	3.80E-04	3.98E-04	5.67E-06
Mercury	7439-97-6	Y	N	2.60E-04	2.72E-04	3.88E-06
Molybdenum	7439-98-7	N	Y	1.10E-03	1.15E-03	1.64E-05
Nickel	7440-02-0	Y	Y	2.10E-03	2.20E-03	3.13E-05
Selenium	7782-49-2	Y	Y	2.40E-05	2.51E-05	3.58E-07
Vanadium	7440-62-2	N	Y	2.30E-03	2.41E-03	3.43E-05
Zinc	7440-66-6	N	Y	0.03	0.03	4.33E-04

Emission Factors for Speciated Organic Compounds from Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
2-Methylnapthalene	91-57-6	Y	N	2.40E-05	2.51E-05	3.58E-07
3-Methylcholanthrene	56-49-5	Y	N	1.80E-06	1.88E-06	2.69E-08
7,12-Dimethylbenz(a)anthracene	N/A	Y	N	1.60E-05	1.67E-05	2.39E-07
Acenaphthene	83-32-9	Y	N	1.80E-06	1.88E-06	2.69E-08
Acenaphthylene	203-96-8	Y	N	1.80E-06	1.88E-06	2.69E-08
Anthracene	120-12-7	Y	N	2.40E-06	2.51E-06	3.58E-08
Benz(a)anthracene	56-55-3	Y	N	1.80E-06	1.88E-06	2.69E-08
Benzene	71-43-2	Y	N	2.10E-03	2.20E-03	3.13E-05
Benzo(a)pyrene	50-32-8	Y	N	1.20E-06	1.26E-06	1.79E-08
Benzo(b)fluoranthene	205-99-2	Y	N	1.80E-06	1.88E-06	2.69E-08
Benzo(g,h,i)perylene	191-24-2	Y	N	1.20E-06	1.26E-06	1.79E-08
Benzo(k)fluoranthene	207-08-9	Y	N	1.80E-06	1.88E-06	2.69E-08
Butane	106-97-8	N	N	2.10	2.20	0.03
Chrysene	218-01-9	Y	N	1.80E-06	1.88E-06	2.69E-08
Dibenzo(a,h)anthracene	53-70-3	Y	N	1.20E-06	1.26E-06	1.79E-08
Dichlorobenzene	25321-22-6	Y	Y	1.20E-03	1.26E-03	1.79E-05
Ethane	74-84-0	N	N	3.10	3.24	0.05
Fluoranthene	206-44-0	Y	N	3.00E-06	3.14E-06	4.48E-08
Fluorene	86-73-7	Y	N	2.80E-06	2.93E-06	4.18E-08
Formaldehyde	50-00-0	Y	N	0.08	0.08	1.12E-03
Hexane	110-54-3	Y	N	1.80	1.88	0.03
Indeno(1,2,3-cd)pyrene	193-39-5	Y	N	1.80E-06	1.88E-06	2.69E-08
Naphthalene	81-20-3	Y	N	6.10E-04	6.38E-04	9.10E-06
Pentane	109-66-0	N	N	2.60	2.72	0.04
Phenanathrene	85-01-8	Y	N	1.70E-05	1.78E-05	2.54E-07
Propane	74-98-6	N	N	1.60	1.67	0.02
Pyrene	129-00-0	Y	N	5.00E-06	5.23E-06	7.46E-08
Toluene	108-88-3	Y	N	3.40E-03	3.56E-03	5.07E-05
				Total Haps (lb/hr)		0.03

[1] Emission Factors from AP-42 Tables 1.4-3 & 1.4-4

[2] Adjusted EF, per footnote a in Table 1.4-3

Trace Delaware Gathering, LLC - Apollo Gas Plant

Stabilizer Hot Oil Heater

Unit:	HT-5	
Source Description:	Stabilizer Hot Oil Heater	
Heat Input:	10.77	MMBTU/hr
Fuel Heat Value:	1067.28	Btu/scf
Operating Hours:	8760.00	hours/yr
Fuel Usage:	10091.06	scf/hr
Fuel Usage:	0.01	MMscf/hr
Conversion Efficiency:	98%	

Criteria Pollutant Emission Rates per Unit

	NO_x	CO	VOC	SO_2[1]	H_2S	PM[2]	Units	Notes
Emission Factors	0.0401	0.0407	0.0192	-	-	0.0132	lb/MMBtu	Manufacturer Guarantees
	-	-	-	2.00	-	-	gr S/ 100 scf	
	-	-	-	-	6.51E-04	-	gr H2S/ 100 scf	Engineering Estimate
Emissions	0.43	0.44	0.21	0.058	1.88E-07	0.14	lb/hr[3]	lb/ MMscf * hourly fuel usage
	1.89	1.92	0.91	0.25	8.23E-07	0.62	tons/year[4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80	2.10E-03	3.40E-03	0.075	-	lb/MMscf	AP-42 Table 1.4-3
	1.88	2.20E-03	3.56E-03	0.078	-	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.019	2.22E-05	3.59E-05	7.92E-04	0.020	lb/hr[3]	
	0.083	9.71E-05	1.57E-04	3.47E-03	0.087	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (2 gr/100 scf). A 98% conversion of combusted H_2S to SO_2 is assumed.

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:

Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

SO_2 (lb/hr) = [Sulfur Content (gr S / 100 scf) * SO2 to Sulfur Molar Ratio (64/32) + H_2S Content (gr H_2S / 100 scf) * DRE (%) * SO2 to H_2S Molar Ratio (64/34)] / (7000 g/lb) * Fuel Consumption (scf/hr)

H_2S (lb/hr) = H_2S Content (gr H_2S / 100 scf) / (7000 g/lb) * Fuel Consumption (scf/hr) * (1 - DRE (%))

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

Greenhouse Emissions

	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1 & C-2
Total Emissions	1259.85	0.024	2.37E-03	1261.14	lb/hr	kg/ MMBtu * hourly natural gas heat input
	5518.12	0.10	0.010	5523.79	ton/yr	kg/ MMBtu * annual natural gas heat input

1 kg = 2.204622622 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Stabilizer Hot Oil Heater

Emission Factors for Metals From Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
Arsenic	7440-38-2	Y	N	2.00E-04	2.09E-04	2.11E-06
Barium	7440-39-3	N	Y	4.40E-03	4.60E-03	4.65E-05
Beryllium	7440-41-7	Y	N	1.20E-05	1.26E-05	1.27E-07
Cadmium	7440-43-9	Y	Y	1.10E-03	1.15E-03	1.16E-05
Chromium	7440-47-3	Y	Y	1.40E-03	1.46E-03	1.48E-05
Cobalt	7440-48-4	Y	Y	8.40E-05	8.79E-05	8.87E-07
Copper	7440-50-8	N	Y	8.50E-04	8.89E-04	8.98E-06
Manganese	7439-96-5	Y	Y	3.80E-04	3.98E-04	4.01E-06
Mercury	7439-97-6	Y	N	2.60E-04	2.72E-04	2.75E-06
Molybdenum	7439-98-7	N	Y	1.10E-03	1.15E-03	1.16E-05
Nickel	7440-02-0	Y	Y	2.10E-03	2.20E-03	2.22E-05
Selenium	7782-49-2	Y	Y	2.40E-05	2.51E-05	2.53E-07
Vanadium	7440-62-2	N	Y	2.30E-03	2.41E-03	2.43E-05
Zinc	7440-66-6	N	Y	0.03	0.03	3.06E-04

Emission Factors for Speciated Organic Compounds from Natural Gas Combustion						
Pollutant	CAS No.	HAP?	NM Toxic?	Emission Factor (lb/MMscf)[1]	Adjusted EF (lb/MMscf)[2]	Hourly Emissions (lb/hr)
2-Methylnapthalene	91-57-6	Y	N	2.40E-05	2.51E-05	2.53E-07
3-Methylcholanthrene	56-49-5	Y	N	1.80E-06	1.88E-06	1.90E-08
7,12-Dimethylbenz(a)anthracene	N/A	Y	N	1.60E-05	1.67E-05	1.69E-07
Acenaphthene	83-32-9	Y	N	1.80E-06	1.88E-06	1.90E-08
Acenaphthylene	203-96-8	Y	N	1.80E-06	1.88E-06	1.90E-08
Anthracene	120-12-7	Y	N	2.40E-06	2.51E-06	2.53E-08
Benz(a)anthracene	56-55-3	Y	N	1.80E-06	1.88E-06	1.90E-08
Benzene	71-43-2	Y	N	2.10E-03	2.20E-03	2.22E-05
Benzo(a)pyrene	50-32-8	Y	N	1.20E-06	1.26E-06	1.27E-08
Benzo(b)fluoranthene	205-99-2	Y	N	1.80E-06	1.88E-06	1.90E-08
Benzo(g,h,i)perylene	191-24-2	Y	N	1.20E-06	1.26E-06	1.27E-08
Benzo(k)fluoranthene	207-08-9	Y	N	1.80E-06	1.88E-06	1.90E-08
Butane	106-97-8	N	N	2.10	2.20	0.02
Chrysene	218-01-9	Y	N	1.80E-06	1.88E-06	1.90E-08
Dibenzo(a,h)anthracene	53-70-3	Y	N	1.20E-06	1.26E-06	1.27E-08
Dichlorobenzene	25321-22-6	Y	Y	1.20E-03	1.26E-03	1.27E-05
Ethane	74-84-0	N	N	3.10	3.24	0.03
Fluoranthene	206-44-0	Y	N	3.00E-06	3.14E-06	3.17E-08
Fluorene	86-73-7	Y	N	2.80E-06	2.93E-06	2.96E-08
Formaldehyde	50-00-0	Y	N	0.08	0.08	7.92E-04
Hexane	110-54-3	Y	N	1.80	1.88	0.02
Indeno(1,2,3-cd)pyrene	193-39-5	Y	N	1.80E-06	1.88E-06	1.90E-08
Naphthalene	81-20-3	Y	N	6.10E-04	6.38E-04	6.44E-06
Pentane	109-66-0	N	N	2.60	2.72	0.03
Phenanathrene	85-01-8	Y	N	1.70E-05	1.78E-05	1.80E-07
Propane	74-98-6	N	N	1.60	1.67	0.02
Pyrene	129-00-0	Y	N	5.00E-06	5.23E-06	5.28E-08
Toluene	108-88-3	Y	N	3.40E-03	3.56E-03	3.59E-05
				Total Haps (lb/hr)		0.02

[1] Emission Factors from AP-42 Tables 1.4-3 & 1.4-4

[2] Adjusted EF, per footnote a in Table 1.4-3

Trace Delaware Gathering, LLC - Apollo Gas Plant

Amine Treating

Emission Unit:	AM-1	
Source Description:	Amine Regeneration	
Capacity:	275	MMSCFD
Operating Hours:	8,760	hr/yr
Flash Tank Control Device:	FL-2	
Capture Efficiency:	100%	
Still Vent Control Device:	Thermal Oxidizer	
Capture Efficiency:	100%	
Thermal Oxidizer Downtime:	5%	

	Flash Tank[1]		Still Vent Emissions		Uncontrolled Amine Emissions		Controlled Amine Emissions[2]	
Component	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Hydrogen Sulfide	0.019	0.085	4.14	18.11	4.16	18.20	4.14	0.91
Nitrogen	2.61	11.42	0.064	0.28	2.67	11.70	0.064	0.014
Methane	223.38	978.40	23.36	102.30	246.74	1,080.70	23.36	5.12
Carbon Dioxide	81.48	356.89	26,546.97	116,275.74	26,628.46	116,632.64	26,546.97	5,813.79
Ethane	73.19	320.59	11.79	51.64	84.98	372.23	11.79	2.58
Propane	34.05	149.13	4.46	19.55	38.51	168.68	4.46	0.98
i-Butane	3.49	15.30	0.35	1.51	3.84	16.81	0.35	0.076
n-Butane	10.96	48.00	1.61	7.06	12.57	55.06	1.61	0.35
i-Pentane	1.21	5.28	0.094	0.41	1.30	5.69	0.094	0.021
n-Pentane	1.48	6.49	0.15	0.64	1.63	7.13	0.15	0.032
i-Hexane	0.37	1.61	0.031	0.14	0.40	1.75	0.031	6.83E-03
Hexane	0.19	0.84	0.016	0.071	0.21	0.92	0.016	3.56E-03
Benzene	1.01	4.41	11.95	52.33	12.96	56.75	11.95	2.62
Cyclohexane	0.56	2.46	0.28	1.21	0.84	3.68	0.28	0.061
i-Heptane	0.063	0.27	1.79E-03	7.83E-03	0.064	0.28	1.79E-03	3.92E-04
nC7	0.011	0.050	3.23E-04	1.42E-03	0.012	0.051	3.23E-04	7.08E-05
Toluene	0.38	1.67	4.20	18.38	4.58	20.05	4.20	0.92
i-Octane	0.044	0.19	1.88E-03	8.25E-03	0.046	0.20	1.88E-03	4.13E-04
nC8	2.97E-03	0.013	1.78E-04	7.79E-04	3.15E-03	0.014	1.78E-04	3.90E-05
Ethylbenzene	0.028	0.12	0.26	1.16	0.29	1.28	0.26	0.058
o-Xylene	0.049	0.21	0.64	2.80	0.69	3.02	0.64	0.14
Isononane	3.97E-04	1.74E-03	5.20E-06	2.28E-05	4.02E-04	1.76E-03	5.20E-06	1.14E-06
nC9	-	-	-	-	-	-	-	-
Decane	1.25E-04	5.45E-04	-	-	1.25E-04	5.45E-04	-	-
Ethylene Glycol	-	-	-	-	-	-	-	-
MDEA	4.26E-03	0.019	-	-	4.26E-03	0.019	-	-
DEA	-	-	-	-	-	-	-	-
Piperazine	5.57E-04	2.44E-03	-	-	5.57E-04	2.44E-03	-	-
DGA	-	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-	-
Water	9.43	41.32	908.53	3,979.36	917.96	4,020.68	908.53	198.97
Total VOC	53.90	236.09	24.04	105.29	77.94	341.37	24.04	5.26
Total HAP	1.70	7.46	17.07	74.75	18.77	82.21	17.07	3.74

Notes:

[1] Flash Tank is controlled by and represented at FL-2.

[2] Amine Still vent is controlled by TO-1. During TO-1 dowtime (up to 5% annually) the Amine Still is vented to Atmosphere. Hourly emissions represent worst-case emissions TO-1 downtime.

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	5,813.79	5.12	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	5,813.79	5.12	-	tpy	
CO_2e Total	-	-	5,957.01	tpy	

Trace Delaware Gathering, LLC - Apollo Gas Plant

Glycol Dehydrator

Emission Unit:	DEHY-1	
Source Description:	Glycol Dehydrator	
Capacity:	275	MMSCFD
Operating Hours:	8,760	hr/yr
Flash Tank Control Device:	FL-2	
Capture Efficiency:	100%	
Regenerator Control Device:	Condenser & ECD-2	
Flare Capture Efficiency:	100%	

	Flash Tank[1]		BTEX Overheads[1]		Uncontrolled Dehy Emissions		Controlled Dehy Emissions[2]	
Component	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Hydrogen Sulfide	6.12E-06	2.68E-05	1.57E-05	6.89E-05	2.19E-05	9.58E-05	-	-
Nitrogen	0.18	0.77	3.06E-03	0.013	0.18	0.78	-	-
Methane	14.54	63.69	0.91	4.00	15.45	67.69	-	-
Carbon Dioxide	0.033	0.14	0.019	0.085	0.052	0.23	-	-
Ethane	10.03	43.95	2.02	8.85	12.05	52.80	-	-
Propane	9.09	39.79	3.27	14.34	12.36	54.14	-	-
i-Butane	1.46	6.38	0.67	2.93	2.13	9.31	-	-
n-Butane	4.17	18.27	2.86	12.54	7.03	30.81	-	-
i-Pentane	0.99	4.33	0.97	4.27	1.96	8.60	-	-
n-Pentane	1.03	4.53	1.13	4.97	2.17	9.50	-	-
i-Hexane	0.31	1.34	0.45	1.95	0.75	3.29	-	-
Hexane	0.18	0.80	0.33	1.45	0.51	2.25	-	-
Benzene	0.17	0.74	4.48	19.62	4.65	20.36	-	-
Cyclohexane	0.19	0.84	0.99	4.33	1.18	5.17	-	-
i-Heptane	0.19	0.83	0.35	1.52	0.54	2.35	-	-
nC7	0.039	0.17	0.089	0.39	0.13	0.56	-	-
Toluene	0.066	0.29	2.10	9.18	2.16	9.47	-	-
i-Octane	0.11	0.46	0.24	1.05	0.35	1.52	-	-
nC8	5.47E-03	0.024	0.012	0.053	0.018	0.077	-	-
Ethylbenzene	5.14E-03	0.023	0.12	0.53	0.13	0.55	-	-
o-Xylene	8.56E-03	0.037	0.30	1.31	0.31	1.34	-	-
Isononane	3.55E-03	0.016	8.47E-03	0.037	0.012	0.053	-	-
nC9	-	-	-	-	-	-	-	-
Decane	2.91E-03	0.013	4.07E-03	0.018	6.98E-03	0.031	-	-
Ethylene Glycol	-	-	-	-	-	-	-	-
MDEA	1.13E-06	4.97E-06	1.18E-04	5.16E-04	1.19E-04	5.21E-04	-	-
DEA	-	-	-	-	-	-	-	-
Piperazine	2.87E-05	1.26E-04	4.06E-08	1.78E-07	2.87E-05	1.26E-04	-	-
DGA	-	-	-	-	-	-	-	-
TEG	4.52E-04	1.98E-03	2.37E-11	1.04E-10	4.52E-04	1.98E-03	-	-
Water	0.54	2.35	1.10	4.82	1.64	7.16	-	-
Total VOC	18.01	78.89	18.38	80.49	36.39	159.38	-	-
Total HAP	0.54	2.36	7.56	33.13	8.10	35.49	-	-

Notes:

[1] Emissions caluclated using BR&E ProMax.

[2] Flash tank emissions are routed to and controlled by FL-2. BTEX Overheads are routed to and controlled by ECD-2.

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Trace Delaware Gathering, LLC - Apollo Gas Plant

Condensate Storage Tanks

Emission unit number(s):	TK-1 & TK-2	
Source description:	500 bbl Condensate Storage Tanks	
Annual Operating Hours:	8,760	
Number of Tanks:	2	
Capacity of Tanks:	500	bbl
Hourly Throughout:	0.21	bbl/hr
Daily Throughput:	5	bbl/d
Annual Throughput:	1,825	bbl/yr
Primary Control	ECD-1, FL-3	
Capture Efficiency	100.00%	

Condensate Storage Tank Emissions[1,2]

Component	Uncontrolled Emissions						Controlled Emissions at Tank	
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total (lb/hr)	Total (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)
Hydrogen Sulfide	3.06E-04	2.78E-06	3.09E-04	1.35E-03	1.54E-04	6.76E-04	-	-
Nitrogen	4.90E-03	1.68E-06	4.90E-03	0.021	2.45E-03	0.011	-	-
Methane	1.02	1.22E-03	1.02	4.49	0.51	2.24	-	-
Carbon Dioxide	0.34	1.09E-03	0.34	1.51	0.17	0.75	-	-
Ethane	6.03	0.043	6.07	26.59	3.04	13.29	-	-
Propane	23.72	0.51	24.22	106.10	12.11	53.05	-	-
i-Butane	10.82	0.22	11.04	48.34	5.52	24.17	-	-
n-Butane	32.69	0.65	33.34	146.04	16.67	73.02	-	-
i-Pentane	14.96	0.27	15.24	66.74	7.62	33.37	-	-
n-Pentane	16.67	0.30	16.97	74.32	8.48	37.16	-	-
i-Hexane	7.73	0.13	7.86	34.44	3.93	17.22	-	-
Hexane	4.45	0.077	4.52	19.81	2.26	9.91	-	-
Benzene	1.53	0.016	1.54	6.76	0.77	3.38	-	-
Cyclohexane	3.03	0.043	3.07	13.46	1.54	6.73	-	-
i-Heptane	4.45	0.073	4.53	19.82	2.26	9.91	-	-
nC7	0.79	0.013	0.81	3.53	0.40	1.76	-	-
Toluene	0.64	6.75E-03	0.65	2.83	0.32	1.41	-	-
i-Octane	2.28	0.038	2.31	10.14	1.16	5.07	-	-
nC8	0.084	1.19E-03	0.085	0.37	0.043	0.19	-	-
Ethylbenzene	0.038	4.13E-04	0.039	0.17	0.019	0.085	-	-
o-Xylene	0.063	5.81E-04	0.064	0.28	0.032	0.14	-	-
Isononane	0.043	6.03E-04	0.043	0.19	0.022	0.095	-	-
nC9	-	-	-	-	-	-	-	-
Decane	0.015	1.46E-04	0.016	0.068	7.80E-03	0.034	-	-
Ethylene Glycol	-	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-	-
Water	0.12	1.21E-06	0.12	0.52	0.060	0.26	-	-
VOC	124.00	2.35	126.35	553.41	63.17	276.70	-	-
Total HAPS	8.99	0.14	9.13	39.99	4.56	19.99	-	-
H_2S	3.06E-04	2.78E-06	3.09E-04	1.35E-03	1.54E-04	6.76E-04	-	-

Notes:

[1] Uncontrolled emissions are calculated using BR&E ProMax

[2] Tank working, breathing, and standing emissions are currently routed to ECD-1 with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by FL-3 with a 100% capture efficiency and 98% DRE. Controlled emissions are conservatively represented at both ECD-1 and FL-3.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Stabilized Condensate Storage Tanks

Emission unit number(s):	TK-3 through TK-8	
Source description:	1,000 bbl Condensate Storage Tanks	
Annual Operating Hours:	8,760	
Number of Tanks:	6	
Capacity of Tanks:	1,000	bbl
Hourly Throughout:	104.13	bbl/hr
Daily Throughput:	2,499	bbl/d
Annual Throughput:	912,188	bbl/yr
Primary Control	FL-3	
Capture Efficiency	100.00%	

Condensate Storage Tank Emissions[1,2]								
Component	Uncontrolled Emissions						Controlled Emissions at Tank	
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total (lb/hr)	Total (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)
Hydrogen Sulfide	-	5.84E-06	5.84E-06	2.56E-05	9.74E-07	4.27E-06	-	-
Nitrogen	-	-	-	-	-	-	-	-
Methane	-	4.59E-12	4.59E-12	2.01E-11	7.65E-13	3.35E-12	-	-
Carbon Dioxide	-	4.59E-07	4.59E-07	2.01E-06	7.65E-08	3.35E-07	-	-
Ethane	-	0.12	0.12	0.51	0.019	0.085	-	-
Propane	-	1.58	1.58	6.90	0.26	1.15	-	-
i-Butane	-	1.15	1.15	5.04	0.19	0.84	-	-
n-Butane	-	3.83	3.83	16.76	0.64	2.79	-	-
i-Pentane	-	2.24	2.24	9.82	0.37	1.64	-	-
n-Pentane	-	2.54	2.54	11.13	0.42	1.86	-	-
i-Hexane	-	1.32	1.32	5.77	0.22	0.96	-	-
Hexane	-	0.78	0.78	3.41	0.13	0.57	-	-
Benzene	-	0.17	0.17	0.73	0.028	0.12	-	-
Cyclohexane	-	0.45	0.45	1.98	0.075	0.33	-	-
i-Heptane	-	0.79	0.79	3.44	0.13	0.57	-	-
nC7	-	0.15	0.15	0.64	0.024	0.11	-	-
Toluene	-	0.076	0.076	0.33	0.013	0.055	-	-
i-Octane	-	0.42	0.42	1.85	0.070	0.31	-	-
nC8	-	0.016	0.016	0.071	2.71E-03	0.012	-	-
Ethylbenzene	-	5.55E-03	5.55E-03	0.024	9.26E-04	4.05E-03	-	-
o-Xylene	-	8.20E-03	8.20E-03	0.036	1.37E-03	5.98E-03	-	-
Isononane	-	0.010	0.010	0.045	1.73E-03	7.58E-03	-	-
nC9	-	-	-	-	-	-	-	-
Decane	-	4.37E-03	4.37E-03	0.019	7.28E-04	3.19E-03	-	-
Ethylene Glycol	-	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-	-
Water	-	3.18E-11	3.18E-11	1.39E-10	5.29E-12	2.32E-11	-	-
VOC	-	15.53	15.53	68.01	2.59	11.34	-	-
Total HAPS	-	1.46	1.46	6.39	0.24	1.06	-	-
H_2S	-	5.84E-06	5.84E-06	2.56E-05	9.74E-07	4.27E-06	-	-

Notes:

[1] Uncontrolled emissions are calculated using BR&E ProMax

[2] Tank working, breathing, and standing emissions are routed to FL-3 with a 100% capture efficiency and 98% DRE. Controlled emissions are represented at FL-3.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Produced Water Storage Tanks

Emission unit number(s):	PWTK-1	
Source description:	500 bbl Produced Water Storage Tank	
Annual Operating Hours:	8,760	
Number of Tanks:	1	
Capacity of Tanks:	500	bbl
Hourly Throughout:	4	bbl/hr
Daily Throughput:	100	bbl/d
Annual Throughput:	36,510	bbl/yr
Primary Control	ECD-1, FL-3	
Capture Efficiency	100.00%	

Produced Water Storage Tank Emissions[1,2]

Component	Uncontrolled Emissions						Controlled Emissions at Tank	
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total (lb/hr)	Total (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)
Hydrogen Sulfide	2.87E-05	3.01E-06	3.17E-05	1.39E-04	3.17E-05	1.39E-04	-	-
Nitrogen	7.90E-04	1.27E-06	7.91E-04	3.47E-03	7.91E-04	3.47E-03	-	-
Methane	0.089	4.23E-04	0.090	0.39	0.090	0.39	-	-
Carbon Dioxide	0.076	8.32E-03	0.084	0.37	0.084	0.37	-	-
Ethane	0.099	7.33E-04	0.099	0.44	0.099	0.44	-	-
Propane	0.086	2.45E-04	0.086	0.38	0.086	0.38	-	-
i-Butane	0.012	2.31E-05	0.012	0.053	0.012	0.053	-	-
n-Butane	0.050	1.00E-04	0.050	0.22	0.050	0.22	-	-
i-Pentane	0.016	3.00E-05	0.016	0.070	0.016	0.070	-	-
n-Pentane	0.018	3.26E-05	0.018	0.080	0.018	0.080	-	-
i-Hexane	7.61E-03	1.24E-05	7.62E-03	0.033	7.62E-03	0.033	-	-
Hexane	5.53E-03	9.50E-06	5.54E-03	0.024	5.54E-03	0.024	-	-
Benzene	0.060	2.13E-04	0.061	0.27	0.061	0.27	-	-
Cyclohexane	0.016	3.14E-05	0.017	0.072	0.017	0.072	-	-
i-Heptane	5.68E-03	8.97E-06	5.69E-03	0.025	5.69E-03	0.025	-	-
nC7	1.40E-03	2.32E-06	1.40E-03	6.14E-03	1.40E-03	6.14E-03	-	-
Toluene	0.030	7.28E-05	0.030	0.13	0.030	0.13	-	-
i-Octane	3.94E-03	5.99E-06	3.95E-03	0.017	3.95E-03	0.017	-	-
nC8	1.73E-04	2.41E-07	1.73E-04	7.59E-04	1.73E-04	7.59E-04	-	-
Ethylbenzene	1.63E-03	4.31E-06	1.63E-03	7.14E-03	1.63E-03	7.14E-03	-	-
o-Xylene	3.92E-03	6.88E-06	3.93E-03	0.017	3.93E-03	0.017	-	-
Isononane	1.14E-04	1.18E-07	1.14E-04	5.00E-04	1.14E-04	5.00E-04	-	-
nC9	-	-	-	-	-	-	-	-
Decane	4.62E-05	3.63E-08	4.62E-05	2.02E-04	4.62E-05	2.02E-04	-	-
Ethylene Glycol	-	-	-	-	-	-	-	-
MDEA	1.43E-06	1.89E-11	1.43E-06	6.25E-06	1.43E-06	6.25E-06	-	-
DEA	-	-	-	-	-	-	-	-
Piperazine	5.07E-11	1.35E-08	1.36E-08	5.95E-08	1.36E-08	5.95E-08	-	-
DGA	-	-	-	-	-	-	-	-
TEG	1.54E-14	9.52E-14	1.11E-13	4.84E-13	1.11E-13	4.84E-13	-	-
Water	0.013	0.035	0.048	0.21	0.048	0.21	-	-
VOC	0.32	7.99E-04	0.32	1.40	0.32	1.40	-	-
Total HAPS	0.11	3.13E-04	0.11	0.46	0.11	0.46	-	-
H_2S	2.87E-05	3.01E-06	3.17E-05	1.39E-04	3.17E-05	1.39E-04	-	-

Notes:

[1] Uncontrolled emissions are calculated using BR&E ProMax

[2] Tank working, breathing, and standing emissions are currently routed to ECD-1 with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by FL-3 with a 100% capture efficiency and 98% DRE. Controlled emissions are conservatively represented at both ECD-1 and FL-3.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Condensate Loading

Unit:	TL1		
Description	Condensate Loading		
Hourly Loading Volume:[1]	7,980	gal/hr	
Annual Loading Volume:[2]	76,650	gal/yr	
Primary Control(s):	ECD-1, FL-3		
Capture Efficiency:	98.7	%	AP-42 Ch. 5.2.2.1.1

Calculate Loading Loss Emission Factor (L_L)

Parameter	Hourly	Annual	Units	Source:
Material Loaded	Condensate			
Loading Method	Submerged Dedicated Vapor Balance Service			
Saturation Factor (S)	0.6		unitless	AP-42 Table 5.2-1 (06/2008)
True Vapor Pressure of Liquid Loaded (P)[3]	5.57	5.57	psia	ProMax
Molecular Weight of Vapors (M)[3]	59.39	59.39	lb/lbmol	ProMax
Temperature of Bulk Liquid Loaded (T)[3]	526.02	526.02	°R	ProMax
Calculated Liquid Loading Loss (L_L)[4]	4.70	4.70	lb/10^3 gal	Eq. (1) AP-42 Chapter 5.2 (06/2008)

Loading Loss Calculations

Pollutant	Comp.[5] (wt.%)	Uncontrolled Loading Losses		Captured Loading Losses to Control		Uncaptured Loading Losses	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.2E-06%	4.35E-05	2.09E-07	4.30E-05	2.06E-07	5.66E-07	2.72E-09
Nitrogen	7.0E-07%	2.63E-05	1.26E-07	2.60E-05	1.25E-07	3.42E-07	1.64E-09
Methane	0.051%	0.019	9.21E-05	0.019	9.09E-05	2.49E-04	1.20E-06
Carbon Dioxide	0.045%	0.017	8.18E-05	0.017	8.08E-05	2.21E-04	1.06E-06
Ethane	1.80%	0.67	3.23E-03	0.66	3.19E-03	8.76E-03	4.20E-05
Propane	21.10%	7.92	0.038	7.81	0.038	0.10	4.94E-04
i-Butane	9.15%	3.43	0.016	3.39	0.016	0.045	2.14E-04
n-Butane	27.14%	10.18	0.049	10.05	0.048	0.13	6.36E-04
i-Pentane	11.48%	4.31	0.021	4.25	0.020	0.056	2.69E-04
n-Pentane	12.49%	4.68	0.023	4.62	0.022	0.061	2.93E-04
i-Hexane	5.50%	2.06	9.92E-03	2.04	9.79E-03	0.027	1.29E-04
Hexane	3.23%	1.21	5.82E-03	1.20	5.74E-03	0.016	7.56E-05
Benzene	0.69%	0.26	1.24E-03	0.25	1.22E-03	3.35E-03	1.61E-05
Cyclohexane	1.79%	0.67	3.22E-03	0.66	3.18E-03	8.71E-03	4.18E-05
i-Heptane	3.04%	1.14	5.47E-03	1.12	5.40E-03	0.015	7.11E-05
nC7	0.54%	0.20	9.79E-04	0.20	9.66E-04	2.65E-03	1.27E-05
Toluene	0.28%	0.11	5.08E-04	0.10	5.01E-04	1.37E-03	6.60E-06
i-Octane	1.57%	0.59	2.83E-03	0.58	2.79E-03	7.66E-03	3.68E-05
nC8	0.050%	0.019	8.96E-05	0.018	8.84E-05	2.42E-04	1.16E-06
Ethylbenzene	0.017%	6.47E-03	3.11E-05	6.38E-03	3.07E-05	8.41E-05	4.04E-07
o-Xylene	0.024%	9.10E-03	4.37E-05	8.98E-03	4.31E-05	1.18E-04	5.68E-07
Isononane	0.025%	9.45E-03	4.54E-05	9.32E-03	4.48E-05	1.23E-04	5.90E-07
nC9	-	-	-	-	-	-	-
Decane	6.1E-05%	2.29E-03	1.10E-05	2.26E-03	1.09E-05	2.98E-05	1.43E-07
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	5.0E-07%	1.89E-05	9.08E-08	1.87E-05	8.96E-08	2.46E-07	1.18E-09
Total VOC	98.11%	36.80	0.18	36.33	0.17	0.48	2.30E-03
Total H_2S	1.2E-06%	4.35E-05	2.09E-07	4.30E-05	2.06E-07	5.66E-07	2.72E-09
Total HAP	5.81%	2.18	0.010	2.15	0.010	0.028	1.36E-04
Flow Rate (scf/hr | MMscf/yr):		239.71	2.30E-03	236.60	2.27E-03	3.12	2.99E-05
Molecular Weight (lb/lbmol):		59.39	59.39	59.39	59.39	59.39	59.39
Vapor Heat Rate (Btu/scf):		3,318.48	3,318.48	3,318.48	3,318.48	3,318.48	3,318.48

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	1.06E-06	1.20E-06	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	1.06E-06	1.20E-06	-	ton/yr	
CO_2e Total	-	-	3.46E-05	ton/yr	

Notes:

[1] Hourly loading volume is based on the assumption that one (1) 190 gal capacity truck can be loaded in an hour.

[2] Annual loading volume is based on the expected liquid throughput with BR&E ProMax modeling software.

[3] Variables P, M, and T were calculated using ProMax.

[4] Per Eq. (1) of AP-42 Chapter 5.2:

L_L (lb/10^3 gal) = 12.46 * S * P * M / T

[5] Hourly compositions based on the short-term worse case operating conditions. Annual compositions are based on the average conditions of the facility.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Stabilized Condensate Loading

Unit:	TL3		
Description	Stabilized Condensate Loading		
Hourly Loading Volume:[1]	7,980	gal/hr	
Annual Loading Volume:[2]	38,311,904	gal/yr	
Primary Control(s):	FL-3		
Capture Efficiency:	98.7	%	AP-42 Ch. 5.2.2.1.1

Calculate Loading Loss Emission Factor (L_L)

Parameter	Hourly	Annual	Units	Source:
Material Loaded	Condensate			
Loading Method	Submerged Dedicated Vapor Balance Service			
Saturation Factor (S)	0.6		unitless	AP-42 Table 5.2-1 (06/2008)
True Vapor Pressure of Liquid Loaded (P)[3]	5.09	5.09	psia	ProMax
Molecular Weight of Vapors (M)[3]	65.84	65.84	lb/lbmol	ProMax
Temperature of Bulk Liquid Loaded (T)[3]	526.02	526.02	°R	ProMax
Calculated Liquid Loading Loss (L_L)[4]	4.76	4.76	lb/10^3 gal	Eq. (1) AP-42 Chapter 5.2 (06/2008)

Loading Loss Calculations

Pollutant	Comp.[5] (wt.%)	Uncontrolled Loading Losses lb/hr	Uncontrolled Loading Losses tpy	Captured Loading Losses to Control lb/hr	Captured Loading Losses to Control tpy	Uncaptured Loading Losses lb/hr	Uncaptured Loading Losses tpy
Hydrogen Sulfide	3.7E-07%	1.42E-05	3.40E-05	1.40E-05	3.36E-05	1.84E-07	4.43E-07
Nitrogen	-	-	-	-	-	-	-
Methane	2.9E-13%	1.11E-11	2.68E-11	1.10E-11	2.64E-11	1.45E-13	3.48E-13
Carbon Dioxide	2.9E-08%	1.11E-06	2.67E-06	1.10E-06	2.64E-06	1.45E-08	3.48E-08
Ethane	0.74%	0.28	0.68	0.28	0.67	3.66E-03	8.79E-03
Propane	10.07%	3.83	9.18	3.78	9.06	0.050	0.12
i-Butane	7.36%	2.79	6.71	2.76	6.62	0.036	0.087
n-Butane	24.46%	9.29	22.30	9.17	22.01	0.12	0.29
i-Pentane	14.33%	5.44	13.06	5.37	12.89	0.071	0.17
n-Pentane	16.25%	6.17	14.81	6.09	14.62	0.080	0.19
i-Hexane	8.42%	3.20	7.68	3.16	7.58	0.042	0.100
Hexane	4.98%	1.89	4.54	1.87	4.48	0.025	0.059
Benzene	1.07%	0.41	0.98	0.40	0.96	5.29E-03	0.013
Cyclohexane	2.88%	1.09	2.63	1.08	2.59	0.014	0.034
i-Heptane	5.03%	1.91	4.58	1.88	4.52	0.025	0.060
nC7	0.93%	0.35	0.85	0.35	0.84	4.60E-03	0.011
Toluene	0.48%	0.18	0.44	0.18	0.43	2.38E-03	5.72E-03
i-Octane	2.70%	1.03	2.46	1.01	2.43	0.013	0.032
nC8	0.10%	0.039	0.095	0.039	0.093	5.13E-04	1.23E-03
Ethylbenzene	0.036%	0.013	0.032	0.013	0.032	1.75E-04	4.21E-04
o-Xylene	0.052%	0.020	0.048	0.020	0.047	2.59E-04	6.21E-04
Isononane	0.066%	0.025	0.060	0.025	0.060	3.27E-04	7.86E-04
nC9	-	-	-	-	-	-	-
Decane	0.028%	0.011	0.025	0.010	0.025	1.38E-04	3.31E-04
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	2.0E-12%	7.71E-11	1.85E-10	7.61E-11	1.83E-10	1.00E-12	2.41E-12
Total VOC	99.26%	37.69	90.48	37.20	89.31	0.49	1.18
Total H_2S	3.7E-07%	1.42E-05	3.40E-05	1.40E-05	3.36E-05	1.84E-07	4.43E-07
Total HAP	9.32%	3.54	8.50	3.49	8.39	0.046	0.11
Flow Rate (scf/hr | MMscf/yr):		218.87	1.05	216.03	1.04	2.85	0.014
Molecular Weight (lb/lbmol):		65.84	65.84	65.84	65.84	65.84	65.84
Vapor Heat Rate (Btu/scf):		3,656.89	3,656.89	3,656.89	3,656.89	3,656.89	3,656.89

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	3.48E-08	3.48E-13	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	3.48E-08	3.48E-13	-	ton/yr	
CO_2e Total	-	-	3.48E-08	ton/yr	

Notes:

[1] Hourly loading volume is based on the assumption that one (1) 190 gal capacity truck can be loaded in an hour.

[2] Annual loading volume is based on the expected liquid throughput with BR&E ProMax modeling software.

[3] Variables P, M, and T were calculated using ProMax.

[4] Per Eq. (1) of AP-42 Chapter 5.2:

L_L (lb/10^3 gal) = 12.46 * S * P * M / T

[5] Hourly compositions based on the short-term worse case operating conditions. Annual compositions are based on the average conditions of the facility.

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Hourly Nominal

Unit(s):	FL-1	
Description:	20 MMSCFD Flare	
Operating Hours:	8,760	hr/yr
Pilot Flow Rate:	55	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors
CO	0.2755	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors

Component	Pilot lb/hr	Totals lb/hr	DRE %	Combusted Totals lb/hr
Hydrogen Sulfide	4.91E-08	4.91E-08	98	9.82E-10
Nitrogen	0.079	0.079	0	0.079
Methane	2.04	2.04	98	0.041
Carbon Dioxide	6.53E-04	6.53E-04	0	6.53E-04
Ethane	0.44	0.44	98	8.78E-03
Propane	2.50E-03	2.50E-03	98	4.99E-05
i-Butane	3.72E-07	3.72E-07	98	7.43E-09
n-Butane	2.87E-07	2.87E-07	98	5.73E-09
i-Pentane	3.96E-11	3.96E-11	98	7.92E-13
n-Pentane	1.17E-11	1.17E-11	98	2.34E-13
i-Hexane	8.35E-15	8.35E-15	98	1.67E-16
Hexane	-	-	98	-
Benzene	4.58E-15	4.58E-15	98	9.16E-17
Cyclohexane	-	-	98	-
i-Heptane	-	-	98	-
nC7	-	-	98	-
Toluene	-	-	98	-
i-Octane	-	-	98	-
nC8	-	-	98	-
Ethylbenzene	-	-	98	-
o-Xylene	-	-	98	-
Isononane	-	-	98	-
nC9	-	-	98	-
Decane	-	-	98	-
Ethylene Glycol	-	-	98	-
MDEA	-	-	98	-
DEA	-	-	98	-
Piperazine	-	-	98	-
DGA	-	-	98	-
TEG	-	-	98	-
Water	-	-	0	-
Total VOC	2.50E-03	2.50E-03		5.00E-05
Total H_2S	4.91E-08	4.91E-08		9.82E-10
Total HAP	4.58E-15	4.58E-15		9.16E-17
Operating Hours (hr/yr)	8,760	-		
Molecular Weight (lb/lbmol)	17.70	17.70		
Volumetric Flow (scf/hr)	55.00	55.00		
Stream Heat Value (Btu/scf)	1,067.28	1,067.28		
Heat Release (MMBtu/hr)	0.059	0.059		

Pollutants	Units	Pilot	Totals	Source
NO_X	lb/hr	8.10E-03	8.10E-03	Eq. 1)
CO	lb/hr	0.016	0.016	Eq. 1)
VOC	lb/hr	5.00E-05	5.00E-05	Eq. 2)
SO_2[1]	lb/hr	9.06E-08	9.06E-08	Eq. 3)
H_2S	lb/hr	9.82E-10	9.82E-10	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (lb/hr) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/hr)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Annual Nominal

Unit(s):	FL-1	
Description:	20 MMSCFD Flare	
Operating Hours:	8760	hr/yr
Pilot Flow Rate:	55	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors
CO	0.2755	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors

Component	Pilot	Totals	DRE	Combusted Totals
	tpy	tpy	%	tpy
Hydrogen Sulfide	2.15E-07	2.15E-07	98	4.30E-09
Nitrogen	0.35	0.35	0	0.35
Methane	8.95	8.95	98	0.18
Carbon Dioxide	2.86E-03	2.86E-03	0	2.86E-03
Ethane	1.92	1.92	98	0.038
Propane	0.011	0.011	98	2.19E-04
i-Butane	1.63E-06	1.63E-06	98	3.26E-08
n-Butane	1.25E-06	1.25E-06	98	2.51E-08
i-Pentane	1.73E-10	1.73E-10	98	3.47E-12
n-Pentane	5.13E-11	5.13E-11	98	1.03E-12
i-Hexane	3.66E-14	3.66E-14	98	7.32E-16
Hexane	-	-	98	-
Benzene	2.01E-14	2.01E-14	98	4.01E-16
Cyclohexane	-	-	98	-
i-Heptane	-	-	98	-
nC7	-	-	98	-
Toluene	-	-	98	-
i-Octane	-	-	98	-
nC8	-	-	98	-
Ethylbenzene	-	-	98	-
o-Xylene	-	-	98	-
Isononane	-	-	98	-
nC9	-	-	98	-
Decane	-	-	98	-
Ethylene Glycol	-	-	98	-
MDEA	-	-	98	-
DEA	-	-	98	-
Piperazine	-	-	98	-
DGA	-	-	98	-
TEG	-	-	98	-
Water	-	-	0	-
Total VOC	0.011	0.011		2.19E-04
Total H_2S	2.15E-07	2.15E-07		4.30E-09
Total HAP	2.01E-14	2.01E-14		4.01E-16
Operating Hours (hr/yr)	8,760	-		
Molecular Weight (lb/lbmol)	17.70	17.70		
Volumetric Flow (MMscf/yr)	0.48	0.48		
Stream Heat Value (Btu/scf)	1,067.28	1,067.28		
Heat Release (MMBtu/yr)	514.22	514.22		

Pollutants	Units	Pilot	Totals	Source
NO_X	tpy	0.035	0.035	Eq. 1)
CO	tpy	0.071	0.071	Eq. 1)
VOC	tpy	2.19E-04	2.19E-04	Eq. 2)
SO_2[1]	tpy	3.97E-07	3.97E-07	Eq. 3)
H_2S	tpy	4.30E-09	4.30E-09	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (tpy) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Hourly SSM

Unit(s): FL-1
Description: 20 MMSCFD Flare
Destruction Rate Efficiency: 98 %

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)
CO	0.2755	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)

Component	Flash Gas Compression Downtime	Maximum Event Total	DRE	Combusted Totals
	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	0.10	0.10	98	2.05E-03
Nitrogen	38.92	38.92	0	38.92
Methane	2,388.37	2,388.37	98	47.77
Carbon Dioxide	334.27	334.27	0	334.27
Ethane	2,372.83	2,372.83	98	47.46
Propane	3,034.91	3,034.91	98	60.70
i-Butane	612.34	612.34	98	12.25
n-Butane	1,420.09	1,420.09	98	28.40
i-Pentane	343.92	343.92	98	6.88
n-Pentane	332.46	332.46	98	6.65
i-Hexane	101.83	101.83	98	2.04
Hexane	54.43	54.43	98	1.09
Benzene	20.37	20.37	98	0.41
Cyclohexane	35.11	35.11	98	0.70
i-Heptane	50.11	50.11	98	1.00
nC7	9.20	9.20	98	0.18
Toluene	7.81	7.81	98	0.16
i-Octane	24.75	24.75	98	0.50
nC8	1.21	1.21	98	0.024
Ethylbenzene	0.60	0.60	98	0.012
o-Xylene	1.05	1.05	98	0.021
Isononane	0.77	0.77	98	0.015
nC9	-	-	98	-
Decane	0.63	0.63	98	0.013
Ethylene Glycol	-	-	98	-
MDEA	-	-	98	-
DEA	-	-	98	-
Piperazine	-	-	98	-
DGA	-	-	98	-
TEG	-	-	98	-
Water	39.38	39.38	0	39.38
Total VOC	6,051.60	6,051.60		121.03
Total H_2S	0.10	0.10		2.05E-03
Total HAP	109.03	109.03		2.18
Operating Hours (hr/yr)	438	-		
Molecular Weight (lb/lbmol)	31.57	31.57		
Volumetric Flow (scf/hr)	134,927.24	134,927.24		
Stream Heat Value (Btu/scf)	1,775.95	1,775.95		
Heat Release (MMBtu/hr)	239.62	239.62		

Pollutants	Units	Flash Gas Compression Downtime	Totals	Source
NO_X	lb/hr	33.07	33.07	Eq. 1)
CO	lb/hr	66.02	66.02	Eq. 1)
VOC	lb/hr	121.03	121.03	Eq. 2)
SO_2[1]	lb/hr	0.19	0.19	Eq. 3)
H_2S	lb/hr	2.05E-03	2.05E-03	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100%

Equations:

1) NO_X and CO (lb/hr) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/hr)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Annual SSM

Unit(s):	FL-1	
Description:	20 MMSCFD Flare	
Destruction Rate Efficiency:	98	%
Flash Gas Compressor Downtime:	5	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)
CO	0.2755	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)

Component	Flash Gas Compression Downtime	Annual Total	DRE	Combusted Totals
	tpy	tpy	%	tpy
Hydrogen Sulfide	0.022	0.022	98	4.49E-04
Nitrogen	8.52	8.52	0	8.52
Methane	523.05	523.05	98	10.46
Carbon Dioxide	73.21	73.21	0	73.21
Ethane	519.65	519.65	98	10.39
Propane	664.65	664.65	98	13.29
i-Butane	134.10	134.10	98	2.68
n-Butane	311.00	311.00	98	6.22
i-Pentane	75.32	75.32	98	1.51
n-Pentane	72.81	72.81	98	1.46
i-Hexane	22.30	22.30	98	0.45
Hexane	11.92	11.92	98	0.24
Benzene	4.46	4.46	98	0.089
Cyclohexane	7.69	7.69	98	0.15
i-Heptane	10.97	10.97	98	0.22
nC7	2.01	2.01	98	0.040
Toluene	1.71	1.71	98	0.034
i-Octane	5.42	5.42	98	0.11
nC8	0.26	0.26	98	5.29E-03
Ethylbenzene	0.13	0.13	98	2.65E-03
o-Xylene	0.23	0.23	98	4.61E-03
Isononane	0.17	0.17	98	3.39E-03
nC9	-	-	98	-
Decane	0.14	0.14	98	2.76E-03
Ethylene Glycol	-	-	98	-
MDEA	-	-	98	-
DEA	-	-	98	-
Piperazine	-	-	98	-
DGA	-	-	98	-
TEG	-	-	98	-
Water	8.62	8.62	0	8.62
Total VOC	1,325.30	1,325.30		26.51
Total H_2S	0.022	0.022		4.49E-04
Total HAP	23.88	23.88		0.48
Operating Hours (hr/yr)	438	-		
Molecular Weight (lb/lbmol)	31.57	31.57		
Volumetric Flow (MMscf/yr)	59.10	59.10		
Stream Heat Value (Btu/scf)	1,775.95	1,775.95		
Heat Release (MMBtu/yr)	104,955.54	104,955.54		

Pollutants	Units	Flash Gas Compression Downtime	Totals	Source
NO_X	tpy	7.24	7.24	Eq. 1)
CO	tpy	14.46	14.46	Eq. 1)
VOC	tpy	26.51	26.51	Eq. 2)
SO_2 [1]	tpy	0.041	0.041	Eq. 4)
H_2S	tpy	4.49E-04	4.49E-04	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the

Equations:

1) NO_X and CO (tpy) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - GHG Emissions

§98.233(n) Flare stack GHG emissions.

Step 1. If necessary, convert volume of gas sent to flare from actual to standard conditions using Equation W-33

$$E_{s,n} = \frac{E_{a,n} * (459.67 + T_s) * P_a}{(459.67 + T_a) * P_s * Z_a} \quad \textit{(Equation W-33)}$$

where:

$E_{s,n}$ = Natural gas volumetric emissions at standard temperature and pressure (STP) conditions in cubic feet

$E_{a,n}$ = Natural gas volumetric emissions at actual conditions in cubic feet

T_s = Temperature at standard conditions (F) =	60	°F	
T_a = Temperature at actual conditions (F) =	75.8	°F	(Based on Annual Avg Max Temp for Roswell, NM from AP-42 Chapter 7)
P_s = Absolute pressure at standard conditions (psia) =	14.7	psia	
P_a = Absolute pressure at actual conditions (psia) =	12.88	psia	(Based on Avg Atmospheric Pres for Roswell, NM from AP-42 Chapter 7)
Z_a = Compressibility factor at actual conditions for natural gas	1	(default value)	

Step 2. Calculate CO_2 and CH_4 Emissions from Flaring at standard conditions using Equations W-19 & W-20

$$E_{s,CH4} = V_s * X_{CH4} * [(1 - \eta) * Z_L + Z_U] \quad \text{(Equation W-19)}$$

$$E_{s,CO2} = V_s * X_{CO2} + \Sigma (\eta * V_s * Y_j * R_j * Z_L) \quad \text{(Equation W-20)}$$

where:

$E_{s,CH4}$ = Annual CH_4 emissions from flare stack in cubic feet, at standard conditions

$E_{s,CO2}$ = Annual CO_2 emissions from flare stack in cubic feet, at standard conditions

V_s = Volume of gas sent to flare in standard cubic feet

η = Flare combustion efficiency, expressed as fraction of gas combusted by a burning flare 98% (default value)

X_{CH4} = Mole fraction of CH_4 in the feed gas to the flare

Nominal	SSM
0.8811	0.4196

X_{CO2} = Mole fraction of CO_2 in the feed gas to the flare

Nominal	SSM
0.0001	0.0214

Z_U = Fraction of the feed gas sent to an un-lit flare determined by engineering estimate and process knowledge based on best available data and operating records

Z_L = Fraction of the feed gas sent to a burning flare (equal to $1 - Z_U$) 1 (assumes all gas is sent to burning flare)

Y_j = Mole fraction of hydrocarbon constituents j in the feed gas to the flare

	Nominal	SSM
Constituent j, Methane =	0.8811	0.4196
Constituent j, Ethane =	0.1007	0.2219
Constituent j, Propane =	0.0004	0.1936
Constituent j, Butane =	0.0000	0.0984
Constituent j, Pentanes Plus =	0.0000	0.0250

R_j = Number of carbon atoms in the hydrocarbon constituent j in the feed gas to the flare

Constituent j, Methane =	1
Constituent j, Ethane =	2
Constituent j, Propane =	3
Constituent j, Butane =	4
Constituent j, Pentanes Plus =	5

Step 3. Calculate CO_2 and CH_4 mass emissions using Equation W-36 (98.233(v))

$$Mass_i = E_{s,i} * \rho_i * 10^{-3} \quad \text{(Equation W-36)}$$

where:

$Mass_i$ = GHG_i (either CH_4 or CO_2) mass emissions in metric tons

$E_{s,i}$ = GHG_i (either CH_4 or CO_2) volumetric emissions at standard conditions, in cubic feet.

ρ_i = Density of GHG_i

CO_2 =	0.0526	kg/ft^3
CH_4 =	0.0192	kg/ft^3

Step 4. Calculate N2O mass emissions using Equation W-40 (98.233(z))

$$Mass_{N2O} = (1* 10^{-3}) * Fuel * HHV * EF \quad \textit{(Equation W-40)}$$

where:

$Mass_{N2O}$ = Annual N_2O emissions from the combustion of a particular type of fuel (metric tons)

Fuel = Annual mass or volume of the fuel combusted (mass or volume per year, choose appropriately to be consistent with the units of HHV).

HHV = high heat value of the fuel (MMBtu/scf)

Nominal	SSM
1.07E-03	1.78E-03

Step 5. Calculate total annual emission from flare by summing Equations W-36 and W-40.

Gas Sent to Flare	Gas Sent to Flare (acf/yr)	Gas Sent to Flare (scf/yr)	Annual CO_2 Emissions (scf)	Annual CH_4 Emissions (scf)	Combusted CO_2 Mass Emissions (mtpy)	Un-combusted CH_4 Mass Emissions (mtpy)	N_2O Mass Emissions (mtpy)	Combusted CO_2 Mass Emissions (tpy)	Un-combusted CH_4 Mass Emissions (tpy)	N_2O Mass Emissions (tpy)	CO_2e Mass Emissions (tpy)
Nominal	566,599	481,800	511,705	8,490.39	26.92	0.16	5.14E-05	29.67	0.18	5.67E-05	34.72
SSM	69,499,666	59,098,131	114,912,390	495,915.80	6,044.39	9.52	0.010	6,662.79	10.50	0.012	6,959.74
							Total	6,692.46	10.68	0.012	6,994.46

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Hourly

Unit(s):	FL-2	
Description:	275 MMSCFD Flare	
Operating Hours:	8,760	hr/yr
Pilot Flow Rate:	910	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors
CO	0.2755	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors

Component	Pilot	Amine Flash Gas (AM-1)	Dehy Flash Gas (DEHY-1)	Totals	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	8.12E-07	0.019	6.12E-06	0.019	98	3.89E-04
Nitrogen	1.31	2.61	0.18	4.09	0	4.09
Methane	33.83	223.38	14.54	271.75	98	5.43
Carbon Dioxide	0.011	81.48	0.033	81.53	0	81.53
Ethane	7.26	73.19	10.03	90.49	98	1.81
Propane	0.041	34.05	9.09	43.17	98	0.86
i-Butane	6.15E-06	3.49	1.46	4.95	98	0.099
n-Butane	4.74E-06	10.96	4.17	15.13	98	0.30
i-Pentane	6.55E-10	1.21	0.99	2.19	98	0.044
n-Pentane	1.94E-10	1.48	1.03	2.51	98	0.050
i-Hexane	1.38E-13	0.37	0.31	0.67	98	0.013
Hexane	-	0.19	0.18	0.38	98	7.51E-03
Benzene	7.58E-14	1.01	0.17	1.18	98	0.024
Cyclohexane	-	0.56	0.19	0.75	98	0.015
i-Heptane	-	0.063	0.19	0.25	98	5.05E-03
nC7	-	0.011	0.039	0.051	98	1.01E-03
Toluene	-	0.38	0.066	0.45	98	8.94E-03
i-Octane	-	0.044	0.11	0.15	98	2.99E-03
nC8	-	2.97E-03	5.47E-03	8.44E-03	98	1.69E-04
Ethylbenzene	-	0.028	5.14E-03	0.034	98	6.72E-04
o-Xylene	-	0.049	8.56E-03	0.057	98	1.14E-03
Isononane	-	3.97E-04	3.55E-03	3.95E-03	98	7.89E-05
nC9	-	-	-	-	98	-
Decane	-	1.25E-04	2.91E-03	3.04E-03	98	6.07E-05
Ethylene Glycol	-	-	-	-	98	-
MDEA	-	4.26E-03	1.13E-06	4.26E-03	98	8.51E-05
DEA	-	-	-	-	98	-
Piperazine	-	5.57E-04	2.87E-05	5.85E-04	98	1.17E-05
DGA	-	-	-	-	98	-
TEG	-	-	4.52E-04	4.52E-04	98	9.05E-06
Water	-	9.43	0.54	9.97	0	9.97
Total VOC	0.041	53.90	18.01	71.95		1.44
Total H_2S	8.12E-07	0.019	6.12E-06	0.019		3.89E-04
Total HAP	7.58E-14	1.70	0.54	2.24		0.045
Operating Hours (hr/yr)	8,760	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	22.29	26.71	22.13		
Volumetric Flow (scf/hr)	910.00	7,558.30	615.52	9,083.82		
Stream Heat Value (Btu/scf)	1,067.28	1,076.38	1,554.73	1,107.88		
Heat Release (MMBtu/hr)	0.97	8.14	0.96	10.06		

Pollutants	Units	Pilot	Amine Flash Gas (AM-1)	Dehy Flash Gas (DEHY-1)	Totals	Source
NO_X	lb/hr	0.13	1.12	0.13	1.39	Eq. 1)
CO	lb/hr	0.27	2.24	0.26	2.77	Eq. 1)
VOC	lb/hr	8.27E-04	1.08	0.36	1.44	Eq. 2)
SO_2[1]	lb/hr	1.50E-06	0.036	1.13E-05	0.036	Eq. 3)
H_2S	lb/hr	1.62E-08	3.89E-04	1.22E-07	3.89E-04	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (lb/hr) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/hr)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Effective Diameter Calculations

FL-2			Units	Notes
Pilot	Process	SSM		
910.0	8,173.82	7,188.03	scf/hr	
17.70	22.63	77.01	g/mol	Molecular Weight of Stream
70.35			g/mol	Weighted average
1,032,894			cal/sec	Heat Release (q)
617,063			qn	qn
0.79			m	Effective stack diameter
2.58			ft	Effective stack diameter

Effective Height Calculations

FL-2			Units	Notes
Pilot	Process	SSM		
910.0	8,173.82	7,188.03	scf/hr	
17.70	22.63	77.01	g/mol	Molecular Weight of Stream
70.35			g/mol	Weighted average
1,032,894			cal/sec	Heat Release (q)
45.72			m	Flare Physical Height
49.14			m	Effective stack height
161.21			ft	Effective stack height

*See Section 5.2.3 , "Flares" (page 74-75) of the New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines (Revised June 2026) for effective diameter and height equations and assumptions

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Annual

Unit(s):	FL-3	
Description:	Tank/Loading Flare	
Operating Hours:	8760	hr/yr
Pilot Flow Rate:	305	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors
CO	0.2755	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors

Component	Pilot	Amine Flash Gas (AM-1)	Dehy Flash Gas (DEHY-1)	Totals	DRE	Combusted Totals
	tpy	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	1.19E-06	0.085	2.68E-05	0.085	98	1.70E-03
Nitrogen	1.92	11.42	0.77	14.11	0	14.11
Methane	49.66	978.40	63.69	1,091.74	98	21.83
Carbon Dioxide	0.016	356.89	0.14	357.05	0	357.05
Ethane	10.66	320.59	43.95	375.20	98	7.50
Propane	0.061	149.13	39.79	188.98	98	3.78
i-Butane	9.03E-06	15.30	6.38	21.68	98	0.43
n-Butane	6.96E-06	48.00	18.27	66.26	98	1.33
i-Pentane	9.62E-10	5.28	4.33	9.61	98	0.19
n-Pentane	2.84E-10	6.49	4.53	11.02	98	0.22
i-Hexane	2.03E-13	1.61	1.34	2.95	98	0.059
Hexane	-	0.84	0.80	1.64	98	0.033
Benzene	1.11E-13	4.41	0.74	5.16	98	0.10
Cyclohexane	-	2.46	0.84	3.31	98	0.066
i-Heptane	-	0.27	0.83	1.11	98	0.022
nC7	-	0.050	0.17	0.22	98	4.43E-03
Toluene	-	1.67	0.29	1.96	98	0.039
i-Octane	-	0.19	0.46	0.66	98	0.013
nC8	-	0.013	0.024	0.037	98	7.39E-04
Ethylbenzene	-	0.12	0.023	0.15	98	2.94E-03
o-Xylene	-	0.21	0.037	0.25	98	5.00E-03
Isononane	-	1.74E-03	0.016	0.017	98	3.46E-04
nC9	-	-	-	-	98	-
Decane	-	5.45E-04	0.013	0.013	98	2.66E-04
Ethylene Glycol	-	-	-	-	98	-
MDEA	-	0.019	4.97E-06	0.019	98	3.73E-04
DEA	-	-	-	-	98	-
Piperazine	-	2.44E-03	1.26E-04	2.56E-03	98	5.13E-05
DGA	-	-	-	-	98	-
TEG	-	-	1.98E-03	1.98E-03	98	3.96E-05
Water	-	41.32	2.35	43.66	0	43.66
Total VOC	0.061	236.09	78.89	315.04		6.30
Total H_2S	1.19E-06	0.085	2.68E-05	0.085		1.70E-03
Total HAP	1.11E-13	7.46	2.36	9.81		0.20
Operating Hours (hr/yr)	8,760	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	22.29	26.71	22.45		
Volumetric Flow (MMscf/yr)	2.67	66.21	5.39	74.27		
Stream Heat Value (Btu/scf)	1,067.28	1,076.38	1,554.73	1,110.78		
Heat Release (MMBtu/yr)	2,851.56	71,267.99	8,383.00	82,502.55		

Pollutants	Units	Pilot	Amine Flash Gas (AM-1)	Dehy Flash Gas (DEHY-1)	Totals	Source
NO_X	tpy	0.20	4.92	0.58	5.69	Eq. 1)
CO	tpy	0.39	9.82	1.15	11.36	Eq. 1)
VOC	tpy	1.21E-03	4.72	1.58	6.30	Eq. 2)
SO_2[1]	tpy	2.20E-06	0.16	4.95E-05	0.16	Eq. 3)
H_2S	tpy	2.39E-08	1.70E-03	5.36E-07	1.70E-03	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (tpy) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Hourly SSM

Unit(s): FL-2
Description: 275 MMSCFD Flare
Destruction Rate Efficiency: 98 %

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)
CO	0.2755	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)

Component	Dehydrator Blowdowns	TEG Flash Tank Blowdowns	Filter Coalescer Blowdowns	Amine Contactor Blowdowns	Amine Flash Tank Blowdowns	NGL Pig Launcher Blowdowns	Maximum BD Event Total	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	8.03E-06	7.02E-06	1.57E-03	2.62E-03	8.33E-03	1.03E-04	8.33E-03	98	1.67E-04
Nitrogen	9.00	0.055	5.25	8.82	5.05E-03	2.94E-11	9.00	0	9.00
Methane	232.38	4.76	135.68	227.87	0.47	4.85E-05	232.38	98	4.65
Carbon Dioxide	0.074	0.016	10.02	16.81	53.28	5.75E-05	53.28	0	53.28
Ethane	70.24	3.71	41.16	68.88	0.16	49.44	70.24	98	1.40
Propane	49.93	3.81	29.71	48.96	0.073	129.31	129.31	98	2.59
i-Butane	8.16	0.66	5.02	8.00	7.26E-03	25.27	25.27	98	0.51
n-Butane	18.48	2.18	11.59	18.12	0.024	62.31	62.31	98	1.25
i-Pentane	4.64	0.62	3.12	4.55	2.46E-03	19.72	19.72	98	0.39
n-Pentane	4.55	0.69	3.15	4.46	3.08E-03	20.75	20.75	98	0.41
i-Hexane	1.56	0.25	1.23	1.53	7.55E-04	8.27	8.27	98	0.17
Hexane	0.86	0.18	0.73	0.85	3.95E-04	4.87	4.87	98	0.097
Benzene	0.30	2.10	0.26	0.30	0.024	1.64	2.10	98	0.042
Cyclohexane	0.56	0.46	0.50	0.55	1.59E-03	3.15	3.15	98	0.063
i-Heptane	0.93	0.21	0.93	0.91	1.22E-04	5.23	5.23	98	0.10
nC7	0.18	0.055	0.20	0.18	2.21E-05	1.04	1.04	98	0.021
Toluene	0.14	1.44	0.17	0.14	8.65E-03	0.82	1.44	98	0.029
i-Octane	0.51	0.14	0.55	0.50	8.63E-05	2.75	2.75	98	0.055
nC8	0.029	0.011	0.051	0.029	5.96E-06	0.17	0.17	98	3.48E-03
Ethylbenzene	0.013	0.18	0.024	0.013	5.54E-04	0.079	0.18	98	3.59E-03
o-Xylene	0.024	0.42	0.047	0.024	1.30E-03	0.14	0.42	98	8.42E-03
Isononane	0.021	9.80E-03	0.057	0.021	7.60E-07	0.14	0.14	98	2.72E-03
nC9	-	-	-	-	-	-	-	98	-
Decane	0.023	0.014	0.13	0.022	2.37E-07	0.15	0.15	98	2.99E-03
Ethylene Glycol	-	-	-	-	-	-	-	98	-
MDEA	6.05E-06	0.053	-	-	221.78	-	221.78	98	4.44
DEA	-	-	-	-	-	-	-	98	-
Piperazine	6.05E-05	0.058	-	-	55.45	-	55.45	98	1.11
DGA	-	-	-	-	-	-	-	98	-
TEG	-	1,257.74	-	-	-	3.38E-03	1,257.74	98	25.15
Water	0.40	178.82	0.44	0.16	273.61	1.37E-06	273.61	0	273.61
Total VOC	90.92	1,271.29	57.47	89.15	277.37	285.81	1,822.23		36.44
Total H_2S	8.03E-06	7.02E-06	1.57E-03	2.62E-03	8.33E-03	1.03E-04	8.33E-03		1.67E-04
Total HAP	1.85	4.46	1.77	1.82	0.035	10.29	11.75		0.24
Operating Hours (hr/yr)	1	1	3	1	1	4	-		
Molecular Weight (lb/lbmol)	21.28	77.01	22.00	21.74	31.94	48.19	77.01		
Volumetric Flow (scf/hr)	7,188.03	7,188.03	4,312.82	7,188.03	7,188.03	2,640.00	7,188.03		
Stream Heat Value (Btu/scf)	1,261.66	1,917.72	1,249.82	1,237.13	543.29	2,728.74	1,917.72		
Heat Release (MMBtu/hr)	9.07	13.78	5.39	8.89	3.91	7.20	13.78		

Pollutants	Units	Dehydrator Blowdowns	TEG Flash Tank Blowdowns	Filter Coalescer Blowdowns	Amine Contactor Blowdowns	Amine Flash Tank Blowdowns	NGL Pig Launcher Blowdowns	Totals	Source
NO_X	lb/hr	1.25	1.90	0.74	1.23	0.54	0.99	1.90	Eq. 1)
CO	lb/hr	2.50	3.80	1.49	2.45	1.08	1.98	3.80	Eq. 1)
VOC	lb/hr	1.82	25.43	1.15	1.78	5.55	5.72	36.44	Eq. 2)
SO_2[1]	lb/hr	1.48E-05	1.30E-05	2.89E-03	4.83E-03	0.015	1.90E-04	0.015	Eq. 3)
H_2S	lb/hr	1.61E-07	1.40E-07	3.13E-05	5.24E-05	1.67E-04	2.06E-06	1.67E-04	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (lb/hr) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/hr)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Annual SSM

Unit(s): FL-2
Description: 275 MMSCFD Flare
Destruction Rate Efficiency: 98 %

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)
CO	0.2755	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)

Component	Dehydrator Blowdowns	TEG Flash Tank Blowdowns	Filter Coalescer Blowdowns	Amine Contactor Blowdowns	Amine Flash Tank Blowdowns	NGL Pig Launcher Blowdowns	Annual Total	DRE	Combusted Totals
	tpy	tpy	tpy	tpy	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	4.01E-09	3.51E-09	2.35E-06	1.31E-06	4.17E-06	2.06E-07	8.04E-06	98	1.61E-07
Nitrogen	4.50E-03	2.76E-05	7.87E-03	4.41E-03	2.52E-06	5.87E-14	0.017	0	0.017
Methane	0.12	2.38E-03	0.20	0.11	2.33E-04	9.69E-08	0.44	98	8.72E-03
Carbon Dioxide	3.71E-05	8.06E-06	0.015	8.40E-03	0.027	1.15E-07	0.050	0	0.050
Ethane	0.035	1.86E-03	0.062	0.034	8.03E-05	0.099	0.23	98	4.64E-03
Propane	0.025	1.91E-03	0.045	0.024	3.64E-05	0.26	0.35	98	7.09E-03
i-Butane	4.08E-03	3.29E-04	7.53E-03	4.00E-03	3.63E-06	0.051	0.066	98	1.33E-03
n-Butane	9.24E-03	1.09E-03	0.017	9.06E-03	1.19E-05	0.12	0.16	98	3.23E-03
i-Pentane	2.32E-03	3.10E-04	4.69E-03	2.28E-03	1.23E-06	0.039	0.049	98	9.81E-04
n-Pentane	2.27E-03	3.45E-04	4.73E-03	2.23E-03	1.54E-06	0.041	0.051	98	1.02E-03
i-Hexane	7.80E-04	1.25E-04	1.84E-03	7.64E-04	3.78E-07	0.017	0.020	98	4.01E-04
Hexane	4.32E-04	8.89E-05	1.09E-03	4.23E-04	1.98E-07	9.74E-03	0.012	98	2.36E-04
Benzene	1.50E-04	1.05E-03	3.84E-04	1.51E-04	1.22E-05	3.27E-03	5.02E-03	98	1.00E-04
Cyclohexane	2.80E-04	2.31E-04	7.54E-04	2.75E-04	7.94E-07	6.30E-03	7.84E-03	98	1.57E-04
i-Heptane	4.67E-04	1.03E-04	1.40E-03	4.57E-04	6.10E-08	0.010	0.013	98	2.58E-04
nC7	8.99E-05	2.75E-05	3.03E-04	8.81E-05	1.11E-08	2.08E-03	2.59E-03	98	5.18E-05
Toluene	7.13E-05	7.21E-04	2.48E-04	7.13E-05	4.33E-06	1.63E-03	2.75E-03	98	5.50E-05
i-Octane	2.53E-04	7.18E-05	8.25E-04	2.48E-04	4.32E-08	5.49E-03	6.89E-03	98	1.38E-04
nC8	1.46E-05	5.57E-06	7.64E-05	1.44E-05	2.98E-09	3.48E-04	4.59E-04	98	9.17E-06
Ethylbenzene	6.71E-06	8.98E-05	3.55E-05	6.66E-06	2.77E-07	1.57E-04	2.96E-04	98	5.92E-06
o-Xylene	1.21E-05	2.10E-04	7.10E-05	1.21E-05	6.51E-07	2.84E-04	5.90E-04	98	1.18E-05
Isononane	1.05E-05	4.90E-06	8.55E-05	1.03E-05	3.80E-10	2.72E-04	3.83E-04	98	7.66E-06
nC9	-	-	-	-	-	-	-	98	-
Decane	1.13E-05	6.94E-06	1.89E-04	1.11E-05	1.18E-10	2.99E-04	5.17E-04	98	1.03E-05
Ethylene Glycol	-	-	-	-	-	-	-	98	-
MDEA	3.03E-09	2.66E-05	-	-	0.11	-	0.11	98	2.22E-03
DEA	-	-	-	-	-	-	-	98	-
Piperazine	3.03E-08	2.88E-05	-	-	0.028	-	0.028	98	5.55E-04
DGA	-	-	-	-	-	-	-	98	-
TEG	-	0.63	-	-	-	6.76E-06	0.63	98	0.013
Water	1.99E-04	0.089	6.59E-04	8.18E-05	0.14	2.73E-09	0.23	0	0.23
Total VOC	0.045	0.64	0.086	0.045	0.14	0.57	1.52		0.030
Total H_2S	4.01E-09	3.51E-09	2.35E-06	1.31E-06	4.17E-06	2.06E-07	8.04E-06		1.61E-07
Total HAP	9.24E-04	2.23E-03	2.66E-03	9.11E-04	1.77E-05	0.021	0.027		5.46E-04
Operating Hours (hr/yr)	1	1	3	1	1	4	-		
Molecular Weight (lb/lbmol)	21.28	77.01	22.00	21.74	31.94	48.19	131.18		
Volumetric Flow (MMscf/yr)	7.19E-03	7.19E-03	0.013	7.19E-03	7.19E-03	0.011	0.052		
Stream Heat Value (Btu/scf)	1,261.66	1,917.72	1,249.82	1,237.13	543.29	2,728.74	1,543.28		
Heat Release (MMBtu/yr)	9.07	13.78	16.17	8.89	3.91	28.82	80.64		

Pollutants	Units	Dehydrator Blowdowns	TEG Flash Tank Blowdowns	Filter Coalescer Blowdowns	Amine Contactor Blowdowns	Amine Flash Tank Blowdowns	NGL Pig Launcher Blowdowns	Totals	Source
NO_X	tpy	6.26E-04	9.51E-04	1.12E-03	6.14E-04	2.69E-04	1.99E-03	5.56E-03	Eq. 1)
CO	tpy	1.25E-03	1.90E-03	2.23E-03	1.22E-03	5.38E-04	3.97E-03	0.011	Eq. 1)
VOC	tpy	9.09E-04	0.013	1.72E-03	8.91E-04	2.77E-03	0.011	0.030	Eq. 2)
SO_2[1]	tpy	7.40E-09	6.48E-09	4.34E-06	2.42E-06	7.69E-06	3.80E-07	1.48E-05	Eq. 3)
H_2S	tpy	8.03E-11	7.02E-11	4.70E-08	2.62E-08	8.33E-08	4.12E-09	1.61E-07	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the SSM streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (tpy) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - GHG Emissions

§98.233(n) Flare stack GHG emissions.

Step 1. If necessary, convert volume of gas sent to flare from actual to standard conditions using Equation W-33

$$E_{s,n} = \frac{E_{a,n} * (459.67 + T_s) * P_a}{(459.67 + T_a) * P_s * Z_a}$$ *(Equation W-33)*

where:

$E_{s,n}$ = Natural gas volumetric emissions at standard temperature and pressure (STP) conditions in cubic feet

$E_{a,n}$ = Natural gas volumetric emissions at actual conditions in cubic feet

T_s = Temperature at standard conditions (F) =	60	°F	
T_a = Temperature at actual conditions (F) =	75.8	°F	(Based on Annual Avg Max Temp for Roswell, NM from AP-42 Chapter 7)
P_s = Absolute pressure at standard conditions (psia) =	14.7	psia	
P_a = Absolute pressure at actual conditions (psia) =	12.88	psia	(Based on Avg Atmospheric Pres for Roswell, NM from AP-42 Chapter 7)
Z_a = Compressibility factor at actual conditions for natural gas	1	(default value)	

Step 2. Calculate CO_2 and CH_4 Emissions from Flaring at standard conditions using Equations W-19 & W-20

$$E_{s,CH4} = V_s * X_{CH4} * [(1 - \eta) * Z_L + Z_U]$$ (Equation W-19)

$$E_{s,CO2} = V_s * X_{CO2} + \Sigma (\eta * V_s * Y_j * R_j * Z_L)$$ (Equation W-20)

where:

$E_{s,CH4}$ = Annual CH_4 emissions from flare stack in cubic feet, at standard conditions

$E_{s,CO2}$ = Annual CO_2 emissions from flare stack in cubic feet, at standard conditions

V_s = Volume of gas sent to flare in standard cubic feet

η = Flare combustion efficiency, expressed as fraction of gas combusted by a burning flare 98% (default value)

X_{CH4} = Mole fraction of CH_4 in the feed gas to the flare

Nominal	SSM
0.6968	1.4386

X_{CO2} = Mole fraction of CO_2 in the feed gas to the flare

Nominal	SSM
0.0829	0.0601

Z_U = Fraction of the feed gas sent to an un-lit flare determined by engineering estimate and process knowledge based on best available data and operating records

Z_L = Fraction of the feed gas sent to a burning flare (equal to $1 - Z_U$) 1 (assumes all gas is sent to burning flare)

Y_j = Mole fraction of hydrocarbon constituents j in the feed gas to the flare

	Nominal	SSM
Constituent j, Methane =	0.6968	1.4386
Constituent j, Ethane =	0.1275	0.4076
Constituent j, Propane =	0.0438	0.4245
Constituent j, Butane =	0.0155	0.2070
Constituent j, Pentanes Plus =	0.0040	0.6518

R_j = Number of carbon atoms in the hydrocarbon constituent j in the feed gas to the flare

Constituent j, Methane =	1
Constituent j, Ethane =	2
Constituent j, Propane =	3
Constituent j, Butane =	4
Constituent j, Pentanes Plus =	5

Step 3. Calculate CO_2 and CH_4 mass emissions using Equation W-36 (98.233(v))

$$Mass_i = E_{s,i} * \rho_i * 10^{-3}$$ (Equation W-36)

where:

$Mass_i$ = GHG_i (either CH_4 or CO_2) mass emissions in metric tons

$E_{s,i}$ = GHG_i (either CH_4 or CO_2) volumetric emissions at standard conditions, in cubic feet.

ρ_i = Density of GHG_i

CO_2 =	0.0526	kg/ft^3
CH_4 =	0.0192	kg/ft^3

Step 4. Calculate N2O mass emissions using Equation W-40 (98.233(z))

$$Mass_{N2O} = (1* 10^{-3}) * Fuel * HHV * EF$$ *(Equation W-40)*

where:

$Mass_{N2O}$ = Annual N_2O emissions from the combustion of a particular type of fuel (metric tons)

Fuel = Annual mass or volume of the fuel combusted (mass or volume per year, choose appropriately to be consistent with the units of HHV).

HHV = high heat value of the fuel (MMBtu/scf)

Nominal	SSM
1.11E-03	1.54E-03

Step 5. Calculate total annual emission from flare by summing Equations W-36 and W-40.

Gas Sent to Flare	Gas Sent to Flare (acf/yr)	Gas Sent to Flare (scf/yr)	Annual CO_2 Emissions (scf)	Annual CH_4 Emissions (scf)	Combusted CO_2 Mass Emissions (mtpy)	Un-combusted CH_4 Mass Emissions (mtpy)	N_2O Mass Emissions (mtpy)	Combusted CO_2 Mass Emissions (tpy)	Un-combusted CH_4 Mass Emissions (tpy)	N_2O Mass Emissions (tpy)	CO_2e Mass Emissions (tpy)
Nominal	87,347,080	74,274,446	90,971,970.04	1,035,102.97	4,785.13	19.87	8.25E-03	5,274.69	21.91	9.09E-03	5,890.51
SSM	61,447	52,251	393,021.24	1,503.36	20.67	0.029	8.06E-06	22.79	0.032	8.89E-06	23.68
							Total	5,297.48	21.94	9.10E-03	5,914.19

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Hourly

Unit(s):	FL-3	
Description:	Tank/Loading Flare	
Operating Hours:	8,760	hr/yr
Pilot/Purge Flow Rate:	305	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors
CO	0.2755	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors

Component	Pilot	Condensate Tanks (TK-1 & TK-2)	Condensate Tanks (TK-3 to TK-8)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Stab. Condensate Loading (TL3)	Totals	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	2.72E-07	3.09E-04	5.84E-06	3.17E-05	4.30E-05	5.64E-05	1.40E-05	4.60E-04	98	9.19E-06
Nitrogen	0.44	4.90E-03	-	7.91E-04	2.60E-05	2.38E-05	-	0.44	0	0.44
Methane	11.34	1.02	4.59E-12	0.090	0.019	7.92E-03	1.10E-11	12.48	98	0.25
Carbon Dioxide	3.62E-03	0.34	4.59E-07	0.084	0.017	0.16	1.10E-06	0.60	0	0.60
Ethane	2.43	6.07	0.12	0.099	0.66	0.014	0.28	9.68	98	0.19
Propane	0.014	24.22	1.58	0.086	7.81	4.58E-03	3.78	37.49	98	0.75
i-Butane	2.06E-06	11.04	1.15	0.012	3.39	4.32E-04	2.76	18.34	98	0.37
n-Butane	1.59E-06	33.34	3.83	0.050	10.05	1.88E-03	9.17	56.44	98	1.13
i-Pentane	2.20E-10	15.24	2.24	0.016	4.25	5.62E-04	5.37	27.12	98	0.54
n-Pentane	6.49E-11	16.97	2.54	0.018	4.62	6.10E-04	6.09	30.24	98	0.60
i-Hexane	4.63E-14	7.86	1.32	7.62E-03	2.04	2.33E-04	3.16	14.38	98	0.29
Hexane	-	4.52	0.78	5.54E-03	1.20	1.78E-04	1.87	8.37	98	0.17
Benzene	2.54E-14	1.54	0.17	0.061	0.25	4.00E-03	0.40	2.43	98	0.049
Cyclohexane	-	3.07	0.45	0.017	0.66	5.89E-04	1.08	5.28	98	0.11
i-Heptane	-	4.53	0.79	5.69E-03	1.12	1.68E-04	1.88	8.33	98	0.17
nC7	-	0.81	0.15	1.40E-03	0.20	4.34E-05	0.35	1.50	98	0.030
Toluene	-	0.65	0.076	0.030	0.10	1.36E-03	0.18	1.04	98	0.021
i-Octane	-	2.31	0.42	3.95E-03	0.58	1.12E-04	1.01	4.33	98	0.087
nC8	-	0.085	0.016	1.73E-04	0.018	4.51E-06	0.039	0.16	98	3.18E-03
Ethylbenzene	-	0.039	5.55E-03	1.63E-03	6.38E-03	8.08E-05	0.013	0.066	98	1.31E-03
o-Xylene	-	0.064	8.20E-03	3.93E-03	8.98E-03	1.29E-04	0.020	0.10	98	2.10E-03
Isononane	-	0.043	0.010	1.14E-04	9.32E-03	2.21E-06	0.025	0.088	98	1.76E-03
nC9	-	-	-	-	-	-	-	-	98	-
Decane	-	0.016	4.37E-03	4.62E-05	2.26E-03	6.80E-07	0.010	0.033	98	6.55E-04
Ethylene Glycol	-	-	-	-	-	-	-	-	98	-
MDEA	-	-	-	1.43E-06	-	3.54E-10	-	1.43E-06	98	2.85E-08
DEA	-	-	-	-	-	-	-	-	98	-
Piperazine	-	-	-	1.36E-08	-	2.54E-07	-	2.67E-07	98	5.34E-09
DGA	-	-	-	-	-	-	-	-	98	-
TEG	-	-	-	1.11E-13	-	1.78E-12	-	1.89E-12	98	3.79E-14
Water	-	0.12	3.18E-11	0.048	1.87E-05	0.65	7.61E-11	0.82	0	0.82
Total VOC	0.014	126.35	15.53	0.32	36.33	0.015	37.20	215.75		4.32
Total H_2S	2.72E-07	3.09E-04	5.84E-06	3.17E-05	4.30E-05	5.64E-05	1.40E-05	4.60E-04		9.19E-06
Total HAP	2.54E-14	9.13	1.46	0.11	2.15	5.86E-03	3.49	16.35		0.33
Operating Hours (hr/yr)	8,760	8,760	8,760	8,760	8,760	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	57.66	65.84	34.53	59.39	20.64	65.84	51.95		
Volumetric Flow (scf/hr)	305.00	881.28	90.16	7.05	236.60	15.47	216.03	1,751.59		
Stream Heat Value (Btu/scf)	1,067.28	3,212.94	3,656.89	1,549.79	3,318.48	96.10	3,656.89	2,896.95		
Heat Release (MMBtu/hr)	0.33	2.83	0.33	0.011	0.79	1.49E-03	0.79	5.07		

Pollutants	Units	Pilot	Condensate Tanks (TK-1 & TK-2)	Condensate Tanks (TK-3 to TK-8)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Stab. Condensate Loading (TL3)	Totals	Source
NO_X	lb/hr	0.045	0.39	0.045	1.51E-03	0.11	2.05E-04	0.11	0.70	Eq. 1)
CO	lb/hr	0.090	0.78	0.091	3.01E-03	0.22	4.10E-04	0.22	0.96	Eq. 1)
VOC	lb/hr	2.77E-04	2.53	0.31	6.41E-03	0.73	3.00E-04	0.74	4.32	Eq. 2)
SO_2[1]	lb/hr	5.02E-07	5.69E-04	1.08E-05	5.85E-05	7.93E-05	1.04E-04	2.58E-05	8.48E-04	Eq. 3)
H_2S	lb/hr	5.45E-09	6.17E-06	1.17E-07	6.35E-07	8.59E-07	1.13E-06	2.80E-07	9.19E-06	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (lb/hr) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/hr)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Annual

Unit(s):	FL-3	
Description:	Tank/Loading Flare	
Operating Hours:	8760	hr/yr
Pilot Flow Rate:	305	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors
CO	0.2755	lb/MMBtu	Table A-6. TCEQ Air Permits Flare Emission Factors

Component	Pilot	Condensate Tanks (TK-1 & TK-2)	Condensate Tanks (TK-3 to TK-8)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Stab. Condensate Loading (TL3)	Totals	DRE	Combusted Totals
	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	1.19E-06	1.35E-03	2.56E-05	1.39E-04	2.06E-07	5.42E-06	3.36E-05	1.56E-03	98	3.11E-05
Nitrogen	1.92	0.021	-	3.47E-03	1.25E-07	2.28E-06	-	1.95	0	1.95
Methane	49.66	4.49	2.01E-11	0.39	9.09E-05	7.61E-04	2.64E-11	54.54	98	1.09
Carbon Dioxide	0.016	1.51	2.01E-06	0.37	8.08E-05	0.015	2.64E-06	1.91	0	1.91
Ethane	10.66	26.59	0.51	0.44	3.19E-03	1.32E-03	0.67	38.86	98	0.78
Propane	0.061	106.10	6.90	0.38	0.038	4.40E-04	9.06	122.54	98	2.45
i-Butane	9.03E-06	48.34	5.04	0.053	0.016	4.15E-05	6.62	60.07	98	1.20
n-Butane	6.96E-06	146.04	16.76	0.22	0.048	1.81E-04	22.01	185.08	98	3.70
i-Pentane	9.62E-10	66.74	9.82	0.070	0.020	5.40E-05	12.89	89.55	98	1.79
n-Pentane	2.84E-10	74.32	11.13	0.080	0.022	5.86E-05	14.62	100.18	98	2.00
i-Hexane	2.03E-13	34.44	5.77	0.033	9.79E-03	2.24E-05	7.58	47.84	98	0.96
Hexane	-	19.81	3.41	0.024	5.74E-03	1.71E-05	4.48	27.74	98	0.55
Benzene	1.11E-13	6.76	0.73	0.27	1.22E-03	3.84E-04	0.96	8.72	98	0.17
Cyclohexane	-	13.46	1.98	0.072	3.18E-03	5.65E-05	2.59	18.10	98	0.36
i-Heptane	-	19.82	3.44	0.025	5.40E-03	1.62E-05	4.52	27.82	98	0.56
nC7	-	3.53	0.64	6.14E-03	9.66E-04	4.17E-06	0.84	5.01	98	0.10
Toluene	-	2.83	0.33	0.13	5.01E-04	1.31E-04	0.43	3.72	98	0.074
i-Octane	-	10.14	1.85	0.017	2.79E-03	1.08E-05	2.43	14.44	98	0.29
nC8	-	0.37	0.071	7.59E-04	8.84E-05	4.33E-07	0.093	0.54	98	0.011
Ethylbenzene	-	0.17	0.024	7.14E-03	3.07E-05	7.76E-06	0.032	0.23	98	4.66E-03
o-Xylene	-	0.28	0.036	0.017	4.31E-05	1.24E-05	0.047	0.38	98	7.60E-03
Isononane	-	0.19	0.045	5.00E-04	4.48E-05	2.13E-07	0.060	0.29	98	5.90E-03
nC9	-	-	-	-	-	-	-	-	98	-
Decane	-	0.068	0.019	2.02E-04	1.09E-05	6.54E-08	0.025	0.11	98	2.26E-03
Ethylene Glycol	-	-	-	-	-	-	-	-	98	-
MDEA	-	-	-	6.25E-06	-	3.40E-11	-	6.25E-06	98	1.25E-07
DEA	-	-	-	-	-	-	-	-	98	-
Piperazine	-	-	-	5.95E-08	-	2.44E-08	-	8.39E-08	98	1.68E-09
DGA	-	-	-	-	-	-	-	-	98	-
TEG	-	-	-	4.84E-13	-	1.71E-13	-	6.56E-13	98	1.31E-14
Water	-	0.52	1.39E-10	0.21	8.96E-08	0.062	1.83E-10	0.79	0	0.79
Total VOC	0.061	553.41	68.01	1.40	0.17	1.44E-03	89.31	712.37		14.25
Total H_2S	1.19E-06	1.35E-03	2.56E-05	1.39E-04	2.06E-07	5.42E-06	3.36E-05	1.56E-03		3.11E-05
Total HAP	1.11E-13	39.99	6.39	0.46	0.010	5.63E-04	8.39	55.24		1.10
Operating Hours (hr/yr)	8,760	8,760	8,760	8,760	8,760	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	57.66	65.84	34.53	59.39	20.64	65.84	50.06		
Volumetric Flow (MMscf/yr)	2.67	7.72	0.79	0.062	2.27E-03	2.97E-03	1.04	12.29		
Stream Heat Value (Btu/scf)	1,067.28	3,212.94	3,656.89	1,549.79	3,318.48	96.10	3,656.89	2,803.24		
Heat Release (MMBtu/yr)	2,851.56	24,804.08	2,888.18	95.77	7.54	0.29	3,792.74	34,440.16		

Pollutants	Units	Pilot	Condensate Tanks (TK-1 & TK-2)	Condensate Tanks (TK-3 to TK-8)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Stab. Condensate Loading (TL3)	Totals	Source
NO_X	tpy	0.20	1.71	0.20	6.61E-03	5.20E-04	1.97E-05	0.26	2.38	Eq. 1)
CO	tpy	0.39	3.42	0.40	0.013	1.04E-03	3.94E-05	0.52	4.74	Eq. 1)
VOC	tpy	1.21E-03	11.07	1.36	0.028	3.49E-03	2.88E-05	1.79	14.25	Eq. 2)
SO_2[1]	tpy	2.20E-06	2.49E-03	4.72E-05	2.56E-04	3.81E-07	9.99E-06	6.20E-05	2.87E-03	Eq. 3)
H_2S	tpy	2.39E-08	2.70E-05	5.12E-07	2.78E-06	4.13E-09	1.08E-07	6.72E-07	3.11E-05	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (tpy) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Hourly SSM

Unit(s): FL-3
Description: Tank/Loading Flare
Destruction Rate Efficiency: 98 %

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)
CO	0.2755	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)

Component	Condensate Tank O_2 Purging/Degassing	Produced Water Tank O_2 Purging/Degassing	Stabilized Condensate Tank O_2 Purging/Degassing	Maximum BD Event Total	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	3.68E-03	0.024	2.59E-03	0.024	98	4.86E-04
Nitrogen	0.058	0.61	-	0.61	0	0.61
Methane	12.23	68.70	2.04E-09	68.70	98	1.37
Carbon Dioxide	4.11	64.64	2.04E-04	64.64	0	64.64
Ethane	72.44	76.14	51.49	76.14	98	1.52
Propane	289.08	66.26	699.15	699.15	98	13.98
i-Butane	131.71	9.23	510.64	510.64	98	10.21
n-Butane	397.89	38.34	1,697.85	1,697.85	98	33.96
i-Pentane	181.85	12.29	994.52	994.52	98	19.89
n-Pentane	202.50	14.08	1,127.67	1,127.67	98	22.55
i-Hexane	93.84	5.84	584.67	584.67	98	11.69
Hexane	53.99	4.25	345.78	345.78	98	6.92
Benzene	18.42	46.49	74.33	74.33	98	1.49
Cyclohexane	36.66	12.66	200.12	200.12	98	4.00
i-Heptane	54.00	4.36	348.81	348.81	98	6.98
nC7	9.61	1.07	64.60	64.60	98	1.29
Toluene	7.70	23.12	33.53	33.53	98	0.67
i-Octane	27.62	3.03	187.38	187.38	98	3.75
nC8	1.02	0.13	7.21	7.21	98	0.14
Ethylbenzene	0.46	1.25	2.46	2.46	98	0.049
o-Xylene	0.76	3.01	3.64	3.64	98	0.073
Isononane	0.52	0.088	4.60	4.60	98	0.092
nC9	-	-	-	-	98	-
Decane	0.19	0.035	1.94	1.94	98	0.039
Ethylene Glycol	-	-	-	-	98	-
MDEA	-	1.09E-03	-	1.09E-03	98	2.19E-05
DEA	-	-	-	-	98	-
Piperazine	-	1.04E-05	-	1.04E-05	98	2.08E-07
DGA	-	-	-	-	98	-
TEG	-	8.48E-11	-	8.48E-11	98	1.70E-12
Water	1.43	36.42	1.41E-08	36.42	0	36.42
Total VOC	1,507.80	245.54	6,888.89	6,888.89		137.78
Total H_2S	3.68E-03	0.024	2.59E-03	0.024		4.86E-04
Total HAP	108.95	81.15	647.12	647.12		12.94
Operating Hours (hr/yr)	6	3	18	-		
Molecular Weight (lb/lbmol)	57.66	34.53	65.84	65.84		
Volumetric Flow (scf/hr)	10,071.91	5,036.23	38,755.95	38,755.95		
Stream Heat Value (Btu/scf)	3,212.94	1,549.79	3,656.89	3,656.89		
Heat Release (MMBtu/hr)	32.36	7.81	141.73	141.73		

Pollutants	Units	Condensate Tank O_2 Purging/Degassing	Produced Water Tank O_2 Purging/Degassing	Stabilized Condensate Tank O_2 Purging/Degassing	Totals	Source
NO_X	lb/hr	4.47	1.08	19.56	19.56	Eq. 1)
CO	lb/hr	8.92	2.15	39.05	39.05	Eq. 1)
VOC	lb/hr	30.16	4.91	137.78	137.78	Eq. 2)
SO_2[1]	lb/hr	6.79E-03	0.045	4.78E-03	0.045	Eq. 3)
H_2S	lb/hr	7.36E-05	4.86E-04	5.18E-05	4.86E-04	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (lb/hr) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/hr)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - Annual SSM

Unit(s): FL-3
Description: Tank/Loading Flare
Destruction Rate Efficiency: 98 %

Emission Factor	Value	Unit	Source
NO_X	0.138	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)
CO	0.2755	lb/MMBtu	TCEQ RG-109 Table 4 (Other, High Btu)

Component	Condensate Tank O_2 Purging/Degassing	Produced Water Tank O_2 Purging/Degassing	Stabilized Condensate Tank O_2 Purging/Degassing	Annual Total	DRE	Combusted Totals
	tpy	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	5.52E-06	3.65E-05	3.89E-06	4.59E-05	98	9.18E-07
Nitrogen	8.77E-05	9.10E-04	-	9.97E-04	0	9.97E-04
Methane	0.018	0.10	3.06E-12	0.12	98	2.43E-03
Carbon Dioxide	6.16E-03	0.097	3.05E-07	0.10	0	0.10
Ethane	0.11	0.11	0.077	0.30	98	6.00E-03
Propane	0.43	0.099	1.05	1.58	98	0.032
i-Butane	0.20	0.014	0.77	0.98	98	0.020
n-Butane	0.60	0.058	2.55	3.20	98	0.064
i-Pentane	0.27	0.018	1.49	1.78	98	0.036
n-Pentane	0.30	0.021	1.69	2.02	98	0.040
i-Hexane	0.14	8.76E-03	0.88	1.03	98	0.021
Hexane	0.081	6.37E-03	0.52	0.61	98	0.012
Benzene	0.028	0.070	0.11	0.21	98	4.18E-03
Cyclohexane	0.055	0.019	0.30	0.37	98	7.48E-03
i-Heptane	0.081	6.54E-03	0.52	0.61	98	0.012
nC7	0.014	1.61E-03	0.097	0.11	98	2.26E-03
Toluene	0.012	0.035	0.050	0.097	98	1.93E-03
i-Octane	0.041	4.54E-03	0.28	0.33	98	6.54E-03
nC8	1.53E-03	1.99E-04	0.011	0.013	98	2.51E-04
Ethylbenzene	6.93E-04	1.88E-03	3.70E-03	6.26E-03	98	1.25E-04
o-Xylene	1.14E-03	4.52E-03	5.45E-03	0.011	98	2.22E-04
Isononane	7.74E-04	1.31E-04	6.91E-03	7.81E-03	98	1.56E-04
nC9	-	-	-	-	98	-
Decane	2.79E-04	5.31E-05	2.91E-03	3.24E-03	98	6.48E-05
Ethylene Glycol	-	-	-	-	98	-
MDEA	-	1.64E-06	-	1.64E-06	98	3.28E-08
DEA	-	-	-	-	98	-
Piperazine	-	1.56E-08	-	1.56E-08	98	3.13E-10
DGA	-	-	-	-	98	-
TEG	-	1.27E-13	-	1.27E-13	98	2.54E-15
Water	2.14E-03	0.055	2.11E-11	0.057	0	0.057
Total VOC	2.26	0.37	10.33	12.96		0.26
Total H_2S	5.52E-06	3.65E-05	3.89E-06	4.59E-05		9.18E-07
Total HAP	0.16	0.12	0.97	1.26		0.025
Operating Hours (hr/yr)	6	3	18	-		
Molecular Weight (lb/lbmol)	57.66	34.53	65.84	61.39		
Volumetric Flow (MMscf/yr)	0.030	0.015	0.12	0.16		
Stream Heat Value (Btu/scf)	3,212.94	1,549.79	3,656.89	3,376.88		
Heat Release (MMBtu/yr)	97.09	23.42	425.21	545.71		

Pollutants	Units	Condensate Tank O_2 Purging/Degassing	Produced Water Tank O_2 Purging/Degassing	Stabilized Condensate Tank O_2 Purging/Degassing	Totals	Source
NO_X	tpy	6.70E-03	1.62E-03	0.029	0.038	Eq. 1)
CO	tpy	0.013	3.23E-03	0.059	0.075	Eq. 1)
VOC	tpy	0.045	7.37E-03	0.21	0.26	Eq. 2)
SO_2[1]	tpy	1.02E-05	6.73E-05	7.17E-06	8.47E-05	Eq. 3)
H_2S	tpy	1.10E-07	7.30E-07	7.78E-08	9.18E-07	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NO_X and CO (tpy) = Emission Factor (lb/MMBtu) * Stream Heat Release (MMBtu/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Process Gas Flare - GHG Emissions

§98.233(n) Flare stack GHG emissions.

Step 1. If necessary, convert volume of gas sent to flare from actual to standard conditions using Equation W-33

$$E_{s,n} = \frac{E_{a,n} * (459.67 + T_s) * P_a}{(459.67 + T_a) * P_s * Z_a} \quad \textit{(Equation W-33)}$$

where:

$E_{s,n}$ = Natural gas volumetric emissions at standard temperature and pressure (STP) conditions in cubic feet

$E_{a,n}$ = Natural gas volumetric emissions at actual conditions in cubic feet

T_s = Temperature at standard conditions (F) =	60	°F	
T_a = Temperature at actual conditions (F) =	75.8	°F	(Based on Annual Avg Max Temp for Roswell, NM from AP-42 Chapter 7)
P_s = Absolute pressure at standard conditions (psia) =	14.7	psia	
P_a = Absolute pressure at actual conditions (psia) =	12.88	psia	(Based on Avg Atmospheric Pres for Roswell, NM from AP-42 Chapter 7)
Z_a = Compressibility factor at actual conditions for natural gas	1	(default value)	

Step 2. Calculate CO_2 and CH_4 Emissions from Flaring at standard conditions using Equations W-19 & W-20

$$E_{s,CH4} = V_s * X_{CH4} * [\ (1 - \eta) * Z_L + Z_U\ ] \quad \text{(Equation W-19)}$$

$$E_{s,CO2} = V_s * X_{CO2} + \Sigma\ (\eta * V_s * Y_j * R_j * Z_L) \quad \text{(Equation W-20)}$$

where:

$E_{s,CH4}$ = Annual CH_4 emissions from flare stack in cubic feet, at standard conditions

$E_{s,CO2}$ = Annual CO_2 emissions from flare stack in cubic feet, at standard conditions

V_s = Volume of gas sent to flare in standard cubic feet

η = Flare combustion efficiency, expressed as fraction of gas combusted by a burning flare 98% (default value)

X_{CH4} = Mole fraction of CH_4 in the feed gas to the flare	Nominal	SSM
	0.2104	0.0344

X_{CO2} = Mole fraction of CO_2 in the feed gas to the flare	Nominal	SSM
	0.0027	0.0106

Z_U = Fraction of the feed gas sent to an un-lit flare determined by engineering estimate and process knowledge based on best available data and operating records

Z_L = Fraction of the feed gas sent to a burning flare (equal to $1 - Z_U$) 1 (assumes all gas is sent to burning flare)

Y_j = Mole fraction of hydrocarbon constituents j in the feed gas to the flare

	Nominal	SSM
Constituent j, Methane =	0.2104	0.0344
Constituent j, Ethane =	0.0798	0.0452
Constituent j, Propane =	0.1717	0.1625
Constituent j, Butane =	0.2606	0.3258
Constituent j, Pentanes Plus =	0.2184	0.3404

R_j = Number of carbon atoms in the hydrocarbon constituent j in the feed gas to the flare

Constituent j, Methane =	1
Constituent j, Ethane =	2
Constituent j, Propane =	3
Constituent j, Butane =	4
Constituent j, Pentanes Plus =	5

Step 3. Calculate CO_2 and CH_4 mass emissions using Equation W-36 (98.233(v))

$$Mass_i = E_{s,i} * \rho_i * 10^{-3} \quad \text{(Equation W-36)}$$

where:

$Mass_i$ = GHG_i (either CH_4 or CO_2) mass emissions in metric tons

$E_{s,i}$ = GHG_i (either CH_4 or CO_2) volumetric emissions at standard conditions, in cubic feet.

ρ_i = Density of GHG_i

CO_2 =	0.0526	kg/ft^3
CH_4 =	0.0192	kg/ft^3

Step 4. Calculate N2O mass emissions using Equation W-40 (98.233(z))

$$Mass_{N2O} = (1* 10^{-3}) * Fuel * HHV * EF \quad \textit{(Equation W-40)}$$

where:

$Mass_{N2O}$ = Annual N_2O emissions from the combustion of a particular type of fuel (metric tons)

Fuel = Annual mass or volume of the fuel combusted (mass or volume per year, choose appropriately to be consistent with the units of HHV).

HHV = high heat value of the fuel (MMBtu/scf)	Nominal	SSM
	2.80E-03	3.38E-03

Step 5. Calculate total annual emission from flare by summing Equations W-36 and W-40.

Gas Sent to Flare	Gas Sent to Flare (acf/yr)	Gas Sent to Flare (scf/yr)	Annual CO_2 Emissions (scf)	Annual CH_4 Emissions (scf)	Combusted CO_2 Mass Emissions (mtpy)	Un-combusted CH_4 Mass Emissions (mtpy)	N_2O Mass Emissions (mtpy)	Combusted CO_2 Mass Emissions (tpy)	Un-combusted CH_4 Mass Emissions (tpy)	N_2O Mass Emissions (tpy)	CO_2e Mass Emissions (tpy)
Nominal	14,448,192	12,285,831	36,389,383	51,710.58	1,914.08	0.99	3.44E-03	2,109.91	1.09	3.80E-03	2,141.56
SSM	190,045	161,603	574,686.82	111.06	30.23	2.13E-03	5.46E-05	33.32	2.35E-03	6.02E-05	33.40
							Total	2,143.23	1.10	3.86E-03	2,174.96

Trace Delaware Gathering, LLC - Apollo Gas Plant

Tank/Loading Combustor - Hourly

Unit(s):	ECD-1	
Description:	Existing Tank/Loading Combustor	
Operating Hours:	8,760	hr/yr
Pilot Flow Rate:	12	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Pilot	Condensate Tanks (TK-1 & TK-2)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Totals	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	1.07E-08	3.09E-04	3.17E-05	4.30E-05	5.64E-05	4.40E-04	0	4.40E-04
Nitrogen	0.017	4.90E-03	7.91E-04	2.60E-05	2.38E-05	0.023	98	4.60E-04
Methane	0.45	1.02	0.090	0.019	7.92E-03	1.59	0	1.59
Carbon Dioxide	1.42E-04	0.34	0.084	0.017	0.16	0.60	98	0.012
Ethane	0.096	6.07	0.099	0.66	0.014	6.94	98	0.14
Propane	5.45E-04	24.22	0.086	7.81	4.58E-03	32.13	98	0.64
i-Butane	8.11E-08	11.04	0.012	3.39	4.32E-04	14.44	98	0.29
n-Butane	6.25E-08	33.34	0.050	10.05	1.88E-03	43.44	98	0.87
i-Pentane	8.64E-12	15.24	0.016	4.25	5.62E-04	19.50	98	0.39
n-Pentane	2.55E-12	16.97	0.018	4.62	6.10E-04	21.61	98	0.43
i-Hexane	1.82E-15	7.86	7.62E-03	2.04	2.33E-04	9.91	98	0.20
Hexane	-	4.52	5.54E-03	1.20	1.78E-04	5.72	98	0.11
Benzene	1.00E-15	1.54	0.061	0.25	4.00E-03	1.86	98	0.037
Cyclohexane	-	3.07	0.017	0.66	5.89E-04	3.75	98	0.075
i-Heptane	-	4.53	5.69E-03	1.12	1.68E-04	5.66	98	0.11
nC7	-	0.81	1.40E-03	0.20	4.34E-05	1.01	98	0.020
Toluene	-	0.65	0.030	0.10	1.36E-03	0.78	98	0.016
i-Octane	-	2.31	3.95E-03	0.58	1.12E-04	2.90	98	0.058
nC8	-	0.085	1.73E-04	0.018	4.51E-06	0.10	98	2.08E-03
Ethylbenzene	-	0.039	1.63E-03	6.38E-03	8.08E-05	0.047	98	9.37E-04
o-Xylene	-	0.064	3.93E-03	8.98E-03	1.29E-04	0.077	98	1.54E-03
Isononane	-	0.043	1.14E-04	9.32E-03	2.21E-06	0.053	98	1.05E-03
nC9	-	-	-	-	-	-	98	-
Decane	-	0.016	4.62E-05	2.26E-03	6.80E-07	0.018	98	3.58E-04
Ethylene Glycol	-	-	-	-	-	-	98	-
MDEA	-	-	1.43E-06	-	3.54E-10	1.43E-06	98	2.85E-08
DEA	-	-	-	-	-	-	98	-
Piperazine	-	-	1.36E-08	-	2.54E-07	2.67E-07	98	5.34E-09
DGA	-	-	-	-	-	-	98	-
TEG	-	-	1.11E-13	-	1.78E-12	1.89E-12	98	3.79E-14
Water	-	0.12	0.048	1.87E-05	0.65	0.82	0	0.82
Total VOC	5.45E-04	126.35	0.32	36.33	0.015	163.01		3.26
Total H_2S	1.07E-08	3.09E-04	3.17E-05	4.30E-05	5.64E-05	4.40E-04		4.40E-04
Total HAP	1.00E-15	9.13	0.11	2.15	5.86E-03	11.39		0.23
Operating Hours (hr/yr)	8,760	8,760	8,760	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	57.66	34.53	59.39	20.64	56.96		
Volumetric Flow (scf/hr)	12.00	881.28	7.05	236.60	15.47	1,152.41		
Stream Heat Value (Btu/scf)	1,067.28	3,212.94	1,549.79	3,318.48	96.10	4,045.02		
Heat Release (MMBtu/hr)	0.013	2.83	0.011	0.79	1.49E-03	3.64		

Pollutants	Units	Pilot	Condensate Tanks (TK-1 & TK-2)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Totals	Source
NO_X	lb/hr	1.26E-03	0.28	1.07E-03	0.077	1.46E-04	0.36	Eq. 1)
CO	lb/hr	1.05E-03	0.23	9.00E-04	0.065	1.22E-04	0.30	Eq. 1)
VOC	lb/hr	1.09E-05	2.53	6.41E-03	0.73	3.00E-04	3.26	Eq. 2)
SO_2[1]	lb/hr	1.98E-08	5.69E-04	5.85E-05	7.93E-05	1.04E-04	8.11E-04	Eq. 3)
PM	lb/hr	9.54E-05	0.021	8.15E-05	5.85E-03	1.11E-05	0.027	Eq. 4)
H_2S	lb/hr	2.14E-10	6.17E-06	6.35E-07	8.59E-07	1.13E-06	8.79E-06	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NOx and CO (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	0.01	1.59	-	-	lb/hr	Combusted Emissions
	0.04	6.84	-	-	ton/yr	Combusted Emissions
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1
Total Emissions	426.03	1.60	8.03E-04	-	lb/hr	kg/ MMBtu * hourly natural gas
	1865.99	6.87	3.52E-03	2059.32	ton/yr	kg/ MMBtu * annual natural gas

1 kg = 2.20462262 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Tank/Loading Combustor - Annual

Unit(s):	ECD-1	
Description:	Existing Tank/Loading Combustor	
Operating Hours:	8760	hr/yr
Pilot Flow Rate:	12	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Pilot	Condensate Tanks (TK-1 & TK-2)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Totals	DRE	Combusted Totals
	tpy	tpy	tpy	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	4.69E-08	1.35E-03	1.39E-04	2.06E-07	5.42E-06	1.50E-03	0	1.50E-03
Nitrogen	0.076	0.021	3.47E-03	1.25E-07	2.28E-06	0.10	98	2.01E-03
Methane	1.95	4.49	0.39	9.09E-05	7.61E-04	6.84	0	6.84
Carbon Dioxide	6.24E-04	1.51	0.37	8.08E-05	0.015	1.89	98	0.038
Ethane	0.42	26.59	0.44	3.19E-03	1.32E-03	27.45	98	0.55
Propane	2.39E-03	106.10	0.38	0.038	4.40E-04	106.52	98	2.13
i-Butane	3.55E-07	48.34	0.053	0.016	4.15E-05	48.41	98	0.97
n-Butane	2.74E-07	146.04	0.22	0.048	1.81E-04	146.31	98	2.93
i-Pentane	3.78E-11	66.74	0.070	0.020	5.40E-05	66.84	98	1.34
n-Pentane	1.12E-11	74.32	0.080	0.022	5.86E-05	74.43	98	1.49
i-Hexane	7.98E-15	34.44	0.033	9.79E-03	2.24E-05	34.48	98	0.69
Hexane	-	19.81	0.024	5.74E-03	1.71E-05	19.84	98	0.40
Benzene	4.38E-15	6.76	0.27	1.22E-03	3.84E-04	7.03	98	0.14
Cyclohexane	-	13.46	0.072	3.18E-03	5.65E-05	13.53	98	0.27
i-Heptane	-	19.82	0.025	5.40E-03	1.62E-05	19.85	98	0.40
nC7	-	3.53	6.14E-03	9.66E-04	4.17E-06	3.53	98	0.071
Toluene	-	2.83	0.13	5.01E-04	1.31E-04	2.96	98	0.059
i-Octane	-	10.14	0.017	2.79E-03	1.08E-05	10.16	98	0.20
nC8	-	0.37	7.59E-04	8.84E-05	4.33E-07	0.37	98	7.49E-03
Ethylbenzene	-	0.17	7.14E-03	3.07E-05	7.76E-06	0.18	98	3.54E-03
o-Xylene	-	0.28	0.017	4.31E-05	1.24E-05	0.30	98	5.94E-03
Isononane	-	0.19	5.00E-04	4.48E-05	2.13E-07	0.19	98	3.80E-03
nC9	-	-	-	-	-	-	98	-
Decane	-	0.068	2.02E-04	1.09E-05	6.54E-08	0.069	98	1.37E-03
Ethylene Glycol	-	-	-	-	-	-	98	-
MDEA	-	-	6.25E-06	-	3.40E-11	6.25E-06	98	1.25E-07
DEA	-	-	-	-	-	-	98	-
Piperazine	-	-	5.95E-08	-	2.44E-08	8.39E-08	98	1.68E-09
DGA	-	-	-	-	-	-	98	-
TEG	-	-	4.84E-13	-	1.71E-13	6.56E-13	98	1.31E-14
Water	-	0.52	0.21	8.96E-08	0.062	0.79	0	0.79
Total VOC	2.39E-03	553.41	1.40	0.17	1.44E-03	554.99		11.10
Total H_2S	4.69E-08	1.35E-03	1.39E-04	2.06E-07	5.42E-06	1.50E-03		1.50E-03
Total HAP	4.38E-15	39.99	0.46	0.010	5.63E-04	40.46		0.81
Operating Hours (hr/yr)	8,760	8,760	8,760	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	57.66	34.53	59.39	20.64	56.97		
Volumetric Flow (MMscf/yr)	0.11	7.72	0.062	2.27E-03	2.97E-03	7.89		
Stream Heat Value (Btu/scf)	1,067.28	3,212.94	1,549.79	3,318.48	96.10	3,172.31		
Heat Release (MMBtu/yr)	112.19	24,804.08	95.77	7.54	0.29	25,019.87		

Pollutants	Units	Pilot	Condensate Tanks (TK-1 & TK-2)	Produced Water Tank (PWTK-1)	Condensate Loading (TL1)	Produced Water Loading (TL2)	Totals	Source
NO_X	tpy	5.50E-03	1.22	4.69E-03	3.70E-04	1.40E-05	1.23	Eq. 1)
CO	tpy	4.62E-03	1.02	3.94E-03	3.11E-04	1.18E-05	1.03	Eq. 1)
VOC	tpy	4.77E-05	11.07	0.028	3.49E-03	2.88E-05	11.10	Eq. 2)
SO_2[1]	tpy	8.66E-08	2.49E-03	2.56E-04	3.81E-07	9.99E-06	2.76E-03	Eq. 3)
PM	tpy	4.18E-04	0.092	3.57E-04	2.81E-05	1.06E-06	0.093	Eq. 4)
H_2S	tpy	9.38E-10	2.70E-05	2.78E-06	4.13E-09	1.08E-07	2.99E-05	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NOx and CO (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)

Trace Delaware Gathering, LLC - Apollo Gas Plant

BTEX Combustor - Hourly

Unit(s):	ECD-2	
Description:	BTEX Combustor	
Operating Hours:	8,760	hr/yr
Pilot Flow Rate:	15	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Pilot	BTEX Overheads (DEHY-1)	Totals	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	1.34E-08	1.57E-05	1.58E-05	98	3.15E-07
Nitrogen	0.022	3.06E-03	0.025	0	0.025
Methane	0.56	0.91	1.47	98	0.029
Carbon Dioxide	1.78E-04	0.019	0.020	0	0.020
Ethane	0.12	2.02	2.14	98	0.043
Propane	6.81E-04	3.27	3.28	98	0.066
i-Butane	1.01E-07	0.67	0.67	98	0.013
n-Butane	7.81E-08	2.86	2.86	98	0.057
i-Pentane	1.08E-11	0.97	0.97	98	0.019
n-Pentane	3.19E-12	1.13	1.13	98	0.023
i-Hexane	2.28E-15	0.45	0.45	98	8.91E-03
Hexane	-	0.33	0.33	98	6.62E-03
Benzene	1.25E-15	4.48	4.48	98	0.090
Cyclohexane	-	0.99	0.99	98	0.020
i-Heptane	-	0.35	0.35	98	6.94E-03
nC7	-	0.089	0.089	98	1.78E-03
Toluene	-	2.10	2.10	98	0.042
i-Octane	-	0.24	0.24	98	4.82E-03
nC8	-	0.012	0.012	98	2.43E-04
Ethylbenzene	-	0.12	0.12	98	2.41E-03
o-Xylene	-	0.30	0.30	98	5.97E-03
Isononane	-	8.47E-03	8.47E-03	98	1.69E-04
nC9	-	-	-	98	-
Decane	-	4.07E-03	4.07E-03	98	8.14E-05
Ethylene Glycol	-	-	-	98	-
MDEA	-	1.18E-04	1.18E-04	98	2.35E-06
DEA	-	-	-	98	-
Piperazine	-	4.06E-08	4.06E-08	98	8.13E-10
DGA	-	-	-	98	-
TEG	-	2.37E-11	2.37E-11	98	4.74E-13
Water	-	1.10	1.10	0	1.10
Total VOC	6.81E-04	18.38	18.38		0.37
Total H_2S	1.34E-08	1.57E-05	1.58E-05		3.15E-07
Total HAP	1.25E-15	7.56	7.56		0.15
Operating Hours (hr/yr)	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	48.62	46.18		
Volumetric Flow (scf/hr)	15.00	175.10	190.10		
Stream Heat Value (Btu/scf)	1,067.28	2,496.79	2,384.00		
Heat Release (MMBtu/hr)	0.016	0.44	0.45		

Pollutants	Units	Pilot	BTEX Overheads (DEHY-1)	Totals	Source
NO_X	lb/hr	1.57E-03	0.043	0.044	Eq. 1)
CO	lb/hr	1.32E-03	0.036	0.037	Eq. 1)
VOC	lb/hr	1.36E-05	0.37	0.37	Eq. 2)
SO_2[1]	lb/hr	2.47E-08	2.90E-05	2.91E-05	Eq. 3)
PM	lb/hr	1.19E-04	3.26E-03	3.38E-03	Eq. 4)
H_2S	lb/hr	2.68E-10	3.15E-07	3.15E-07	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NOx and CO (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	0.02	0.03	-	-	lb/hr	Combusted Emissions
	0.09	0.13	-	-	ton/yr	Combusted Emissions
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1
Total Emissions	53.03	0.030	9.99E-05	-	lb/hr	kg/ MMBtu * hourly natural gas
	232.29	0.13	4.38E-04	236.13	ton/yr	kg/ MMBtu * annual natural gas

1 kg = 2.20462262 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

BTEX Combustor - Annual

Unit(s):	ECD-2	
Description:	BTEX Combustor	
Operating Hours:	8760	hr/yr
Pilot Flow Rate:	15	scf/hr
Destruction Rate Efficiency:	98	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Pilot	BTEX Overheads (DEHY-1)	Totals	DRE	Combusted Totals
	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	5.87E-08	6.89E-05	6.90E-05	98	1.38E-06
Nitrogen	0.095	0.013	0.11	0	0.11
Methane	2.44	4.00	6.44	98	0.13
Carbon Dioxide	7.80E-04	0.085	0.086	0	0.086
Ethane	0.52	8.85	9.37	98	0.19
Propane	2.98E-03	14.34	14.35	98	0.29
i-Butane	4.44E-07	2.93	2.93	98	0.059
n-Butane	3.42E-07	12.54	12.54	98	0.25
i-Pentane	4.73E-11	4.27	4.27	98	0.085
n-Pentane	1.40E-11	4.97	4.97	98	0.099
i-Hexane	9.98E-15	1.95	1.95	98	0.039
Hexane	-	1.45	1.45	98	0.029
Benzene	5.47E-15	19.62	19.62	98	0.39
Cyclohexane	-	4.33	4.33	98	0.087
i-Heptane	-	1.52	1.52	98	0.030
nC7	-	0.39	0.39	98	7.80E-03
Toluene	-	9.18	9.18	98	0.18
i-Octane	-	1.05	1.05	98	0.021
nC8	-	0.053	0.053	98	1.06E-03
Ethylbenzene	-	0.53	0.53	98	0.011
o-Xylene	-	1.31	1.31	98	0.026
Isononane	-	0.037	0.037	98	7.42E-04
nC9	-	-	-	98	-
Decane	-	0.018	0.018	98	3.57E-04
Ethylene Glycol	-	-	-	98	-
MDEA	-	5.16E-04	5.16E-04	98	1.03E-05
DEA	-	-	-	98	-
Piperazine	-	1.78E-07	1.78E-07	98	3.56E-09
DGA	-	-	-	98	-
TEG	-	1.04E-10	1.04E-10	98	2.08E-12
Water	-	4.82	4.82	0	4.82
Total VOC	2.98E-03	80.49	80.50		1.61
Total H_2S	5.87E-08	6.89E-05	6.90E-05		1.38E-06
Total HAP	5.47E-15	33.13	33.13		0.66
Operating Hours (hr/yr)	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	48.62	46.18		
Volumetric Flow (MMscf/yr)	0.13	1.53	1.67		
Stream Heat Value (Btu/scf)	1,067.28	2,496.79	2,384.00		
Heat Release (MMBtu/yr)	140.24	3,829.79	3,970.03		

Pollutants	Units	Pilot	BTEX Overheads (DEHY-1)	Totals	Source
NO_X	tpy	6.87E-03	0.19	0.19	Eq. 1)
CO	tpy	5.77E-03	0.16	0.16	Eq. 1)
VOC	tpy	5.97E-05	1.61	1.61	Eq. 2)
SO_2[1]	tpy	1.08E-07	1.27E-04	1.27E-04	Eq. 3)
PM	tpy	5.22E-04	0.014	0.015	Eq. 4)
H_2S	tpy	1.17E-09	1.38E-06	1.38E-06	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NOx and CO (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Thermal Oxidizer - Hourly

Unit(s):	TO-1	
Description:	Thermal Oxidizer	
Operating Hours:	8,760	hr/yr
Burner Heat Input:	20	MMBtu/hr
Fuel Flow Rate:	16,608	scf/hr
Destruction Rate Efficiency:	99	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Fuel	Amine Still Vent (AM-1)	Totals	DRE	Combusted Totals
	lb/hr	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	1.48E-05	4.14	4.14	99	0.041
Nitrogen	23.90	0.064	23.97	0	23.97
Methane	617.33	23.36	640.69	99	6.41
Carbon Dioxide	0.20	26,546.97	26,547.17	0	26,547.17
Ethane	132.49	11.79	144.28	99	1.44
Propane	0.75	4.46	5.22	99	0.052
i-Butane	1.12E-04	0.35	0.35	99	3.46E-03
n-Butane	8.65E-05	1.61	1.61	99	0.016
i-Pentane	1.20E-08	0.094	0.094	99	9.37E-04
n-Pentane	3.53E-09	0.15	0.15	99	1.46E-03
i-Hexane	2.52E-12	0.031	0.031	99	3.12E-04
Hexane	-	0.016	0.016	99	1.63E-04
Benzene	1.38E-12	11.95	11.95	99	0.12
Cyclohexane	-	0.28	0.28	99	2.77E-03
i-Heptane	-	1.79E-03	1.79E-03	99	1.79E-05
nC7	-	3.23E-04	3.23E-04	99	3.23E-06
Toluene	-	4.20	4.20	99	0.042
i-Octane	-	1.88E-03	1.88E-03	99	1.88E-05
nC8	-	1.78E-04	1.78E-04	99	1.78E-06
Ethylbenzene	-	0.26	0.26	99	2.65E-03
o-Xylene	-	0.64	0.64	99	6.40E-03
Isononane	-	5.20E-06	5.20E-06	99	5.20E-08
nC9	-	-	-	99	-
Decane	-	-	-	99	-
Ethylene Glycol	-	-	-	99	-
MDEA	-	-	-	99	-
DEA	-	-	-	99	-
Piperazine	-	-	-	99	-
DGA	-	-	-	99	-
TEG	-	-	-	99	-
Water	-	908.53	908.53	0	908.53
Total VOC	0.75	24.04	24.79		0.25
Total H_2S	1.48E-05	4.14	4.14		0.041
Total HAP	1.38E-12	17.07	17.07		0.17
Operating Hours (hr/yr)	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	41.95	40.44		
Volumetric Flow (scf/hr)	16,607.68	248,927.11	265,534.79		
Stream Heat Value (Btu/scf)	1,067.28	9.14	75.32		
Heat Release (MMBtu/hr)	17.73	2.27	20.00		

Pollutants	Units	Fuel	Amine Still Vent (AM-1)	Totals	Source
NO_X	lb/hr	1.74	0.22	1.96	Eq. 1)
CO	lb/hr	1.46	0.19	1.65	Eq. 1)
VOC	lb/hr	7.54E-03	0.24	0.25	Eq. 2)
SO_2[1]	lb/hr	2.76E-05	7.71	7.71	Eq. 3)
PM	lb/hr	0.13	0.017	0.15	Eq. 4)
H_2S	lb/hr	1.48E-07	0.041	0.041	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NOx and CO (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)

Greenhouse Emissions						
	CO_2	CH_4	N_2O	CO_{2e}	Units	Notes
Emission Factors	1.00	28.00	265.00	-	-	GWP
	26600.40	6.41	-	-	lb/hr	Combusted Emissions
	116276.63	28.06	-	-	ton/yr	Combusted Emissions
	53.06	1.00E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C, Table C-1
Total Emissions	28939.95	6.45	4.41E-03	29121.75	lb/hr	kg/ MMBtu * hourly natural gas
	126523.84	28.26	0.019	127320	ton/yr	kg/ MMBtu * annual natural gas

1 kg = 2.2046226 lb

Trace Delaware Gathering, LLC - Apollo Gas Plant

Thermal Oxidizer - Annual

Unit(s):	TO-1	
Description:	Thermal Oxidizer	
Operating Hours:	8,760	hr/yr
Burner Heat Input:	20	MMBtu/hr
Fuel Flow Rate:	16,608	scf/hr
Destruction Rate Efficiency:	99	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Fuel	Amine Still Vent (AM-1)	Totals	DRE	Combusted Totals
	tpy	tpy	tpy	%	tpy
Hydrogen Sulfide	6.49E-05	18.11	18.11	99	0.18
Nitrogen	104.69	0.28	104.97	0	104.97
Methane	2,703.92	102.30	2,806.22	99	28.06
Carbon Dioxide	0.86	116,275.74	116,276.61	0	116,276.61
Ethane	580.29	51.64	631.93	99	6.32
Propane	3.30	19.55	22.85	99	0.23
i-Butane	4.92E-04	1.51	1.51	99	0.015
n-Butane	3.79E-04	7.06	7.06	99	0.071
i-Pentane	5.24E-08	0.41	0.41	99	4.11E-03
n-Pentane	1.55E-08	0.64	0.64	99	6.39E-03
i-Hexane	1.10E-11	0.14	0.14	99	1.37E-03
Hexane	-	0.071	0.071	99	7.12E-04
Benzene	6.06E-12	52.33	52.33	99	0.52
Cyclohexane	-	1.21	1.21	99	0.012
i-Heptane	-	7.83E-03	7.83E-03	99	7.83E-05
nC7	-	1.42E-03	1.42E-03	99	1.42E-05
Toluene	-	18.38	18.38	99	0.18
i-Octane	-	8.25E-03	8.25E-03	99	8.25E-05
nC8	-	7.79E-04	7.79E-04	99	7.79E-06
Ethylbenzene	-	1.16	1.16	99	0.012
o-Xylene	-	2.80	2.80	99	0.028
Isononane	-	2.28E-05	2.28E-05	99	2.28E-07
nC9	-	-	-	99	-
Decane	-	-	-	99	-
Ethylene Glycol	-	-	-	99	-
MDEA	-	-	-	99	-
DEA	-	-	-	99	-
Piperazine	-	-	-	99	-
DGA	-	-	-	99	-
TEG	-	-	-	99	-
Water	-	3,979.36	3,979.36	0	3,979.36
Total VOC	3.30	105.29	108.59		1.09
Total H_2S	6.49E-05	18.11	18.11		0.18
Total HAP	6.06E-12	74.75	74.75		0.75
Operating Hours[2] (hr/yr)	8,760	8,760	-		
Molecular Weight (lb/lbmol)	17.70	41.95	40.44		
Volumetric Flow (MMscf/yr)	145.48	2,180.60	2,326.08		
Stream Heat Value (Btu/scf)	1,067.28	9.14	75.32		
Heat Release (MMBtu/yr)	155,271.58	19,928.42	175,200.00		

Pollutants	Units	Fuel	Amine Still Vent (AM-1)	Totals	Source
NO_X	tpy	7.61	0.98	8.59	Eq. 1)
CO	tpy	6.39	0.82	7.21	Eq. 1)
VOC	tpy	0.033	1.05	1.09	Eq. 2)
SO_2[1]	tpy	1.21E-04	33.76	33.76	Eq. 3)
PM	tpy	0.58	0.074	0.65	Eq. 4)
H_2S	tpy	6.49E-07	0.18	0.18	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

[2] Annual TO-1 emissions are conservatively represented as operating 8760 hr/yr.

Equations:

1) NOx and CO (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

Thermal Oxidizer - Hourly SSM

Unit(s):	TO-1	
Description:	Thermal Oxidizer	
Operating Hours:	8,760	hr/yr
Burner Heat Input:	20	MMBtu/hr
Fuel Flow Rate:	16,608	scf/hr
Destruction Rate Efficiency:	99	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Amine Still Vent Blowdowns	Totals	DRE	Combusted Totals
	lb/hr	lb/hr	%	lb/hr
Hydrogen Sulfide	8.31E-03	8.31E-03	99	8.31E-05
Nitrogen	1.21E-04	1.21E-04	0	1.21E-04
Methane	0.044	0.044	99	4.42E-04
Carbon Dioxide	53.23	53.23	0	53.23
Ethane	0.022	0.022	99	2.23E-04
Propane	8.45E-03	8.45E-03	99	8.45E-05
i-Butane	6.55E-04	6.55E-04	99	6.55E-06
n-Butane	3.05E-03	3.05E-03	99	3.05E-05
i-Pentane	1.78E-04	1.78E-04	99	1.78E-06
n-Pentane	2.76E-04	2.76E-04	99	2.76E-06
i-Hexane	5.91E-05	5.91E-05	99	5.91E-07
Hexane	3.08E-05	3.08E-05	99	3.08E-07
Benzene	0.023	0.023	99	2.26E-04
Cyclohexane	5.25E-04	5.25E-04	99	5.25E-06
i-Heptane	3.39E-06	3.39E-06	99	3.39E-08
nC7	6.12E-07	6.12E-07	99	6.12E-09
Toluene	7.95E-03	7.95E-03	99	7.95E-05
i-Octane	3.57E-06	3.57E-06	99	3.57E-08
nC8	3.37E-07	3.37E-07	99	3.37E-09
Ethylbenzene	5.02E-04	5.02E-04	99	5.02E-06
o-Xylene	1.21E-03	1.21E-03	99	1.21E-05
Isononane	9.84E-09	9.84E-09	99	9.84E-11
nC9	-	-	99	-
Decane	-	-	99	-
Ethylene Glycol	-	-	99	-
MDEA	222.22	222.22	99	2.22
DEA	-	-	99	-
Piperazine	55.56	55.56	99	0.56
DGA	-	-	99	-
TEG	-	-	99	-
Water	274.14	274.14	0	274.14
Total VOC	277.82	277.82		2.78
Total H_2S	8.31E-03	8.31E-03		8.31E-05
Total HAP	0.032	0.032		3.23E-04
Operating Hours (hr/yr)	1	-		
Molecular Weight (lb/lbmol)	31.96	31.96		
Volumetric Flow (scf/hr)	6,861.30	6,861.30		
Stream Heat Value (Btu/scf)	542.23	542.23		
Heat Release (MMBtu/hr)	3.72	3.72		

Pollutants	Units	Amine Still Vent Blowdowns	Totals	Source
NO_X	lb/hr	0.36	0.36	Eq. 1)
CO	lb/hr	0.31	0.31	Eq. 1)
VOC	lb/hr	2.78	2.78	Eq. 2)
SO_2[1]	lb/hr	0.015	0.015	Eq. 3)
PM	lb/hr	0.028	0.028	Eq. 4)
H_2S	lb/hr	8.31E-05	8.31E-05	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the SSM streams with a 98% DRE. It is assumed 100% of the combusted H_2S convert to SO_2

Equations:

1) NOx and CO (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)
2) VOC, H_2S, and HAP (lb/hr) = Emission Rate (lb/hr) * (1 - DRE (%))
3) SO_2 (lb/hr) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (lb/hr) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (scf/hr) / (10^6 scf/MMscf)

Heat Value Confirmation:	3.72 MMBtu/hr	<- SSM Stream
	17.73 MMBtu/hr	<- Normal Operations Fuel Stream
	21.45 MMBtu/hr	<- SSM Stream + Fuel
Result:	No increase to fuel stream is needed.	

Trace Delaware Gathering, LLC - Apollo Gas Plant

Thermal Oxidizer - Annual SSM

Unit(s):	TO-1	
Description:	Thermal Oxidizer	
Operating Hours:	8,760	hr/yr
Burner Heat Input:	20	MMBtu/hr
Fuel Flow Rate:	16,608	scf/hr
Destruction Rate Efficiency:	99	%

Emission Factor	Value	Unit	Source
NO_X	100	lb/MMscf	AP-42 Table 1.4-2
CO	84	lb/MMscf	AP-42 Table 1.4-2
PM	7.6	lb/MMscf	AP-42 Table 1.4-2

Component	Amine Still Vent Blowdowns	Totals	DRE	Combusted Totals
	tpy	tpy	%	tpy
Hydrogen Sulfide	4.16E-06	4.16E-06	99	4.16E-08
Nitrogen	6.04E-08	6.04E-08	0	6.04E-08
Methane	2.21E-05	2.21E-05	99	2.21E-07
Carbon Dioxide	0.027	0.027	0	0.027
Ethane	1.12E-05	1.12E-05	99	1.12E-07
Propane	4.23E-06	4.23E-06	99	4.23E-08
i-Butane	3.27E-07	3.27E-07	99	3.27E-09
n-Butane	1.53E-06	1.53E-06	99	1.53E-08
i-Pentane	8.88E-08	8.88E-08	99	8.88E-10
n-Pentane	1.38E-07	1.38E-07	99	1.38E-09
i-Hexane	2.95E-08	2.95E-08	99	2.95E-10
Hexane	1.54E-08	1.54E-08	99	1.54E-10
Benzene	1.13E-05	1.13E-05	99	1.13E-07
Cyclohexane	2.62E-07	2.62E-07	99	2.62E-09
i-Heptane	1.69E-09	1.69E-09	99	1.69E-11
nC7	3.06E-10	3.06E-10	99	3.06E-12
Toluene	3.97E-06	3.97E-06	99	3.97E-08
i-Octane	1.78E-09	1.78E-09	99	1.78E-11
nC8	1.69E-10	1.69E-10	99	1.69E-12
Ethylbenzene	2.51E-07	2.51E-07	99	2.51E-09
o-Xylene	6.06E-07	6.06E-07	99	6.06E-09
Isononane	4.92E-12	4.92E-12	99	4.92E-14
nC9	-	-	99	-
Decane	-	-	99	-
Ethylene Glycol	-	-	99	-
MDEA	0.11	0.11	99	1.11E-03
DEA	-	-	99	-
Piperazine	0.028	0.028	99	2.78E-04
DGA	-	-	99	-
TEG	-	-	99	-
Water	0.14	0.14	0	0.14
Total VOC	0.14	0.14		1.39E-03
Total H_2S	4.16E-06	4.16E-06		4.16E-08
Total HAP	1.62E-05	1.62E-05		1.62E-07
Operating Hours[2] (hr/yr)	1	-		
Molecular Weight (lb/lbmol)	31.96	31.96		
Volumetric Flow (MMscf/yr)	6.86E-03	6.86E-03		
Stream Heat Value (Btu/scf)	542.23	542.23		
Heat Release (MMBtu/yr)	3.72	3.72		

Pollutants	Units	Amine Still Vent Blowdowns	Totals	Source
NO_X	tpy	1.82E-04	1.82E-04	Eq. 1)
CO	tpy	1.53E-04	1.53E-04	Eq. 1)
VOC	tpy	1.39E-03	1.39E-03	Eq. 2)
SO_2[1]	tpy	7.75E-06	7.75E-06	Eq. 3)
PM	tpy	1.39E-05	1.39E-05	Eq. 4)
H_2S	tpy	4.16E-08	4.16E-08	Eq. 2)

Notes:

[1] SO_2 emissions are based on the combustion of H_2S in the process streams with a 98% DRE. It is assumed 100% of the

[2] Annual TO-1 emissions are conservatively represented as operating 8760 hr/yr.

Equations:

1) NOx and CO (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)
2) VOC, H_2S, and HAP (tpy) = Emission Rate (tpy) * (1 - DRE (%))
3) SO_2 (tpy) = (H_2S Stream Emissions) (tpy) * DRE (%) * Molar Ratio (64/32)
4) PM (tpy) = Emission Factor (lb/MMscf) * (Stream Heat Value (Btu/scf) / (1020 Btu/scf)) * Stream Flow Rate (MMscf/yr) / (2000 lb/ton)

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

Fugitives

Unit: FUG
Description: Facility Fugitives
Operating Hours: 8,760 hr/yr
Safety Factor: 10%

Service	Component Type	Count[1]	Emission Factor kg/hr-source[2]	Pollutant	Comp. wt%	Emission Rates lb/hr[3]	Emission Rates tpy[4]
Inlet Gas	Valves	2438	4.5E-03	VOC	22.99%	7.83	34.31
	Pump Seals	0	2.4E-03	H_2S	6.3E-06	2.14E-04	9.36E-04
	Others	151	8.8E-03	n-Hexane	0.29%	0.099	0.44
	Connectors	6371	2.0E-04	Benzene	0.10%	0.035	0.15
	Flanges	1180	3.9E-04	Toluene	0.066%	0.023	0.099
	Open-Ended Lines	10	2.0E-03	Ethylbenzene	9.5E-05	3.23E-03	0.014
				Xylenes	0.019%	6.45E-03	0.028
				i-Octane	0.22%	0.075	0.33
				CO_2	4.01%	1.37	5.98
				CH_4	54.27%	18.50	81.01
Residue Gas	Valves	1000	4.5E-03	VOC	0.097%	0.012	0.054
	Pump Seals	0	2.4E-03	H_2S	1.9E-08	2.41E-07	1.06E-06
	Others	0	8.8E-03	n-Hexane	-	-	-
	Connectors	0	2.0E-04	Benzene	1.8E-15	2.25E-14	9.87E-14
	Flanges	1800	3.9E-04	Toluene	-	-	-
	Open-Ended Lines	0	2.0E-03	Ethylbenzene	-	-	-
				Xylenes	-	-	-
				i-Octane	-	-	-
				CO_2	0.025%	3.21E-03	0.014
				CH_4	79.69%	10.05	44.03
Heavy Oil	Valves	0	8.4E-06	VOC	0.51%	-	-
	Pump Seals	0	NA	H_2S	1.4E-07	-	-
	Others	0	3.2E-05	n-Hexane	4.4E-05	-	-
	Connectors	0	7.5E-06	Benzene	0.15%	-	-
	Flanges	0	3.9E-07	Toluene	0.17%	-	-
	Open-Ended Lines	0	1.4E-04	Ethylbenzene	0.031%	-	-
				Xylenes	0.071%	-	-
				i-Octane	8.2E-05	-	-
				CO_2	0.016%	-	-
				CH_4	6.8E-05	-	-
Light Oil	Valves	640	2.5E-03	VOC	99.99%	5.85	25.62
	Pump Seals	26	1.3E-02	H_2S	5.5E-09	3.22E-08	1.41E-07
	Others	18	7.5E-03	n-Hexane	7.89%	0.46	2.02
	Connectors	1434	2.1E-04	Benzene	2.72%	0.16	0.70
	Flanges	260	1.1E-04	Toluene	4.21%	0.25	1.08
	Open-Ended Lines	7	1.4E-03	Ethylbenzene	0.95%	0.056	0.24
				Xylenes	2.02%	0.12	0.52
				i-Octane	13.35%	0.78	3.42
				CO_2	1.3E-10	7.88E-10	3.45E-09
				CH_4	1.7E-15	1.01E-14	4.42E-14
Water/Oil	Valves	40	9.8E-05	VOC	0.51%	1.04E-04	4.54E-04
	Pump Seals	0	2.4E-05	H_2S	1.4E-07	2.86E-09	1.25E-08
	Others	0	1.4E-02	n-Hexane	4.4E-05	9.05E-07	3.96E-06
	Connectors	38	1.1E-04	Benzene	0.15%	3.07E-05	1.34E-04
	Flanges	25	2.9E-06	Toluene	0.17%	3.51E-05	1.54E-04
	Open-Ended Lines	1	2.5E-04	Ethylbenzene	0.031%	6.33E-06	2.77E-05
				Xylenes	0.071%	1.46E-05	6.38E-05
				i-Octane	8.2E-05	1.68E-06	7.35E-06
				CO_2	0.016%	3.18E-06	1.39E-05
				CH_4	6.8E-05	1.39E-06	6.08E-06

Fugitive Emission Summary

Pollutant	Emission Rates lb/hr	Emission Rates tpy
VOC	13.70	59.99
H_2S	2.14E-04	9.37E-04
Total HAPs	2.06	9.04
n-Hexane	0.56	2.46
Benzene	0.19	0.85
Toluene	0.27	1.18
Ethylbenzene	0.059	0.26
Xylenes	0.12	0.55
i-Octane	0.86	3.75

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	5.99	125.04	-	tpy	
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	5.99	125.04	-	tpy	
CO_2e Total	-	-	3,507.23	tpy	

Notes:

[1] Component counts are based on facility design.

[2] Emission factors from Table 2-4 of EPA Protocol for Equipment Leak Emission Estimates, 1995.

[3] Hourly Emissions (lb/hr) = Emissions Factor (lb/hr/component) * Weight Content of Chemical Component (%) * Subcomponent Count

[4] Annual Emissions (tpy) = Hourly Emissions (lb/hr) * Operating Hours (hr/yr) / (2000 lb/ton)

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM Emission Summary

Uncontrolled SSM Emissions

Description	NO_x		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		H_2S	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Residue Compressor BD	-	-	-	-	1.58	0.038	-	-	-	-	-	-	3.10E-05	7.45E-07
Full Press. Residue Compressor BD	-	-	-	-	6.12	0.15	-	-	-	-	-	-	1.20E-04	2.89E-06
Flash Gas Compressor BD	-	-	-	-	0.17	0.024	-	-	-	-	-	-	2.85E-06	4.10E-07
Overhead Compressor BD	-	-	-	-	9.83	0.24	-	-	-	-	-	-	2.00E-04	4.80E-06
Dehydrator BD	-	-	-	-	90.92	0.045	-	-	-	-	-	-	8.03E-06	4.01E-09
TEG Flash Tank BD	-	-	-	-	1,271.29	0.64	-	-	-	-	-	-	7.02E-06	3.51E-09
Filter Coalescer BD	-	-	-	-	57.47	0.086	-	-	-	-	-	-	1.57E-03	2.35E-06
Pipeline BD	-	-	-	-	1,072.33	0.54	-	-	-	-	-	-	0.029	1.46E-05
Amine Contactor BD	-	-	-	-	89.15	0.045	-	-	-	-	-	-	2.62E-03	1.31E-06
Amine Still BD	-	-	-	-	277.82	0.14	-	-	-	-	-	-	8.31E-03	4.16E-06
Amine Flash Tank BD	-	-	-	-	277.37	0.14	-	-	-	-	-	-	8.33E-03	4.17E-06
Inlet Pig Receiver BD	-	-	-	-	70.35	7.39	-	-	-	-	-	-	1.92E-03	2.01E-04
Residue Pig Launcher BD	-	-	-	-	0.24	4.80E-04	-	-	-	-	-	-	4.71E-06	9.43E-09
NGL Pig Launcher BD	-	-	-	-	285.81	0.57	-	-	-	-	-	-	1.03E-04	2.06E-07
Condensate Tank Degassing	-	-	-	-	1,507.80	2.26	-	-	-	-	-	-	3.68E-03	5.52E-06
Produced Water Tank Degassing	-	-	-	-	245.54	0.37	-	-	-	-	-	-	0.024	3.65E-05
Stabilized Condensate Tank Degassing	-	-	-	-	6,888.89	10.33	-	-	-	-	-	-	2.59E-03	3.89E-06
Inlet Gas BD	-	-	-	-	4,892.62	4.89	-	-	-	-	-	-	0.13	1.33E-04
Uncontrolled SSM Totals	-	-	-	-	17,045.28	27.89	-	-	-	-	-	-	0.22	4.17E-04

Uncontrolled SSM Emissions

Description	Total HAP		n-Hexane		Benzene		Toluene		Ethylbenzene		Xylenes		i-Octane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Residue Compressor BD	2.89E-12	6.95E-14	-	-	2.89E-12	6.95E-14	-	-	-	-	-	-	-	-
Full Press. Residue Compressor BD	1.12E-11	2.70E-13	-	-	1.12E-11	2.70E-13	-	-	-	-	-	-	-	-
Flash Gas Compressor BD	3.03E-03	4.36E-04	1.51E-03	2.18E-04	5.66E-04	8.14E-05	2.17E-04	3.12E-05	1.68E-05	2.42E-06	2.92E-05	4.21E-06	6.87E-04	9.89E-05
Overhead Compressor BD	0.18	4.35E-03	0.090	2.16E-03	0.034	8.11E-04	0.013	3.18E-04	1.05E-03	2.51E-05	1.83E-03	4.39E-05	0.042	9.96E-04
Dehydrator BD	1.85	9.24E-04	0.86	4.32E-04	0.30	1.50E-04	0.14	7.13E-05	0.013	6.71E-06	0.024	1.21E-05	0.51	2.53E-04
TEG Flash Tank BD	4.46	2.23E-03	0.18	8.89E-05	2.10	1.05E-03	1.44	7.21E-04	0.18	8.98E-05	0.42	2.10E-04	0.14	7.18E-05
Filter Coalescer BD	1.22	1.83E-03	0.73	1.09E-03	0.26	3.84E-04	0.17	2.48E-04	0.024	3.55E-05	0.047	7.10E-05	0.55	8.25E-04
Pipeline BD	33.05	0.017	13.60	6.80E-03	4.77	2.39E-03	3.08	1.54E-03	0.44	2.21E-04	0.88	4.41E-04	10.26	5.13E-03
Amine Contactor BD	1.82	9.11E-04	0.85	4.23E-04	0.30	1.51E-04	0.14	7.13E-05	0.013	6.66E-06	0.024	1.21E-05	0.50	2.48E-04
Amine Still BD	0.032	1.62E-05	3.08E-05	1.54E-08	0.023	1.13E-05	7.95E-03	3.97E-06	5.02E-04	2.51E-07	1.21E-03	6.06E-07	3.57E-06	1.78E-09
Amine Flash Tank BD	0.035	1.77E-05	3.95E-04	1.98E-07	0.024	1.22E-05	8.65E-03	4.33E-06	5.54E-04	2.77E-07	1.30E-03	6.51E-07	8.63E-05	4.32E-08
Inlet Pig Receiver BD	2.17	0.23	0.89	0.094	0.31	0.033	0.20	0.021	0.029	3.04E-03	0.058	6.08E-03	0.67	0.071
Residue Pig Launcher BD	4.40E-13	8.80E-16	-	-	4.40E-13	8.80E-16	-	-	-	-	-	-	-	-
NGL Pig Launcher BD	10.29	0.021	4.87	9.74E-03	1.64	3.27E-03	0.82	1.63E-03	0.079	1.57E-04	0.14	2.84E-04	2.75	5.49E-03
Condensate Tank Degassing	108.95	0.16	53.99	0.081	18.42	0.028	7.70	0.012	0.46	6.93E-04	0.76	1.14E-03	27.62	0.041
Produced Water Tank Degassing	81.15	0.12	4.25	6.37E-03	46.49	0.070	23.12	0.035	1.25	1.88E-03	3.01	4.52E-03	3.03	4.54E-03
Stabilized Condensate Tank Degassing	647.12	0.97	345.78	0.52	74.33	0.11	33.53	0.050	2.46	3.70E-03	3.64	5.45E-03	187.38	0.28
Inlet Gas BD	150.77	0.15	62.06	0.062	21.78	0.022	14.07	0.014	2.02	2.02E-03	4.03	4.03E-03	46.83	0.047
Uncontrolled SSM Totals	1,043.09	1.68	488.14	0.78	170.77	0.27	84.44	0.14	6.97	0.012	13.04	0.022	280.28	0.46

TRACE MIDSTREAM

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM Emission Summary

Controlled SSM Emissions

Description	NO_x		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		H_2S	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Residue Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Full Press. Residue Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flash Gas Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overhead Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dehydrator BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
TEG Flash Tank BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Filter Coalescer BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Pipeline BD	-	-	-	-	1,072.33	0.54	-	-	-	-	-	-	0.029	1.46E-05
Amine Contactor BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Amine Still BD[3]	-	-	-	-	277.82	6.95E-03	-	-	-	-	-	-	8.31E-03	2.08E-07
Amine Flash Tank BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Inlet Pig Receiver BD	-	-	-	-	70.35	7.39	-	-	-	-	-	-	1.92E-03	2.01E-04
Residue Pig Launcher BD	-	-	-	-	0.24	4.80E-04	-	-	-	-	-	-	4.71E-06	9.43E-09
NGL Pig Launcher BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Condensate Tank Degassing[4]	Degassing vapors are routed to and controlled by FL-3. Emissions are represented at FL-3.													
Produced Water Tank Degassing[4]	Degassing vapors are routed to and controlled by FL-3. Emissions are represented at FL-3.													
Stabilized Condensate Tank Degassing[4]	Degassing vapors are routed to and controlled by FL-3. Emissions are represented at FL-3.													
Inlet Gas BD	-	-	-	-	4,892.62	4.89	-	-	-	-	-	-	0.13	1.33E-04
Controlled Vented SSM Totals	-	-	-	-	6,313.36	12.82	-	-	-	-	-	-	0.17	3.50E-04

Controlled SSM Emissions

Description	Total HAP		n-Hexane		Benzene		Toluene		Ethylbenzene		Xylenes		i-Octane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Residue Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Full Press. Residue Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flash Gas Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overhead Compressor BD[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dehydrator BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
TEG Flash Tank BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Filter Coalescer BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Pipeline BD	33.05	0.017	13.60	6.80E-03	4.77	2.39E-03	3.08	1.54E-03	0.44	2.21E-04	0.88	4.41E-04	10.26	5.13E-03
Amine Contactor BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Amine Still BD[3]	0.032	8.08E-07	3.08E-05	7.70E-10	0.023	5.66E-07	7.95E-03	1.99E-07	5.02E-04	1.25E-08	1.21E-03	3.03E-08	3.57E-06	8.92E-11
Amine Flash Tank BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Inlet Pig Receiver BD	2.17	0.23	0.89	0.094	0.31	0.033	0.20	0.021	0.029	3.04E-03	0.058	6.08E-03	0.67	0.071
Residue Pig Launcher BD	4.40E-13	8.80E-16	-	-	4.40E-13	8.80E-16	-	-	-	-	-	-	-	-
NGL Pig Launcher BD[2]	Blowdowns are routed to and controlled by FL-2. Emissions are represented at FL-2.													
Condensate Tank Degassing[4]	Degassing vapors are routed to and controlled by FL-3. Emissions are represented at FL-3.													
Produced Water Tank Degassing[4]	Degassing vapors are routed to and controlled by FL-3. Emissions are represented at FL-3.													
Stabilized Condensate Tank Degassing[4]	Degassing vapors are routed to and controlled by FL-3. Emissions are represented at FL-3.													
Inlet Gas BD	150.77	0.15	62.06	0.062	21.78	0.022	14.07	0.014	2.02	2.02E-03	4.03	4.03E-03	46.83	0.047
Controlled Vented SSM Totals	186.02	0.39	76.55	0.16	26.89	0.057	17.36	0.037	2.49	5.28E-03	4.97	0.011	57.77	0.12

[1] Blowdowns are routed to and equalized to suction.

[2] Blowdowns are routed to and controlled by FL-2 with 100% capture efficiency and 98% DRE.

[3] The Amine Still vent is controlled by TO-1. During TO-1 dowtime (up to 5% annually) the Amine Still is vented to Atmosphere. Hourly emissions represent worst-case emissions (TO-1 downtime).

[4] Degassing events are routed to and controlled by FL-3 with 100% capture efficiency and 98% DRE.

Controlled SSM Emissions

Description	CO_2	N_2O	CH_4	CO_2e
	tpy	tpy	tpy	tpy
Compressor BD	-	-	-	-
Full Pressure Compressor BD	-	-	-	-
Flash Gas Compressor BD	-	-	-	-
Overhead Compressor BD	-	-	-	-
Dehydrator BD	-	-	-	-
TEG Flash Tank BD	-	-	-	-
Filter Coalescer BD	-	-	-	-
Pipeline BD	0.093	-	1.27	35.54
Amine Contactor BD	-	-	-	-
Amine Still BD	1.33E-03	-	1.11E-06	1.36E-03
Amine Flash Tank BD	-	-	-	-
Inlet Pig Receiver BD	1.29	-	17.44	489.63
Residue Pig Launcher BD	1.25E-04	-	0.39	10.99
NGL Pig Launcher BD	-	-	-	-
Condensate Tank Degassing	-	-	-	-
Produced Water Tank Degassing	-	-	-	-
Stabilized Condensate Tank Degassing	-	-	-	-
Inlet Gas BD	0.85	-	11.55	324.28
Controlled SSM Totals	2.24	-	30.65	860.44

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM Calculation Inputs

Residue Compressor Blowdowns			
Input Data	Value	Units	Notes
Volume of Gas Released during Event:	500	acf/event-unit	Conservative assumption
Number of Compressors:	4	Units	4 gas compressors 3616s
Number of Compressors Blowdown Simultaneously:	4	Units	Conservative assumption
Duration of Event:	1	hr/event	Conservative assumption
Total Annual Events:	48	events/yr	
Actual Max Pressure:	250	psia	
Actual Max Temperature:	100	°F	
Volume of Gas per Blowdown:	7,897.81	scf/event-unit	Equalized to suction

Residue Compressor Blowdowns - Full Operating Pressure			
Input Data	Value	Units	Notes
Volume of Gas Released during Event:	386	acf/event-unit	Conservative assumption
Number of Compressors:	4	Units	4 gas compressors 3616s
Number of Compressors Blowdown Simultaneously:	4	Units	Conservative assumption
Duration of Event:	1	hr/event	Conservative assumption
Total Annual Events:	48	events/yr	Historical Data
Actual Max Pressure:	1,300	psia	1200 psig
Actual Max Temperature:	120	°F	
Volume of Gas per Blowdown:	30,642.78	scf/event-unit	Equalized to suction

Flash Gas Compressor Blowdowns			
Input Data	Value	Units	Notes
Volume of Gas Released during Event:	10.2	acf/event-unit	20% Piping Allowance
Number of Compressors:	2	Units	
Number of Compressors Blowdown Simultaneously:	2	Units	Conservative assumption
Duration of Event:	48	hr/event	Conservative assumption
Annual Events:	6	events/yr	
Actual Pressure:	120	psia	
Operating Temperature:	70	°F	Ambient
Volume of Gas per Blowdown:	81.72	scf/event-unit	Equalized to suction

Overhead Compressor Blowdowns			
Input Data	Value	Units	Notes
Volume of Gas Released during Event:	10.2	acf/event-unit	20% Piping Allowance
Number of Compressors:	2	Units	
Number of Compressors Blowdown Simultaneously:	2	Units	Conservative assumption
Duration of Event:	1	hr/event	Conservative assumption
Annual Events:	48	events/yr	
Actual Pressure:	120	psia	
Operating Temperature:	70	°F	Ambient
Volume of Gas per Blowdown:	81.72	scf/event-unit	Equalized to suction

Dehydrator Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	1,000	acf/event-unit	100% Piping Allowance
Number of Dehys:	1	Units	
Number of Blowdowns per Unit per Year:	1	events/yr	
Duration of Event:	1	hr/event	Conservative assumption
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	6,534.57	scf/event-unit	Routed to and controlled by FL-2

TEG Flash Tank Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	1,000	acf/event-unit	100% Piping Allowance
Number of Dehys:	1	Units	
Number of Blowdowns per Unit per Year:	1	events/yr	
Duration of Event:	1	hr/event	Conservative assumption
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	6,534.57	scf/event-unit	Routed to and controlled by FL-2

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM Calculation Inputs

Filter Coalescer Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	600	acf/event-unit	100% Piping Allowance
Number of Filters:	1	Units	
Number of Blowdowns per Unit per Year:	3	events/yr	
Duration of Event:	1	hr/event	Conservative assumption
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	3,920.74	scf/event-unit	Routed to and controlled by FL-2

Pipeline Blowdowns & Purging			
Input Data	Value	Units	Notes
Volume of Gas Released during Event:	11,196.00	acf/event	20% Piping Allowance
Number of Blowdowns per year:	1	events/yr	1 event per train
Duration of Event:	1	hr/event	
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	73,161.06	scf/event	Blowdown to atmosphere

<- would not blov

Amine Contactor Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	1,000	acf/event-unit	100% Piping Allowance
Number of Amines:	1	Units	
Number of Blowdowns per Unit per Year:	1	events/yr	
Duration of Event:	1	hr/event	Conservative assumption
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	6,534.57	scf/event-unit	Routed to and controlled by FL-2

Amine Still Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	1,000	acf/event-unit	100% Piping Allowance
Number of Amines:	1	Units	
Number of Blowdowns per Unit per Year:	1	events/yr	
Duration of Event:	1	hr/event	Conservative assumption
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	6,534.57	scf/event-unit	Routed to TO-1 or atmosphere (AM-1)

Amine Flash Tank Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	1,000	acf/event-unit	100% Piping Allowance
Number of Amines:	1	Units	
Number of Blowdowns per Unit per Year:	1	events/yr	
Duration of Event:	1	hr/event	Conservative assumption
Actual Max Pressure:	98	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	6,534.57	scf/event-unit	Routed to and controlled by FL-2

Pig Reciever Blowdowns - Inlet Gas			
Input Data	Value	Units	Notes
Number of Pigs:	14	Units	Auto-reciever holds 7 pigs
Number of Receivers:	2	Units	
Number of Blowdowns per Unit per Year:	30	events/yr	30 events/year combined
Duration of Event:	1	hr/event	Conservative assumption
Volume of Gas per Blowdown:	2,400	scf/event	Blowdown to atmosphere

Pig Launcher Blowdowns - Residue Gas			
Input Data	Value	Units	Notes
Number of Receivers:	2	Units	
Number of Blowdowns per Unit per Year:	4	events/yr	4 events per launcher
Duration of Event:	1	hr/event	Conservative assumption
Volume of Gas per Blowdown:	2,400	scf/event	Blowdown to atmosphere

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM Calculation Inputs

Pig Launcher Blowdowns - NGL Gas			
Input Data	Value	Units	Notes
Number of Receivers:	1	Units	
Number of Blowdowns per Unit per Year:	4	events/yr	4 events per launcher
Duration of Event:	1	hr/event	Conservative assumption
Volume of Gas per Blowdown:	2,400	scf/event	Routed to and controlled by FL-2

Condensate Tank O_2 Purging/Degassing			
Input Data	Value	Units	Notes
Number of Tanks:	2	Units	
Molecular Weight of Vapors:	57.66	lb/lb-mol	Max MW of flash, working, breathing
Duration of Event:	1	hr/event	Conservative assumption
Unit Volume:	4528.61	acf/tank	500 bbl Tank
Actual Max Pressure:	13.88	psia	
Actual Max Temperature:	70.0	°F	
Volume of Gas Released during Event:	5,036	scf/event	20% Piping Allowance
Tank Height:	24	ft	
Tank Diameter:	15.5	ft	
Number of Events per Year:	6	event/yr	3 event/yr per tank

Stabilized Condensate Tank O_2 Purging/Degassing			
Input Data	Value	Units	Notes
Number of Tanks:	6	Units	
Molecular Weight of Vapors:	65.84	lb/lb-mol	Max MW of flash, working, breathing
Duration of Event:	1	hr/event	Conservative assumption
Unit Volume:	5808.80	acf/tank	1000 bbl Tank
Actual Max Pressure:	13.88	psia	
Actual Max Temperature:	70.0	°F	
Volume of Gas Released during Event:	6,459	scf/event	20% Piping Allowance
Tank Height:	16	ft	
Tank Diameter:	21.5	ft	
Number of Events per Year:	18	event/yr	3 event/yr per tank

Produced Water Tank O_2 Purging/Degassing			
Input Data	Value	Units	Notes
Number of Tanks:	1	Units	
Molecular Weight of Vapors:	34.53	lb/lb-mol	Max MW of flash, working, breathing
Duration of Event:	1	hr/event	Conservative assumption
Unit Volume:	4528.61	acf/tank	500 bbl Tank
Actual Max Pressure:	13.88	psia	
Actual Max Temperature:	70.0	°F	
Volume of Gas Released during Event:	5,036	scf/event	20% Piping Allowance
Tank Height:	24	ft	
Tank Diameter:	15.5	ft	
Number of Events per Year:	3	event/yr	3 event/yr per tank

Inlet Slug Catcher Blowdowns			
Input Data	Value	Units	Notes
Unit Volume:	10,000	acf/event	100% Piping Allowance
Number of Blowdowns per Unit per Year:	1	events/yr	
Duration of Event:	2	hr/event	Conservative assumption
Actual Max Pressure:	1,000	psia	
Actual Max Temperature:	70	°F	
Volume of Gas per Blowdown:	667,610.45	scf/event	Blowdown to atmosphere

[1] Atmospheric pressure as deteremined from AP-42 Chapter 7 for Roswell, NM: 12.88 psia

[2] Average dailly max ambient temp from AP-42 Chapter 7 for Roswell, NM: 75.8 °F

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Residue Gas Compressor Blowdowns

Description:	Residue Compressor Blowdowns	
Vented Unit Volume:	7,898	scf/event-Unit
Quantity of Blowdown Units:	4	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	4	Unit
Annual Unit Event Frequency:	48	events/yr-Unit
Vent Gas Molecular Weight:	17.70	lb/lbmol
Primary Control(s):	Routed to Suction	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.9E-08%	3.10E-05	7.45E-07	3.10E-05	7.45E-07	-	-
Nitrogen	3.09%	50.01	1.20	50.01	1.20	-	-
Methane	79.69%	1,291.72	31.00	1,291.72	31.00	-	-
Carbon Dioxide	0.025%	0.41	9.90E-03	0.41	9.90E-03	-	-
Ethane	17.10%	277.22	6.65	277.22	6.65	-	-
Propane	0.097%	1.58	0.038	1.58	0.038	-	-
i-Butane	1.4E-07%	2.35E-04	5.64E-06	2.35E-04	5.64E-06	-	-
n-Butane	1.1E-07%	1.81E-04	4.34E-06	1.81E-04	4.34E-06	-	-
i-Pentane	1.5E-11%	2.50E-08	6.00E-10	2.50E-08	6.00E-10	-	-
n-Pentane	4.6E-12%	7.40E-09	1.78E-10	7.40E-09	1.78E-10	-	-
i-Hexane	3.3E-15%	5.28E-12	1.27E-13	5.28E-12	1.27E-13	-	-
Hexane	-	-	-	-	-	-	-
Benzene	1.8E-15%	2.89E-12	6.95E-14	2.89E-12	6.95E-14	-	-
Cyclohexane	-	-	-	-	-	-	-
i-Heptane	-	-	-	-	-	-	-
nC7	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-
i-Octane	-	-	-	-	-	-	-
nC8	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-
Isononane	-	-	-	-	-	-	-
nC9	-	-	-	-	-	-	-
Decane	-	-	-	-	-	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Total VOC	0.10%	1.58	0.038	1.58	0.038	-	-
Total H_2S	1.9E-08%	3.10E-05	7.45E-07	3.10E-05	7.45E-07	-	-
Total HAP	1.8E-15%	2.89E-12	6.95E-14	2.89E-12	6.95E-14	-	-
Annual Event Hours (hr/yr)		4	4	4	4	-	-
Molecular Weight (lb/lbmol)		17.70	17.70	17.70	17.70	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		34,750.35	1.67	34,750.35	1.67	-	-
Heat Value (Btu/scf)		1,067.28	1,067.28	1,067.28	1,067.28	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Residue Gas Compressor Blowdowns

Description: Residue Compressor Blowdowns - Full Operating Pressure

Vented Unit Volume:	30,643	scf/event-Unit
Quantity of Blowdown Units:	4	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	4	Unit
Annual Unit Event Frequency:	48	events/yr-Unit
Vent Gas Molecular Weight:	17.70	lb/lbmol
Primary Control(s):	Routed to Suction	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.9E-08%	1.20E-04	2.89E-06	1.20E-04	2.89E-06	-	-
Nitrogen	3.09%	194.04	4.66	194.04	4.66	-	-
Methane	79.69%	5,011.77	120.28	5,011.77	120.28	-	-
Carbon Dioxide	0.025%	1.60	0.038	1.60	0.038	-	-
Ethane	17.10%	1,075.57	25.81	1,075.57	25.81	-	-
Propane	0.097%	6.12	0.15	6.12	0.15	-	-
i-Butane	1.4E-07%	9.11E-04	2.19E-05	9.11E-04	2.19E-05	-	-
n-Butane	1.1E-07%	7.02E-04	1.69E-05	7.02E-04	1.69E-05	-	-
i-Pentane	1.5E-11%	9.71E-08	2.33E-09	9.71E-08	2.33E-09	-	-
n-Pentane	4.6E-12%	2.87E-08	6.89E-10	2.87E-08	6.89E-10	-	-
i-Hexane	3.3E-15%	2.05E-11	4.91E-13	2.05E-11	4.91E-13	-	-
Hexane	-	-	-	-	-	-	-
Benzene	1.8E-15%	1.12E-11	2.70E-13	1.12E-11	2.70E-13	-	-
Cyclohexane	-	-	-	-	-	-	-
i-Heptane	-	-	-	-	-	-	-
nC7	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-
i-Octane	-	-	-	-	-	-	-
nC8	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-
Isononane	-	-	-	-	-	-	-
nC9	-	-	-	-	-	-	-
Decane	-	-	-	-	-	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Total VOC	0.10%	6.12	0.15	6.12	0.15	-	-
Total H_2S	1.9E-08%	1.20E-04	2.89E-06	1.20E-04	2.89E-06	-	-
Total HAP	1.8E-15%	1.12E-11	2.70E-13	1.12E-11	2.70E-13	-	-
Annual Event Hours (hr/yr)		4	4	4	4	-	-
Molecular Weight (lb/lbmol)		17.70	17.70	17.70	17.70	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		134,828.23	6.47	134,828.23	6.47	-	-
Heat Value (Btu/scf)		1,067.28	1,067.28	1,067.28	1,067.28	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Flash Gas Compressor Blowdowns

Description:	Flash Gas Compressor Blowdowns	
Vented Unit Volume:	82	scf/event-Unit
Quantity of Blowdown Units:	2	Units
Event Duration:	48	hr/event
Simultaneous Unit Events:	2	Unit
Annual Unit Event Frequency:	6	events/yr-Unit
Vent Gas Molecular Weight:	31.57	lb/lbmol
Primary Control(s):	Routed to Suction	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	9.1E-06%	2.85E-06	4.10E-07	2.85E-06	4.10E-07	-	-
Nitrogen	0.35%	1.08E-03	1.56E-04	1.08E-03	1.56E-04	-	-
Methane	21.28%	0.066	9.55E-03	0.066	9.55E-03	-	-
Carbon Dioxide	2.98%	9.28E-03	1.34E-03	9.28E-03	1.34E-03	-	-
Ethane	21.14%	0.066	9.48E-03	0.066	9.48E-03	-	-
Propane	27.04%	0.084	0.012	0.084	0.012	-	-
i-Butane	5.45%	0.017	2.45E-03	0.017	2.45E-03	-	-
n-Butane	12.65%	0.039	5.68E-03	0.039	5.68E-03	-	-
i-Pentane	3.06%	9.55E-03	1.37E-03	9.55E-03	1.37E-03	-	-
n-Pentane	2.96%	9.23E-03	1.33E-03	9.23E-03	1.33E-03	-	-
i-Hexane	0.91%	2.83E-03	4.07E-04	2.83E-03	4.07E-04	-	-
Hexane	0.48%	1.51E-03	2.18E-04	1.51E-03	2.18E-04	-	-
Benzene	0.18%	5.66E-04	8.14E-05	5.66E-04	8.14E-05	-	-
Cyclohexane	0.31%	9.75E-04	1.40E-04	9.75E-04	1.40E-04	-	-
i-Heptane	0.45%	1.39E-03	2.00E-04	1.39E-03	2.00E-04	-	-
nC7	0.082%	2.55E-04	3.68E-05	2.55E-04	3.68E-05	-	-
Toluene	0.070%	2.17E-04	3.12E-05	2.17E-04	3.12E-05	-	-
i-Octane	0.22%	6.87E-04	9.89E-05	6.87E-04	9.89E-05	-	-
nC8	0.011%	3.35E-05	4.83E-06	3.35E-05	4.83E-06	-	-
Ethylbenzene	5.4E-05%	1.68E-05	2.42E-06	1.68E-05	2.42E-06	-	-
o-Xylene	9.4E-05%	2.92E-05	4.21E-06	2.92E-05	4.21E-06	-	-
Isononane	6.9E-05%	2.15E-05	3.09E-06	2.15E-05	3.09E-06	-	-
nC9	-	-	-	-	-	-	-
Decane	5.6E-05%	1.75E-05	2.52E-06	1.75E-05	2.52E-06	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.35%	1.09E-03	1.57E-04	1.09E-03	1.57E-04	-	-
Total VOC	53.91%	0.17	0.024	0.17	0.024	-	-
Total H_2S	9.1E-06%	2.85E-06	4.10E-07	2.85E-06	4.10E-07	-	-
Total HAP	0.97%	3.03E-03	4.36E-04	3.03E-03	4.36E-04	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Stabilizer Overhead Compressor Blowdowns

Description:	Overhead Compressor Blowdowns	
Vented Unit Volume:	82	scf/event-Unit
Quantity of Blowdown Units:	2	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	2	Unit
Annual Unit Event Frequency:	48	events/yr-Unit
Vent Gas Molecular Weight:	36.00	lb/lbmol
Primary Control(s):	Routed to Suction	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.2E-05%	2.00E-04	4.80E-06	2.00E-04	4.80E-06	-	-
Nitrogen	0.057%	9.78E-03	2.35E-04	9.78E-03	2.35E-04	-	-
Methane	9.62%	1.64	0.039	1.64	0.039	-	-
Carbon Dioxide	2.87%	0.49	0.012	0.49	0.012	-	-
Ethane	29.51%	5.03	0.12	5.03	0.12	-	-
Propane	29.10%	4.96	0.12	4.96	0.12	-	-
i-Butane	5.75%	0.98	0.024	0.98	0.024	-	-
n-Butane	13.37%	2.28	0.055	2.28	0.055	-	-
i-Pentane	3.25%	0.55	0.013	0.55	0.013	-	-
n-Pentane	3.16%	0.54	0.013	0.54	0.013	-	-
i-Hexane	0.98%	0.17	4.00E-03	0.17	4.00E-03	-	-
Hexane	0.53%	0.090	2.16E-03	0.090	2.16E-03	-	-
Benzene	0.20%	0.034	8.11E-04	0.034	8.11E-04	-	-
Cyclohexane	0.34%	0.058	1.40E-03	0.058	1.40E-03	-	-
i-Heptane	0.49%	0.084	2.01E-03	0.084	2.01E-03	-	-
nC7	0.091%	0.016	3.72E-04	0.016	3.72E-04	-	-
Toluene	0.078%	0.013	3.18E-04	0.013	3.18E-04	-	-
i-Octane	0.24%	0.042	9.96E-04	0.042	9.96E-04	-	-
nC8	0.012%	2.08E-03	5.00E-05	2.08E-03	5.00E-05	-	-
Ethylbenzene	6.1E-05%	1.05E-03	2.51E-05	1.05E-03	2.51E-05	-	-
o-Xylene	0.011%	1.83E-03	4.39E-05	1.83E-03	4.39E-05	-	-
Isononane	7.9E-05%	1.35E-03	3.24E-05	1.35E-03	3.24E-05	-	-
nC9	-	-	-	-	-	-	-
Decane	6.6E-05%	1.13E-03	2.71E-05	1.13E-03	2.71E-05	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.34%	0.057	1.37E-03	0.057	1.37E-03	-	-
Total VOC	57.61%	9.83	0.24	9.83	0.24	-	-
Total H_2S	1.2E-05%	2.00E-04	4.80E-06	2.00E-04	4.80E-06	-	-
Total HAP	1.06%	0.18	4.35E-03	0.18	4.35E-03	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Dehydrator Blowdowns

Description:	Dehydrator Blowdowns	
Vented Unit Volume:	6,535	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	21.28	lb/lbmol
Primary Control(s):	FL-2	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	2.0E-08%	8.03E-06	4.01E-09	8.03E-06	4.01E-09	-	-
Nitrogen	2.23%	9.00	4.50E-03	9.00	4.50E-03	-	-
Methane	57.66%	232.38	0.12	232.38	0.12	-	-
Carbon Dioxide	0.018%	0.074	3.71E-05	0.074	3.71E-05	-	-
Ethane	17.43%	70.24	0.035	70.24	0.035	-	-
Propane	12.39%	49.93	0.025	49.93	0.025	-	-
i-Butane	2.03%	8.16	4.08E-03	8.16	4.08E-03	-	-
n-Butane	4.59%	18.48	9.24E-03	18.48	9.24E-03	-	-
i-Pentane	1.15%	4.64	2.32E-03	4.64	2.32E-03	-	-
n-Pentane	1.13%	4.55	2.27E-03	4.55	2.27E-03	-	-
i-Hexane	0.39%	1.56	7.80E-04	1.56	7.80E-04	-	-
Hexane	0.21%	0.86	4.32E-04	0.86	4.32E-04	-	-
Benzene	0.074%	0.30	1.50E-04	0.30	1.50E-04	-	-
Cyclohexane	0.14%	0.56	2.80E-04	0.56	2.80E-04	-	-
i-Heptane	0.23%	0.93	4.67E-04	0.93	4.67E-04	-	-
nC7	0.045%	0.18	8.99E-05	0.18	8.99E-05	-	-
Toluene	0.035%	0.14	7.13E-05	0.14	7.13E-05	-	-
i-Octane	0.13%	0.51	2.53E-04	0.51	2.53E-04	-	-
nC8	7.3E-05%	0.029	1.46E-05	0.029	1.46E-05	-	-
Ethylbenzene	3.3E-05%	0.013	6.71E-06	0.013	6.71E-06	-	-
o-Xylene	6.0E-05%	0.024	1.21E-05	0.024	1.21E-05	-	-
Isononane	5.2E-05%	0.021	1.05E-05	0.021	1.05E-05	-	-
nC9	-	-	-	-	-	-	-
Decane	5.6E-05%	0.023	1.13E-05	0.023	1.13E-05	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	1.5E-08%	6.05E-06	3.03E-09	6.05E-06	3.03E-09	-	-
DEA	-	-	-	-	-	-	-
Piperazine	1.5E-07%	6.05E-05	3.03E-08	6.05E-05	3.03E-08	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.099%	0.40	1.99E-04	0.40	1.99E-04	-	-
Total VOC	22.56%	90.92	0.045	90.92	0.045	-	-
Total H_2S	2.0E-08%	8.03E-06	4.01E-09	8.03E-06	4.01E-09	-	-
Total HAP	0.46%	1.85	9.24E-04	1.85	9.24E-04	-	-
Annual Event Hours (hr/yr)		1	1	1	1	-	-
Molecular Weight (lb/lbmol)		21.28	21.28	21.28	21.28	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		7,188.03	7.19E-03	7,188.03	7.19E-03	-	-
Heat Value (Btu/scf)		1,261.66	1,261.66	1,261.66	1,261.66	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Dehydrator Flash Tank Blowdowns

Description: TEG Flash Tank Blowdowns

Vented Unit Volume:	6,535	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	77.01	lb/lbmol
Primary Control(s):	FL-2	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	4.8E-09%	7.02E-06	3.51E-09	7.02E-06	3.51E-09	-	-
Nitrogen	3.8E-05%	0.055	2.76E-05	0.055	2.76E-05	-	-
Methane	0.33%	4.76	2.38E-03	4.76	2.38E-03	-	-
Carbon Dioxide	1.1E-05%	0.016	8.06E-06	0.016	8.06E-06	-	-
Ethane	0.25%	3.71	1.86E-03	3.71	1.86E-03	-	-
Propane	0.26%	3.81	1.91E-03	3.81	1.91E-03	-	-
i-Butane	0.045%	0.66	3.29E-04	0.66	3.29E-04	-	-
n-Butane	0.15%	2.18	1.09E-03	2.18	1.09E-03	-	-
i-Pentane	0.042%	0.62	3.10E-04	0.62	3.10E-04	-	-
n-Pentane	0.047%	0.69	3.45E-04	0.69	3.45E-04	-	-
i-Hexane	0.017%	0.25	1.25E-04	0.25	1.25E-04	-	-
Hexane	0.012%	0.18	8.89E-05	0.18	8.89E-05	-	-
Benzene	0.14%	2.10	1.05E-03	2.10	1.05E-03	-	-
Cyclohexane	0.032%	0.46	2.31E-04	0.46	2.31E-04	-	-
i-Heptane	0.014%	0.21	1.03E-04	0.21	1.03E-04	-	-
nC7	3.8E-05%	0.055	2.75E-05	0.055	2.75E-05	-	-
Toluene	0.099%	1.44	7.21E-04	1.44	7.21E-04	-	-
i-Octane	9.8E-05%	0.14	7.18E-05	0.14	7.18E-05	-	-
nC8	7.6E-06%	0.011	5.57E-06	0.011	5.57E-06	-	-
Ethylbenzene	0.012%	0.18	8.98E-05	0.18	8.98E-05	-	-
o-Xylene	0.029%	0.42	2.10E-04	0.42	2.10E-04	-	-
Isononane	6.7E-06%	9.80E-03	4.90E-06	9.80E-03	4.90E-06	-	-
nC9	-	-	-	-	-	-	-
Decane	9.5E-06%	0.014	6.94E-06	0.014	6.94E-06	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	3.6E-05%	0.053	2.66E-05	0.053	2.66E-05	-	-
DEA	-	-	-	-	-	-	-
Piperazine	4.0E-05%	0.058	2.88E-05	0.058	2.88E-05	-	-
DGA	-	-	-	-	-	-	-
TEG	86.23%	1,257.74	0.63	1,257.74	0.63	-	-
Water	12.26%	178.82	0.089	178.82	0.089	-	-
Total VOC	87.16%	1,271.29	0.64	1,271.29	0.64	-	-
Total H_2S	4.8E-09%	7.02E-06	3.51E-09	7.02E-06	3.51E-09	-	-
Total HAP	0.31%	4.46	2.23E-03	4.46	2.23E-03	-	-
Annual Event Hours (hr/yr)		1	1	1	1	-	-
Molecular Weight (lb/lbmol)		77.01	77.01	77.01	77.01	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		7,188.03	7.19E-03	7,188.03	7.19E-03	-	-
Heat Value (Btu/scf)		1,917.72	1,917.72	1,917.72	1,917.72	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Filter Coalescer Blowdowns

Description: Filter Coalescer Blowdowns

Vented Unit Volume:	3,921	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	3	events/yr-Unit
Vent Gas Molecular Weight:	22.00	lb/lbmol
Primary Control(s):	FL-2	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	6.3E-06%	1.57E-03	2.35E-06	1.57E-03	2.35E-06	-	-
Nitrogen	2.10%	5.25	7.87E-03	5.25	7.87E-03	-	-
Methane	54.27%	135.68	0.20	135.68	0.20	-	-
Carbon Dioxide	4.01%	10.02	0.015	10.02	0.015	-	-
Ethane	16.46%	41.16	0.062	41.16	0.062	-	-
Propane	11.88%	29.71	0.045	29.71	0.045	-	-
i-Butane	2.01%	5.02	7.53E-03	5.02	7.53E-03	-	-
n-Butane	4.64%	11.59	0.017	11.59	0.017	-	-
i-Pentane	1.25%	3.12	4.69E-03	3.12	4.69E-03	-	-
n-Pentane	1.26%	3.15	4.73E-03	3.15	4.73E-03	-	-
i-Hexane	0.49%	1.23	1.84E-03	1.23	1.84E-03	-	-
Hexane	0.29%	0.73	1.09E-03	0.73	1.09E-03	-	-
Benzene	0.10%	0.26	3.84E-04	0.26	3.84E-04	-	-
Cyclohexane	0.20%	0.50	7.54E-04	0.50	7.54E-04	-	-
i-Heptane	0.37%	0.93	1.40E-03	0.93	1.40E-03	-	-
nC7	0.081%	0.20	3.03E-04	0.20	3.03E-04	-	-
Toluene	0.066%	0.17	2.48E-04	0.17	2.48E-04	-	-
i-Octane	0.22%	0.55	8.25E-04	0.55	8.25E-04	-	-
nC8	0.020%	0.051	7.64E-05	0.051	7.64E-05	-	-
Ethylbenzene	9.5E-05%	0.024	3.55E-05	0.024	3.55E-05	-	-
o-Xylene	0.019%	0.047	7.10E-05	0.047	7.10E-05	-	-
Isononane	0.023%	0.057	8.55E-05	0.057	8.55E-05	-	-
nC9	-	-	-	-	-	-	-
Decane	0.051%	0.13	1.89E-04	0.13	1.89E-04	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.18%	0.44	6.59E-04	0.44	6.59E-04	-	-
Total VOC	22.99%	57.47	0.086	57.47	0.086	-	-
Total H_2S	6.3E-06%	1.57E-03	2.35E-06	1.57E-03	2.35E-06	-	-
Total HAP	0.49%	1.22	1.83E-03	1.22	1.83E-03	-	-
Annual Event Hours (hr/yr)		3	3	3	3	-	-
Molecular Weight (lb/lbmol)		22.00	22.00	22.00	22.00	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		4,312.82	0.013	4,312.82	0.013	-	-
Heat Value (Btu/scf)		1,249.82	1,249.82	1,249.82	1,249.82	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Pipeline Blowdowns

Description:	Pipeline Blowdowns & Purging	
Vented Unit Volume:	73,161	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	22.00	lb/lbmol
Primary Control(s):	N/A	
Capture Efficiency:	0	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	6.3E-06%	0.029	1.46E-05	-	-	0.029	1.46E-05
Nitrogen	2.10%	97.95	0.049	-	-	97.95	0.049
Methane	54.27%	2,531.70	1.27	-	-	2,531.70	1.27
Carbon Dioxide	4.01%	186.91	0.093	-	-	186.91	0.093
Ethane	16.46%	768.12	0.38	-	-	768.12	0.38
Propane	11.88%	554.36	0.28	-	-	554.36	0.28
i-Butane	2.01%	93.69	0.047	-	-	93.69	0.047
n-Butane	4.64%	216.24	0.11	-	-	216.24	0.11
i-Pentane	1.25%	58.31	0.029	-	-	58.31	0.029
n-Pentane	1.26%	58.86	0.029	-	-	58.86	0.029
i-Hexane	0.49%	22.89	0.011	-	-	22.89	0.011
Hexane	0.29%	13.60	6.80E-03	-	-	13.60	6.80E-03
Benzene	0.10%	4.77	2.39E-03	-	-	4.77	2.39E-03
Cyclohexane	0.20%	9.38	4.69E-03	-	-	9.38	4.69E-03
i-Heptane	0.37%	17.42	8.71E-03	-	-	17.42	8.71E-03
nC7	0.081%	3.77	1.88E-03	-	-	3.77	1.88E-03
Toluene	0.066%	3.08	1.54E-03	-	-	3.08	1.54E-03
i-Octane	0.22%	10.26	5.13E-03	-	-	10.26	5.13E-03
nC8	0.020%	0.95	4.75E-04	-	-	0.95	4.75E-04
Ethylbenzene	9.5E-05%	0.44	2.21E-04	-	-	0.44	2.21E-04
o-Xylene	0.019%	0.88	4.41E-04	-	-	0.88	4.41E-04
Isononane	0.023%	1.06	5.32E-04	-	-	1.06	5.32E-04
nC9	-	-	-	-	-	-	-
Decane	0.051%	2.36	1.18E-03	-	-	2.36	1.18E-03
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.18%	8.19	4.10E-03	-	-	8.19	4.10E-03
Total VOC	22.99%	1,072.33	0.54	-	-	1,072.33	0.54
Total H_2S	6.3E-06%	0.029	1.46E-05	-	-	0.029	1.46E-05
Total HAP	0.71%	33.05	0.017	-	-	33.05	0.017

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	0.093	1.27	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	0.093	1.27	-	tpy	
CO_2e Total	-	-	35.54	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Amine Contactor Blowdowns

Description:	Amine Contactor Blowdowns	
Vented Unit Volume:	6,535	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	21.74	lb/lbmol
Primary Control(s):	FL-2	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	6.4E-06%	2.62E-03	1.31E-06	2.62E-03	1.31E-06	-	-
Nitrogen	2.14%	8.82	4.41E-03	8.82	4.41E-03	-	-
Methane	55.35%	227.87	0.11	227.87	0.11	-	-
Carbon Dioxide	4.08%	16.81	8.40E-03	16.81	8.40E-03	-	-
Ethane	16.73%	68.88	0.034	68.88	0.034	-	-
Propane	11.89%	48.96	0.024	48.96	0.024	-	-
i-Butane	1.94%	8.00	4.00E-03	8.00	4.00E-03	-	-
n-Butane	4.40%	18.12	9.06E-03	18.12	9.06E-03	-	-
i-Pentane	1.11%	4.55	2.28E-03	4.55	2.28E-03	-	-
n-Pentane	1.08%	4.46	2.23E-03	4.46	2.23E-03	-	-
i-Hexane	0.37%	1.53	7.64E-04	1.53	7.64E-04	-	-
Hexane	0.21%	0.85	4.23E-04	0.85	4.23E-04	-	-
Benzene	0.073%	0.30	1.51E-04	0.30	1.51E-04	-	-
Cyclohexane	0.13%	0.55	2.75E-04	0.55	2.75E-04	-	-
i-Heptane	0.22%	0.91	4.57E-04	0.91	4.57E-04	-	-
nC7	0.043%	0.18	8.81E-05	0.18	8.81E-05	-	-
Toluene	0.035%	0.14	7.13E-05	0.14	7.13E-05	-	-
i-Octane	0.12%	0.50	2.48E-04	0.50	2.48E-04	-	-
nC8	7.0E-05%	0.029	1.44E-05	0.029	1.44E-05	-	-
Ethylbenzene	3.2E-05%	0.013	6.66E-06	0.013	6.66E-06	-	-
o-Xylene	5.9E-05%	0.024	1.21E-05	0.024	1.21E-05	-	-
Isononane	5.0E-05%	0.021	1.03E-05	0.021	1.03E-05	-	-
nC9	-	-	-	-	-	-	-
Decane	5.4E-05%	0.022	1.11E-05	0.022	1.11E-05	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.040%	0.16	8.18E-05	0.16	8.18E-05	-	-
Total VOC	21.65%	89.15	0.045	89.15	0.045	-	-
Total H_2S	6.4E-06%	2.62E-03	1.31E-06	2.62E-03	1.31E-06	-	-
Total HAP	0.44%	1.82	9.11E-04	1.82	9.11E-04	-	-
Annual Event Hours (hr/yr)		1	1	1	1	-	-
Molecular Weight (lb/lbmol)		21.74	21.74	21.74	21.74	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		7,188.03	7.19E-03	7,188.03	7.19E-03	-	-
Heat Value (Btu/scf)		1,237.13	1,237.13	1,237.13	1,237.13	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Amine Still Blowdowns

Description:	Amine Still Blowdowns	
Vented Unit Volume:	6,535	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	31.96	lb/lbmol
Primary Control(s):	TO-1	
Capture Efficiency:	100	%
TO-1 Downtime:	5	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.4E-05%	8.31E-03	4.16E-06	8.31E-03	4.16E-06	8.31E-03	2.08E-07
Nitrogen	2.0E-07%	1.21E-04	6.04E-08	1.21E-04	6.04E-08	1.21E-04	3.02E-09
Methane	7.3E-05%	0.044	2.21E-05	0.044	2.21E-05	0.044	1.11E-06
Carbon Dioxide	8.79%	53.23	0.027	53.23	0.027	53.23	1.33E-03
Ethane	3.7E-05%	0.022	1.12E-05	0.022	1.12E-05	0.022	5.58E-07
Propane	1.4E-05%	8.45E-03	4.23E-06	8.45E-03	4.23E-06	8.45E-03	2.11E-07
i-Butane	1.1E-06%	6.55E-04	3.27E-07	6.55E-04	3.27E-07	6.55E-04	1.64E-08
n-Butane	5.0E-06%	3.05E-03	1.53E-06	3.05E-03	1.53E-06	3.05E-03	7.64E-08
i-Pentane	2.9E-07%	1.78E-04	8.88E-08	1.78E-04	8.88E-08	1.78E-04	4.44E-09
n-Pentane	4.6E-07%	2.76E-04	1.38E-07	2.76E-04	1.38E-07	2.76E-04	6.91E-09
i-Hexane	9.8E-08%	5.91E-05	2.95E-08	5.91E-05	2.95E-08	5.91E-05	1.48E-09
Hexane	5.1E-08%	3.08E-05	1.54E-08	3.08E-05	1.54E-08	3.08E-05	7.70E-10
Benzene	3.7E-05%	0.023	1.13E-05	0.023	1.13E-05	0.023	5.66E-07
Cyclohexane	8.7E-07%	5.25E-04	2.62E-07	5.25E-04	2.62E-07	5.25E-04	1.31E-08
i-Heptane	5.6E-09%	3.39E-06	1.69E-09	3.39E-06	1.69E-09	3.39E-06	8.47E-11
nC7	1.0E-09%	6.12E-07	3.06E-10	6.12E-07	3.06E-10	6.12E-07	1.53E-11
Toluene	1.3E-05%	7.95E-03	3.97E-06	7.95E-03	3.97E-06	7.95E-03	1.99E-07
i-Octane	5.9E-09%	3.57E-06	1.78E-09	3.57E-06	1.78E-09	3.57E-06	8.92E-11
nC8	5.6E-10%	3.37E-07	1.69E-10	3.37E-07	1.69E-10	3.37E-07	8.43E-12
Ethylbenzene	8.3E-07%	5.02E-04	2.51E-07	5.02E-04	2.51E-07	5.02E-04	1.25E-08
o-Xylene	2.0E-06%	1.21E-03	6.06E-07	1.21E-03	6.06E-07	1.21E-03	3.03E-08
Isononane	1.6E-11%	9.84E-09	4.92E-12	9.84E-09	4.92E-12	9.84E-09	2.46E-13
nC9	-	-	-	-	-	-	-
Decane	-	-	-	-	-	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	36.71%	222.22	0.11	222.22	0.11	222.22	5.56E-03
DEA	-	-	-	-	-	-	-
Piperazine	9.18%	55.56	0.028	55.56	0.028	55.56	1.39E-03
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	45.29%	274.14	0.14	274.14	0.14	274.14	6.85E-03
Total VOC	45.90%	277.82	0.14	277.82	0.14	277.82	6.95E-03
Total H_2S	1.4E-05%	8.31E-03	4.16E-06	8.31E-03	4.16E-06	8.31E-03	2.08E-07
Total HAP	5.3E-05%	0.032	1.62E-05	0.032	1.62E-05	0.032	8.08E-07
Annual Event Hours (hr/yr)		1	1	1	1	-	-
Molecular Weight (lb/lbmol)		542.23	542.23	31.96	31.96	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		6,861.30	6.86E-03	6,861.30	6.86E-03	-	-
Heat Value (Btu/scf)		542.23	542.23	542.23	542.23	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	1.33E-03	1.11E-06	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	1.33E-03	1.11E-06	-	tpy	
CO_2e Total	-	-	1.36E-03	tpy	

Notes:

1) The Amine Still vent is controlled by TO-1. During TO-1 dowtime (up to 5% annually) the Amine Still is vented to Atmosphere. Hourly emissions represent worst-case emissions (TO-1 downtime).
2) Captured emissions conservatly represent TO-1 as operating 8760 hr/yr.

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Amine Flash Tank Blowdowns

Description:	Amine Flash Tank Blowdowns	
Vented Unit Volume:	6,535	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	31.94	lb/lbmol
Primary Control(s):	FL-2	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.4E-05%	8.33E-03	4.17E-06	8.33E-03	4.17E-06	-	-
Nitrogen	8.3E-06%	5.05E-03	2.52E-06	5.05E-03	2.52E-06	-	-
Methane	0.077%	0.47	2.33E-04	0.47	2.33E-04	-	-
Carbon Dioxide	8.81%	53.28	0.027	53.28	0.027	-	-
Ethane	0.027%	0.16	8.03E-05	0.16	8.03E-05	-	-
Propane	0.012%	0.073	3.64E-05	0.073	3.64E-05	-	-
i-Butane	1.2E-05%	7.26E-03	3.63E-06	7.26E-03	3.63E-06	-	-
n-Butane	3.9E-05%	0.024	1.19E-05	0.024	1.19E-05	-	-
i-Pentane	4.1E-06%	2.46E-03	1.23E-06	2.46E-03	1.23E-06	-	-
n-Pentane	5.1E-06%	3.08E-03	1.54E-06	3.08E-03	1.54E-06	-	-
i-Hexane	1.2E-06%	7.55E-04	3.78E-07	7.55E-04	3.78E-07	-	-
Hexane	6.5E-07%	3.95E-04	1.98E-07	3.95E-04	1.98E-07	-	-
Benzene	4.0E-05%	0.024	1.22E-05	0.024	1.22E-05	-	-
Cyclohexane	2.6E-06%	1.59E-03	7.94E-07	1.59E-03	7.94E-07	-	-
i-Heptane	2.0E-07%	1.22E-04	6.10E-08	1.22E-04	6.10E-08	-	-
nC7	3.7E-08%	2.21E-05	1.11E-08	2.21E-05	1.11E-08	-	-
Toluene	1.4E-05%	8.65E-03	4.33E-06	8.65E-03	4.33E-06	-	-
i-Octane	1.4E-07%	8.63E-05	4.32E-08	8.63E-05	4.32E-08	-	-
nC8	9.8E-09%	5.96E-06	2.98E-09	5.96E-06	2.98E-09	-	-
Ethylbenzene	9.2E-07%	5.54E-04	2.77E-07	5.54E-04	2.77E-07	-	-
o-Xylene	2.2E-06%	1.30E-03	6.51E-07	1.30E-03	6.51E-07	-	-
Isononane	1.3E-09%	7.60E-07	3.80E-10	7.60E-07	3.80E-10	-	-
nC9	-	-	-	-	-	-	-
Decane	3.9E-10%	2.37E-07	1.18E-10	2.37E-07	1.18E-10	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	36.66%	221.78	0.11	221.78	0.11	-	-
DEA	-	-	-	-	-	-	-
Piperazine	9.17%	55.45	0.028	55.45	0.028	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	45.23%	273.61	0.14	273.61	0.14	-	-
Total VOC	45.85%	277.37	0.14	277.37	0.14	-	-
Total H_2S	1.4E-05%	8.33E-03	4.17E-06	8.33E-03	4.17E-06	-	-
Total HAP	5.9E-05%	0.035	1.77E-05	0.035	1.77E-05	-	-
Annual Event Hours (hr/yr)		1	1	1	1	-	-
Molecular Weight (lb/lbmol)		31.94	31.94	31.94	31.94	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		7,188.03	7.19E-03	7,188.03	7.19E-03	-	-
Heat Value (Btu/scf)		543.29	543.29	543.29	543.29	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Pig Receiver BD

Description: Pig Reciever Blowdowns - Inlet Gas

Vented Unit Volume:	2,400	scf/event-Unit
Quantity of Blowdown Units:	14	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	2	Unit
Annual Unit Event Frequency:	30	events/yr-Unit
Vent Gas Molecular Weight:	22.00	lb/lbmol
Primary Control(s):	N/A	
Capture Efficiency:	0	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	6.3E-06%	1.92E-03	2.01E-04	-	-	1.92E-03	2.01E-04
Nitrogen	2.10%	6.43	0.67	-	-	6.43	0.67
Methane	54.27%	166.10	17.44	-	-	166.10	17.44
Carbon Dioxide	4.01%	12.26	1.29	-	-	12.26	1.29
Ethane	16.46%	50.40	5.29	-	-	50.40	5.29
Propane	11.88%	36.37	3.82	-	-	36.37	3.82
i-Butane	2.01%	6.15	0.65	-	-	6.15	0.65
n-Butane	4.64%	14.19	1.49	-	-	14.19	1.49
i-Pentane	1.25%	3.83	0.40	-	-	3.83	0.40
n-Pentane	1.26%	3.86	0.41	-	-	3.86	0.41
i-Hexane	0.49%	1.50	0.16	-	-	1.50	0.16
Hexane	0.29%	0.89	0.094	-	-	0.89	0.094
Benzene	0.10%	0.31	0.033	-	-	0.31	0.033
Cyclohexane	0.20%	0.62	0.065	-	-	0.62	0.065
i-Heptane	0.37%	1.14	0.12	-	-	1.14	0.12
nC7	0.081%	0.25	0.026	-	-	0.25	0.026
Toluene	0.066%	0.20	0.021	-	-	0.20	0.021
i-Octane	0.22%	0.67	0.071	-	-	0.67	0.071
nC8	0.020%	0.062	6.55E-03	-	-	0.062	6.55E-03
Ethylbenzene	9.5E-05%	0.029	3.04E-03	-	-	0.029	3.04E-03
o-Xylene	0.019%	0.058	6.08E-03	-	-	0.058	6.08E-03
Isononane	0.023%	0.070	7.33E-03	-	-	0.070	7.33E-03
nC9	-	-	-	-	-	-	-
Decane	0.051%	0.15	0.016	-	-	0.15	0.016
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.18%	0.54	0.056	-	-	0.54	0.056
Total VOC	22.99%	70.35	7.39	-	-	70.35	7.39
Total H_2S	6.3E-06%	1.92E-03	2.01E-04	-	-	1.92E-03	2.01E-04
Total HAP	0.71%	2.17	0.23	-	-	2.17	0.23

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	1.29	17.44	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	1.29	17.44	-	tpy	
CO_2e Total	-	-	489.63	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Pig Launcher BD

Description: Pig Launcher Blowdowns - Residue Gas

Vented Unit Volume:	2,400	scf/event-Unit
Quantity of Blowdown Units:	2	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	2	Unit
Annual Unit Event Frequency:	4	events/yr-Unit
Vent Gas Molecular Weight:	17.70	lb/lbmol
Primary Control(s):	N/A	
Capture Efficiency:	0	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	1.9E-08%	4.71E-06	9.43E-09	-	-	4.71E-06	9.43E-09
Nitrogen	3.09%	7.60	0.015	-	-	7.60	0.015
Methane	79.69%	196.27	0.39	-	-	196.27	0.39
Carbon Dioxide	0.025%	0.063	1.25E-04	-	-	0.063	1.25E-04
Ethane	17.10%	42.12	0.084	-	-	42.12	0.084
Propane	0.097%	0.24	4.79E-04	-	-	0.24	4.79E-04
i-Butane	1.4E-07%	3.57E-05	7.14E-08	-	-	3.57E-05	7.14E-08
n-Butane	1.1E-07%	2.75E-05	5.50E-08	-	-	2.75E-05	5.50E-08
i-Pentane	1.5E-11%	3.80E-09	7.60E-12	-	-	3.80E-09	7.60E-12
n-Pentane	4.6E-12%	1.12E-09	2.25E-12	-	-	1.12E-09	2.25E-12
i-Hexane	3.3E-15%	8.02E-13	1.60E-15	-	-	8.02E-13	1.60E-15
Hexane	-	-	-	-	-	-	-
Benzene	1.8E-15%	4.40E-13	8.80E-16	-	-	4.40E-13	8.80E-16
Cyclohexane	-	-	-	-	-	-	-
i-Heptane	-	-	-	-	-	-	-
nC7	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-
i-Octane	-	-	-	-	-	-	-
nC8	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-
Isononane	-	-	-	-	-	-	-
nC9	-	-	-	-	-	-	-
Decane	-	-	-	-	-	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	-	-	-	-	-	-	-
Total VOC	0.10%	0.24	4.80E-04	-	-	0.24	4.80E-04
Total H_2S	1.9E-08%	4.71E-06	9.43E-09	-	-	4.71E-06	9.43E-09
Total HAP	1.8E-15%	4.40E-13	8.80E-16	-	-	4.40E-13	8.80E-16

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	1.25E-04	0.39	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	1.25E-04	0.39	-	tpy	
CO_2e Total	-	-	10.99	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Pig Launcher BD

Description: Pig Launcher Blowdowns - NGL Gas

Vented Unit Volume:	2,400	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	1	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	4	events/yr-Unit
Vent Gas Molecular Weight:	48.19	lb/lbmol
Primary Control(s):	FL-2	
Capture Efficiency:	100	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	3.1E-07%	1.03E-04	2.06E-07	1.03E-04	2.06E-07	-	-
Nitrogen	8.8E-14%	2.94E-11	5.87E-14	2.94E-11	5.87E-14	-	-
Methane	1.4E-07%	4.85E-05	9.69E-08	4.85E-05	9.69E-08	-	-
Carbon Dioxide	1.7E-07%	5.75E-05	1.15E-07	5.75E-05	1.15E-07	-	-
Ethane	14.75%	49.44	0.099	49.44	0.099	-	-
Propane	38.57%	129.31	0.26	129.31	0.26	-	-
i-Butane	7.54%	25.27	0.051	25.27	0.051	-	-
n-Butane	18.59%	62.31	0.12	62.31	0.12	-	-
i-Pentane	5.88%	19.72	0.039	19.72	0.039	-	-
n-Pentane	6.19%	20.75	0.041	20.75	0.041	-	-
i-Hexane	2.47%	8.27	0.017	8.27	0.017	-	-
Hexane	1.45%	4.87	9.74E-03	4.87	9.74E-03	-	-
Benzene	0.49%	1.64	3.27E-03	1.64	3.27E-03	-	-
Cyclohexane	0.94%	3.15	6.30E-03	3.15	6.30E-03	-	-
i-Heptane	1.56%	5.23	0.010	5.23	0.010	-	-
nC7	0.31%	1.04	2.08E-03	1.04	2.08E-03	-	-
Toluene	0.24%	0.82	1.63E-03	0.82	1.63E-03	-	-
i-Octane	0.82%	2.75	5.49E-03	2.75	5.49E-03	-	-
nC8	0.052%	0.17	3.48E-04	0.17	3.48E-04	-	-
Ethylbenzene	0.023%	0.079	1.57E-04	0.079	1.57E-04	-	-
o-Xylene	0.042%	0.14	2.84E-04	0.14	2.84E-04	-	-
Isononane	0.041%	0.14	2.72E-04	0.14	2.72E-04	-	-
nC9	-	-	-	-	-	-	-
Decane	0.045%	0.15	2.99E-04	0.15	2.99E-04	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	1.0E-05%	3.38E-03	6.76E-06	3.38E-03	6.76E-06	-	-
Water	4.1E-09%	1.37E-06	2.73E-09	1.37E-06	2.73E-09	-	-
Total VOC	85.25%	285.81	0.57	285.81	0.57	-	-
Total H_2S	3.1E-07%	1.03E-04	2.06E-07	1.03E-04	2.06E-07	-	-
Total HAP	3.07%	10.29	0.021	10.29	0.021	-	-
Annual Event Hours (hr/yr)		4	4	4	4	-	-
Molecular Weight (lb/lbmol)		48.19	48.19	48.19	48.19	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		2,640.00	0.011	2,640.00	0.011	-	-
Heat Value (Btu/scf)		2,728.74	2,728.74	2,728.74	2,728.74	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Condensate Tank O_2 Purging/Degassing

Description: Condensate Tank O2 Purging/Degassing

Tank Degassing Emissions - Non-Forced Ventilation

Estimated Gas Vented per Degassing Event :	5,036	scf/event
Number of Tanks:	2	units
Simultaneous Tank Degassing Events:	2	units
Assumed Degassing Event Duration:	1	hrs/event
Tank Degassing Events in One Year :	6	events/yr
Molecular Weight of Stream:	57.66	lb/lb-mol
Is Forced Ventilation used?	No	
Primary Control(s):	FL-3	
Capture Efficiency:	100	%

Clingage-to-vessel Volume		
Clingage volume [1] =	0.54	scf
Clingage thickness [2] =	0.0004	ft
Diameter =	15.5	ft
Height =	24	ft
Liquid Density [1] =	62.40	lb/scf

[1] The roof of the tank is not included in the clingage volume since no liquid will reach the roof. Liquid density for water is used as a surrogate since the density of each condensate sample is not available and will vary over time.

[2] Clingage thickness per TCEQ Maintenance, Startup and Shutdown (MSS) Guidance Document for terminals and chemical plants. http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mss/mss-guidance.pdf

Component	Comp. wt.%	Uncontrolled SSM Emissions lb/hr	Uncontrolled SSM Emissions tpy	Captured SSM Emissions lb/hr	Captured SSM Emissions tpy	Uncaptured SSM Emissions lb/hr	Uncaptured SSM Emissions tpy
Hydrogen Sulfide	2.3E-06%	3.68E-03	5.52E-06	3.68E-03	5.52E-06	-	-
Nitrogen	3.7E-05%	0.058	8.77E-05	0.058	8.77E-05	-	-
Methane	0.77%	12.23	0.018	12.23	0.018	-	-
Carbon Dioxide	0.26%	4.11	6.16E-03	4.11	6.16E-03	-	-
Ethane	4.53%	72.44	0.11	72.44	0.11	-	-
Propane	18.09%	289.08	0.43	289.08	0.43	-	-
i-Butane	8.24%	131.71	0.20	131.71	0.20	-	-
n-Butane	24.90%	397.89	0.60	397.89	0.60	-	-
i-Pentane	11.38%	181.85	0.27	181.85	0.27	-	-
n-Pentane	12.67%	202.50	0.30	202.50	0.30	-	-
i-Hexane	5.87%	93.84	0.14	93.84	0.14	-	-
Hexane	3.38%	53.99	0.081	53.99	0.081	-	-
Benzene	1.15%	18.42	0.028	18.42	0.028	-	-
Cyclohexane	2.29%	36.66	0.055	36.66	0.055	-	-
i-Heptane	3.38%	54.00	0.081	54.00	0.081	-	-
nC7	0.60%	9.61	0.014	9.61	0.014	-	-
Toluene	0.48%	7.70	0.012	7.70	0.012	-	-
i-Octane	1.73%	27.62	0.041	27.62	0.041	-	-
nC8	0.064%	1.02	1.53E-03	1.02	1.53E-03	-	-
Ethylbenzene	0.029%	0.46	6.93E-04	0.46	6.93E-04	-	-
o-Xylene	0.048%	0.76	1.14E-03	0.76	1.14E-03	-	-
Isononane	0.032%	0.52	7.74E-04	0.52	7.74E-04	-	-
nC9	-	-	-	-	-	-	-
Decane	0.012%	0.19	2.79E-04	0.19	2.79E-04	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.089%	1.43	2.14E-03	1.43	2.14E-03	-	-
Total VOC	94.35%	1,507.80	2.26	1,507.80	2.26	-	-
Total H_2S	2.3E-06%	3.68E-03	5.52E-06	3.68E-03	5.52E-06	-	-
Total HAP	6.82%	108.95	0.16	108.95	0.16	-	-
Annual Event Hours (hr/yr)		6	6	6	6	-	-
Molecular Weight (lb/lbmol)		57.66	57.66	57.66	57.66	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		10,071.91	0.030	10,071.91	0.030	-	-
Heat Value (Btu/scf)		3,212.94	3,212.94	3,212.94	3,212.94	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Volume of gas vented (scf/event/unit) * MW of stream (lb/lb-mol) x wt % VOC or speciated constituent * # tank degassing activities occurring simultaneously (units) / event duration (hr/event) / 379.5 (scf/lb-mol)+ Clingage volume (scf/event) * Liquid density (lb/scf) / event duration (hr/event) * # tank degassing activities occurring simultaneously (units)

2) All Pollutants (ton/yr) = Volume of gas vented (scf/event) * MW of stream (lb/lb-mol) * wt % VOC or speciated constituent * # tanks at site (units) * frequency of events (events/yr/unit) / 379.5 (scf/lb-mol) / 2,000 (lb/ton) + Clingage volume (scf/event) * Liquid density (lb/scf) / Frequency of event (events/yr/unit) / 2,000 (lb/ton) * # tanks at site (units)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Produced Water Tank O_2 Purging/Degassing

Description: Produced Water Tank O2 Purging/Degassing

Tank Degassing Emissions - Non-Forced Ventilation

Estimated Gas Vented per Degassing Event :	5,036	scf/event
Number of Tanks:	1	units
Simultaneous Tank Degassing Events:	1	units
Assumed Degassing Event Duration:	1	hrs/event
Tank Degassing Events in One Year :	3	events/yr
Molecular Weight of Stream:	34.53	lb/lb-mol
Is Forced Ventilation used?	No	
Primary Control(s):	FL-3	
Capture Efficiency:	100	%

Clingage-to-vessel Volume		
Clingage volume [1]	0.54	scf
Clingage thickness	0.0004	ft
Diameter =	16	ft
Height =	24	ft
Liquid Density [1] =	62.40	lb/scf

[1] The roof of the tank is not included in the clingage volume since no liquid will reach the roof. Liquid density for water is used as a surrogate since the density of each condensate sample is not available and will vary over time.

[2] Clingage thickness per TCEQ Maintenance, Startup and Shutdown (MSS) Guidance Document for terminals and chemical plants. http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mss/mss-guidance.pdf

Component	Comp. wt.%	Uncontrolled SSM Emissions lb/hr	Uncontrolled SSM Emissions tpy	Captured SSM Emissions lb/hr	Captured SSM Emissions tpy	Uncaptured SSM Emissions lb/hr	Uncaptured SSM Emissions tpy
Hydrogen Sulfide	4.9E-05%	0.024	3.65E-05	0.024	3.65E-05	-	-
Nitrogen	0.12%	0.61	9.10E-04	0.61	9.10E-04	-	-
Methane	13.96%	68.70	0.10	68.70	0.10	-	-
Carbon Dioxide	13.14%	64.64	0.097	64.64	0.097	-	-
Ethane	15.47%	76.14	0.11	76.14	0.11	-	-
Propane	13.47%	66.26	0.099	66.26	0.099	-	-
i-Butane	1.87%	9.23	0.014	9.23	0.014	-	-
n-Butane	7.79%	38.34	0.058	38.34	0.058	-	-
i-Pentane	2.50%	12.29	0.018	12.29	0.018	-	-
n-Pentane	2.86%	14.08	0.021	14.08	0.021	-	-
i-Hexane	1.19%	5.84	8.76E-03	5.84	8.76E-03	-	-
Hexane	0.86%	4.25	6.37E-03	4.25	6.37E-03	-	-
Benzene	9.45%	46.49	0.070	46.49	0.070	-	-
Cyclohexane	2.57%	12.66	0.019	12.66	0.019	-	-
i-Heptane	0.89%	4.36	6.54E-03	4.36	6.54E-03	-	-
nC7	0.22%	1.07	1.61E-03	1.07	1.61E-03	-	-
Toluene	4.70%	23.12	0.035	23.12	0.035	-	-
i-Octane	0.61%	3.03	4.54E-03	3.03	4.54E-03	-	-
nC8	0.027%	0.13	1.99E-04	0.13	1.99E-04	-	-
Ethylbenzene	0.25%	1.25	1.88E-03	1.25	1.88E-03	-	-
o-Xylene	0.61%	3.01	4.52E-03	3.01	4.52E-03	-	-
Isononane	0.018%	0.088	1.31E-04	0.088	1.31E-04	-	-
nC9	-	-	-	-	-	-	-
Decane	7.2E-05%	0.035	5.31E-05	0.035	5.31E-05	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	2.2E-06%	1.09E-03	1.64E-06	1.09E-03	1.64E-06	-	-
DEA	-	-	-	-	-	-	-
Piperazine	2.1E-08%	1.04E-05	1.56E-08	1.04E-05	1.56E-08	-	-
DGA	-	-	-	-	-	-	-
TEG	1.7E-13%	8.48E-11	1.27E-13	8.48E-11	1.27E-13	-	-
Water	7.40%	36.42	0.055	36.42	0.055	-	-
Total VOC	49.90%	245.54	0.37	245.54	0.37	-	-
Total H_2S	4.9E-05%	0.024	3.65E-05	0.024	3.65E-05	-	-
Total HAP	16.49%	81.15	0.12	81.15	0.12	-	-
Annual Event Hours (hr/yr)		3	3	3	3	-	-
Molecular Weight (lb/lbmol)		34.53	34.53	34.53	34.53	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		5,036.23	0.015	5,036.23	0.015	-	-
Heat Value (Btu/scf)		1,549.79	1,549.79	1,549.79	1,549.79	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Volume of gas vented (scf/event/unit) * MW of stream (lb/lb-mol) x wt % VOC or speciated constituent * # tank degassing activities occurring simultaneously (units) / event duration (hr/event) / 379.5 (scf/lb-mol)+ Clingage volume (scf/event) * Liquid density (lb/scf) / event duration (hr/event) * # tank degassing activities occurring simultaneously (units)

2) All Pollutants (ton/yr) = Volume of gas vented (scf/event) * MW of stream (lb/lb-mol) * wt % VOC or speciated constituent * # tanks at site (units) * frequency of events (events/yr/unit) / 379.5 (scf/lb-mol) / 2,000 (lb/ton) + Clingage volume (scf/event) * Liquid density (lb/scf) / Frequency of event (events/yr/unit) / 2,000 (lb/ton) * # tanks at site (units)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Stabilized Condensate Tank O_2 Purging/Degassing

Description: Stabilized Condensate Tank O2 Purging/Degassing

Tank Degassing Emissions - Non-Forced Ventilation

Estimated Gas Vented per Degassing Event :	6,459	scf/event
Number of Tanks:	6	units
Simultaneous Tank Degassing Events:	6	units
Assumed Degassing Event Duration:	1	hrs/event
Tank Degassing Events in One Year :	18	events/yr
Molecular Weight of Stream:	65.84	lb/lb-mol
Is Forced Ventilation used?	No	
Primary Control(s):	FL-3	
Capture Efficiency:	100	%

Clingage-to-vessel Volume		
Clingage volume [1]	0.58	scf
Clingage thickness	0.0004	ft
Diameter =	21.5	ft
Height =	16	ft
Liquid Density [1] =	62.40	lb/scf

[1] The roof of the tank is not included in the clingage volume since no liquid will reach the roof. Liquid density for water is used as a surrogate since the density of each condensate sample is not available and will vary over time.

[2] Clingage thickness per TCEQ Maintenance, Startup and Shutdown (MSS) Guidance Document for terminals and chemical plants. http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/mss/mss-guidance.pdf

Component	Comp. wt.%	Uncontrolled SSM Emissions lb/hr	Uncontrolled SSM Emissions tpy	Captured SSM Emissions lb/hr	Captured SSM Emissions tpy	Uncaptured SSM Emissions lb/hr	Uncaptured SSM Emissions tpy
Hydrogen Sulfide	3.7E-07%	2.59E-03	3.89E-06	2.59E-03	3.89E-06	-	-
Nitrogen	-	-	-	-	-	-	-
Methane	2.9E-13%	2.04E-09	3.06E-12	2.04E-09	3.06E-12	-	-
Carbon Dioxide	2.9E-08%	2.04E-04	3.05E-07	2.04E-04	3.05E-07	-	-
Ethane	0.74%	51.49	0.077	51.49	0.077	-	-
Propane	10.07%	699.15	1.05	699.15	1.05	-	-
i-Butane	7.36%	510.64	0.77	510.64	0.77	-	-
n-Butane	24.46%	1,697.85	2.55	1,697.85	2.55	-	-
i-Pentane	14.33%	994.52	1.49	994.52	1.49	-	-
n-Pentane	16.25%	1,127.67	1.69	1,127.67	1.69	-	-
i-Hexane	8.42%	584.67	0.88	584.67	0.88	-	-
Hexane	4.98%	345.78	0.52	345.78	0.52	-	-
Benzene	1.07%	74.33	0.11	74.33	0.11	-	-
Cyclohexane	2.88%	200.12	0.30	200.12	0.30	-	-
i-Heptane	5.03%	348.81	0.52	348.81	0.52	-	-
nC7	0.93%	64.60	0.097	64.60	0.097	-	-
Toluene	0.48%	33.53	0.050	33.53	0.050	-	-
i-Octane	2.70%	187.38	0.28	187.38	0.28	-	-
nC8	0.10%	7.21	0.011	7.21	0.011	-	-
Ethylbenzene	0.036%	2.46	3.70E-03	2.46	3.70E-03	-	-
o-Xylene	0.052%	3.64	5.45E-03	3.64	5.45E-03	-	-
Isononane	0.066%	4.60	6.91E-03	4.60	6.91E-03	-	-
nC9	-	-	-	-	-	-	-
Decane	0.028%	1.94	2.91E-03	1.94	2.91E-03	-	-
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	2.0E-12%	1.41E-08	2.11E-11	1.41E-08	2.11E-11	-	-
Total VOC	99.26%	6,888.89	10.33	6,888.89	10.33	-	-
Total H_2S	3.7E-07%	2.59E-03	3.89E-06	2.59E-03	3.89E-06	-	-
Total HAP	9.32%	647.12	0.97	647.12	0.97	-	-
Annual Event Hours (hr/yr)		18	18	18	18	-	-
Molecular Weight (lb/lbmol)		65.84	65.84	65.84	65.84	-	-
Volumetric Flow Rate (scf/hr | MMscf/yr)		38,755.95	0.12	38,755.95	0.12	-	-
Heat Value (Btu/scf)		3,656.89	3,656.89	3,656.89	3,656.89	-	-

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	-	-	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	-	-	-	tpy	
CO_2e Total	-	-	-	tpy	

Equations:

1) All Pollutants (lb/hr) = Volume of gas vented (scf/event/unit) * MW of stream (lb/lb-mol) x wt % VOC or speciated constituent * # tank degassing activities occurring simultaneously (units) / event duration (hr/event) / 379.5 (scf/lb-mol)+ Clingage volume (scf/event) * Liquid density (lb/scf) / event duration (hr/event) * # tank degassing activities occurring simultaneously (units)

2) All Pollutants (ton/yr) = Volume of gas vented (scf/event) * MW of stream (lb/lb-mol) * wt % VOC or speciated constituent * # tanks at site (units) * frequency of events (events/yr/unit) / 379.5 (scf/lb-mol) / 2,000 (lb/ton) + Clingage volume (scf/event) * Liquid density (lb/scf) / Frequency of event (events/yr/unit) / 2,000 (lb/ton) * # tanks at site (units)

Trace Delaware Gathering, LLC - Apollo Gas Plant

SSM - Inlet Separator BD

Description:	Inlet Slug Catcher Blowdowns	
Vented Unit Volume:	667,610	scf/event-Unit
Quantity of Blowdown Units:	1	Units
Event Duration:	2	hr/event
Simultaneous Unit Events:	1	Unit
Annual Unit Event Frequency:	1	events/yr-Unit
Vent Gas Molecular Weight:	22.00	lb/lbmol
Primary Control(s):	N/A	
Capture Efficiency:	0	%
Safety Factor:	10	%

Component	Comp.	Uncontrolled SSM Emissions		Captured SSM Emissions		Uncaptured SSM Emissions	
	wt.%	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	6.3E-06%	0.13	1.33E-04	-	-	0.13	1.33E-04
Nitrogen	2.10%	446.90	0.45	-	-	446.90	0.45
Methane	54.27%	11,551.15	11.55	-	-	11,551.15	11.55
Carbon Dioxide	4.01%	852.79	0.85	-	-	852.79	0.85
Ethane	16.46%	3,504.61	3.50	-	-	3,504.61	3.50
Propane	11.88%	2,529.32	2.53	-	-	2,529.32	2.53
i-Butane	2.01%	427.49	0.43	-	-	427.49	0.43
n-Butane	4.64%	986.61	0.99	-	-	986.61	0.99
i-Pentane	1.25%	266.03	0.27	-	-	266.03	0.27
n-Pentane	1.26%	268.57	0.27	-	-	268.57	0.27
i-Hexane	0.49%	104.44	0.10	-	-	104.44	0.10
Hexane	0.29%	62.06	0.062	-	-	62.06	0.062
Benzene	0.10%	21.78	0.022	-	-	21.78	0.022
Cyclohexane	0.20%	42.78	0.043	-	-	42.78	0.043
i-Heptane	0.37%	79.46	0.079	-	-	79.46	0.079
nC7	0.081%	17.20	0.017	-	-	17.20	0.017
Toluene	0.066%	14.07	0.014	-	-	14.07	0.014
i-Octane	0.22%	46.83	0.047	-	-	46.83	0.047
nC8	0.020%	4.33	4.33E-03	-	-	4.33	4.33E-03
Ethylbenzene	9.5E-05%	2.02	2.02E-03	-	-	2.02	2.02E-03
o-Xylene	0.019%	4.03	4.03E-03	-	-	4.03	4.03E-03
Isononane	0.023%	4.86	4.86E-03	-	-	4.86	4.86E-03
nC9	-	-	-	-	-	-	-
Decane	0.051%	10.75	0.011	-	-	10.75	0.011
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	-	-	-	-	-	-	-
DEA	-	-	-	-	-	-	-
Piperazine	-	-	-	-	-	-	-
DGA	-	-	-	-	-	-	-
TEG	-	-	-	-	-	-	-
Water	0.18%	37.38	0.037	-	-	37.38	0.037
Total VOC	22.99%	4,892.62	4.89	-	-	4,892.62	4.89
Total H_2S	6.3E-06%	0.13	1.33E-04	-	-	0.13	1.33E-04
Total HAP	0.71%	150.77	0.15	-	-	150.77	0.15

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	0.85	11.55	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	0.85	11.55	-	tpy	
CO_2e Total	-	-	324.28	tpy	

Equations:

1) All Pollutants (lb/hr) = Vented Unit Volume (scf/event-unit) * Simultaneous Unit Events (Units) / Event Duration (hr/event) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) * Composition (wt%) * (1+Safety Factor)

2) All Pollutants (ton/yr) = Vented Unit Volume (scf/event-unit) * Annual Unit Event Frequency (events/yr-unit) * Quantity of Blowdown Units (Units) / Std. Molar Volume (379.5 scf/lbmol) * Vented Gas MW (lb/lbmol) / (2000 lb/ton) * Composition (wt%) * (1+Safety Factor)

Trace Delaware Gathering, LLC - Apollo Gas Plant

Exempt Units pursuant to 20.2.72.202.B(5) NMAC:

Any emissions unit, operation, or activity that has a potential emission rate of no more than one-half (1/2) ton per year of any pollutant for which a national or New Mexico ambient air quality standard has been set or one-half (1/2) ton per year of any VOC. Multiple emissions units, operations, and activities that perform identical or similar functions shall be combined in determining the applicability of this exemption.

Emissions													
Unit	Description	VOC		PM_{10}		$PM_{2.5}$		H_2S		Total HAPs		Methanol	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TK-METHANOL-1	500 gallon Methanol Storage Tank	2.65E-03	1.32E-03	-	-	-	-	-	-	2.65E-03	1.32E-03	2.65E-03	1.32E-03
TK-METHANOL-2	500 gallon Methanol Storage Tank	2.65E-03	1.32E-03	-	-	-	-	-	-	2.65E-03	1.32E-03	2.65E-03	1.32E-03
Methanol Tank Combined Emission Summary:		5.30E-03	2.65E-03	-	-	-	-	-	-	5.30E-03	2.65E-03	5.30E-03	2.65E-03
TL-2	Produced Water Loading	0.015	1.46E-03	-	-	-	-	5.71E-05	5.49E-06	5.94E-03	5.71E-04	-	-
ROAD	Haul Roads	-	-	0.44	0.36	0.044	0.036	-	-	-	-	-	-

Trace Delaware Gathering, LLC - Apollo Gas Plant

Methanol Storage Tank

Exempt per 20.2.72.202.B(5) NMAC

Emission unit number(s):	TK-METHANOL-1 & TK-METHANOL-2	
Source description:	500 gallon Methanol Storage Tanks	
Annual Operating Hours:	8,760	
Number of Tanks:	2	
Capacity of Tanks:	500	gal
Hourly Throughout:	1	gal/hr
Daily Throughput:	27	gal/day
Annual Throughput:	9,988	gal/yr

Methanol Storage Tank Emissions

Component	Uncontrolled Emissions					
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total (lb/hr)	Total (tpy)	Total per Tank (lb/hr)	Total per Tank (tpy)
Methanol	-	5.30E-03	5.30E-03	2.65E-03	2.65E-03	1.32E-03
VOC	-	5.30E-03	5.30E-03	2.65E-03	2.65E-03	1.32E-03
Total HAPS	-	5.30E-03	5.30E-03	2.65E-03	2.65E-03	1.32E-03

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Produced Water Loading

Exempt per 20.2.72.202.B(5) NMAC

Unit:	TL2		
Description	Produced Water Loading		
Hourly Loading Volume:[1]	7,980	gal/hr	
Annual Loading Volume:[2]	1,533,412	gal/yr	
Primary Control(s):	ECD-1, FL-3		
Capture Efficiency:	98.7	%	AP-42 Ch. 5.2.2.1.1

Calculate Loading Loss Emission Factor (L_L)

Parameter	Hourly	Annual	Units	Source:
Material Loaded	Produced Water			
Loading Method	Submerged Dedicated Vapor Balance Service			
Saturation Factor (S)	0.6		unitless	AP-42 Table 5.2-1 (06/2008)
True Vapor Pressure of Liquid Loaded (P)[3]	0.36	0.36	psia	ProMax
Molecular Weight of Vapors (M)[3]	20.64	20.64	lb/lbmol	ProMax
Temperature of Bulk Liquid Loaded (T)[3]	526.35	526.35	°R	ProMax
Calculated Liquid Loading Loss (L_L)[4]	0.11	0.11	lb/10^3 gal	Eq. (1) AP-42 Chapter 5.2 (06/2008)

Loading Loss Calculations

Pollutant	Comp.[5] (wt.%)	Uncontrolled Loading Losses		Captured Loading Losses to Control		Uncaptured Loading Losses	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide	6.7E-05%	5.71E-05	5.49E-06	5.64E-05	5.42E-06	7.43E-07	7.13E-08
Nitrogen	2.8E-05%	2.41E-05	2.31E-06	2.38E-05	2.28E-06	3.13E-07	3.01E-08
Methane	0.94%	8.03E-03	7.71E-04	7.92E-03	7.61E-04	1.04E-04	1.00E-05
Carbon Dioxide	18.51%	0.16	0.015	0.16	0.015	2.05E-03	1.97E-04
Ethane	1.63%	0.014	1.34E-03	0.014	1.32E-03	1.81E-04	1.74E-05
Propane	0.54%	4.64E-03	4.46E-04	4.58E-03	4.40E-04	6.04E-05	5.80E-06
i-Butane	0.051%	4.38E-04	4.21E-05	4.32E-04	4.15E-05	5.69E-06	5.47E-07
n-Butane	0.22%	1.91E-03	1.83E-04	1.88E-03	1.81E-04	2.48E-05	2.38E-06
i-Pentane	0.067%	5.70E-04	5.47E-05	5.62E-04	5.40E-05	7.40E-06	7.11E-07
n-Pentane	0.072%	6.18E-04	5.94E-05	6.10E-04	5.86E-05	8.03E-06	7.72E-07
i-Hexane	0.028%	2.36E-04	2.27E-05	2.33E-04	2.24E-05	3.07E-06	2.95E-07
Hexane	0.021%	1.80E-04	1.73E-05	1.78E-04	1.71E-05	2.34E-06	2.25E-07
Benzene	0.48%	4.05E-03	3.89E-04	4.00E-03	3.84E-04	5.27E-05	5.06E-06
Cyclohexane	0.070%	5.96E-04	5.73E-05	5.89E-04	5.65E-05	7.75E-06	7.45E-07
i-Heptane	0.020%	1.70E-04	1.64E-05	1.68E-04	1.62E-05	2.21E-06	2.13E-07
nC7	5.2E-05%	4.40E-05	4.23E-06	4.34E-05	4.17E-06	5.72E-07	5.50E-08
Toluene	0.16%	1.38E-03	1.33E-04	1.36E-03	1.31E-04	1.80E-05	1.73E-06
i-Octane	0.013%	1.14E-04	1.09E-05	1.12E-04	1.08E-05	1.48E-06	1.42E-07
nC8	5.4E-06%	4.57E-06	4.39E-07	4.51E-06	4.33E-07	5.94E-08	5.71E-09
Ethylbenzene	9.6E-05%	8.19E-05	7.87E-06	8.08E-05	7.76E-06	1.06E-06	1.02E-07
o-Xylene	0.015%	1.31E-04	1.26E-05	1.29E-04	1.24E-05	1.70E-06	1.63E-07
Isononane	2.6E-06%	2.24E-06	2.16E-07	2.21E-06	2.13E-07	2.92E-08	2.80E-09
nC9	-	-	-	-	-	-	-
Decane	8.1E-07%	6.89E-07	6.62E-08	6.80E-07	6.54E-08	8.96E-09	8.61E-10
Ethylene Glycol	-	-	-	-	-	-	-
MDEA	4.2E-10%	3.59E-10	3.45E-11	3.54E-10	3.40E-11	4.67E-12	4.48E-13
DEA	-	-	-	-	-	-	-
Piperazine	3.0E-07%	2.57E-07	2.47E-08	2.54E-07	2.44E-08	3.34E-09	3.21E-10
DGA	-	-	-	-	-	-	-
TEG	2.1E-12%	1.81E-12	1.74E-13	1.78E-12	1.71E-13	2.35E-14	2.26E-15
Water	77.12%	0.66	0.063	0.65	0.062	8.55E-03	8.22E-04
Total VOC	1.78%	0.015	1.46E-03	0.015	1.44E-03	1.97E-04	1.90E-05
Total H_2S	6.7E-05%	5.71E-05	5.49E-06	5.64E-05	5.42E-06	7.43E-07	7.13E-08
Total HAP	0.70%	5.94E-03	5.71E-04	5.86E-03	5.63E-04	7.72E-05	7.42E-06
Flow Rate (scf/hr | MMscf/yr):		15.68	3.01E-03	15.47	2.97E-03	0.20	3.92E-05
Molecular Weight (lb/lbmol):		20.64	20.64	20.64	20.64	20.64	20.64
Vapor Heat Rate (Btu/scf):		96.10	96.10	96.10	96.10	96.10	96.10

GHG Pollutants	CO_2	CH_4	CO_2e	Units	Source
GHG Emissions	1.97E-04	1.00E-05	-	tpy	Controlled and SSM Totals
Global Warming Potential	1	28	-		40 CFR 98 Table A-1
GHG Total	1.97E-04	1.00E-05	-	ton/yr	
CO_2e Total	-	-	4.78E-04	ton/yr	

Notes:

[1] Hourly loading volume is based on the assumption that one (1) 190 gal capacity truck can be loaded in an hour.

[2] Annual loading volume is based on the expected liquid throughput with BR&E ProMax modeling software.

[3] Variables P, M, and T were calculated using ProMax.

[4] Per Eq. (1) of AP-42 Chapter 5.2:

L_L (lb/10^3 gal) = 12.46 * S * P * M / T

[5] Hourly compositions based on the short-term worse case operating conditions. Annual compositions are based on the average conditions of the facility.

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Unpaved Haul Roads

Exempt per 20.2.72.202.B(5) NMAC

Unit: ROAD
Description Haul Roads

Haul Truck Inputs

Parameter	Value			Units	Source
Loaded Material	Water	Condensate	Stab. Condensate		
Material Density	62.10	42.46	42.94	lb/ft^3	ProMax
Annual Throughput	1,533,412	76,650	38,311,904	gal/yr	ProMax
Empty Vehicle Weight	16	16	16	tons	Mfg. Specification Sheet
Load Weight	33.21	22.70	22.96	tons	Mfg. Truck Capacity (8000 gal)
Loaded Vehicle Weight	49.21	38.70	38.96	tons	Eq. 1)
Average Vehicle Weight	32.60	27.35	27.48	tons	Eq. 2)
Hourly Truck Trips	1	1	1	trips/hr	
Annual Truck Trips	192	10	4,789	trips/yr	Eq. 3)
Avg Hourly Truck Weight (W_H)		29.15		tons	Weighted Average
Avg Annual Truck Weight (W_A)		27.68		tons	Weighted Average
Roundtrip Vehicle Miles Traveled (VMT)		0.10		VMT/trip	Site specification
Hourly VMT		0.30		VMT/hr	Eq. 4)
Annual VMT		499.10		VMT/yr	Eq. 5)

Haul Road Emission Factors

Parameter	PM	PM_{10}	$PM_{2.5}$	Units	Source
Constant k	4.9	1.5	0.15	lb/VMT	AP-42 Table 13.2.2.-2 (11/2006)
Constant a	0.7	0.9	0.9		AP-42 Table 13.2.2.-2 (11/2006)
Constant b	0.45	0.45	0.45		AP-42 Table 13.2.2.-2 (11/2006)
Surface Silt % (s)[1]	4.8	4.8	4.8	%	NMED Guidance for Aggregate Handling, Storage Piles and Haul Road Emissions (01/01/2017)
Rain Days (P)[1]	70	70	70	days	NMED Guidance for Aggregate Handling, Storage Piles and Haul Road Emissions (01/01/2017)
Hourly Emission Factor (E_H)	7.18	1.83	0.18	lb/VMT	AP-42 Chapter 13.2.2 Equation (1a) (11/2006)
Annual Emission Factor (E_A)	7.01	1.79	0.18	lb/VMT	AP-42 Chapter 13.2.2 Equation (1a) (11/2006)
Hourly Emission Factor (E_{ext_H})	5.80	1.48	0.15	lb/VMT	AP-42 Chapter 13.2.2 Equation (2) (11/2006)
Annual Emission Factor (E_{ext_A})	5.67	1.44	0.14	lb/VMT	AP-42 Chapter 13.2.2 Equation (2) (11/2006)

Emission Summary

Parameter	PM	PM_{10}	$PM_{2.5}$	Units	Source
Hourly Emissions	1.74	0.44	0.04	lb/hr	Eq. 6)
Annual Emissions	1.41	0.36	0.04	tpy	Eq. 7)

Equations:

1) Loaded Vehicle Weight (tons) = Empty Vehicle Weight (tons) + Load Weight (tons)
2) Average Vehcile Weight (tons) = (Empty Vehicle Weight (tons) + Loaded Vehicle Weight (tons)) / 2
3) Annual Truck Trips (trips/yr) = Material Throughput (gal/yr) / Truck Capacity (8000 gal/trip)
4) Hourly Vehicle Miles Traveled (VMT/hr) = Total Hourly Truck Trips (trips/hr) * Round Trip Distance (VMT/trip)
5) Annual Vehicle Miles Traveled (VMT/yr) = Total Annual Truck Trips (trips/yr) * Round Trip Distance (VMT/trip)
6) Hourly Emissions (lb/hr) = Hourly Emission Factor (E_{ext_H}) (lb/VMT) * Hourly VMT (VMT/hr)
7) Annual Emissions (tpy) = Annual Emission Factor (E_{ext_A}) (lb/VMT) * Annual VMT (VMT/yr)

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.

This section contains the following references or actual documentation to support the emissions in the required forms and the calculations in section 6.

- Current version of AP-42
  - Section 1.4: Natural Gas Combustion (4/26)
    - Table 1.4-1 – Emission Factors For Nitrogen Oxides (NO_x) And Carbon Monoxide (CO) From Natural Gas Combustion
    - Table 1.4-2 – Emission Factors For Criteria Pollutants And Greenhouse Gases From Natural Gas Combustion
    - Table 1.4-3 - Emission Factors For Speciated Organic Compounds From Natural Gas Combustion
  - Section 3.2: Natural Gas-fired Reciprocating Engines (10/24)
    - Table 3.2-2 – Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines
    - Table 3.2-3 – Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines
  - Section 3.3: Gasoline And Diesel Industrial Engines (4/25)
    - Table 3.3-2 – Speciated Organic Compounds Emission Factors For Uncontrolled Diesel Engines
  - Section 5.2: Transportation and Marketing of Petroleum Liquids (6/08)
    - Table 5.2-1 – Saturation (S) Factors For Calculating Petroleum Liquid Loading Losses
    - Equation (1)
- Guidance Documents
  - 40 CFR 98 Subpart C, Table C-1
  - 40 CFR 98 Subpart C, Table C-2
  - 40 CFR 98 Table A-1
  - 40 CFR 98 Subpart W §98.223
  - EPA Protocol for Equipment Leak Emission Estimates, Table 2-4, 1995
  - TECQ Air Permits Flare Emission Factors Table A-6

- Manufacturer Specification Sheets
    - Caterpillar G3608A4 Compressor Engine
    - Caterpillar G3616A4 Compressor Engine
    - PSI 11.1L LPG Generator Engines
    - PSI D11.1L Generator Engines
    - 57.50 MMBtu/hr Amine Reboiler Hot Oil Heater
    - 15.22 MMBtu/hr Regen Heater
    - 10.77 MMBtu/hr Stabilizer Hot Oil Heater
    - 20 MMSCFD Flare
    - 275 MMSCFD Flare
    - Tank/Loading Flare
- Computer Models
    - ProMax Simulation

AP-42 Documents

1.4 Natural Gas Combustion

Disclaimer: Emission factors in AP-42 are neither EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER) nor standards (e.g., National Emission Standard for Hazardous Air Pollutants or NESHAP, or New Source Performance Standards or NSPS). Use of these factors as source specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources are expected to have emission rates greater than the emission factor, and the other half are expected to have emission rates less than the emission factor. As such, EPA does not recommend using emission factors as limits or standards. This could cause, for example, a permit limit using an AP-42 emission factor resulting in approximately half of the sources being in noncompliance. We recommend source testing be done for the best possible emission values. For more information on the use of emission factors, please refer to the AP-42 Introduction.

1.4.1 General[1-2]

Natural gas is one of the major combustion fuels used throughout the country. It is mainly used to generate industrial and utility electric power, produce industrial process steam and heat, and heat residential and commercial space. Natural gas consists of a high percentage of methane (generally above 85 percent) and varying amounts of ethane, propane, butane, and inerts (typically nitrogen, carbon dioxide, and helium). The average gross heating value of natural gas is approximately 1,020 British thermal units per standard cubic foot (Btu/scf), usually varying from 950 to 1,050 Btu/scf.

1.4.2 Firing Practices[3-5]

There are three major types of boilers used for natural gas combustion in commercial, industrial, and utility applications: watertube, firetube, and cast iron. Watertube boilers are designed to pass water through the inside of heat transfer tubes while the outside of the tubes is heated by direct contact with the hot combustion gases and through radiant heat transfer. The watertube design is the most common in utility and large industrial boilers. Watertube boilers are used for a variety of applications, ranging from providing large amounts of process steam, to providing hot water or steam for space heating, to generating high-temperature, high-pressure steam for producing electricity. Furthermore, watertube boilers can be distinguished either as field erected units or packaged units.

Field erected boilers are boilers that are constructed on site and comprise the larger sized watertube boilers. Generally, boilers with heat input levels greater than 100 MMBtu/hr, are field erected. Field erected units usually have multiple burners and, given the customized nature of their construction, also have greater operational flexibility and NO_x control options. Field erected units can also be further categorized as wall-fired or tangential-fired. Wall-fired units are characterized by multiple individual burners located on a single wall or on opposing walls of the furnace while tangential units have several rows of air and fuel nozzles located in each of the four corners of the boiler.

Package units are constructed off-site and shipped to the location where they are needed. While the heat input levels of packaged units may range up to 250 MMBtu/hr, the physical size of these units are constrained by shipping considerations and generally have heat input levels less than 100 MMBtu/hr. Packaged units are always wall-fired units with one or more individual burners. Given the size limitations imposed on packaged boilers, they have limited operational flexibility and cannot feasibly incorporate some NO_x control options.

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

R B ——Q Bs Bn	R	(° c Bm B	(° c Bm 3	R° c Bm B	R° c Bm 3
’ B m BQ B B B	B9 (>9>		C		Q
’ B m BQ B B B	B9 (>9>		C		Q
’ B m BQ B B B	’ B(° B		C		Q
’ B m BQ B B B	m B B		X		Q
> BQ B B B B BB BB			Q		Q
> BQ B B B B BB BB	’ B(° B		X		Q
> BQ B B B B BB BB	’ BB(° B m B B		R		Q
m BQ BC B>			C		R
m BQ BC B>	m B B		X		X
3 Bm B			Q		Q

[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]

9	c Bm B	c Bm B
R°		C
’		X
(° B		c
(° BR (° B		c
9—B		X
9—BR		X
9—Bm		Q
>°		C
° R		Q
—		Q
° R		R

[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. Applicable SCCs: 10100601, 10100602, 10100604, 10200601, 10200602, 10200603, 10200604, 10300601, 10300602, 10300603, 2104006000. 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 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, 4.2x10^4 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 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

RC>B(	9	c Bm B	c Bm B3
	— B	c	X
	— B	c	c
	X	c	c
	C	c	c
	C	c	c
	C	c	c
	Q	c	c
	Q	c	Q
	Q	c	c
	Q	c	c
	Q	c	c
	Q	c	c
	Q	c	c
	R	c	c
	X	c	c
	X	c	c
	c	c	c
	m	c	c
	m	c	c
	m	c	Q
	s	c	c
	tı	c	c
	(	c	c
	9	c	c
	9	c	X

TABLE 1.4-3. Continued

RC>B(	9	c B3m B	c B3m B3
	9	c	c
	9 B	c	c
		c	R

[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. Applicable SCCs: 10100601, 10100602, 10100604, 10200601, 10200602, 10200603, 10200604, 10300601, 10300602, 10300603, 2104006000. To convert from lb/10^6 scf to kg/10^6 m^3, multiply by 16. To convert from 1b/10^6 scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

[b] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

3.2 Natural Gas-fired Reciprocating Engines

Disclaimer: Emission factors in AP-42 are neither EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER) nor standards (e.g., National Emission Standard for Hazardous Air Pollutants or NESHAP, or New Source Performance Standards or NSPS). Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is **NOT** recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources are expected to have emission rates greater than the emission factor, and the other half are expected to have emission rates less than the emission factor. As such, EPA does not recommend using emission factors as limits or standards. This could cause, for example, a permit limit using an AP-42 emission factor resulting in approximately half of the sources being in noncompliance. We recommend source testing be done for the best possible emission values. For more information on the use of emission factors, please refer to the AP-42 Introduction.

3.2.1 General [1-3]

Most natural gas-fired reciprocating engines are used in the natural gas industry at pipeline compressor and storage stations and at gas processing plants. These engines are used to provide mechanical shaft power for compressors and pumps. At pipeline compressor stations, engines are used to help move natural gas from station to station. At storage facilities, they are used to help inject the natural gas into high pressure natural gas storage fields. At processing plants, these engines are used to transmit fuel within a facility and for process compression needs (e.g., refrigeration cycles). The size of these engines ranges from 50 brake horsepower (bhp) to 11,000 bhp. In addition, some engines in service are 50 - 60 years old and consequently have significant differences in design compared to newer engines, resulting in differences in emissions and the ability to be retrofitted with new parts or controls.

At pipeline compressor stations, reciprocating engines are used to power reciprocating compressors that move compressed natural gas (500 - 2000 psig) in a pipeline. These stations are spaced approximately 50 to 100 miles apart along a pipeline that stretches from a gas supply area to the market area. The reciprocating compressors raise the discharge pressure of the gas in the pipeline to overcome the effect of frictional losses in the pipeline upstream of the station, in order to maintain the required suction pressure at the next station downstream or at various downstream delivery points. The volume of gas flowing and the amount of subsequent frictional losses in a pipeline are heavily dependent on the market conditions that vary with weather and industrial activity, causing wide pressure variations. The number of engines operating at a station, the speed of an individual engine, and the amount of individual engine horsepower (load) needed to compress the natural gas is dependent on the pressure of the compressed gas received by the station, the desired discharge pressure of the gas, and the amount of gas flowing in the pipeline. Reciprocating compressors have a wider operating bandwidth than centrifugal compressors, providing increased flexibility in varying flow conditions. Centrifugal compressors powered by natural gas turbines are also used in some stations and are discussed in another section of this document.

A compressor in storage service pumps gas from a low-pressure storage field (500 - 800 psig) to a higher pressure transmission pipeline (700 - 1000 psig) and/or pumps gas from a low-pressure transmission line (500 - 800 psig) to a higher pressure storage field (800 - 2000 psig).

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES[a]
(SCC 2-02-002-54)

Pollutant	Emission Factor (lb/MMBtu)b (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x [c] 90 - 105% Load	4.08 E+00	B
NO_x [c] <90% Load	8.47 E-01	B
CO [c] 90 - 105% Load	3.17 E-01	C
CO [c] <90% Load	5.57 E-01	B
CO_2 [d]	1.10 E+02	A
SO_2 [e]	5.88 E-04	A
TOC[f]	1.47 E+00	A
Methane[g]	1.25 E+00	C
VOC[h]	1.18 E-01	C
PM10 (filterable)[i]	7.71 E-05	D
PM2.5 (filterable)[i]	7.71 E-05	D
PM Condensable[j]	9.91 E-03	D
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[k]	<4.00 E-05	E
1,1,2-Trichloroethane [k]	<3.18 E-05	E
1,1-Dichloroethane	<2.36 E-05	E
1,2,3-Trimethylbenzene	2.30 E-05	D
1,2,4-Trimethylbenzene	1.43 E-05	C
1,2-Dichloroethane	<2.36 E-05	E
1,2-Dichloropropane	<2.69 E-05	E
1,3,5-Trimethylbenzene	3.38 E-05	D
1,3-Butadiene [k]	2.67E-04	D
1,3-Dichloropropene [k]	<2.64 E-05	E
2-Methylnaphthalene [k]	3.32 E-05	C
2,2,4-Trimethylpentane [k]	2.50 E-04	C
Acenaphthene [k]	1.25 E-06	C

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES (Continued)

Pollutant	Emission Factor (lb/MMBtu)b (fuel input)	Emission Factor Rating
Acenaphthylene[k]	5.53 E-06	C
Acetaldehydek,[l]	8.36 E-03	A
Acroleink,[l]	5.14 E-03	A
Benzene[k]	4.40 E-04	A
Benzo(b)fluoranthene[k]	1.66 E-07	D
Benzo(e)pyrene[k]	4.15 E-07	D
Benzo(g,h,i)perylene[k]	4.14 E-07	D
Biphenyl[k]	2.12 E-04	D
Butane	5.41 E-04	D
Butyr/Isobutyraldehyde	1.01 E-04	C
Carbon Tetrachloride[k]	<3.67 E-05	E
Chlorobenzene[k]	<3.04 E-05	E
Chloroethane	1.87 E-06	D
Chloroform[k]	<2.85 E-05	E
Chrysene[k]	6.93 E-07	C
Cyclopentane	2.27 E-04	C
Ethane	1.05 E-01	C
Ethylbenzene[k]	3.97 E-05	B
Ethylene Dibromide[k]	<4.43 E-05	E
Fluoranthene[k]	1.11 E-06	C
Fluorene[k]	5.67 E-06	C
Formaldehyde[k, l]	5.28 E-02	A
Methanol[k]	2.50 E-03	B
Methylcyclohexane	1.23 E-03	C
Methylene Chloride[k]	2.00 E-05	C
n-Hexane[k]	1.11 E-03	C
n-Nonane	1.10 E-04	C

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES (Continued)

Pollutant	Emission Factor (lb/MMBtu)b (fuel input)	Emission Factor Rating
n-Octane	3.51 E-04	C
n-Pentane	2.60 E-03	C
Naphthalene[k]	7.44 E-05	C
PAH[k]	2.69 E-05	D
Phenanthrene[k]	1.04 E-05	D
Phenol[k]	2.40 E-05	D
Propane	4.19 E-02	C
Pyrene[k]	1.36 E-06	C
Styrene[k]	<2.36 E-05	E
Perchloroethylene[k, m]	2.48 E-06	D
Toluene[k]	4.08 E-04	B
Vinyl Chloride[k]	1.49 E-05	C
Xylene[k]	1.84 E-04	B

[a] Reference 7. Factors represent uncontrolled levels. For NO_x B R° B B9— B B means no combustion or add-on controls; however, the factor may include turbocharged units. m B B B B B B B B B B B B B B B units with control techniques used for NO_x control, such as PCC and SCR for lean burn engines, and PSC for rich burn engines. Factors are based on large population of engines. Factors are for engines at all loads, except as indicated. SCC = Source Classification Code. TOC = Total Organic Compounds. PM- B B9 B— B B B B B B B B B B B B front of a factor means that the corresponding emission factor is based on one-half of the method detection limit.

[b] Emission factors were calculated in units of (lb/MMBtu) based on procedures in EPA Method 19. To convert from (lb/MMBtu) to ($lb/10^6$ scf), multiply by the heat content of the fuel. If the heat content is not available, use 1020 Btu/scf. To convert from (lb/MMBtu) to (lb/hp-hr) use the following equation:

lb/hp-hr = (lb/MMBtu) (heat input, MMBtu/hr) (1/operating HP, 1/hp)

[c] Emission tests with unreported load conditions were not included in the data set.

[d] Based on 99.5% conversion of the fuel carbon to CO_2. CO_2 [lb/MMBtu] = (3.67)(%CON)(C)(D)(1/h), where %CON = percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.75), D = density of fuel, 4.1 E+04 $lb/10^6$ scf, and

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES (Continued)

h = heating value of natural gas (assume 1020 Btu/scf at 60°F).

[e] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content in natural gas of 2,000 gr/10^6 scf.

[f] Emission factor for TOC is based on measured emission levels from 22 source tests.

[g] Emission factor for methane is determined by subtracting the VOC and ethane emission factors from the TOC emission factor. Measured emission factor for methane compares well with the calculated emission factor, 1.31 lb/MMBtu vs. 1.25 lb/MMBtu, respectively.

[h] VOC emission factor is based on the sum of the emission factors for all speciated organic compounds less ethane and methane.

[i] Considered 1 µm in aerodynamic diameter. Therefore, for filterable PM emissions, PM10(filterable) = PM2.5(filterable).

[j] PM Condensable = PM Condensable Inorganic + PM-Condensable Organic

[k] Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

[l] For lean burn engines, aldehyde emissions quantification using CARB 430 may reflect interference with the sampling compounds due to the nitrogen concentration in the stack. The presented emission factor is based on FTIR measurements. Emissions data based on CARB 430 are available in the background report.

[m]Error identified in pollutant name October 2024. Pollutant name changed from tetrachloroethane to perchloroethylene.

5.2 Transportation And Marketing Of Petroleum Liquids[1-3]

5.2.1 General

The transportation and marketing of petroleum liquids involve many distinct operations, each of which represents a potential source of evaporation loss. Crude oil is transported from production operations to a refinery by tankers, barges, rail tank cars, tank trucks, and pipelines. Refined petroleum products are conveyed to fuel marketing terminals and petrochemical industries by these same modes. From the fuel marketing terminals, the fuels are delivered by tank trucks to service stations, commercial accounts, and local bulk storage plants. The final destination for gasoline is usually a motor vehicle gasoline tank. Similar distribution paths exist for fuel oils and other petroleum products. A general depiction of these activities is shown in Figure 5.2-1.

5.2.2 Emissions And Controls

Evaporative emissions from the transportation and marketing of petroleum liquids may be considered, by storage equipment and mode of transportation used, in four categories:

1. Rail tank cars, tank trucks, and marine vessels: loading, transit, and ballasting losses.
2. Service stations: bulk fuel drop losses and underground tank breathing losses.
3. Motor vehicle tanks: refueling losses.
4. Large storage tanks: breathing, working, and standing storage losses. (See Chapter 7, "Liquid Storage Tanks".)

Evaporative and exhaust emissions are also associated with motor vehicle operation, and these topics are discussed in AP-42 *Volume II: Mobile Sources*.

5.2.2.1 Rail Tank Cars, Tank Trucks, And Marine Vessels -

Emissions from these sources are from loading losses, ballasting losses, and transit losses.

5.2.2.1.1 Loading Losses -

Loading losses are the primary source of evaporative emissions from rail tank car, tank truck, and marine vessel operations. Loading losses occur as organic vapors in "empty" cargo tanks are displaced to the atmosphere by the liquid being loaded into the tanks. These vapors are a composite of (1) vapors formed in the empty tank by evaporation of residual product from previous loads, (2) vapors transferred to the tank in vapor balance systems as product is being unloaded, and (3) vapors generated in the tank as the new product is being loaded. The quantity of evaporative losses from loading operations is, therefore, a function of the following parameters:

- Physical and chemical characteristics of the previous cargo;
- Method of unloading the previous cargo;
- Operations to transport the empty carrier to a loading terminal;
- Method of loading the new cargo; and
- Physical and chemical characteristics of the new cargo.

The principal methods of cargo carrier loading are illustrated in Figure 5.2-2, Figure 5.2-3, and Figure 5.2-4. In the splash loading method, the fill pipe dispensing the cargo is lowered only part way into the cargo tank. Significant turbulence and vapor/liquid contact occur during the splash

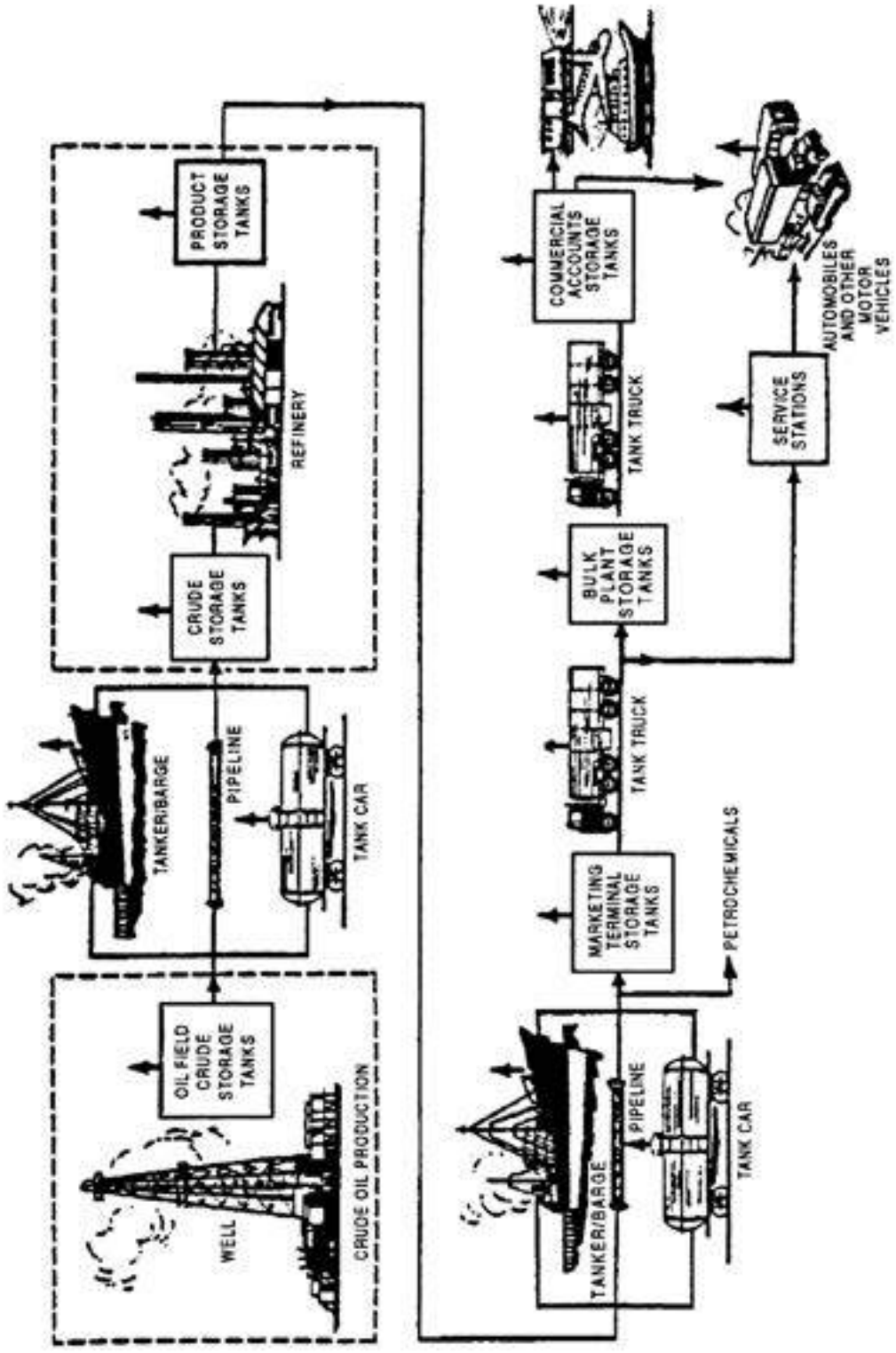


Figure 5.2-1. Flow sheet of petroleum production, refining, and distribution systems. (Points of organic emissions are indicated by vertical arrows.)

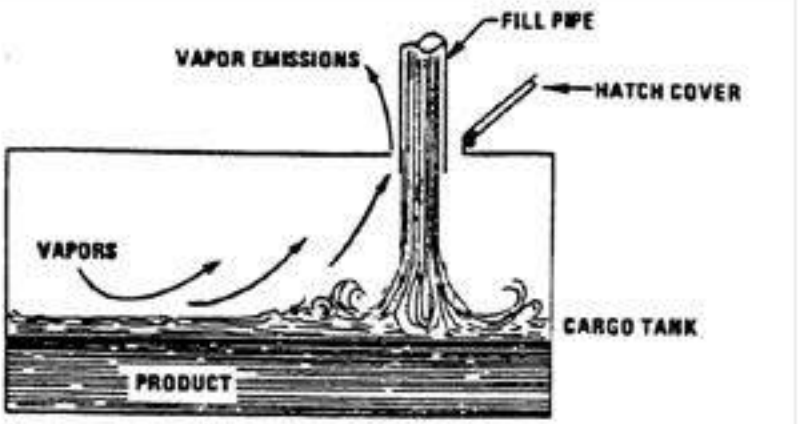


Figure 5.2-2. Splash loading method.

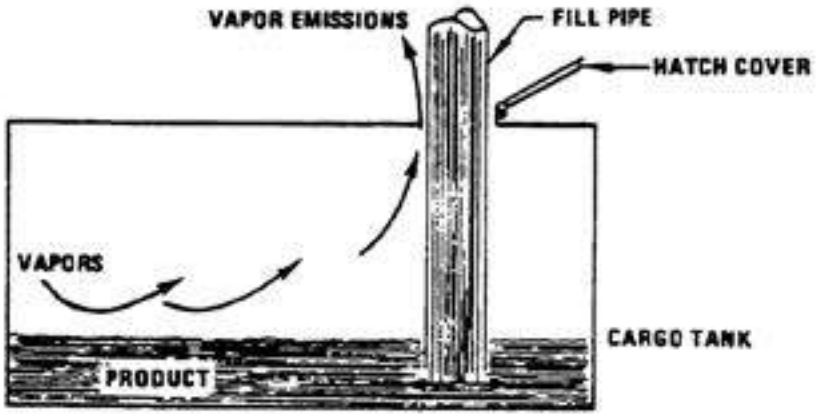


Figure 5.2-3. Submerged fill pipe.

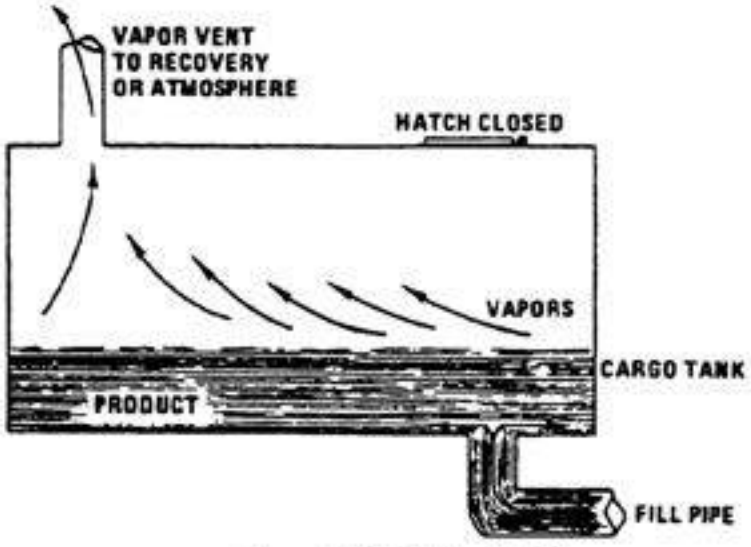


Figure 5.2-4. Bottom loading.

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 Section 7.1, "Organic Liquid Storage Tanks")
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")
T = temperature of bulk liquid loaded, °R (°F + 460)

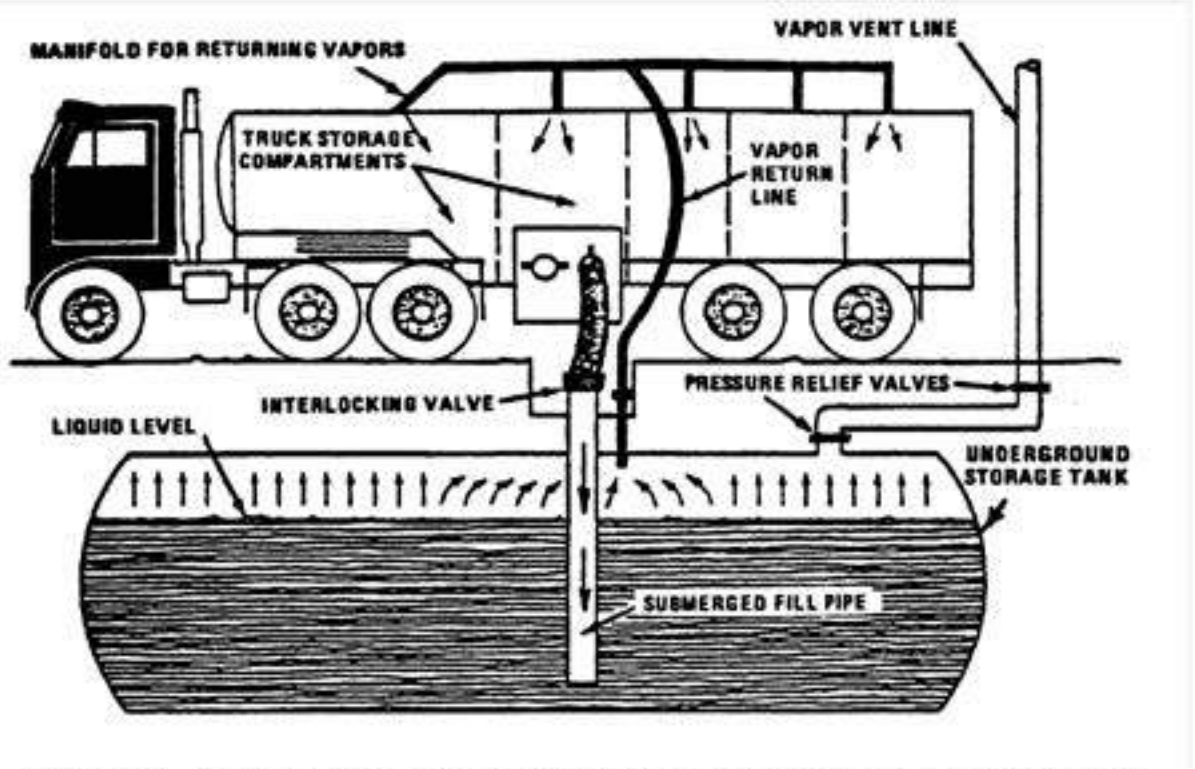


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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

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

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

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

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

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

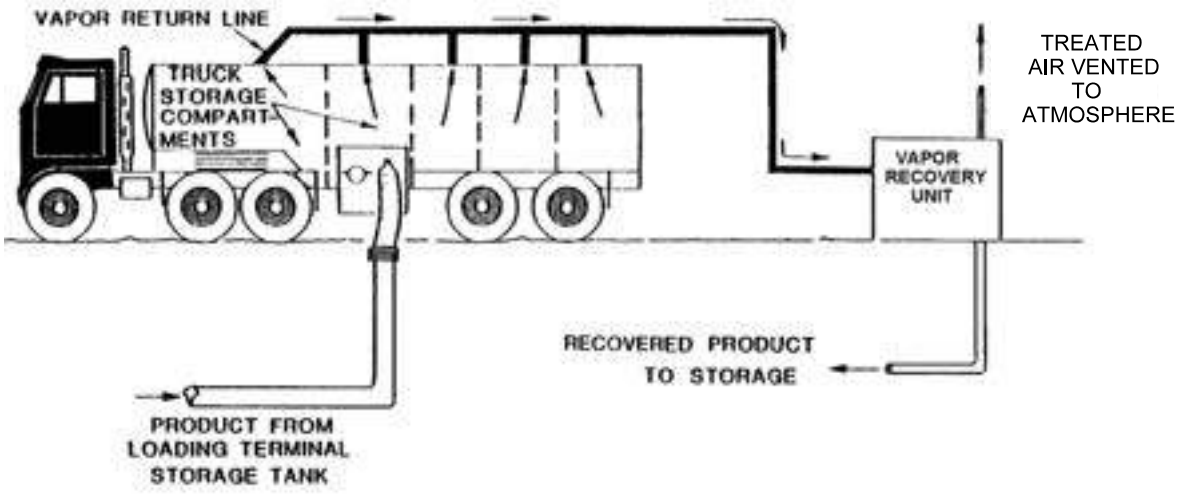


Figure 5.2-6. Tank truck loading with vapor recovery.

Guidance Documents

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—liquid	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

[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.

Fuel type	Default high heat value	Default CO_2 emission factor
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
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

[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.

Fuel type	Default high heat value	Default CO_2 emission factor
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, as amended at 81 FR 89252, Dec. 9, 2016]

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]	1.0×10^{-03}	1.0×10^{-04}
Petroleum Products (All fuel types in Table C-1)	3.0×10^{-03}	6.0×10^{-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.

[1] Reporters subject to subpart W of this part may only use the default CH_4 emission factor for natural gas-fired combustion units that are not reciprocating internal combustion engines or gas turbines. For natural gas-fired reciprocating internal combustion engines or gas turbines, at facilities subject to subpart W of this part, reporters must use a CH_4 emission factor determined in accordance with § 98.233(z)(4).

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Other Fuels—Solid	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.

[1] Reporters subject to subpart W of this part may only use the default CH_4 emission factor for natural gas-fired combustion units that are not reciprocating internal combustion engines or gas turbines. For natural gas-fired reciprocating internal combustion engines or gas turbines, at facilities subject to subpart W of this part, reporters must use a CH_4 emission factor determined in accordance with § 98.233(z)(4).

[78 FR 71952, Nov. 29, 2013, as amended at 81 FR 89252, Dec. 9, 2016; 89 FR 42220, May 14, 2024]

Table A-1 to Subpart A of Part 98—Global Warming Potentials, 100-Year Time Horizon

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Chemical-Specific GWPs			
Carbon dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	[a] [d] 28
Nitrous oxide	10024-97-2	N_2O	[a] [d] 265
Fully Fluorinated GHGs			
Sulfur hexafluoride	2551-62-4	SF_6	[a] [d] 23,500
Trifluoromethyl sulphur pentafluoride	373-80-8	SF_5CF_3	[d] 17,400
Nitrogen trifluoride	7783-54-2	NF_3	[d] 16,100
PFC-14 (Perfluoromethane)	75-73-0	CF_4	[a] [d] 6,630
PFC-116 (Perfluoroethane)	76-16-4	C_2F_6	[a] [d] 11,100
PFC-218 (Perfluoropropane)	76-19-7	C_3F_8	[a] [d] 8,900
Perfluorocyclopropane	931-91-9	c-C_3F_6	[d] 9,200
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	[a] [d] 9,200
PFC-318 (Perfluorocyclobutane)	115-25-3	c-C_4F_8	[a] [d] 9,540
Perfluorotetrahydrofuran	773-14-8	c-C_4F_8O	[e] 13,900
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	[a] [d] 8,550
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	[a] [d] 7,910
PFC-6-1-12	335-57-9	C_7F_{16}; $CF_3(CF_2)_5CF_3$	[b] 7,820
PFC-7-1-18	307-34-6	C_8F_{18}; $CF_3(CF_2)_6CF_3$	[b] 7,620
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	[d] 7,190
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	[d] 9,710

composition as specified in paragraph (u)(2)(i) of this section, then also determine the composition of ethane, propane, butane, and pentanes plus as specified in paragraph (n)(4)(iii)(B)(*5*) of this section.

(*4*) For onshore natural gas processing facilities, determine GHG mole fractions for all emission sources downstream of the de-methanizer overhead or dew point control based on samples of facility-specific residue gas to transmission pipeline systems taken at least once per year according to methods set forth in § 98.234(b), and determine GHG mole fractions for all emission sources upstream of the de-methanizer or dew point control based on samples of feed natural gas taken at least once per year according to methods set forth in § 98.234(b). For onshore natural gas processing plants that solely fractionate a liquid stream, use the GHG mole fraction in feed natural gas liquid streams as determined from samples taken at least once per year. If multiple samples of a stream are taken in a year, use the arithmetic average GHG composition.

(*5*) Except as specified in paragraph (n)(4)(iii)(B)(*6*) of this section, for streams from any source type other than those identified in paragraphs (n)(4)(iii)(B)(*1*) through (*4*) of this section, and for purge gas, sweep gas, and auxiliary fuel, determine the annual average GHG composition as specified in paragraph (u)(2) of this section for the applicable industry segment, and determine the composition of ethane, propane, butane, and pentanes plus as specified in paragraph (n)(4)(iii)(B)(*7*) of this section.

(*6*) When the stream going to the flare is a hydrocarbon product stream, such as methane, ethane, propane, butane, pentanes-plus, or mixed light hydrocarbons, you may use a representative composition from the source for the stream determined by engineering calculation based on process knowledge and best available data.

(*7*) When only the GHG composition is determined in accordance with paragraph (u)(2) of this section, determine the annual average composition of ethane, propane, butane, and pentanes plus in the stream using a representative composition based on process knowledge and best available data.

(5) ***Calculate CH_4 and CO_2 emissions***. Calculate GHG volumetric emissions from flaring at standard conditions using equations W-19 and W-20 to this section and as specified in paragraphs (n)(5)(i) through (iv) of this section.

$$E_{s,CH_4} = V_s \times X_{CH_4} \times \left[\left(1 - \eta_D\right) \times Z_L + Z_U\right] \quad \text{(Eq. W-19)}$$

$$E_{s,CO_2} = V_s \times X_{CO_2} + \sum_{j=1}^{5} \left(\eta_C \times V_s \times Y_j \times R_j \times Z_L\right) \quad \text{(Eq. W-20)}$$

Where:

E_{s,CH_4} = Annual CH_4 emissions from flare stack in cubic feet, at standard conditions.

E_{s,CO_2} = Annual CO_2 emissions from flare stack in cubic feet, at standard conditions.

V_s = Volume of gas sent to flare in standard cubic feet, during the year as determined in paragraph (n)(3) of this section.

ηD = Flare destruction efficiency, expressed as fraction of hydrocarbon compounds in gas that is destroyed by a burning flare, but may or may not be completely oxidized to CO_2.

ηC = Flare combustion efficiency, expressed as fraction of hydrocarbon compounds in gas that is oxidized to CO_2 by a burning flare.

X_{CH_4} = Annual average mole fraction of CH_4 in the feed gas to the flare or in each of the streams routed to the flare as determined in paragraph (n)(4) of this section.

X_{CO_2} = Annual average mole fraction of CO_2 in the feed gas to the flare or in each of the streams routed to the flare as determined in paragraph (n)(4) of this section.

ZU = Fraction of the feed gas sent to an un-lit flare determined from both the total time the flare was unlit as determined by monitoring the pilot flame or combustion flame as specified in paragraph (n)(2) of this section and the volume of gas routed to the flare during periods when the flare was unlit based on the flow determined in accordance with paragraph (n)(3) of this section.

Z_L = Fraction of the feed gas sent to a burning flare (equal to 1—ZU).

Y_j = Annual average mole fraction of hydrocarbon constituents j (such as methane, ethane, propane, butane, and pentanes-plus) in the feed gas to the flare or in each of the streams routed to the flare as determined in paragraph (n)(4) of this section.

R_j = Number of carbon atoms in the hydrocarbon constituent j in the feed gas to the flare: 1 for methane, 2 for ethane, 3 for propane, 4 for butane, and 5 for pentanes-plus).

(i) If you measure the gas flow at the flare inlet as specified in paragraph (n)(3)(i) of this section and you measure gas composition for the inlet gas to the flare as specified in paragraph (n)(4)(i) or (ii) of this section, then use those data in equations W-19 and W-20 to this section to calculate total emissions from the flare.

(ii) If you determine the flow from each source as specified in paragraph (n)(3)(ii) of this section and you measure gas composition for the inlet gas to the flare as specified in paragraph (n)(4)(i) or (ii) of this section, then sum the flows for each stream to calculate the total annual gas flow to the flare. Use that total annual flow with the annual average concentration of each constituent as calculated in paragraph (n)(4)(i) or (ii) of this section in equations W-19 and W-20 to this section to calculate total emissions from the flare.

(iii) If you determine the flow from each source as specified in paragraph (n)(3)(ii) of this section and you determine gas composition for the emission stream from each source as specified in paragraph (n)(4)(iii) of this section, then calculate total emissions from the flare as specified in either paragraph (n)(5)(iii)(A) or (B) of this section.

(t) ***GHG volumetric emissions using actual conditions.*** If equation parameters in § 98.233 are already determined at standard conditions as provided in the introductory text in § 98.233, which results in volumetric emissions at standard conditions, then this paragraph does not apply. Calculate volumetric emissions at standard conditions as specified in paragraph (t)(1) or (2) of this section, with actual pressure and temperature determined by engineering estimates based on best available data unless otherwise specified.

(1) Calculate natural gas volumetric emissions at standard conditions using actual natural gas emission temperature and pressure, and equation W-33 to this section for conversions of $E_{a,n}$ or conversions of FR_a (whether sub-sonic or sonic).

$$E_{s,n} = \frac{E_{a,n} * (459.67 + T_s) * P_a}{(459.67 + T_a) * P_s * Z_a} \quad \text{(Eq. W-33)}$$

Where:

$E_{s,n}$ = Natural gas volumetric emissions at standard temperature and pressure (STP) conditions in cubic feet, except $E_{s,n}$ equals $FR_{s,p}$ for each well p when calculating either subsonic or sonic flowrates under § 98.233(g).

$E_{a,n}$ = Natural gas volumetric emissions at actual conditions in cubic feet, except $E_{a,n}$ equals $FR_{a,p}$ for each well p when calculating either subsonic or sonic flowrates under § 98.233(g).

T_s = Temperature at standard conditions (60 °F).

T_a = Temperature at actual emission conditions (°F).

P_s = Absolute pressure at standard conditions (14.7 psia).

P_a = Absolute pressure at actual conditions (psia).

Z_a = Compressibility factor at actual conditions for natural gas. You may use either a default compressibility factor of 1, or a site-specific compressibility factor based on actual temperature and pressure conditions.

(2) Calculate GHG volumetric emissions at standard conditions using actual GHG emissions temperature and pressure, and equation W-34 to this section.

$$E_{s,i} = \frac{E_{a,i} * (459.67 + T_s) * P_a}{(459.67 + T_a) * P_s * Z_a} \quad \text{(Eq. W-34)}$$

Where:

$E_{s,i}$ = GHG i volumetric emissions at standard temperature and pressure (STP) conditions in cubic feet.

$E_{a,i}$ = GHG i volumetric emissions at actual conditions in cubic feet.

(iii) ***GHG mole fraction in transmission pipeline natural gas that passes through the facility for the onshore natural gas transmission compression industry segment and the onshore natural gas transmission pipeline industry segment.*** You may use either a default 95 percent methane and 1 percent carbon dioxide fraction for GHG mole fraction in natural gas or site specific engineering estimates based on best available data.

(iv) ***GHG mole fraction in natural gas stored in the underground natural gas storage industry segment.*** You may use either a default 95 percent methane and 1 percent carbon dioxide fraction for GHG mole fraction in natural gas or site specific engineering estimates based on best available data.

(v) ***GHG mole fraction in natural gas stored in the LNG storage industry segment.*** You may use either a default 95 percent methane and 1 percent carbon dioxide fraction for GHG mole fraction in natural gas or site specific engineering estimates based on best available data.

(vi) ***GHG mole fraction in natural gas stored in the LNG import and export industry segment.*** For export facilities that receive gas from transmission pipelines, you may use either a default 95 percent methane and 1 percent carbon dioxide fraction for GHG mole fraction in natural gas or site specific engineering estimates based on best available data.

(vii) ***GHG mole fraction in local distribution pipeline natural gas that passes through the facility for natural gas distribution facilities.*** You may use either a default 95 percent methane and 1 percent carbon dioxide fraction for GHG mole fraction in natural gas or site specific engineering estimates based on best available data.

(v) ***GHG mass emissions.*** Calculate GHG mass emissions in metric tons by converting the GHG volumetric emissions at standard conditions into mass emissions using equation W-36 to this section.

$$Mass_i = E_{s,i} * \rho_i * 10^{-3} \qquad \text{(Eq. W-36)}$$

Where:

$Mass_i$ = GHG_i (either CH_4, CO_2, or N_2O) mass emissions in metric tons.

$E_{s,i}$ = GHG_i (either CH_4, CO_2, or N_2O) volumetric emissions at standard conditions, in cubic feet.

ρ_i = Density of GHG_i. Use 0.0526 kg/ft^3 for CO_2 and N_2O, and 0.0192 kg/ft^3 for CH_4 at 60 °F and 14.7 psia.

(w) ***EOR injection pump blowdown.*** Calculate CO_2 pump blowdown emissions from each EOR injection pump system as follows:

(1) Calculate the total injection pump system volume in cubic feet (including pipelines, manifolds and vessels) between isolation valves.

(2) Retain logs of the number of blowdowns per calendar year.

(3) Calculate the total annual CO_2 emissions from each EOR injection pump system using equation W-37 to this section:

$$Mass_{CO_2} = N * V_v * R_c * GHG_{CO_2} * 10^{-3} \qquad \text{(Eq. W-37)}$$

(E) Calculate GHG volumetric emissions at standard conditions using calculations in paragraph (t) of this section.

(F) Calculate both combustion-related CH_4 and CO_2 mass emissions from volumetric CH_4 and CO_2 emissions using calculation in paragraph (v) of this section.

(G) Calculate CH_4 and N_2O mass emissions, as applicable, using equation W-40 to this section.

$$Mass_i = \left(1 \times 10^{-3}\right) \times Fuel \times HHV \times EF_i \qquad \text{(Eq. W-40)}$$

Where:

$Mass_i$ = Annual N_2O or CH_4 emissions from the combustion of a particular type of fuel (metric tons).

Fuel = Annual mass or volume of the fuel combusted (mass or volume per year, choose appropriately to be consistent with the units of HHV).

HHV = Site-specific higher heating value of the fuel, mmBtu/unit of the fuel (in units consistent with the fuel quantity combusted).

EF_i = For N_2O, use 1.0×10^{-4} kg N_2O/mmBtu; for CH_4, use the CH_4 EF (kg CH_4/MMBtu) determined from your performance test according to paragraph (z)(4)(i) of this section.

1×10^{-3} = Conversion factor from kilograms to metric tons.

(4) For each natural gas-fired reciprocating internal combustion engine or gas turbine calculating emissions according to paragraph (z)(1)(ii) or (z)(2)(ii) of this section, you must determine a CH_4 emission factor (kg CH_4/MMBtu) using one of the methods provided in paragraphs (z)(4)(i) through (iii) of this section. For each reciprocating internal combustion engine or gas turbine calculating CH_4 emissions according to paragraph (z)(3)(ii)(G) of this section, you must determine a CH_4 emission factor (kg CH_4/MMBtu) using the method provided in paragraph (z)(4)(i).

(i) Conduct a performance test following the applicable procedures in § 98.234(i). If you are required or elect to conduct a performance test for any reason, you must use that result to determine the CH_4 emission factors. If multiple performance tests are conducted in the same reporting year, the arithmetic average of all performance tests completed that year must be used to determine the CH_4 emission factor.

(ii) Original equipment manufacturer information, which may include manufacturer specification sheets, emissions certification data, or other manufacturer data providing expected emission rates from the reciprocating internal combustion engine or gas turbine.

(iii) Applicable equipment type-specific emission factor from table W-7 to this subpart.

(5) Emissions from fuel combusted in stationary or portable equipment at onshore petroleum and natural gas production facilities, at onshore petroleum and natural gas gathering and boosting facilities, and at natural gas distribution facilities that are calculated according to the procedures in either paragraph (z)(1)(ii) or (z)(2)(ii) of this section must be reported according to the requirements specified in § 98.236(z) rather than the reporting requirements specified in subpart C of this part.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-453/R-95-017
November 1995

Air

EPA

Protocol for Equipment Leak Emission Estimates

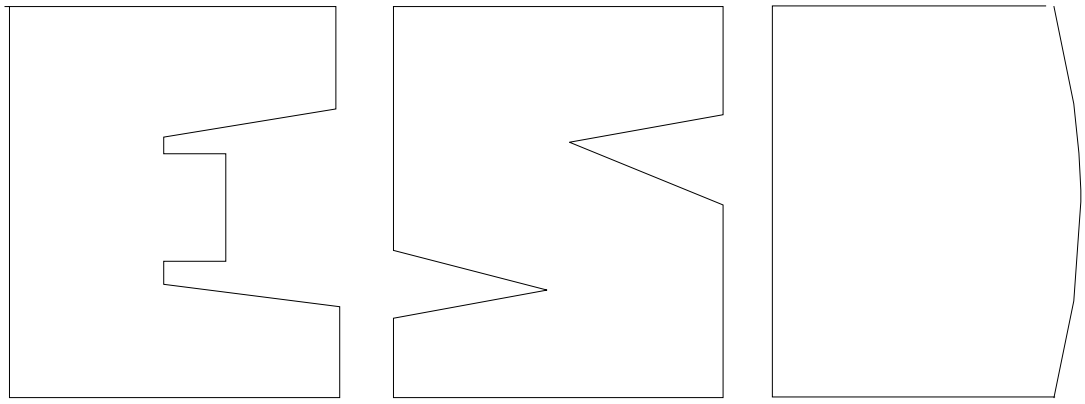


TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

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.

Engine Specification Sheets

Caterpillar G3508B Compressor Engine
Caterpillar G3616A4 Compressor Engine

G3508B

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA

CATERPILLAR®

ENGINE SPEED (rpm):	1400	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	8	RATING LEVEL:	CONTINUOUS
AFTERCOOLER TYPE:	SCAC	FUEL SYSTEM:	CAT WIDE RANGE WITH AIR FUEL RATIO CONTROL
AFTERCOOLER - STAGE 2 INLET (°F):	130		
AFTERCOOLER - STAGE 1 INLET (°F):	201	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	203	FUEL:	Gas Analysis
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig): (See note 1)	7.0-40.0
COOLING SYSTEM:	JW+OC+1AC, 2AC	FUEL METHANE NUMBER:	32.2
CONTROL SYSTEM:	ADEM3	FUEL LHV (Btu/scf):	1213
EXHAUST MANIFOLD:	DRY	ALTITUDE(ft):	2800
COMBUSTION:	LOW EMISSION	INLET AIR TEMPERATURE(°F):	110
NOx EMISSION LEVEL (g/bhp-hr NOx):	0.5	STANDARD RATED POWER:	690 bhp@1400rpm
SET POINT TIMING:	25		

				MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING		**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**55%**
ENGINE POWER	(WITHOUT FAN)	(2)	bhp	630	630	473	345
INLET AIR TEMPERATURE			°F	110	110	110	110
ENGINE DATA							
FUEL CONSUMPTION (LHV)		(3)	Btu/bhp-hr	7455	7455	7912	8471
FUEL CONSUMPTION (HHV)		(3)	Btu/bhp-hr	8199	8199	8702	9317
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(4)(5)	ft3/min	1510	1510	1173	883
AIR FLOW	(WET)	(4)(5)	lb/hr	6309	6309	4898	3688
FUEL FLOW (60ºF, 14.7 psia)			scfm	65	65	51	40
INLET MANIFOLD PRESSURE		(6)	in Hg(abs)	83.5	83.5	67.5	51.2
EXHAUST TEMPERATURE - ENGINE OUTLET		(7)	°F	998	998	996	1055
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(8)(5)	ft3/min	4144	4144	3216	2525
EXHAUST GAS MASS FLOW	(WET)	(8)(5)	lb/hr	6541	6541	5082	3832
EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)		(9)(10)	g/bhp-hr	0.50	0.50	0.50	0.50
CO		(9)(10)	g/bhp-hr	3.18	3.18	3.40	3.35
THC (mol. wt. of 15.84)		(9)(10)	g/bhp-hr	4.23	4.23	4.47	4.32
NMHC (mol. wt. of 15.84)		(9)(10)	g/bhp-hr	2.03	2.03	2.15	2.08
NMNEHC (VOCs) (mol. wt. of 15.84)		(9)(10)(11)	g/bhp-hr	1.33	1.33	1.40	1.36
HCHO (Formaldehyde)		(9)(10)	g/bhp-hr	0.28	0.28	0.30	0.32
CO2		(9)(10)	g/bhp-hr	528	528	559	595
EXHAUST OXYGEN		(9)(12)	% DRY	10.3	10.3	10.0	9.6
HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)		(13)	Btu/min	10740	10740	9284	8541
HEAT REJ. TO ATMOSPHERE		(13)	Btu/min	3296	3296	2763	2332
HEAT REJ. TO LUBE OIL (OC)		(13)	Btu/min	2570	2570	2333	2103
HEAT REJ. TO A/C - STAGE 1 (1AC)		(13)(14)	Btu/min	4967	4967	4165	1743
HEAT REJ. TO A/C - STAGE 2 (2AC)		(13)(14)	Btu/min	2853	2853	2660	1795

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC+1AC)	(14)(15)	Btu/min	20114
TOTAL AFTERCOOLER CIRCUIT (2AC)	(14)(15)	Btu/min	2996
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

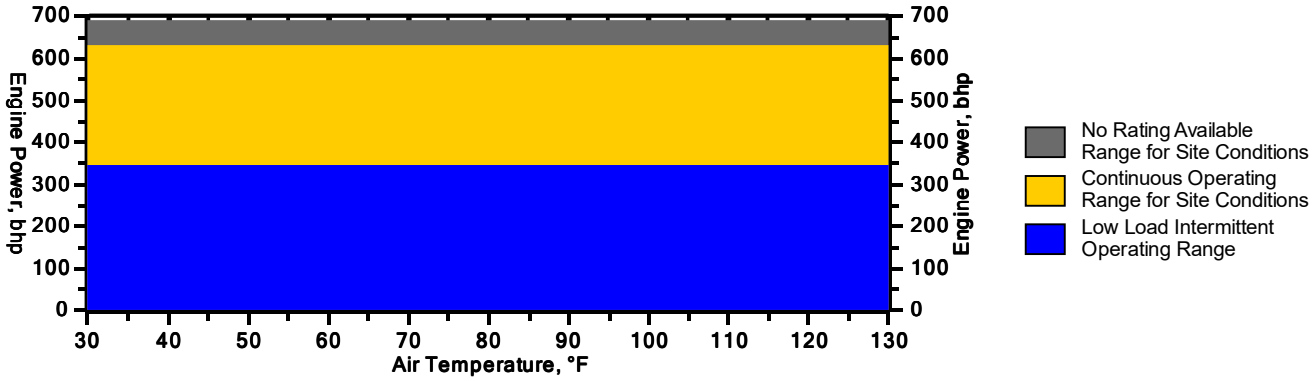
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

PREPARED BY:
Data generated by Gas Engine Rating Pro Version 7.00.02
Ref. Data Set DM8826-04-001, Printed 30Jan2020

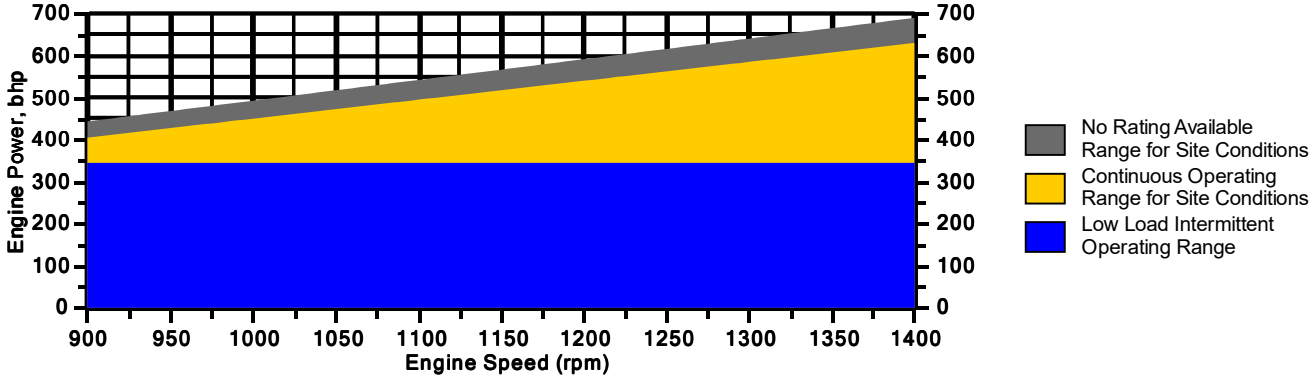
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 2800 ft and 1400 rpm



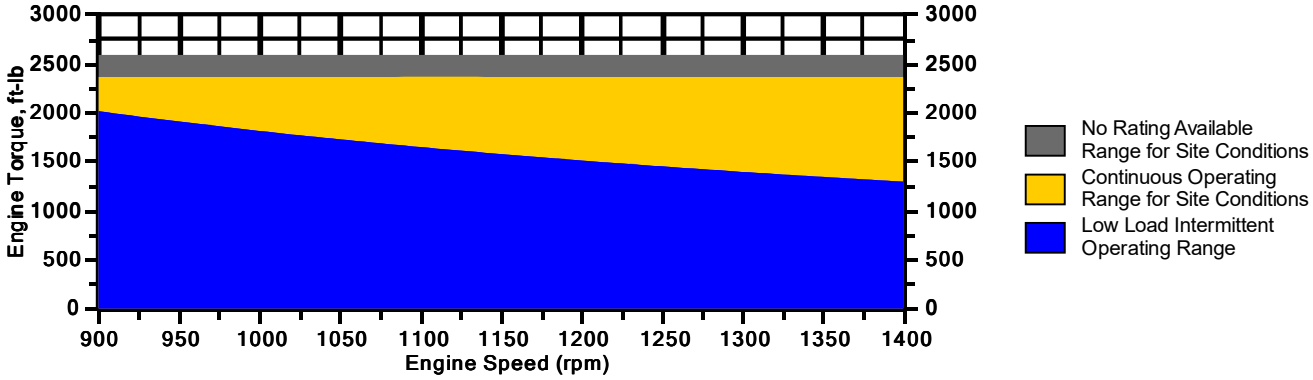
Engine Power vs. Engine Speed

Data represents speed sweep at 2800 ft and 110 ºF



Engine Torque vs. Engine Speed

Data represents speed sweep at 2800 ft and 110 ºF



Note: At site conditions of 2800 ft and 110°F inlet air temp., constant torque can be maintained down to 1010 rpm. The minimum speed for loading at these conditions is 900 rpm.

NOTES

1. Fuel pressure range specified is to the engine fuel pressure regulator. Additional fuel train components should be considered in pressure and flow calculations.

2. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

3. Fuel consumption tolerance is ± 3.0% of full load data.

4. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 5 %.

5. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

6. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

7. Exhaust temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

8. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

9. Emissions data is at engine exhaust flange prior to any after treatment.

10. Values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate the maximum values expected under steady state conditions. Fuel methane number cannot vary more than ± 3. THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.

11. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ

12. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

13. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

14. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

15. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

Constituent	Abbrev	Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	74.3500	74.3500
Ethane	C2H6	11.9340	11.9340
Propane	C3H8	5.7490	5.7490
Isobutane	iso-C4H1O	0.7830	0.7830
Norbutane	nor-C4H1O	1.9820	1.9820
Isopentane	iso-C5H12	0.5680	0.5680
Norpentane	nor-C5H12	0.6230	0.6230
Hexane	C6H14	0.4710	0.4710
Heptane	C7H16	1.1200	1.1200
Nitrogen	N2	2.0080	2.0080
Carbon Dioxide	CO2	0.4120	0.4120
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		100.0000	100.0000

Fuel Makeup:	Gas Analysis
Unit of Measure:	English

Calculated Fuel Properties

Caterpillar Methane Number:	32.2
Lower Heating Value (Btu/scf):	1213
Higher Heating Value (Btu/scf):	1334
WOBBE Index (Btu/scf):	1368
THC: Free Inert Ratio:	40.32
Total % Inerts (% N2, CO2, He):	2.42%
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.996
Stoich A/F Ratio (Vol/Vol):	12.55
Stoich A/F Ratio (Mass/Mass):	15.95
Specific Gravity (Relative to Air):	0.787
Fuel Specific Heat Ratio (K):	1.277

CONDITIONS AND DEFINITIONS

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

R xz v%Qv zx %av w r t v%

The horsepower specified is at the elevation and ambient temperature specified on the performance data printouts. Please consult Enerflex for any conditions outside the stated elevation and ambient temperature.

G3616 — **GAS ENGINE SITE SPECIFIC TECHNICAL DATA** — Q2240440 — CAT

GAS COMPRESSION APPLICATION			
ENGINE SPEED (rpm)	1000	RATING STRATEGY	GEN 2 ENGINE AND INT - HIGH ALTITUDE - GCV
COMPRESSION RATIO	7:1	RATING LEVEL	CONTINUOUS
AFTERCOOLER TYPE	SCAC	FUEL SYSTEM	GMV
AFTERCOOLER - STAGE 1/STAGE 2 INLET (°F)	174 / 130		WITH AIR FUEL RATIO CONTROL
JACKET WATER OUTLET (°F)	190	SITE CONDITIONS	
ASPIRATION	TA	FUEL	Gas Analysis
COOLING SYSTEM	JW+I/C, OC+2AC	FUEL PRESSURE RANGE(psig) (See note 1)	84.6-94.6
CONTROL SYSTEM	ADEM4	FUEL METHANE NUMBER	75.8
EXHAUST MANIFOLD	DRY	FUEL LHV (Btu/scf)	976
COMBUSTION	LOW EMISSION	ALTITUDE(ft)	3200
NOx EMISSION LEVEL (g/bhp-hr NOx)	0.3	STANDARD RATED POWER	5000 bhp@1000rpm
SET POINT TIMING	18		

RATING		NOTES	LOAD	MAX RATING 100%	SITE RATING AT MAX INLET AIR TEMP 100%	75%	50%
ENGINE POWER	(WITHOUT FAN)	(2)	bhp	5000	5000	4125	2750
INLET AIR TEMPERATURE			°F	110	110	110	110
ENGINE DATA							
FUEL CONSUMPTION (LHV)		(3)	Btu/bhp-hr	6993	6953	6948	7294
FUEL CONSUMPTION (HHV)		(3)	Btu/bhp-hr	7381	7381	7383	8047
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(4)(5)	ft3/min	14464	14464	10911	7403
AIR FLOW	(WET)	(4)(5)	lb/hr	60482	60482	45626	30996
FUEL FLOW (60°F, 14.7 psia)			scfm	626	626	662	341
INLET MANIFOLD PRESSURE		(6)	psi(abs)	60.5	60.5	46.0	30.7
EXHAUST TEMPERATURE - ENGINE OUTLET		(7)	°F	791	791	846	889
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(5)(8)	ft3/min	32833	32833	26942	19847
EXHAUST GAS MASS FLOW	(WET)	(5)(8)	lb/hr	62256	62256	46987	31515
EMISSIONS DATA - EXHAUST OUT							
NOx (as NO2)		(9)(10)	g/bhp-hr	0.30	0.30	0.30	0.30
CO		(9)(10)	g/bhp-hr	2.23	2.23	2.23	2.22
NMHC (mol. wt. of 15.84)		(9)(10)	g/bhp-hr	0.51	0.51	0.52	0.61
NMNEHC (VOCs) (mol. wt. of 15.84)		(9)(10)(11)	g/bhp-hr	0.16	0.16	0.17	0.19
HCHO (Formaldehyde)		(9)(10)	g/bhp-hr	0.10	0.10	0.11	0.14
CH4 (mol. wt. of 16.04)	(NOMINAL)	(9)(12)	g/bhp-hr	1.69	1.69	1.87	2.01
CO2	(NOMINAL)	(9)(17)	g/bhp-hr	364	364	402	473
EXHAUST OXYGEN	(NOMINAL)	(9)(13)	% DRY	11.2	11.2	10.9	10.5
HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)		(14)	Btu/min	50120	50120	47778	43485
HEAT REJ. TO ATMOSPHERE		(14)	Btu/min	19755	19755	17845	16210
HEAT REJ. TO LUBE OIL (OC)		(14)	Btu/min	30765	30765	28449	26149
HEAT REJ. TO A/C - STAGE 1 (1AC)		(14)(15)	Btu/min	80947	80947	43121	14446
HEAT REJ. TO A/C - STAGE 2 (2AC)		(14)(15)	Btu/min	17667	17667	11525	6344
COOLING SYSTEM SIZING CRITERIA							
TOTAL JACKET WATER CIRCUIT (JW+1AC)		(15)(16)	Btu/min	149303			
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (OC+2AC)		(15)(16)	Btu/min	65489			
A cooling system safety factor of 0% has been added to the cooling system sizing criteria							

CONDITIONS AND DEFINITIONS

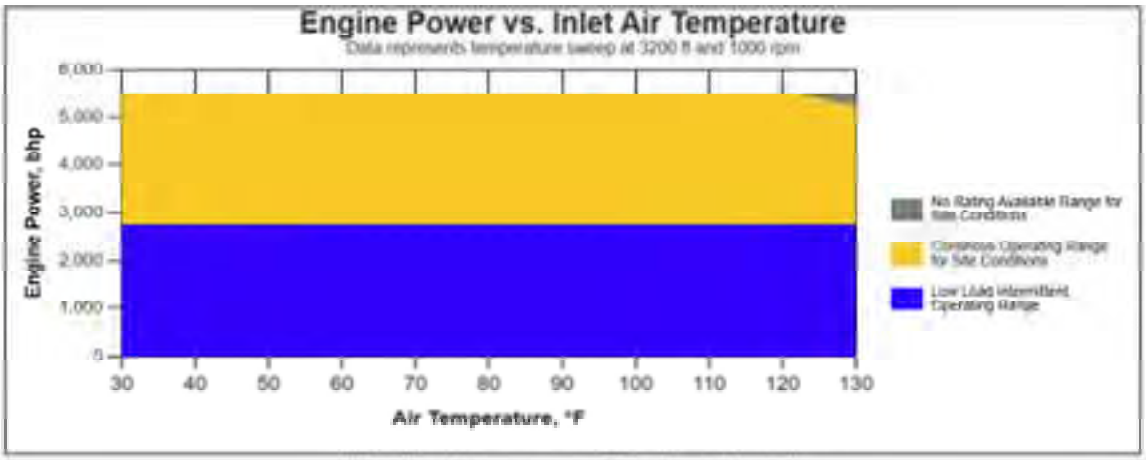
Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Refer to product OMM manual for details on additional lower load capability. No overload permitted at rating shown.

For notes information consult page three.

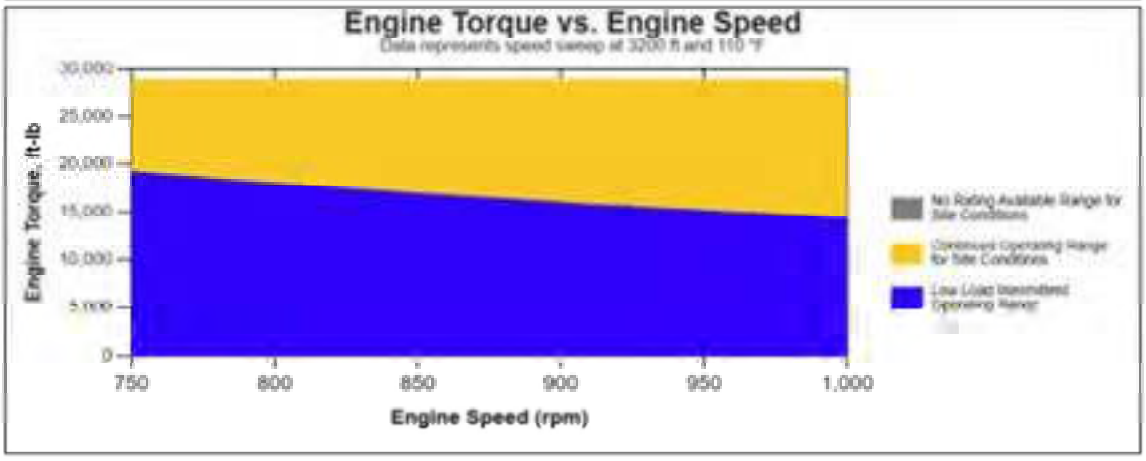
G3616

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Q2240440

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GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Q2240440

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NOTES:

1. Fuel pressure range specified is to the engine gas shutoff valve (GSOV). Additional fuel train components should be considered in pressure and flow calculations.

2. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

3. Fuel consumption tolerance is ± 2.5% of full load data.

4. Air flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 5 %.

5. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

6. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

7. Exhaust temperature is a nominal value with a tolerance of (+)52°F, (-)54°F.

8. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

9. Emissions data is at engine exhaust flange prior to any after treatment.

10. NOx, CO, NMHC, NMNEHC, and HCHO emission values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate the maximum values expected under steady state conditions. Fuel methane number cannot vary more than ± 3. NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.

11. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ.

12. CO2 tolerance is ± 2.5%. CH4 tolerance is ± 26.0%. Fuel methane number cannot vary more than ± 3.

13. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

14. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

15. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

16. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

USA COMPRESSION

USA Compression Unit 11399 G3508B Caterpillar Emissions

Date of Manufacture	November 11, 2010	Engine Serial Number		Date Modified/Reconstructed	N/A
Driver Rated HP	630	Rated Speed in RPM	1400	Combustion Type & Setting	4SLB
Number of Cylinders	8	Compression Ratio	8	Combustion Air Treatment	TA
Total Displacement, in^3	2105	Fuel Delivery Method			

Compressor Manufacturer	Ariel	Compressor Model	JGJ/4	Compressor Serial Number	F34664

Fuel Consumption *7455* *LHV BTU/bhp-hr* *or* *8199* *HHV BTU/bhp-hr*
Altitude *2800* *ft*
Maximum Air Inlet Temp *130* *F*

	g/bhp-hr [1]	lb/MMBTU [2]	lb/hr	TPY
Nitrogen Oxides (NOx)	0.5		0.69	3.04
Carbon Monoxide (CO)	3.18		4.42	19.35
Volatile Organic Compounds (VOC or NMNEHC excluding CH2O)	1.33		1.85	8.09
Formaldehyde (CH2O)	0.28		0.39	1.70
Particulate Matter (PM) Filterable+Condensable		0.0099871	5.16E-02	2.26E-01
Sulfur Dioxide (SO2)		0.0005880	3.04E-03	1.33E-02

	g/bhp-hr [1]	lb/hr	Metric Tonne/yr
Carbon Dioxide (CO2)	528	733	2913
Methane (CH4)		0.00	0.00

[1] g/bhp-hr are based on manufacturers performance specifications.
Note that g/bhp-hr values are based on 100% Load Operation. For air permitting, it is recommended to use a 20% safety margin for CO, VOC and other organic compounds to allow for variation in operating parameters and fuel gas quality.
[2] Emission Factor obtained from EPA's AP-42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combution Sources (Section 3.2 Natural Gas-Fired Reciprocating Engines, Table 3.2-2).

Catalytic Converter Emissions

Catalytic Converter Make amd Model: *Emit EAH-2150Z-1010F-20CEE*
Element Type: *Oxidation*
Number of Elements in Housing: *N/A*
Air/Fuel Ratio Control *Cat*
Other Emissions Controls:

	% Reduction	g/bhp-hr	**lb/hr**	**TPY**
Nitrogen Oxides (NOx)	0	0.50	**0.69**	**3.04**
Carbon Monoxide (CO)	40	1.91	**2.65**	**11.61**
Volatile Organic Compounds (VOC or NMNEHC excluding CH2O)	60	0.53	**0.74**	**3.24**
Formaldehyde (CH2O)	50	0.14	**0.19**	**0.85**
Particulate Matter (PM)	0	0.00	**5.16E-02**	**2.26E-01**
Sulfur Dioxide (SO2)	0	0.00	**3.04E-03**	**1.33E-02**

	% Reduction	**lb/hr**	**Metric Tonne/yr**
Carbon Dioxide (CO2)	0	**733**	**2913**
Methane (CH4)	0	**0.00**	**0.00**

Generator Specification Sheets

PSI 11.1L LPG Generator Engine
PSI D11.1L Generator Engine

Revised: January 15th, 2012

Power Solutions International
201 Mittel Drive
Wood Dale, IL 60191
630-350-9400
www.psiengines.com

Zero-Hour Non-Deteriorated Emissions for Permitting Customers

GRAMS PER KW-HR

	D081NA		D081L[5 &6]		D111L[5]		D146L[5]		D183L[5 & 6]		D219L[5]	
EPA Engine Family	CPWRB8.10NGP		CPWRB8.10TNP		CPWRB11.1NGP		CPWRB14.6NGP		CPWRB18.3NGP		CPWRB21.9NGP	
Model/Fuel	8.1LNA LPG	8.1LNA NG	8.1LT LPG	8.1LT NG	11.1L LPG	11.1L NG	14.6L LPG	14.6L NG	18.3L LPG	18.3L NG	21.9L LPG	21.9L NG
Displacement (Liter)	8.071L		8.071L		11.051L		14.618L		18.273L		21.927L	
Rated Power (kW) @ 1800 RPM[1,2&3]	105.9	103.6	136.1	175.7	154.9	226.0	237.8	334.8	316.9	422.0	351.9	484.6
	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr	g/KW-hr
BSCO	0.59	0.16	0.53	0.18	0.33	0.35	0.15	0.08	0.20	0.28	0.34	0.13
BSCO2	937.8	650.9	808.40	662.75	899	623	952.04	647.93	777.32	591.9	881.30	590.70
BSTHC	0.01	0.31	0.09	0.85	0.09	2.98	0.06	0.20	0.04	0.75	0.05	0.43
BSNMHC[7]	NA	0.1	NA	0.02	NA	0.34	NA	0.06	NA	0.00	NA	0.01
BSNOx	0.09	0.06	0.01	0.01	0.02	0.03	0.04	0.10	0.06	0.04	0.03	0.08
BSTHC+Nox	0.1	NA	0.11	0.85	0.11	NA	0.10	NA	0.10	NA	0.08	NA
BSNMHC+Nox	NA	0.15	NA	0.03	NA	0.37	NA	0.16	NA	0.04	NA	0.09
BSFC (kg/kw-hr)[4]	0.28	0.275	0.27	0.25	0.30	0.26	0.32	0.24	0.26	0.22	0.27	0.22

GRAMS PER HP-HR

	D081NA		D081L[5 &6]		D111L[5]		D146L[5]		D183L[5 & 6]		D219L[5]	
EPA Engine Family	CPWRB8.10NGP		CPWRB8.10TNP		CPWRB11.1NGP		CPWRB14.6NGP		CPWRB18.3NGP		CPWRB21.9NGP	
Model/Fuel	8.1LNA LPG	8.1LNA NG	8.1LT LPG	8.1LT NG	11.1L LPG	11.1L NG	14.6L LPG	14.6L NG	18.3L LPG	18.3L NG	21.9L LPG	21.9L NG
Displacement (Cubic Inch)	492.5CID		492.5CID		674.5CID		892.1CID		1115.1CID		1338.0CID	
Rated Power (hp) @ 1800 RPM[1,2&3]	142	139	183	236	208	303	319	449	425	566	472	650
	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr
BSCO	0.44	0.12	0.39	0.13	0.25	0.26	0.11	0.06	0.15	0.21	0.25	0.10
BSCO2	699.22	485.31	602.74	494.15	670.06	464.32	709.84	483.10	579.57	441.32	657.10	440.43
BSTHC	0.01	0.23	0.07	0.63	0.07	2.22	0.04	0.15	0.03	0.56	0.04	0.32
BSNMHC[7]	N/A	0.07	NA	0.02	NA	0.25	NA	0.04	NA	0.00	NA	0.00
BSNOx	0.07	0.04	0.01	0.00	0.01	0.02	0.03	0.07	0.04	0.03	0.02	0.06
BSTHC+Nox	0.07	N/A	0.08	NA	0.08	NA	0.07	NA	0.07	NA	0.06	NA
BSNMHC+Nox	N/A	0.11	NA	0.02	NA	0.28	NA	0.12	NA	0.03	NA	0.06
BSFC (kg/hp-hr)[4]	0.21	0.21	0.20	0.19	0.22	0.19	0.24	0.18	0.19	0.16	0.20	0.16

NOTES

[8] Rated power is based on ISO3046 and/or ISO 8528.

[9] All ratings are gross flywheel horsepower corrected to 77ºF at an altitude of 328 feet with no cooling fan or alternator losses using heating value for NG of 1015 BTU/SCF.

[:] Production tolerances in engines and installed components can account for power variations of +/- 5%. Altitude, temperature and excessive exhaust and intake restrictions should be applied to power calculations.

[A] Bsfc is based on 100% gross flywheel power rating and does not include fan or generator losses.

[B] Emissions shown are certified third-party Zero-hour data points suitable for site permitting calculations and are measured in accordance with US EPA NSPS 40CFR Part 1048

[C] Emissions shown are certified third-party Zero-hour data points suitable for site permitting calculations and are measured in accordance with US EPA NSPS 40CFR Part 60

[D] For NG, NMHC is reported in place of VOC for this report

PSI HEAVY-DUTY

11.1L

	Rev:	E				
	Units		11.1L			
	Std	Metric	1500		1800	
General Engine Data						
Type	N/A		In-Line 4 cycle			
Number of cylinders	N/A		6			
Aspiration	N/A		Turbo Charge Air Cooled			
Bore	in	mm	4.84	123	4.84	123
Stroke	in	mm	6.1	155	6.1	155
Displacement	in^3	L	673	11.1	673	11.1
Compression Ratio	N/A		10.5			
Mean Piston Speed	ft/min	m/s	1525	7.75	1830	9.3
Gross Standby Power Rating[1,2,3] Per ISO 3046 at the Flywheel						
NG	Hp	kW	268	200	315	235
LP	Hp	kW	180	134	208	155
MEP (@ rated Load on NG)	psi	bar	210	14	206	14
MEP (@ rated Load on LP)	psi	bar	141	10	136	9
Gross Prime Power Rating[1,2,3] Per ISO 3046 at the Flywheel						
NG	Hp	kW	241	180	268	200
LP	Hp	kW	162	121	177	132
MEP (@ rated Load on NG)	psi	bar	189	13	175	12
MEP (@ rated Load on LP)	psi	bar	127	8.7	115	8.0
RPM Range (Min-Max)	RPM		1500-2000			
Rotation Viewed from Flywheel	N/A		Counter Clockwise			
Firing Order	N/A		1-5-3-6-2-4			
Dry Weight						
Fan to Flywheel	lb	kg	2600	1179	2600	1179
Rad to Flywheel	lb	kg	3125	1417	3125	1417
Wet Weight						
Fan to Flywheel	lb	kg	2695	1206	2695	2627
Rad to Flywheel	lb	kg	3377	1530	3377	1530
CG						
Distance from FW housing	in	mm	24	605	24	605
Distance above center of crankshaft	in	mm	6	160	6	160
Engine Mounting						
Maximum Allowable Bending Moment at Rear of Block	lb ft	N m	4425	6000	4425	6000
Moment of Inertia About Roll Axis	lb ft^2	kg m^2				
Flywheel housing	N/A		SAE No.1			
Flywheel	N/A		No. 14			
Number of Flywheel Teeth	N/A		152			
Exhaust System						
Type			Water Cooled Manifold			
Maximum allowable Back pressure	in HG	kPa	3	10.2	3	10.2
Standard Catalyst Back pressure	in HG	kPa	1.5	5.1	1.5	5.1
Exhaust Outlet Pipe Size						
Maximum Turbine Inlet Temperature	F	C	1382	750	1382	750
Exhaust Flow at Rated Power	lb/hr	kg/hr	1654	750	1869	848
Exhaust Flow at Rated Power @1350F	cfm	m^3/min	1261.13	35.7	1425	40.3
Air Induction System						
Maximum allowable Intake Air Restriction with Air Cleaner						
Clean	inH2O	kPa	5	1.24	5	1.24
Dirty	inH2O	kPa	15	3.74	15	3.74
Combustion Air required (entire engine)	lb/hr	kg/hr	1561	708	1764	800
Combustion Air required (entire engine)	cfm	m^3/min	396	11	448	13

PSI HEAVY-DUTY

11.1L

	Rev:	E				
	Units		11.1L			
	Std	Metric	1500		1800	
Electrical System						
Minimum Recommended Battery Capacity	AH		150			
Cold Cranking Current						
Engine only	CCA		900			
Engine with Drive train	CCA		900			
Maximum Allowable Resistance of Starting Circuit	Ohms		0.002			
Starting Motor Power	HP	kW	9.4	7	9.4	7
Battery Charging Alternator						
Voltage	Volts		24			
Current	Amps		45			
Coil primary Resistance	Ohms		0.59Ω ± 10%			
Spark Plug p/n			IFR7F-4D			
Spark plug gap	inches	mm	.015" (-0/+.008") .38mm (-0/+.2mm)			
Cooling System						
Coolant Capacity						
Engine only	gal	L	5.5	25.0	5.5	25.0
Engine with Radiator	gal	L	23	105	23	105
Engine Coolant Flow	gal/min	L/min	69	260	82	310
Water Pump Speed	RPM		1862		2235	
Heat rejected to Cooling water at rated Load	btu/min	kcal/sec	9285	39	11071	46.5
Maximum Intake Air Temperature (IAT)	F	C	155	68	155	68
ECU IAT Warning	F	C	140	60	140	60
ECU IAT Shutdown	F	C	155	69	155	69
Maximum Coolant Friction Head External to the engine	psi	bar	5.8	0.4	5.8	0.4
Maximum Air Restriction Across a Radiator	inH2O	mmH2O	0.5	12.8	0.5	12.8
Standard Thermostat Range						
Cracking Temperature	F	C	160	71	160	71
Full Open Temperature	F	C	185	85	185	85
Maximum Output Pressure of Engine Water Pump						
Maximum Allowable Pressure Cap	psi	bar	14.7	1	14.7	1
Ambient Clearance Open Genset (water) (Air-to-Boil)						
Specified	F	C	142	61	142	61
Acutal	F	C			150	66
Ambient Clearance (Oil)						
Specified	F	C	142	61	142	61
Acutal	F	C			139	59
CAC Rise over Ambient (Charge)						
Specified	F	C	15	9	15	9
Acutal	F	C			4	2
Maximum Allowable Top Tank Temperature	F	C	230	110	230	110
ECU Warning	F	C	220	104	220	104
ECU Shutdown	F	C	230	110	230	110
Fan Power	HP	kW	5	4.0	9	6.7
Fan Diameter, including blades	in	mm	38	965	38	965
Fan Speed	RPM		1500		1800	
Cooling Fan Air Flow @ 1" Static H2O Pressure and 125F @ radiator	CFM	m^3/min	15,429	437	18,000	510
Charge Air Cooler						
Compressor Outlet Temperature	F	C	235	114	255	125
Compressor Flow Rate per CAC	lb/hr	kg/hr	1654	750	1869	848
Heat Rejection per CAC	btu/min	kW	TBD		1460	25.7

PSI HEAVY-DUTY

11.1L

	Rev:	E				
	Units		11.1L			
	Std	Metric	1500		1800	
Lubrication System						
Oil Specification			SAE 15W-40 Low Ash Gas engine oil (.25-.5% by wt), API CD/CF or higher			
Oil Pressure						
Idle						
Min	Psi	Bar	11	0.8	11	0.8
Max	Psi	Bar	20.3	1.4	20.3	1.4
Rated Speed						
Min	Psi	Bar	20.3	1.4	20.3	1.4
Max	Psi	Bar	70	4.8	70	4.8
Maximum Allowable Oil Temperature	F	C	250	121	250	121
Engine Oil Capacity						
Min	Qts	L	20	19	20	19
Max	Qts	L	26.5	25	26.5	25
Oil Filter Capacity	Qts	L	3.75	3.5	3.75	3.5
ECU Oil Pressure Warning[5]	psi		30			
ECU Oil Pressure Shut Down[5]	psi		25			
Fuel System						
Fuel Consumption[6]						
NG	Ft^3/hr	kg/hr	2028	41	2431	49
LP	Ft^3/hr	kg/hr	591	32	706	38
Maximum EPR Rated Pressure	psi	kPa	1.0	6.9	1.0	6.9
Maximum Running pressure to Electronic Pressure Regulator (EPR)	inH2O	kPa	11.0	2.7	11.0	2.7
Minimum Running pressure to EPR	inH2O	kPa	7.0	1.7	7.0	1.7
Minimum Gas Supply Pipe Size			2" NPT			
Maximum EPR Rated Pressure	psi	kPa	1.0	6.9	1.0	6.9
Maximum Running Pressure to EPR	inH2O	kPa	11.0	2.7	11.0	2.7
Minimum Running Pressure to EPR	inH2O	kPa	7.0	1.7	7.0	1.7
Minimum LPG Supply Pipe Size[4]			2" NPT			

[1] Standby and overload ratings based on ISO3046.

[2] All ratings are gross flywheel horsepower corrected to 77°F at an altitude of 328feet with no cooling fan or alternator losses using heating value for NG of 1015 BTU/SCF.

[3] Production tolerances in engines and installed components can account for power variations of +/- 5%. Altitude, temperature and excessive exhaust and intake restrictions should be applied to power calculations.

[4] The preceeding pipe sizes are only suggestions and piping sizes may vary with temperature, pressure, distance from supply and application of local codes. Gas must be available at adequate volume and pressure for engine at the EPR.

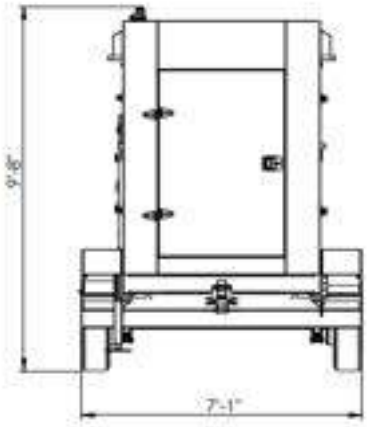
[5] >1400RPM

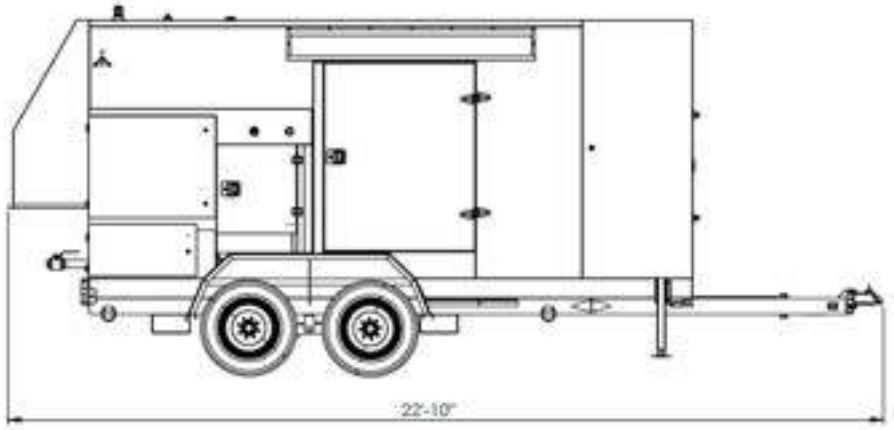
[6] See PSI HD Technical Spec. 56300002 - Fuel Specification. Gas properties for fuel consumption data: NG: Density =0.717 kg/m3, LHV = 927 BTU/scf; Propane: Density = 1.882 kg/m3, LHV = 2316 BTU/scf

170kW 60Hz Oil and Gas Generator Set

1062R1_4.13.22







MODEL NUMBER: 11L-S-NA1-DS-N

Genset Information	
Voltage	480 V
Frequency	60 Hz
NG PRP Rating	170 kW | 212 kVA
LP PRP Rating	125 kW | 156 kVA
Wet Weight	10,929 lbs

Engine Information	
Model	PSI 11.1L
Nameplate Rating	200 kW | 268 hp
Speed	1,800 rpm
Displacement	11.1 L | 673 in^3
Cylinder Arrangement	6 Cylinders Inline
Aspiration Mode	Turbocharged

Fuel Consumption*		
Load %	**NG Rating**	**LP Rating**
100%	1,974,456 Btu/hr	1,571,514 Btu/hr
75%	1,544,200 Btu/hr	1,236,642 Btu/hr
50%	1,130,118 Btu/hr	917,954 Btu/hr
25%	732,208 Btu/hr	615,449 Btu/hr

* NG: HHV=1,041 Btu/scf (39 MJ/m^3)
LP: HHV=2,538 Btu/scf (95 MJ/m^3)

Control System	
Controller Type	DSE 8610 MKII
Synchronizing & Load Sharing	Yes
Telemetry & Remote Monitoring	Yes

Alternator	
Manufacturer	Stamford
Model	UCI274J Wdg. 311
Rated Power Factor	0.8 PF
Rating	240 kW | 300 kVA
Excitation Type	PMG
Insulation Class	Class H
Temp. Rise / Ambient	125 / 40°C
Enclosure	IP23

Emission Control	
AFR Controller	Yes
NSCR Catalyst	Yes

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2022 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Power Solutions International, Inc.
(U.S. Manufacturer or Importer)

Certificate Number: NPSIB11.1NGP-014

Effective Date: 08/05/2021

Expiration Date: 12/31/2022

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 08/05/2021

Revision Date: N/A

Manufacturer: Power Solutions International, Inc.

Engine Family: NPSIB11.1NGP

Mobile/Stationary Certification Type: Mobile and Stationary

Fuel : LPG/Propane
Natural Gas (CNG/LNG)

Emission Standards :

Mobile Part 1048
- HC + NOx (g/kW-hr) : 2.7
- CO (g/kW-hr) : 4.4
- NMHC + NOx (g/kW-hr) : 2.7

Stationary Part 1048
- HC + NOx (g/kW-hr) : 2.7
- CO (g/kW-hr) : 4.4
- NMHC + NOx (g/kW-hr) : 2.7

Part 60 Subpart JJJJ Table 1
- VOC (g/Hp-hr) : 0.7
- NOx (g/Hp-hr) : 1.0
- CO (g/Hp-hr) : 2.0

Emergency Use Only : N

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 40 CFR Part 1048, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60, 40 CFR Part 1048 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60, 40 CFR Part 1048 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60, 40 CFR Part 1048. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60, 40 CFR Part 1048. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60, 40 CFR Part 1048.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

HT-2

Amine Reboiler Hot Oil Heater Emissions and Specification Sheet

Owner:	TBD		Owner Ref.:	H-101
Purchaser:	Spitzer		Purchaser Ref.:	26-0315
Manufacturer:	Tulsa Heaters Midstream		THM Ref.:	P26-0420
Service:	Heat Medium Heater		Project:	800gpm Amine
Number:	1		Location:	New Mexico
SHO Duty:	45.00 MMBTU/ hr		SHO Model:	SHO4000

NOx	0.0401	Lb/MMBTU	30 ppm
SOx	no quote	Lb/MMBTU	- ppm
CO	0.0407	Lb/MMBTU	50 ppm
VOC	0.0192	Lb/MMBTU	15 ppm
UHC	0.007	Lb/MMBTU	15 ppm
SPM	0.0132	Lb/MMBTU	15 ppm

LHV Basis			51.86	MMBTU/hr		
HHV Basis			57.50	MMBTU/hr		
	MW					
O2	32.00	1,439	Lbm/ hr			
N2 + Ar	28.15	36,779	Lbm/ hr			
CO2	44.01	6,699	Lbm/ hr			
H2O	18.02	5,623	Lbm/ hr			
NOx	46.01	2.08	Lbm/ hr /	30	ppm	
SOx	64.06	0.00	Lbm/ hr /	0	ppm	
CO	28.01	2.11	Lbm/ hr /	50	ppm	
VOC	44.10	1.00	Lbm/ hr /	15	ppm	
UHC	16.04	0.36	Lbm/ hr /	15	ppm	
SPM		0.69	Lbm/ hr /	15	ppm	
Total		50,547	Lbm/ hr			

Flue Gas Exit Temp.	493	°F
Flue Gas Exit Velocity	41.5	Ft/sec
Stack Height	30.8	ft
Stack ID	42	in

NOTES

THM emissions guarantees applicable between 50-100% of Design Case combustion conditions w/ 15% excess air.

THM emissions guarantees applicable for firebox temperatures above 1100°F.

Emissions above are for Design Case operation with air and fuel in ratio control. Upset conditions, such as operation outside the design, high turndown or start-up are not considered as guaranteed emissions cases.

revision	date	description	by	chk'd	appv'd

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HT-4

Regen Heater Emissions and Specification Sheet

P` gRc %dURRe%‰

Qr vG
Z r %A3%79C

eUZ %a °vt C%
Z W0C4E79

P v %w r z G	
P r C%	R^ Rc SYRi %R^ Rc T j %dj deRZ d3%^ P
a` % G	AB788CF: 7:
f zG	Z 9B7Y%QRUj %^ Ve
dv ztvG	c vxv %r %dvr v
Uvr v G	U4D88
c vw v tvG	R477AF9D

eUZ %Q t v %z vC%‰‰‰‰‰‰‰‰
URNeRc %QNeN%dURRe%NPXNT R

eUZ %Q t% C%
Z W0C4E794Uec 4Qd4aXT

c v z z % 5%‰	c v z z %Qr v
7	N z%C3%79C
8	Z r %A3%79C

d s z r %dr G
S %N r

V uv	P v %v z z %
MJ24-712-HTRDS	1
MJ24-712-EMISSIONSDS	0

Owner:	TBD		Owner Ref.:	H-711
Purchaser:	Enerflex Energy Solutions, L. P.		Purchaser Ref.:	EE04927-01 1430
Manufacturer:	Tulsa Heaters Midstream, LLC		THM Ref.:	MJ26-802
Service:	Regen Gas Heater		Project:	M250L Dehy Unit
Quantity:	1		Location:	TBD
SHO Duty:	12.30	MMBTU/ hr	SHO Model:	SHO1500
BMS Release:	15.07	MMBTU/ hr	BMS Model:	BMS1500

ac` PRdd%QRdVT^%R` ^QVeV ^d%

Heater Section	- - -	Radiant / Convection	Radiant / Convection	Radiant / Convection	Radiant / Convection
Operating Case	- - -	Design Case	Norm Rich	Norm Lean	TD
Service	- - -	Regen Gas Heater	Regen Gas Heater	Regen Gas Heater	Regen Gas Heater
Heat Absorption (R/C)	MMBTU/ hr	8.50 / 3.80	7.82 / 3.36	7.72 / 3.30	6.13 / 2.40
Process Fluid	- - -	Gas	Gas	Gas	Gas
Process Mass Flow Rate, Total	Lb/ hr	43,648	39,680	37,210	26,062
Process Bulk Velocity (calc. R/C)	ft/ s	46 / 25	42 / 19	42 / 20	27 / 13
Process Mass Velocity (calc. R/C)	Lb/ s ft2	76 / 76	69 / 69	65 / 65	45 / 45
Coking Allowance (dP calcs)	in				
Pressure Drop, Clean (allow. / calc.)	psi	10 / 10	10 / 8	10 / 8	10 / 4
Pressure Drop, Fouled (allow. / calc.)	psi			/	
Average Heat Flux (allowable)	BTU/ hr ft2	13,000	13,000	13,000	13,000
Average Heat Flux (calculated)	BTU/ hr ft2	9,160	8,430	8,320	6,610
Maximum Heat Flux (allowable)	BTU/ hr ft2				
Maximum Heat Flux (calc. R/C)	BTU/ hr ft2	16,800 / 22,900	15,500 / 20,700	15,300 / 20,400	12,100 / 15,800
Fouling Factor, Internal	hr ft2 °F/ BTU	0.001	0.001	0.001	0.001
Corrosion or Erosion Characteristics	- - -				
Max. Film Temperature (allow. / calc.)	°F	1000 / 649	1000 / 648	1000 / 650	1000 / 655
Inlet Conditions:					
Temperature	°F	120	120	120	120
Pressure	psig	843	843	843	843
Mass Flow Rate, Liquid	Lb/ hr	0	0	0	0
Mass Flow Rate, Vapor	Lb/ hr	43,648	39,680	37,210	26062
Weight Percent, Liquid / Vapor	wt%	0% / 100%	0% / 100%	0% / 100%	0% / 100%
Density, Liquid / Vapor	Lb/ ft3	0.00 / 3.59	0.00 / 3.59	0.00 / 3.25	0.00 / 3.59
Molecular Weight, Liquid / Vapor	Lb/ Lbmole	- - - / 21.9	- - - / 21.9	- - - / 20.5	- - - / 21.9
Viscosity, Liquid / Vapor	cp	0 / 0.014	0.000 / 0.014	0.000 / 0.014	0 / 0.014
Specific Heat, Liquid / Vapor	BTU/ Lb °F	0 / 0.619	0.000 / 0.619	0.000 / 0.607	0 / 0.619
Thermal Conductivity, Liq./Vap.	BTU/hr ft °F	0 / 0.022	0.000 / 0.022	0.000 / 0.023	0 / 0.022
Outlet Conditions:					
Temperature	°F	575	575	575	575
Pressure	psig	833	835	835	839
Mass Flow Rate, Liquid	Lb/ hr	0	0	0	0
Mass Flow Rate, Vapor	Lb/ hr	43,648	39,680	37,210	26062
Weight Percent, Liquid / Vapor	wt%	0% / 100%	0% / 100%	0% / 100%	0% / 100%
Density, Liquid / Vapor	Lb/ ft3	0.00 / 1.66	0.00 / 1.66	0.00 / 1.55	0.00 / 1.66
Molecular Weight, Liquid / Vapor	Lb/ Lbmole	- - - / 21.9	- - - / 21.9	- - - / 20.5	- - - / 21.9
Viscosity, Liquid / Vapor	cp	0.000 / 0.020	0 / 0.020	0.000 / 0.020	0 / 0.020
Specific Heat, Liquid / Vapor	BTU/ Lb °F	0.000 / 0.739	0 / 0.739	0.000 / 0.736	0 / 0.739
Thermal Conductivity, Liq./Vap.	BTU/hr ft °F	0.000 / 0.043	0 / 0.043	0.000 / 0.044	0 / 0.043

revision	date	description	by	chk'd	appv'd
1	4-May-26	Revised per Customer Comments	dcb		
0	16-Apr-26	Initial Issue	dcb		

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P` Z Of deV ^ %QRdVT ^ %R` ^ QVeV ^ d%

Overall Performance:

Operating Case	---	Design Case	Norm Rich	Norm Lean	TD
Service	---	Regen Gas Heater	Regen Gas Heater	Regen Gas Heater	Regen Gas Heater
Excess Air	mol%	15.0%	15.0%	15.0%	15.0%
Calculated Heat Release (LHV)	MMBTU/ hr	13.70	12.34	12.16	9.23
Guaranteed Efficiency	HR%	86.8%	87.6%	87.6%	89.4%
Calculated Efficiency	HR%	89.8%	90.6%	90.6%	92.4%
Radiation Loss	HR%	2.00%	2.00%	2.00%	2.00%
Flow Rate, Combustion Gen./ Imp.	Lb/ hr	13,350	12,026	11,848	8,996
Flue Gas Temp. Leaving (R/C)	°F	1,356 / 385	1,312 / 353	1,306 / 351	1,208 / 283
Flue Gas Mass Velocity	Lb/ sec ft2	0.319	0.288	0.283	0.215

Fuel(s) Data:

		Gas 1 Mol.Wt.	Gas 2 Mol.Wt.	Gas 3 Mol.Wt.	Design Fuel Oil
LHV	BTU/ scf	910	1,037		---
LHV	BTU/ Lb	21,397	20,449		
P @ Skid	psig	75	75		
T @ Skid	°F	100	100		
MW	Lb/ Lbmole	16.14	19.24		---
Flow @ design	lb/hr	640	670		
Flow @ design	scfh	15,060	13,220		
Atomizing Media		---	---		
Atom. Media P & T		---	---		

Components:

N	wt%	---	---		
S	wt%	---	---		
Ash	wt%	---	---		
Ni	ppm	---	---		
Va	ppm	---	---		
Na	ppm	---	---		
Fe	ppm	---	---		
H2	mol%	0.00%	0.00%		---
O2	mol%	0.00%	0.00%		---
N2 + Ar	mol%	0.22%	1.49%		---
CO	mol%	0.00%	0.00%		---
CO2	mol%	0.02%	0.47%		---
CH4	mol%	99.33%	80.22%		---
C2H6	mol%	0.41%	15.26%		---
C2H4	mol%	0.00%	0.00%		---
C3H8	mol%	0.02%	2.39%		---
C3H6	mol%	0.00%	0.00%		---
C4H10	mol%	0.00%	0.17%		---
C4H8	mol%	0.00%	0.00%		---
C5H12	mol%	0.00%	0.00%		---
C5H10	mol%	0.00%	0.00%		---
C6+	mol%	0.00%	0.00%		---
H2S	ppmv	0.00%	0.00%		---
SO2	mol%	0.00%	0.00%		---
NH3	mol%	0.00%	0.00%		---
H2O	mol%	0.00%	0.00%		---
spare	mol%	0.00%	0.00%		---

Blower/Fan Peformance:

Volumetric Flow	acfm	3,200
Rated Power	HP	10
Fan Speed	RPM	3,600
Sound Pressure	dBA	< 85
Area Classification	NEC	Class I, Div. II, Groups C&D, T3

Burner Design:

OEM	---	Callidus Technologies, LLC	
Type	---	Enhanced IFGR	
Quantities	---	1	ULTRA Low NOx
Model No.	---	CUBL-4W-HC-HZ	Cylindrical
Windbox	---	yes ...	
Location	---	EndWall Center ...	Horizontally Fired

Pilot Design:

Type / Model		Self-Inspirating / by O.E.M.	
Ignition	---	Electric	requires elec.ign.system
Heat Release	---	> 90000 BTU/ hr on ...	Gas 1

Burner Performance:

Minimum Heat Release	MMBTU/ hr	3.01
Design Heat Release	MMBTU/ hr	13.70
Maximum Heat Release	MMBTU/ hr	15.07
Burner Turndown	Max:Min	5.00
Volumetric Ht. Release	BTU/ hr ft3	7,768
Pressure @ Arch	inH2O	0.30
Pressure @ Burner	inH2O	6.85
Combustion Air T @ Burner	°F	60
Flue Gas T @ Burner	°F	1,160

Guaranteed Emissions:

Basis of Guarantee	---	3.0% O2,	dry (LHV)
NOx Emissions	Lb/MMBTU	0.030	23 ppm
SOx Emissions	Lb/MMBTU	no quote	
CO Emissions	Lb/MMBTU	0.040	49 ppm
VOC Emissions	Lb/MMBTU	0.019	15 ppm
UHC Emissions	Lb/MMBTU	0.007	15 ppm
SPM10 Emissions	Lb/MMBTU	0.013	15 ppm
Noise Emissions	dBA @ 3ft	85	

Net Flame Clearances:

Est. Flame Size	approx. 10.6 ft L x 3.8 ft Diameter
Hor Clearance	2.6 ft NET Tube Clearance
Vert. Clearance	2.6 ft NET Tube Clearance
Axial Clearance	7.6 ft NET Refractory Clearance (to Target hot face)

Owner Ref.: H-711 THM Ref.: MJ26-802

PRESSURE PARTS DESIGN

Rev

Coil Design:		RADIANT	SHIELD	CONVECTION
Service		Regen Gas Heater	Regen Gas Heater	Regen Gas Heater
Design Basis for Tube Temperature		API 530	API 530	API 530
Design Basis for Tube Wall Thickness		ASME Sec. VIII-1	ASME Sec. VIII-1	ASME Sec. VIII-1
Design Life	hr	100,000	100,000	100,000
Design Pressure (elastic / rupture)	psig	1,100 /	1,100 /	1,100 /
Design Fluid Temperature	°F	575	575	575
Design Temperature Allowance	°F	25	25	25
Design Corrosion Allowance (tubes/fittings)	in	0.063 / 0.063	0.063 / 0.063	0.063 / 0.063
Maximum Tube Temperature (clean)	°F	670		
Maximum Tube Temperature (fouled)	°F	690	387	434
Design Tube Temperature	°F	750	750	750
Inside Film Coefficient	BTU/ hr ft2 °F	268	219	193
Weld Inspection	RT or Other	100 of 100%	100 of 100%	100 of 100%
Weld Heat Treatment	s.rel., t.stab. or none	None	None	None
Hydrostatic Test Pressure	psig	per Design Code	per Design Code	per Design Code

Coil Arrangement:		Horizontal	Horizontal	Horizontal
Coil Type	- - -	Helical	Serpentine	Serpentine
Tube Material (pipe or tube spec)	ASTM	SA106GrB	SA106GrB	SA106GrB
Supplementary Mfg Requirements	ASTM	None	None	None
Tube Outside Diameter	in	4.500	4.500	4.500
Tube Wall Thickness (aw / mw)	in	0.337 / 0.295	0.337 / 0.295	0.337 / 0.295
Number of Cells (radiant or convection)	- - -	1	1	1
Number of Flow Passes (total / cell)	- - -	2 / 2	2 / 2	2 / 2
Number of Tubes per Row (total / cell)	- - -		4 / 4	4 / 4
Overall Tube (1 turn in radiant) Length	ft	28.28	11.54	11.54
Effective Tube Length / Helix Diameter	ft	28.28 / 9.00	9.96	9.96
Number of Turns or Tubes (total / pass)		28.0 / 14.0	4.0 / 4.0	0.0 / 0.0
Total Exposed Surface	ft2	928	47	0
Number of Ext.Surf. Tubes (total / cell)	- - -	0 / 0.0	0 / 0.0	20 / 20.0
Total Exposed Surface	ft2	0	0	1,908
Tube Spacing (horiz. / tube centers)	in	- - - / 7.50	8.00 / 8.00	8.00 / 8.00
Tube Spacing (horiz. to refractory)	in	6.00	4.00	4.00
Coil Fluid Volume	USgal	491	31	153

Coil Fittings:		Regen Gas Heater	Regen Gas Heater	Regen Gas Heater
Fitting Type	- - -	SR 90° Elbows	SR 180° U-Bends	SR 180° U-Bends
Fitting Material	ASTM	SA234 WPB	SA234 WPB	SA234 WPB
Supplementary Mfg Requirements	ASTM	None	None	None
Fitting Outside Diameter	in	4.500	4.500	4.500
Fitting Wall Thickness (aw / mw)	in	0.337 / 0.295	0.337 / 0.295	0.337 / 0.295
Fitting Location	internal or external	Internal	External	External
Tube Attachment	welded or rolled	Welded	Welded	Welded

Coil Terminals:		Outlet		Inlet
Terminal Type	beveled or flanged	Flanged		Flanged
Flange Material	ASTM	SA105N		SA105N
Supplementary Mfg Requirements	ASTM	None		None
Flange Size and Rating	NPS/ ASME	4" / 900#		4" / 900#
Flange Type	RFWN or RTJ	RFWN		RFWN
Location	- - -	Burner Endwall		Terminal End

Extended Surface:		CONVECTION	CONVECTION	CONVECTION
Service	- - -	Regen Gas Heater	Regen Gas Heater	Regen Gas Heater
Fin or Stud Row Number	starting @ bottom	No.1-4 / No.5	/	/
Ext. Surface Type	seg.fins, solid fins, studs	Segmented		
Fin/Stud Material	- - -	C.S. / C.S.	/	/
Fin/Stud Height	in	0.75 / 1.00	/	/
Fin/Stud Thickness	in	0.06 / 0.06	/	/
Fin/Stud Density	fin/ in	3.00 / 6.00	/	/

PRESSURE PARTS DESIGN (continued)

			RADIANT	SHIELD	CONVECTION	
Crossovers:						
Type, location / connections		- - -	External	/ Flanged	None	
Tube / Fittings Material		ASTM	SA106GrB	/ SA234 WPB		
Tube & Fitting OD / Thickness (aw)		in	4.500	/ 0.337		
Inlet Manifold(s):		type			Simple LOG	
Location		- - -			Top - Term. End	
Design Basis for Manifold Thickness		- - -			ASME B31.3	
Design Conditions (temp./press.)		°F/ psig			750 / 1100	
Pipe Material		ASTM			SA106GrB	
Fittings Material		ASTM			SA234 WPB	
Flange Material / Style		ASTM			SA105N / RFWN	
Outside Diameters, each Branch		in			8" NPS	
Wall Thickness(es); aw ~~or mw~~		in			SCH80 (0.5)	
End Types (terminal/ dead)		beveled or flanged			Flanged / W.Cap	
Manifold Terminal Type		NPS/ ASME			8" NPS / 900# Flg	
Coil Connection Type		extrusion, olet, etc.			Weld-O-Let	
Coil Terminal Type		NPS/ ASME			4" NPS / 900# Flg	
Outlet Manifold(s):		type	Simple LOG			
Location		- - -	Burner Endwall			
Design Basis for Manifold Thickness		- - -	ASME B31.3			
Design Conditions (temp./press.)		°F/ psig	750 / 1100			
Pipe Material		ASTM	SA106GrB			
Fittings Material		ASTM	SA234 WPB			
Flange Material / Style		ASTM	SA105N / RFWN			
Outside Diameters, each Branch		in	8" NPS			
Wall Thickness(es); aw ~~or mw~~		in	SCH80 (0.5)			
End Types (terminal/ dead)		beveled or flanged	Flanged / W.Cap			
Manifold Terminal Type		NPS/ ASME	8" NPS / 900# Flg			
Coil Connection Type		extrusion, olet, etc.	Weld-O-Let			
Coil Terminal Type		NPS/ ASME	4" NPS / 900# Flg			

COIL & MANIFOLD SUPPORTS DESIGN

			RADIANT	SHIELD	CONVECTION	
Tube Supports:						
Service			Regen Gas Heater	Regen Gas Heater	Regen Gas Heater	
Location	Top, Bottom, Ends		Bottom	Ends	Ends	
Support Type	casting, tubesht, spring, etc.		SS Rail	Welded Tbsheets	Welded Tbsheets	
Support Thicknesses		in	0.5"	0.375	0.375	
Support Materials		ASTM	A240 T310	A36 CS	A36 CS	
Support Temperatures (calc./ design)		°F / °F	827 / 1,010	534 / 690	534 / 690	
TbSht Ferrules Thickness/Materials		in/ ASTM	- - - / - - -	14 ga. / 304 SS	14 ga. / 304 SS	
Refractory & Anchor Materials & Types			none	per refrac. section	per refrac. section	
Intermediate Guides & Supports:			None	None	None	
Location		- - -				
Guide/ Support Type	casting, spring, etc.					
Material		ASTM				
Spacing, average		ft				
Tube Guides:	Top, Bottom, Ends		None	None	None	
Material		ASTM				
Manifold Supports:			Outlet Manifold		Intlet Manifold	
Material		ASTM	A36		N/A	
Materials Design & Supply		- - -	by THM			
Location	Top, Bottom, Ends		Burner Endwall			
Support Type	roller, shoe, spring, etc.		Simple Shelf			
Number of Supports		- - -	One (1)			

Owner Ref.: H-711 THM Ref.: MJ26-802

Rev

CASING / REFRACTORY SYSTEMS DESIGN

		BURNER		SHIELDED	TARGET
Radiant Section Design:		ENDWALL		SIDEWALLS	ENDWALL
Total Refractory Thickness	in	5.0		3.0	5.0
Hot Face Temperature (design)	°F	2,000		2,000	2,000
Hot Face Temperaure (calculated)	°F	1,356		827	1,356
Hot Face Layer	in/ - - -	1/ 8# CF Blanket		1/ 8# CF Blanket	1/ 8# CF Blanket
Back-Up Layer No.1	in/ - - -	1/ 8# CF Blanket		2/ 6# CF Blanket	1/ 8# CF Blanket
Back-Up Layer No.2	in/ - - -	3/ 6# CF Blanket		None	3/ 6# CF Blanket
Foil Vapor Barrier	in/ - - -	None		None	None
Castable Reinforcement (SS Needles)	wt%	None		None	None
Anchors / Tie Backs:	- - -	Pins & Clips		Pins & Clips	Pins & Clips
Material	- - -	310 S.S.		310 S.S.	310 S.S.
Attachment	- - -	Welded		Welded	Welded
Casing:					
Material	in/ ASTM	0.1875 / A36		0.1345 / A36	0.1875 / A36
Internal Coating	- - -	None		None	None
External Temperature, Typical	°F	180		180	180
Comments / Clarifications	- - -	w/ cfb wraps		w/o cfb wraps	w/ cfb wraps
		SHOP Installed		SHOP Installed	SHOP Installed

		SIDEWALLS		ENDWALLS	
Convection Section Design:		SHIELD	FINNED	TUBESHEETS	HEADER BOXES
Total Refractory Thickness	in	3.0	3.0	3.0	2.0
Hot Face Temperature (design)	°F	2,000	2,000	2,200	2,000
Hot Face Temperaure (calculated)	°F	871	871	871	683
Hot Face Layer	in/ - - -	1/ 8# CF Blanket	1/ 8# CF Blanket	3/ Sparlite HS	1/ 8# CF Blanket
Back-Up Layer No.1	in/ - - -	2/ 6# CF Blanket	2/ 6# CF Blanket	None	1/ 8# CF Blanket
Back-Up Layer No.2	in/ - - -	None	None	None	None
Foil Vapor Barrier	in/ - - -	None	None	None	None
Castable Reinforcement (SS Needles)	wt%	None	None	None	None
Anchors / Tie Backs:	- - -	Pins & Clips	Pins & Clips	Bullhorns	Pins & Clips
Material	- - -	310 S.S.	304 S.S.	304 S.S.	304 S.S.
Attachment	- - -	Welded	Welded	Welded	Welded
Casing:					
Material	in/ ASTM	0.1345 / A36	0.1345 / A36		0.1345 / A36
Internal Coating	- - -	None	None	None	None
External Temperature, Typical	°F	180	180		180
Comments / Clarifications	- - -	Cleaning/Sootblowing lanes: none			Bolted Assembly
	- - -	SHOP Installed	SHOP Installed	SHOP Installed	SHOP Installed

		FLUE GAS DUCTS			
Stack & Uptakes Design:		BREECHING	15° TRANSITION	DISCH. DUCT	
Quantity		One	One	One	
Type / Location	- - -	Full L / Conv	Full L / Conv	Self.Spt / Grade	
Length / Metal Outside Diameter (top)	ft/ ft	1.00 / n/ a	1.41 / n/ a	7 / 2.167	
Discharge Elev., minimum/ calculated	ft/ ft	n/ a / n/ a	n/ a / n/ a	20 / 24	
Total Refractory Thickness	in	3.0	0.0	0.0	
Hot Face Temperature (design)	°F	2,000			
Hot Face Temperaure (calculated)	°F	385	385	385	
Hot Face Layer	in/ - - -	1/ 8# CF Blanket	None	None	
Back-Up Layer No.1	in/ - - -	2/ 6# CF Blanket			
Castable Reinforcement (SS Needles)		None			
Anchors / Tie Backs:	- - -	Pins & Clips			
Material	- - -	304 S.S.			
Attachment	- - -	Welded			
Casing:					
Minimum Thickness/ Material	in/ ASTM	0.1345 / A36	0.1345 / A36	0.1345 / A36	
Corrosion Allowance	in	None	None	None	
Internal Coating	- - -	None	None	None	
External Temperature, Typical	°F	180	385	385	
Comments / Clarifications	- - -	SHOP Installed			

MECHANICAL / STRUCTURAL DESIGN BASIS

Refractory & Coatings Design:

Refractory Design	Per Std560: 180°F Avg. Casing Temperature @ Ambient Conditions of 0 MPH & 80°F
Refractory Dryout	SHOP dryout = None // FIELD dryout per THM standard.
Coating, Internal	None
Coating, External	Base Coat: 3-4 PPG Dimetcote 9 IOZ Silicate - Flat Green on SP-10
	Int. Coat: None
	Top Coat (casing): 1.5-2 PPG Hi-Temp 500 - Federal Standard 595B #16132 Gray
	Top Coat (stack): 1.5-2 PPG Hi-Temp 1000 - Federal Standard 595B #16132 Gray

Applicable Standards:

API	~~Std 560 (ISO 13705); Fired Heaters for ...~~	AISC	Specification for Design, ... Steel for Buildings
API	Std 530 (ISO 13704); Calc. of Heater Tube ...	AWS	D 1.1; Structural Welding Code
ASME	B31.3, Chemical Plant and ... Piping	ASTM	tube/ smls pipe/ fitting spec's noted herein
ASME	Sections I, II, VIII, IX; ASME B&PV Code	ASTM	refractories per C27, C155, C401 & C612
ASME	Section V; Non Destructive Examination	NFPA	NFPA 70; National Electrical Code

Ss = 0.55, S1 = 0.125; Structural Calcs should be corrected to match

Wind Design:		Seismic Design:	
Spec. or Standard	ASCE 7-22	Spec. or Standard	ASCE 7-22
Velocity/ Imp. Factor	120 mph / 1	Risck Cat./Imp. Factor	III / 1.25
Site Exposure	"C"	Ss/S1/Soil Class	0.5 / 0.15 / D
Physical Design:		Site Design Basis:	
Plot Limitations	None	Site Elevation	3800 ft AMSL
Tube Limitations	None	Stack Design Temp.	90 °F
Firebox Pressure	Positive; approximately +1.0 inH2O	FG Discharge Elev.	24 ft AG
Ambient Temp's	-20 °F Min/ 60 °F Dsn/ 100 °F Max	Area Classification	Class I, Div. II, Groups C&D, T3

MAJOR SUBSYSTEMS & ACCESSORIES

Major Services & Subsystems		Major Accessories:		
Process Design	INCLUDED in base pricing	Casing/ Tube Seals	8	
Mechanical Design	INCLUDED in base pricing	Observation Doors	2	4 in Dia. w/ H.T. glass on bnr wall
Structural Design	INCLUDED in base pricing	Observation Doors	1	4 in Dia. w/ HT glass on target wall
Radiant Section	INCLUDED in base pricing	Access Doors	1	Std 24" x 24"
Convection Section	INCLUDED in base pricing	Expansion Joints	None	
Burner Mgmt	INCLUDED in base pricing	Ladders & Platforms	Not Included	
Burner Piping	INCLUDED in base pricing	L&P Coating	N/A	
Forced Draft System	INCLUDED in base pricing			

Casing Penetrations			Pressure Part Penetrations		
Fbox Purge/ Snuff	None		Coil TSTC's, Radiant	None	
CA Temp/Pres	1	0.5" 3000# Coupling	Coil TSTC's, Convection	None	
FG Temperature	2	1.5" 3000# Coupling	Process TI conn's	2	1.5 NPS 900# RFWN
FG Pressure	2	1.5" 3000# Coupling	Process PI conn's	1	0.5" NPS 3000# Coupling
FG Comp. (Sample)	2	1.5" 3000# Coupling	PSV conn	N/A	
FG Sample	2	4" 150# RFWN	Spare	1	1.5" NPS 900# RFWN
Stack Temp	1	1.5" 150# RFWN	spare	1	1.5" NPS 900# RFWN
O2 Analyzer Port	1	3" NPS 150# RFWN Sch40 Bore			

Dampers

	FD Fan (blower) qty = 0	Uptake Ducts	Stack qty = 0
Function	Note:		Note:
Design	Fan inlet damper is inappropriate		Stack Damper (which provides draft
Materials	for forced draft SHO's where O2		control) is inappropriate for forced
Bearings	Control is provided by the BMS O2		draft SHO's where the combustion
Operator	Trim Module which controls the fan		conditions are controlled real-time
Positioner	(blower) motor's VFD/ VSD.		via the BMS.
Instruments			

Sootblowers:	Qty.	Type	Location	FG T	Material	Steam T & P	O.E.M. / Ref.
Lane 1:	None						
Lane 2 :	None						

Owner:	TBD		Owner Ref.:	H-711
Purchaser:	Enerflex Energy Solutions, L. P.		Purchaser Ref.:	EE04927-01 1430
Manufacturer:	Tulsa Heaters Midstream		THM Ref.:	MJ26-802
Service:	Regen Gas Heater		Project:	M250L Dehy Unit
Number:	1		Location:	TBD
SHO Duty:	12.30	MMBTU/ hr	SHO Model:	SHO1500

NOx	0.03	Lb/MMBTU	23	ppm
SOx	no quote	Lb/MMBTU	-	ppm
CO	0.04	Lb/MMBTU	49	ppm
VOC	0.019	Lb/MMBTU	15	ppm
UHC	0.007	Lb/MMBTU	15	ppm
SPM	0.013	Lb/MMBTU	15	ppm

LHV Basis		13.70	MMBTU/hr		
HHV Basis		15.22	MMBTU/hr		
	MW				
O2	32.00	385	Lbm/ hr		
N2 + Ar	28.15	9,708	Lbm/ hr		
CO2	44.01	1,747	Lbm/ hr		
H2O	18.02	1,507	Lbm/ hr		
NOx	46.01	0.41	Lbm/ hr /	23	ppm
SOx	64.06	0.00	Lbm/ hr /	0	ppm
CO	28.01	0.55	Lbm/ hr /	49	ppm
VOC	44.10	0.26	Lbm/ hr /	15	ppm
UHC	16.04	0.10	Lbm/ hr /	15	ppm
SPM		0.18	Lbm/ hr /	15	ppm
Total		13,350	Lbm/ hr		

Flue Gas Exit Temp.	385	°F
Flue Gas Exit Velocity	26.2	Ft/sec
Stack Height	24.3	ft
Stack ID	26	in

THM emissions guarantees applicable between 50-100% of Design Case combustion conditions w/ 15% excess air.

THM emissions guarantees applicable for firebox temperatures above 1100°F.

Emissions above are for Design Case operation with air and fuel in ratio control. Upset conditions, such as operation outside the design, high turndown or start-up are not considered as guaranteed emissions cases.

revision	date	description	by	chk'd	appv'd
0	16-Apr-26	Initial Issue	dcb		

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HT-5

Stabilizer Hot Oil Heater Emissions and Specification Sheet

Owner:	TBD		Owner Ref.:	H-101	
Purchaser:	Spitzer		Purchaser Ref.:	26-0304	
Manufacturer:	Tulsa Heaters Midstream		THM Ref.:	P26-0414	
Service:	Heat Medium Heater		Project:	Stabilizer	
Number:	1		Location:	West TX	
SHO Duty:	8.50	MMBTU/ hr	SHO Model:	SHO750	

	NOx	0.0401	Lb/MMBTU	30 ppm
	SOx	no quote	Lb/MMBTU	- ppm
	CO	0.0407	Lb/MMBTU	50 ppm
	VOC	0.0192	Lb/MMBTU	15 ppm
	UHC	0.007	Lb/MMBTU	15 ppm
	SPM	0.0132	Lb/MMBTU	15 ppm

			Qv zx %Rr v		
%Uvr %v vr v	LHV Basis		9.71	MMBTU/hr	
	HHV Basis		10.77	MMBTU/hr	
%s u t %vR s z		MW			
	O2	32.00	269	Lbm/ hr	
	N2 + Ar	28.15	6,887	Lbm/ hr	
	CO2	44.01	1,254	Lbm/ hr	
	H2O	18.02	1,053	Lbm/ hr	
	NOx	46.01	0.39	Lbm/ hr / 30	ppm
	SOx	64.06	0.00	Lbm/ hr / 0	ppm
	CO	28.01	0.39	Lbm/ hr / 50	ppm
	VOC	44.10	0.19	Lbm/ hr / 15	ppm
	UHC	16.04	0.07	Lbm/ hr / 15	ppm
	SPM		0.13	Lbm/ hr / 15	ppm
	Total		9,465	Lbm/ hr	
Flue Gas Exit Temp.			468	°F	
Flue Gas Exit Velocity			41.7	Ft/sec	
Stack Height			21.5	ft	
Stack ID			18	in	

^` eRG

THM emissions guarantees applicable between 50-100% of Design Case combustion conditions w/ 15% excess air.

THM emissions guarantees applicable for firebox temperatures above 1100°F.

Emissions above are for Design Case operation with air and fuel in ratio control. Upset conditions, such as operation outside the design, high turndown or start-up are not considered as guaranteed emissions cases.

Rev. P	31-Mar-26	Issued for Approval	JF	JDC	
revision	date	description	by	chk'd	appv'd

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Flares

OL MMSCFD Flare Specification Sheets

275 MMSCFD Flare Specification Sheets

Tank/Loading Flare Specification Sheets

14842 N Maple Drive
Kellyville, Ok 74039
www.heroflare.com

Trace Midstream

Rev 0: 9/26/24
Flare Model: G50VC20

Project Reference: 20 MMSCFD Sonic Flare

HERO flare would like to thank you for the opportunity to provide a firm quote for the supply of a flare system for your referenced project. HERO Flare specializes in high quality tank battery and production field flares at extremly competitive prices. We would like to assure you that with our staff having over 40 years of combined flare design experience, each and every design is independently checked for process and mechanical accuracy to ensure the proposed flare system will meet your operating needs.

There are many advantages to the HERO HiLo flare offering:

- Meets All Emission, Mechanical and Operational Guaranttees
- Meets EPA Regulations Pilot Monitoring.
- Most Economical Solutions on the Market

It is our sincere desire to support you as required for this project and any future project needs you may have.

Best regards,

Craig Rosencutter
Office: (918) 941-2166 Ext. 101
Cell: (918) 948-4647
Email: craig.rosencutter@heroflare.com

Garrett Consedine
Office: (918) 941-2166 Ext. 114
Cell: (918) 948-4647
Email: garrett.consedine@heroflare.com

Design Data Sheet

Process Design Conditions

Flare Flow Case	Flow Rate *(MMSCFD)*	MW	Lower Heating Value *(Btu/SCF)*	Inlet Pressure *(Psig)*	Temp. *(F)*
Smokeless Rate	0.25 to 20	22 to 23	1,000 – 1,300	40	Amb.

Utilities Required

Site Conditions & Utilties Required	Site Conditions	Wind: 120 MPH Temp: 0 to 120°F Elevation: 14.0 Psia
	Pilot Gas (per pilot)	NG:55 scfh @ 18 psig / Propane: 25 scfh @ 9 psig (Clean, dry gas)
	Plant Air	No Plant Air Required
	Panel Electricity	None required (Solar powered (12VDC) igniton system is being offered)
	Blower Electricity	No blower required

Mechanical

Emission / Performance Guarantees	Destruction	A 98% or greater hydrocarbon destruction efficiency will be achieved
	Stability	Flare will be stable over the entire operating range
	Smokeless Rate	100% Smokeless over normal operating range
	Max Radiation	Less than 500 Btu/hr/SF at normal & 1500 Btu/hr at max flow rates
	Tip Velocity	Designed per industry standard sonic tip guidelines

Emission & Performance Guarantees

Ancilliary Equipment Offered	Electrical Area	Non-classified area	
	Control Panel Type	Nema 4 (Painted)	
	Blower Motor	No blower included with this offer	Blower Size: N/A
	Pilot(s)	One (1) Fixed High Energy Spark Ignition w/Gas	

Flare Construction

	Component	Dim.	Material	Conn. @ Joints	Customer Interface Connection	Interface Elevation (feet)
Flare Construction	Stack Height	50’	A53B pipe	Buttweld		
	Flare Tip	8"	304SS Pipe	Full Pen.	8" 150# RF Slip On Flange	6’
	Pilot Tubing	3/8”	304SS tubing	Swagelok	3/8” Swagelok	5’

Equipment Description *(Ignition System)*

Hotspot Ignition System (Model: HS)

The Hero Hotspot Ignition System is a high stability pilot that utilizes a high energy ignition probe that is the most reliable ignition source to ignite pilots in high winds, high moisture environments and snow. The high energy ignition probe is not affected by water which makes this system unbeatable.

The HS system includes automatic ignition and continuous monitoring. When the pilot selector switch on the ignition control panel is turned to the on position, the ignition panel will send a signal to the pilot spark module to produce a high energy spark every 10 seconds. Once the pilot ignites, the ignition control panel will turn off the spark and monitor the pilot flame 24/7. In the event a loss of flame is detected, the ignition control panel will automatically re-energize the spark module to re-light the pilot.

The Hotspot Ignition System consist of the following:

- 100% stainless steel consutruction to provide excellent resistance to heat and corrosion
- High stability pilot flame in the most severe environments (i.e. high winds, snow, rain)
- Automatic spark ignition system with continous flame monitoring
- One control panel (and solar panel) mounted on a self supported control rack
- Ignition control panel provided with solar panel with battery back-up. No other electrical power required.
- Pilot gas regulator with gauge. One per pilot
- Operates on natural gas or propane
- Fully EPA compliant

Panel to Pilot Interconnection (by client)

The Hotspot Ignition requires minimal wiring and gas supply lines for operation.

- One ¾" conduit between the each control panel and the associated pilot. Each pilot is operated by one control panel. Interconnecting wire is 5 wires per pilot (one pair of Type K thermocouple wires, three 14ga power wires). For simplicity sake, we recommend one conduit run per pilot.
- One 3/8"-1/2" stainless tubing for fuel gas to pilots. HERO Flare supplies the pilot gas regulator.

Easy Glide Retraction System (Model: EZ-1)

The Hero Easy Glide retractable pilot system is one of the best. The pilot slides up and down on parallel stainless cables that are designed to prevent binding and warping like other steel track systems experience. "Hung pilot" problems are eliminated with our design. The fuel gas line is stainless steel braided tubing for abrasion and corrosion resistance. Wiring is custom SO cable. A manual winch is permanently mounted to the flare base along with the electrical junction box and pilot gas pressure regulator.

The Hero Pilot Retraction System eliminates the need for ladders and platforms. All maintenance can be performed at grade with the flare in service.

Equipment Description *(Flare Technology)*

Variable Orifice Flare Tip (Model: VC8)

The flare uses a variable slot orifice tip that is well proven and provides a broad smokeless operating range without the need for a blower. The flare tip includes:

- Stainless steel upper tip section for temperature and corrosion resistance.
- Pilot support brackets.

Guy Supported Utility Flare Stack (Model: G60)

The flare height will minimize thermal radiation and SO2 ground level emissions. The flare stack includes:

- Guy supported stack complete with base ring (CS).
- Guy wires, turnbuckles, clips and sockets (concrete deadman and guy attachment plate by client).
- Flare stack and tip will be shipped as two pieces. No field welding required. Tip will flange
- Flex hose, wiring and for pilot (ships loose for field installation).
- Sandblast, prime and finish coat.
- Mechanical drawings and operating manual.
- Complete structural calculations for the stack, lifting trunnions and base ring. Finite element analysis of the inlet nozzle and lifting trunnions. For the record, not for approval.

Guy Wire Kit (Model: GW-60)

The flare system is provided with a guy wire kit would includes all of the necessary items to install you flare with exception of the deadman anchors.

- Three (3) guy wire cables
- All necessary turn buckles, wire clamps, clips, etc.
- Deadman ground anchors not include – must be supplied by customer

Optional Items

Structural Steel Base with Pilot Scrubber (SK4424-SP8)

This option includes a 4’ x 4’ structural steel base that will alleviate the need for the site to pour any on-site concrete pads. The advantage of this option is that it allows the Hero pilot scrubber (Model: SP8) to be shop mounted to the skid and shipped to the field as one assembly. See the optional section “scrubbers” for details on the pilot scrubber that will be included with this option.

Pilot Gas Scrubber (Model: SP-8)

Design Parameters	
Scrubber length:	36”
Scrubber Diameter:	8”
Support System:	Bolt to skid
Design:	ASME Section VIII
Code Stamp:	None
MAWP:	250 Psig
Paint System:	Blast / 2 Coat Mfg Std.

Connections Included	
Inlet:	1/2” NPT
Outlet:	1/2” NPT
Drain:	1/2” NPT

Clarifications / Exceptions

The following information is being provided to offer further clarification and / or additional services that are available.

Electrical Area Classification Discussion

There is an inherent conflict when placing combustion equipment into classified areas. Many facilities classify the flare operating area as Class 1, Division 2, Group C&D. However, if an equivalent ignition source is present, the NEC code calls the surrounding area "unclassified". A flare is certainly an ignition source of greater magnitude than control panel components, therefore, our recommendation to resolve these two incompatible requirements is:

- Control valves, actuators, solenoid valves & external instruments should meet Class 1, Div 2, Gr C&D.
- Control panels should be Nema 4 or Nema 4X suitable for a non-classified area. Control panels should be placed within 25ft of the flare equipment.
- Electrical items located more than 25 ft from the flare should meet the plant area classification. This may include flow meters, drip pots, etc.
- Blower motors should be TEFC, suitable for future VFD drive.

Panel to Pilot Interconnection (by client)

The Hotspot Ignition requires minimal wiring and gas supply lines for operation.

- **Solar / battery powered ignition panels:** Hero provides an additional 25' of SO cord to allow the control panel to be mounted within 25' from the base of the flare. Whereas, no additional wiring is needed for solar / battery powered systems unless the client wants to run conduit from the base of the flare to the ignition panel. In which case, client will be resposible for providing their own 3 conductor low voltage wire, 1 pair of Type K thermcouple wires and all necessary conduit.

- **120VAC powered ignition panels:** Hero provides an additional 25' of SO cord to allow the control panel to be mounted within 25' from the base of the flare. If client wants to to run wiring in conduit from the flare to the ignition panel, then they will be responsible for providing their own 3 conductor low voltage wire and 1 pair of Type K therocouple wire and all necessary conduit. In addition, customer is required for providing all necessary conduit and 120VAC rated wire from power source to control panel

- **Pilot Gas Supply Line:** Client is responsible for providing one 3/8" or 1/2" stainless tubing from gas supply source to pilot gas regulator located at the base of the flare.

Flare Manufacturing Standards

The fabrication shop maintains quality control documentation and welder's qualifications which are available for our client's review. Inspectors have access to the facility upon short notice.

General Industry Standards

Welding - Structural:	ASME B31.3 AWS D1.1	Pipe Flange: Pipe Threads:	150 Lb ANSI NPT
Weld Inspection: Drawing Dimensions:	ASME V English	Electrical Wiring: Structural Design:	NEC ASCE latest version
Corrosion Allowance	1/16”		

Non-Destructive Testing

Dimensional Check:	All exterior and mounting dimensions
All Welds:	100% Visual Inspection
Radiography/NDT	Per client spec at client cost. Full dye pen on lift lugs.
Hydrostatic testing:	Not applicable.
Material certificates:	All stainless steel.

Painting

Component	Sandblast	Shop Paint
Carbon Steel Stack	SSPC-SP 6	Prime Coat /Top Coat
Valves and Control Panel	Manuf. Std.	Manufacturers Standard
Stainless steel	None	None

Project Documentation

Supplied by Hero With Each Job	**Supplied Upon Request**
Complete Drawing Package	Design Summary Specification
Operating & Maintanence Manual	Paint Specification
Radiation Curves	Structural Calculations *(For Record Only)*
	Welding WPS / PQR
	Material Certificates

Tag: TBD Plant Process Flare	Rev	Date	Description	By	Client		Trace Midstream	
	A	6/30/2026	Information	BAF	Project		Apollo Gas Plant	
					Location		Eddy County, NM	
					REV	1	Date	6/30/2026
					By	BAF	CK	RB
					Sheet	1	of	1

Site Information	
Elevation	3110' ASL
Temperature	-20 - 120˚F
Wind Load	120 mph
Seismic Site Class	D
Electrical Class	Unclassified

Process Conditions		
Smokeless - Case 1	10	%
Smokeless - Case 2	10	%
Smokeless - Case 3	10	%
Smokeless - Case 4	10	%
Smokeless - Case 5	100	%
Molecular Weight	SEE TABLE	Lb/Lbmol
Flare Gas Heating Value (LHV)	SEE TABLE	Btu/scf
Pressure at Flare Inlet	10 (max)	psig
Maximum Radiation at Ground Level - Relieving	1500	Btu/(hr * ft^2)
Maximum Radiation at Ground Level - Continuous	500	Btu/(hr * ft^2)
Maximum Radiation 150 ft from Flare Base	1500	Btu/(hr * ft^2)
Solar Radiation (Note 1)	300	Btu/(hr * ft^2)
Average Wind Speed	20	MPH

Flare Details	
Flare Type	Air-Assisted Stick Flare
Height	150' OAH
Diameter	30"
DRE	98%
Continuous/Intermittent	Continuous
Smokeless	See Above
Structural Support	Guy Wired (Note 2)
Riser Material	Carbon Steel
Tip Material	Stainless Steel
Paint	Included. Top Coat TBD
Aircraft Warning Lights	If Needed
Tip Velocity	Per 49CFR
Blower	480V / VFD

Composition

Mol %	Case 1	Case 2	Case 3	Case 4	Case 5
Desc.	Full Flow	Propane Compressor Full Flow	Demeth Tower PSV	Fire Under NGL Surge Tank	Propane Compressor Blowdown
Temp:	120	218	117	97	120
C1	77.65	0.00	87.42	2.37	0.00
C2	11.90	2.00	10.73	74.75	2.00
C3	5.40	96.50	0.06	15.12	96.50
iC4	0.72	0.50	0.00	1.05	0.50
nC4	1.58	1.00	0.00	2.45	1.00
iC5	0.37	0.00	0.00	0.39	0.00
nC5	0.37	0.00	0.00	0.38	0.00
C6+	0.41	0.00	0.00	0.22	0.00
N_2	1.37	0.00	1.54	0.00	0.00
CO_2	0.23	0.00	0.26	3.28	0.00
H_2S	0.00	0.00	0.00	0.00	0.00
H_2O	0.00	0.00	0.00	0.00	0.00
Total	100.0	100.0	100.0	100.0	100.0
MW	21.16	44.30	18.36	33.76	44.30
lb/hr	580797	223207	526870	144008	24000
LHV (Btu/ft^3)	1155	2311	1776	1776	2311

Utilities	
Pilot Quantity	3
Pilot Type	Retractable
Pilot Gas flowrate	60 scfh
Purge Gas Flowrate	850 scfh
Pilot Monitoring	Yes (Dual Thermocouples)

Notes

1. Solar radiation value to be included in maximum radiation values.
2. Flare must be designed for a single point lift to allow for assembly at grade.

Tag: TBD Plant Process Flare	Rev	Date	Description	By	Client		Trace Midstream	
	A	6/30/2026	Information	BAF	Project		Apollo Gas Plant	
					Location		Eddy County, NM	
					REV	1	Date	6/30/2026
					By	BAF	CK	RB
					Sheet	1	of	1

Site Information	
Elevation	3110' ASL
Temperature	-20 - 120˚F
Wind Load	120 mph
Seismic Site Class	D
Electrical Class	Unclassified

Process Conditions		
Smokeless - Case 1	10	%
Smokeless - Case 2	10	%
Smokeless - Case 3	10	%
Smokeless - Case 4	10	%
Smokeless - Case 5	100	%
Molecular Weight	SEE TABLE	Lb/Lbmol
Flare Gas Heating Value (LHV)	SEE TABLE	Btu/scf
Pressure at Flare Inlet	10 (max)	psig
Maximum Radiation at Ground Level - Relieving	1500	Btu/(hr * ft^2)
Maximum Radiation at Ground Level - Continuous	500	Btu/(hr * ft^2)
Maximum Radiation 150 ft from Flare Base	1500	Btu/(hr * ft^2)
Solar Radiation (Note 1)	300	Btu/(hr * ft^2)
Average Wind Speed	20	MPH

Flare Details	
Flare Type	Air-Assisted Stick Flare
Height	150' OAH
Diameter	30"
DRE	98%
Continuous/Intermittent	Continuous
Smokeless	See Above
Structural Support	Guy Wired (Note 2)
Riser Material	Carbon Steel
Tip Material	Stainless Steel
Paint	Included. Top Coat TBD
Aircraft Warning Lights	If Needed
Tip Velocity	Per 49CFR
Blower	480V / VFD

Composition

Mol %	Case 1	Case 2	Case 3	Case 4	Case 5
Desc.	Full Flow	Propane Compressor Full Flow	Demeth Tower PSV	Fire Under NGL Surge Tank	Propane Compressor Blowdown
Temp:	120	218	117	97	120
C1	77.65	0.00	87.42	2.37	0.00
C2	11.90	2.00	10.73	74.75	2.00
C3	5.40	96.50	0.06	15.12	96.50
iC4	0.72	0.50	0.00	1.05	0.50
nC4	1.58	1.00	0.00	2.45	1.00
iC5	0.37	0.00	0.00	0.39	0.00
nC5	0.37	0.00	0.00	0.38	0.00
C6+	0.41	0.00	0.00	0.22	0.00
N_2	1.37	0.00	1.54	0.00	0.00
CO_2	0.23	0.00	0.26	3.28	0.00
H_2S	0.00	0.00	0.00	0.00	0.00
H_2O	0.00	0.00	0.00	0.00	0.00
Total	100.0	100.0	100.0	100.0	100.0
MW	21.16	44.30	18.36	33.76	44.30
lb/hr	580797	223207	526870	144008	24000
LHV (Btu/ft^3)	1155	2311	1776	1776	2311

Utilities	
Pilot Quantity	3
Pilot Type	Retractable
Pilot Gas flowrate	60 scfh
Purge Gas Flowrate	850 scfh
Pilot Monitoring	Yes (Dual Thermocouples)

Notes

1. Solar radiation value to be included in maximum radiation values.
2. Flare must be designed for a single point lift to allow for assembly at grade.

Tag: TBD Tank Flare	Rev	Date	Description	By	Client		Trace Midstream	
	A	6/30/2026	Information	BAF	Project		Apollo Gas Plant	
					Location		Eddy County, NM	
					REV	A	Date	6/30/2026
					By	BAF	CK	RB
					Sheet	1	of	1

Site Information

Elevation	3110' ASL
Temperature	-20 - 120˚F
Wind Load	120 mph
Seismic Site Class	D
Electrical Class	Unclassified

Process Conditions		
Design Flow - Case 1	0.476	MMscfd
Design Flow - Case 2	1.214	MMscfd
Design Flow - Case 3	-	
Design Flow - Case 4	-	
Design Flow - Case 5	-	
Design Flow - Case 6	-	
Molecular Weight	SEE TABLE	Lb/Lbmol
Flare Gas Heating Value (LHV)	SEE TABLE	Btu/scf
Pressure at Flare Inlet	<0.1 PSI	psig
Maximum Radiation at Ground Level - Relieving	1500	Btu/(hr * ft^2)
Maximum Radiation at Ground Level - Continuous	500	Btu/(hr * ft^2)
Maximum Radiation 50 ft from Flare Base	800	Btu/(hr * ft^2)
Solar Radiation (Note 1)	300	Btu/(hr * ft^2)
Average Wind Speed	20	MPH

Flare Details	
Flare Type	Open Stick
Height	25'
Diameter	6"
Continuous/Intermittent	Intermittent
Smokeless	98% DRE
Structural Support	Guy Wired (Note 2)
Flare Material	Carbon Steel
Tip Material	Stainless Steel
Tip Velocity	Per 49CFR
Blower	N/A
Paint	Included. Top Coat TBD
Weight	Per Vendor

Composition

Mol %	Case 1	Case 2	Case 3	Case 4
Desc.	Blanket Gas Failure	Slop Oil Tanks	-	-
Temp:	100	100		
C1	87.36	87.36		
C2	10.72	10.72		
C3	0.11	0.11		
iC4	0.00	0.00		
nC4	0.00	0.00		
iC5	0.00	0.00		
nC5	0.00	0.00		
C6+	0.00	0.00		
N_2	1.54	1.54		
CO_2	0.25	0.25		
H_2S	0.00	0.00		
H_2O	0.00	0.00		
Total	100.0	100.0	0.0	0.0
MW	17.84	17.84		
lb/hr	935	2378		
LHV (Btu/ft^3)	905	905		

Utilities

Pilot Quantity	1
Pilot Type	Retractable
Pilot Gas flowrate	65 scfh
Purge Gas Flowrate	240 scfh
Pilot Monitoring	Yes (Dual Thermocouples)

Notes

1. Solar radiation value to be included in maximum radiation values.
2. Flare must be designed for a single point lift to allow for assembly at grade.

Tag: TBD Tank Flare	Rev	Date	Description	By	Client		Trace Midstream	
	A	6/30/2026	Information	BAF	Project		Apollo Gas Plant	
					Location		Eddy County, NM	
					REV	A	Date	6/30/2026
					By	BAF	CK	RB
					Sheet	1	of	1

Site Information

Elevation	3110' ASL
Temperature	-20 - 120˚F
Wind Load	120 mph
Seismic Site Class	D
Electrical Class	Unclassified

Process Conditions		
Design Flow - Case 1	0.476	MMscfd
Design Flow - Case 2	1.214	MMscfd
Design Flow - Case 3	-	
Design Flow - Case 4	-	
Design Flow - Case 5	-	
Design Flow - Case 6	-	
Molecular Weight	SEE TABLE	Lb/Lbmol
Flare Gas Heating Value (LHV)	SEE TABLE	Btu/scf
Pressure at Flare Inlet	<0.1 PSI	psig
Maximum Radiation at Ground Level - Relieving	1500	Btu/(hr * ft^2)
Maximum Radiation at Ground Level - Continuous	500	Btu/(hr * ft^2)
Maximum Radiation 50 ft from Flare Base	800	Btu/(hr * ft^2)
Solar Radiation (Note 1)	300	Btu/(hr * ft^2)
Average Wind Speed	20	MPH

Flare Details	
Flare Type	Open Stick
Height	25'
Diameter	6"
Continuous/Intermittent	Intermittent
Smokeless	98% DRE
Structural Support	Guy Wired (Note 2)
Flare Material	Carbon Steel
Tip Material	Stainless Steel
Tip Velocity	Per 49CFR
Blower	N/A
Paint	Included. Top Coat TBD
Weight	Per Vendor

Composition

Mol %	Case 1	Case 2	Case 3	Case 4
Desc.	Blanket Gas Failure	Slop Oil Tanks	-	-
Temp:	100	100		
C1	87.36	87.36		
C2	10.72	10.72		
C3	0.11	0.11		
iC4	0.00	0.00		
nC4	0.00	0.00		
iC5	0.00	0.00		
nC5	0.00	0.00		
C6+	0.00	0.00		
N_2	1.54	1.54		
CO_2	0.25	0.25		
H_2S	0.00	0.00		
H_2O	0.00	0.00		
Total	100.0	100.0	0.0	0.0
MW	17.84	17.84		
lb/hr	935	2378		
LHV (Btu/ft^3)	905	905		

Utilities

Pilot Quantity	1
Pilot Type	Retractable
Pilot Gas flowrate	65 scfh
Purge Gas Flowrate	240 scfh
Pilot Monitoring	Yes (Dual Thermocouples)

Notes

1. Solar radiation value to be included in maximum radiation values.
2. Flare must be designed for a single point lift to allow for assembly at grade.

Representative Extended Gas Analysis

6/1/2026

Certificate of Analysis

Number: 6030-26055529-001A

Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481

Clayton Freitas
Trace Delaware Gathering LLC
840 Gessner
STE. 530
TX 77024

Station Name:	APOLLO DISCHARGE	Report Date:	06/01/2026
Station Number:	N/A	Sampled By:	Adrian Munoz
Sampling Method:	Purge/Fill	Sample Of:	Gas
Heating Method:	N/A	Sample Type:	Spot
Method:	GPA 2286	Sample Conditions:	1017 psig, @ 94 °F Ambient: 74 °F
Cylinder No:	1111-000217	Sample Date:	05/27/2026 10:30
Instrument:	6030_GC2 (Agilent GC-7890B)	Received Date:	05/28/2026
Last Inst. Cal.:	06/01/2026 10:49:01	Login Date:	05/28/2026
Analyzed:	06/01/2026 11:35:37 by EBH	Effective Date:	06/01/2026
		Flow Rate:	

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia		
Hydrogen Sulfide	0.000	0.000		GPM TOTAL C2+	6.168
Nitrogen	1.691	2.200		GPM TOTAL C3+	2.909
Methane	76.211	56.793		GPM TOTAL iC5+	0.466
Carbon Dioxide	0.283	0.579			
Ethane	12.141	16.958	3.259		
Propane	5.936	12.159	1.641		
Iso-butane	0.758	2.046	0.249		
n-Butane	1.749	4.722	0.553		
Iso-pentane	0.381	1.277	0.139		
n-Pentane	0.385	1.290	0.140		
Hexanes Plus	0.465	1.976	0.187		
	100.000	100.000	6.168		

Calculated Physical Properties	Total	C6+
Relative Density Real Gas	0.7458	3.1583
Calculated Molecular Weight	21.53	91.47
Compressibility Factor	0.9963	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.73 psia & 60°F		
Real Gas Dry BTU	1277	4933
Water Sat. Gas Base BTU	1255	4847

Comments: Reran Sample Confirmed GC Analysis
H2S Field Content: 0 %

Mostaq Ahammad

Mostaq Ahammad, Petroleum Chemist

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated. The test results apply to the sample as received.

Certificate of Analysis

Number: 6030-26055529-001A

Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481

Clayton Freitas
Trace Delaware Gathering LLC
840 Gessner
STE. 530
TX 77024

Station Name:	APOLLO DISCHARGE	Report Date:	06/01/2026
Station Number:	N/A	Sampled By:	Adrian Munoz
Method:	GPA 2286	Sample Of:	Gas Spot
Cylinder No:	1111-000217	Sample Conditions:	1017 psig, @ 94 °F
Instrument 1:	6030_GC1, HP7890 Signal 2	Sample Date:	05/27/2026 10:30
Instrument 2:	6030_GC2, HP7890 Signal 1	Received Date:	05/28/2026
Analyzed:	06/01/2026 11:15:18 by EBH	Login Date:	05/28/2026

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.73 psia
Hydrogen Sulfide	0.000	0.000	
Nitrogen	1.691	2.200	
Methane	76.211	56.793	
Carbon Dioxide	0.283	0.579	
Ethane	12.141	16.958	3.259
Propane	5.936	12.159	1.641
Iso-Butane	0.758	2.046	0.249
n-Butane	1.749	4.722	0.553
Iso-Pentane	0.381	1.277	0.139
n-Pentane	0.385	1.290	0.140
i-Hexanes	0.126	0.490	0.050
n-Hexane	0.075	0.291	0.030
Benzene	0.029	0.107	0.008
Cyclohexane	0.053	0.207	0.018
i-Heptanes	0.083	0.360	0.034
n-Heptane	0.018	0.084	0.008
Toluene	0.016	0.067	0.005
i-Octanes	0.043	0.238	0.023
n-Octane	0.004	0.023	0.002
Ethylbenzene	0.002	0.008	0.001
Xylenes	0.004	0.014	0.001
i-Nonanes	0.004	0.024	0.002
n-Nonane	0.000	0.000	0.000
Decane Plus	0.008	0.063	0.005
	100.000	100.000	6.168

Certificate of Analysis

Number: 6030-26055529-001A

Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481

Clayton Freitas
Trace Delaware Gathering LLC
840 Gessner
STE. 530
TX 77024

Station Name:	APOLLO DISCHARGE	Report Date:	06/01/2026
Station Number:	N/A	Sampled By:	Adrian Munoz
Method:	GPA 2286	Sample Of:	Gas Spot
Cylinder No:	1111-000217	Sample Conditions:	1017 psig, @ 94 °F
Instrument 1:	6030_GC1, HP7890 Signal 2	Sample Date:	05/27/2026 10:30
Instrument 2:	6030_GC2, HP7890 Signal 1	Received Date:	05/28/2026
Analyzed:	06/01/2026 11:15:18 by EBH	Login Date:	05/28/2026

Calculated Physical Properties	**Total**	**C10+**
Calculated Molecular Weight	21.53	165.66
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.73 psia & 60°F		
Real Gas Dry BTU	1276.9	9041.4
Water Sat. Gas Base BTU	1254.7	8851.0
Relative Density Real Gas	0.7458	5.7198
Compressibility Factor	0.9963	

Comments: Reran Sample Confirmed GC Analysis
H2S Field Content: 0 %

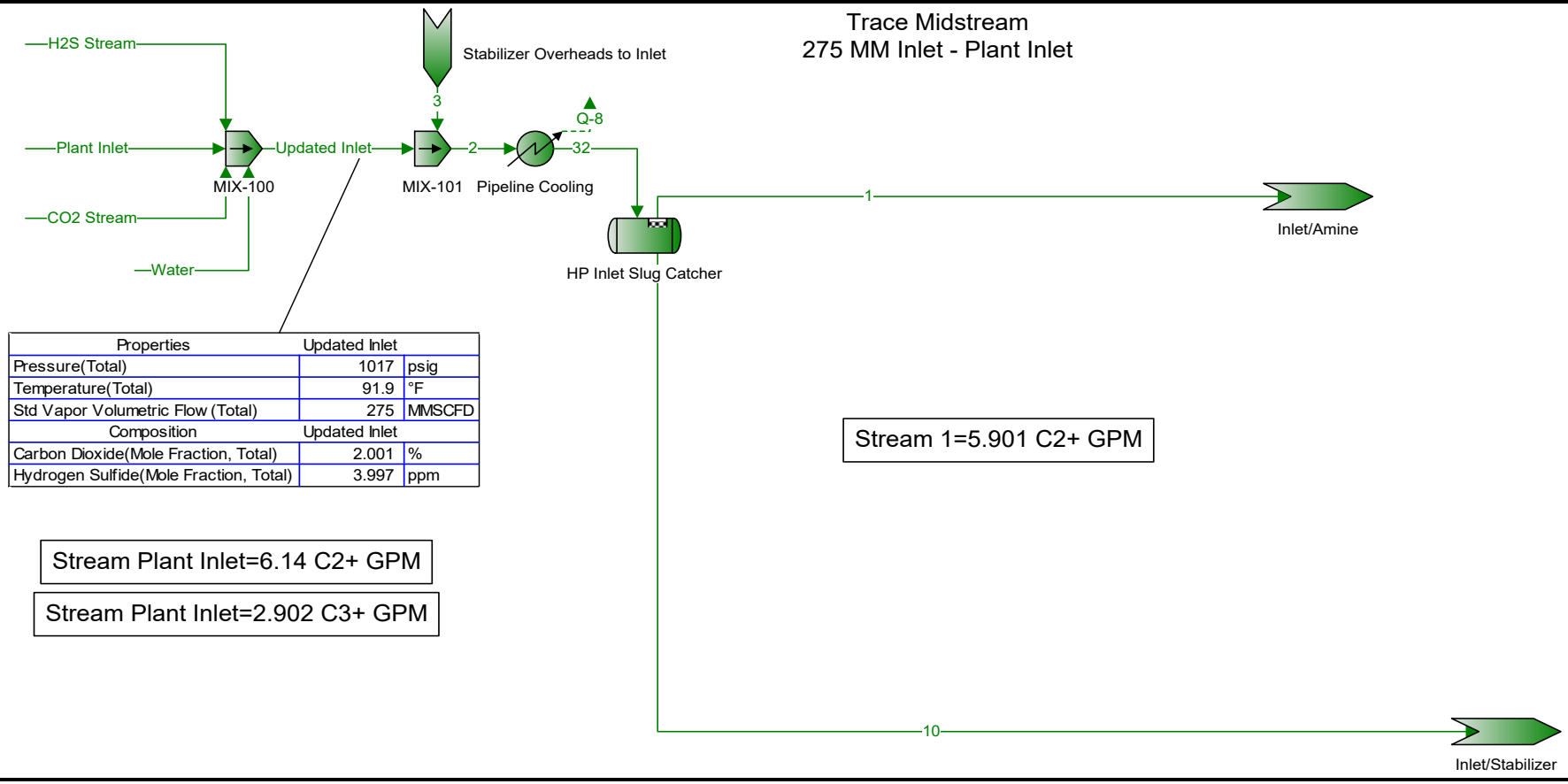


Mostaq Ahammad, Petroleum Chemist

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated. The test results apply to the sample as received.

BR&E ProMax Report

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	01. Plant Inlet	



Properties	Updated Inlet	
Pressure(Total)	1017	psig
Temperature(Total)	91.9	°F
Std Vapor Volumetric Flow (Total)	275	MMSCFD
Composition	Updated Inlet	
Carbon Dioxide(Mole Fraction, Total)	2.001	%
Hydrogen Sulfide(Mole Fraction, Total)	3.997	ppm

ProMax 7.0.26169.0
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785%a r %W v %
N r v %v %
% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	01. Plant Inlet	

N r z %w %d vr C8%

Yz v%dz z x%8%

ayr vC%e r %			d r C%d vu%		
Horizontal Linear Pressure Drop	0.0140349	psi/(100*ft)	Mixture Velocity Head	282.833	lb/(ft*s^2)
* Maximum Velocity	18	ft/s	Sonic Velocity Correlation	Wallis	
Maximum Velocity Head		lb/(ft*s^2)	Sonic Velocity	1125.21	ft/s
Maximum Fraction of Erosional Velocity		%	Mach Number	0.00650939	
Maximum Mach Number			API RP 14E Constant C	100	(ft/s)*(lb/ft^3)^0.5
Conduit Shape	Circle		Sand/Fluid Mass Flow Ratio		ppm
Pipe Schedule	STD		Erosional Velocity	43.5521	ft/s
* Nominal Pipe Size	30	in	Fraction of Erosional Velocity	16.8176	%
Diameter Nominal	750		Material of Construction		
Outside Diameter	30	in	Corrosion Allowance		in
Thickness	0.375	in	Applicable Pressure Code	ASME B31.3	
Inside Diameter	29.25	in	Quality/Joint Factor		
Absolute Roughness	0.0018	in	Weld Joint Strength Reduction Factor		
Inclination Angle	0	°	Coefficient Y		
Elevation Change per Length	0	in/ft	Maximum Allowable Working Pressure		psig
Multiphase Flow Correlation	Beggs and Brill		Adiabatic Bulk Modulus	1440.73	psi
Beggs-Brill Rough Pipe Option	True		Pipe Modulus of Elasticity		psi
Beggs-Brill Holdup Correction	False		Pressure Wave Velocity	1125.21	ft/s
Flow Efficiency Factor	1		Maximum Hydraulic Pressure Surge	9.37825	psi
Single Phase Friction Factor	Colebrook		Pipe Length		ft
Single Phase Drag Reduction Factor	0	%	Maximum Pressure Surge Critical Time		s
Total Linear Pressure Drop	0.0140349	psi/(100*ft)	Valve Closure Time		s
Friction Gradient	-0.0140341	psi/(100*ft)	Final/Initial Velocity Ratio	0	%
Elevation Gradient	0	psi/(100*ft)	Distance from Inlet to Peak Pressure Rise		ft
Acceleration Gradient	-8.32799E-07	psi/(100*ft)	Peak Pressure Rise for Incompressible Fluid		psi
Liquid Holdup	0		Over Design Factor	1	
Flow Regime	Gas		Design Pressure for Incompressible Fluid		psig
Reynolds Number	1.03562E+07		Full Cross-sectional Area	671.957	in^2
Friction Factor	0.0112072		Cross-sectional Flow Area	671.957	in^2
Superficial Gas Velocity	7.32444	ft/s	Wetted Perimeter	91.8916	in
Superficial Liquid Velocity	0	ft/s	Hydraulic Diameter	29.25	in
Mixture Velocity	7.32444	ft/s	Equivalent Circular Diameter	29.25	in
Normal Vapor Velocity	639.192	ft/s			

cv r ►

ProMax 7.0.26169.0
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a tv %d vr %sv %
N %d vr %
ers r vu%s % r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	01. Plant Inlet	

P vt z %

	P` 9%d vr %	U9d%d vr %	a r %v %	f ur vu%v %	h r v %
From Block	--	--	--	MIX-100	--
To Block	MIX-100	MIX-100	MIX-100	MIX-101	MIX-100

d vr %R zz %

Z v%s rt z %	P` 9%d vr % , %	U9d%d vr % , %	a r %v % , %	f ur vu%v % , %	h r v % , %
Hydrogen Sulfide	0 *	100 *	0 *	0.000399674	0 *
Nitrogen	0 *	0 *	1.691 *	1.65828	0 *
Methane	0 *	0 *	76.211 *	74.7361	0 *
Carbon Dioxide	100 *	0 *	0.283 *	2.00067	0 *
Ethane	0 *	0 *	12.141 *	11.906	0 *
Propane	0 *	0 *	5.936 *	5.82112	0 *
i-Butane	0 *	0 *	0.758 *	0.743331	0 *
n-Butane	0 *	0 *	1.749 *	1.71515	0 *
i-Pentane	0 *	0 *	0.381 *	0.373627	0 *
n-Pentane	0 *	0 *	0.385 *	0.377549	0 *
i-Hexane	0 *	0 *	0.126 *	0.123562	0 *
Hexane	0 *	0 *	0.075 *	0.0735486	0 *
Benzene	0 *	0 *	0.029 *	0.0284388	0 *
Cyclohexane	0 *	0 *	0.053 *	0.0519743	0 *
i-Heptane	0 *	0 *	0.083 *	0.0813938	0 *
nC7	0 *	0 *	0.018 *	0.0176517	0 *
Toluene	0 *	0 *	0.016 *	0.0156904	0 *
i-Octane	0 *	0 *	0.043 *	0.0421678	0 *
nC8	0 *	0 *	0.004 *	0.00392259	0 *
Ethylbenzene	0 *	0 *	0.002 *	0.0019613	0 *
o-Xylene	0 *	0 *	0.004 *	0.00392259	0 *
Isononane	0 *	0 *	0.004 *	0.00392259	0 *
nC9	0 *	0 *	0 *	0	0 *
Decane	0 *	0 *	0.008 *	0.00784518	0 *
Ethylene Glycol	0 *	0 *	0 *	0	0 *
MDEA	0 *	0 *	0 *	0	0 *
DEA	0 *	0 *	0 *	0	0 *
Piperazine	0 *	0 *	0 *	0	0 *
DGA	0 *	0 *	0 *	0	0 *
TEG	0 *	0 *	0 *	0	0 *
Water	0 *	0 *	0 *	0.211686	100 *

Zr %s rt z %	P` 9%d vr % , %	U9d%d vr % , %	a r %v % , %	f ur vu%v % , %	h r v % , %
Hydrogen Sulfide	0 *	100 *	0 *	0.000621544	0 *
Nitrogen	0 *	0 *	2.19967 *	2.11971	0 *
Methane	0 *	0 *	56.7724 *	54.7087	0 *
Carbon Dioxide	100 *	0 *	0.578337 *	4.01769	0 *
Ethane	0 *	0 *	16.9521 *	16.3358	0 *
Propane	0 *	0 *	12.1545 *	11.7127	0 *
i-Butane	0 *	0 *	2.04578 *	1.97142	0 *
n-Butane	0 *	0 *	4.72041 *	4.54883	0 *
i-Pentane	0 *	0 *	1.27645 *	1.23005	0 *
n-Pentane	0 *	0 *	1.28985 *	1.24296	0 *
i-Hexane	0 *	0 *	0.504199 *	0.485871	0 *
Hexane	0 *	0 *	0.300118 *	0.289209	0 *
Benzene	0 *	0 *	0.105187 *	0.101364	0 *
Cyclohexane	0 *	0 *	0.207122 *	0.199594	0 *
i-Heptane	0 *	0 *	0.386191 *	0.372153	0 *
nC7	0 *	0 *	0.0837523 *	0.0807079	0 *
Toluene	0 *	0 *	0.0684556 *	0.0659672	0 *
i-Octane	0 *	0 *	0.228082 *	0.219791	0 *
nC8	0 *	0 *	0.0212169 *	0.0204457	0 *
Ethylbenzene	0 *	0 *	0.00985961 *	0.00950121	0 *

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	01. Plant Inlet	

Zr %Srt z %	P` 9%d vr % , %	U9d%d vr % , %	a r %l v % , %	f ur vu%l v % , %	h r v % , %
o-Xylene	0 *	0 *	0.0197192 *	0.0190024	0 *
Isononane	0 *	0 *	0.0238223 *	0.0229563	0 *
nC9	0 *	0 *	0 *	0	0 *
Decane	0 *	0 *	0.0528551 *	0.0509338	0 *
Ethylene Glycol	0 *	0 *	0 *	0	0 *
MDEA	0 *	0 *	0 *	0	0 *
DEA	0 *	0 *	0 *	0	0 *
Piperazine	0 *	0 *	0 *	0	0 *
DGA	0 *	0 *	0 *	0	0 *
TEG	0 *	0 *	0 *	0	0 *
Water	0 *	0 *	0 *	0.174015	100 *

Zr %S %	P` 9%d vr % s6y%	U9d%d vr % s6y%	a r %l v % s6y%	f ur vu%l v % s6y%	h r v % s6y%
Hydrogen Sulfide	0 *	4.11287 *	0 *	4.11287	0 *
Nitrogen	0 *	0 *	14026.5 *	14026.5	0 *
Methane	0 *	0 *	362017 *	362017	0 *
Carbon Dioxide	22897.9 *	0 *	3687.85 *	26585.8	0 *
Ethane	0 *	0 *	108097 *	108097	0 *
Propane	0 *	0 *	77505 *	77505	0 *
i-Butane	0 *	0 *	13045.2 *	13045.2	0 *
n-Butane	0 *	0 *	30100.4 *	30100.4	0 *
i-Pentane	0 *	0 *	8139.44 *	8139.44	0 *
n-Pentane	0 *	0 *	8224.89 *	8224.89	0 *
i-Hexane	0 *	0 *	3215.1 *	3215.1	0 *
Hexane	0 *	0 *	1913.75 *	1913.75	0 *
Benzene	0 *	0 *	670.742 *	670.742	0 *
Cyclohexane	0 *	0 *	1320.75 *	1320.75	0 *
i-Heptane	0 *	0 *	2462.6 *	2462.6	0 *
nC7	0 *	0 *	534.059 *	534.059	0 *
Toluene	0 *	0 *	436.517 *	436.517	0 *
i-Octane	0 *	0 *	1454.4 *	1454.4	0 *
nC8	0 *	0 *	135.293 *	135.293	0 *
Ethylbenzene	0 *	0 *	62.8712 *	62.8712	0 *
o-Xylene	0 *	0 *	125.742 *	125.742	0 *
Isononane	0 *	0 *	151.906 *	151.906	0 *
nC9	0 *	0 *	0 *	0	0 *
Decane	0 *	0 *	337.038 *	337.038	0 *
Ethylene Glycol	0 *	0 *	0 *	0	0 *
MDEA	0 *	0 *	0 *	0	0 *
DEA	0 *	0 *	0 *	0	0 *
Piperazine	0 *	0 *	0 *	0	0 *
DGA	0 *	0 *	0 *	0	0 *
TEG	0 *	0 *	0 *	0	0 *
Water	0 *	0 *	0 *	1151.49	1151.49 *

d vr %a v zv %

a v %	f z %	P` 9%d vr %	U9d%d vr %	a r %l v %	f ur vu%l v %	h r v %
Temperature	°F	94 *	94 *	94 *	91.8895	94 *
Pressure	psig	1017 *	1017 *	1017 *	1017	1017 *
Molecular Weight	lb/lbmol	44.0095	34.0809	21.5353	21.9152	18.0153
Std Liquid Volumetric Flow	sgpm	56.0161	0.0102921	3607.16	3665.49	2.30191 *
Std Vapor Volumetric Flow	MMSCFD	4.73865 *	0.0010991 *	269.678 *	275	0.582135
Net Ideal Gas Heating Value	Btu/ft^3	0	586.79	1152.53	1130.23	0
Gross Ideal Gas Heating Value	Btu/ft^3	0	637.1	1269.69	1245.23	50.31
Mole Fraction Vapor	%	100	0	100	99.8811	0
Mass Density	lb/ft^3	14.9251	47.1233	4.77016	4.90661	62.0833
Mass Flow	lb/h	22897.9	4.11287	637664	661718	1151.49
Specific Gravity		1.51953	0.755559	0.743559		0.995423
API Gravity			45.8901			9.87555

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	01. Plant Inlet	

cv r ►%
a r %v G
Apollo Discharge
Sample Date: 5/27/26
Sample Conditions: 1017 psig, 94 F

ProMax 7.0.26169.0
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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	01. Plant Inlet

Job: 275 MMSCFD Apollo GP

P vt z %

	8%	9%	:%	87%	:9%
From Block	HP Inlet Slug Catcher	MIX-101	Stabilizer Overheads to Inlet	HP Inlet Slug Catcher	Pipeline Cooling
To Block	Inlet/Amine	Pipeline Cooling	MIX-101	Inlet/Stabilizer	HP Inlet Slug Catcher

d vr %8 zz %

Z v%s rt z %	8% , %	9% , %	:% , %	87% , %	:9% , %
Hydrogen Sulfide	0.000402555	0.000404695	0.00123964	0.000541159	0.000404695
Nitrogen	1.67058	1.6488	0.0736579	0.260072	1.6488
Methane	75.1703	74.4184	21.5756	26.4758	74.4184
Carbon Dioxide	2.01341	2.00272	2.34379	1.32107	2.00272
Ethane	12.0176	12.0461	35.3368	13.8615	12.0461
Propane	5.78743	5.92836	23.7607	14.9146	5.92836
i-Butane	0.717696	0.760168	3.56005	3.46832	0.760168
n-Butane	1.62665	1.75441	8.28238	9.90061	1.75441
i-Pentane	0.330775	0.381089	1.62195	3.58926	0.381089
n-Pentane	0.324402	0.384722	1.57749	4.23098	0.384722
i-Hexane	0.0935569	0.125263	0.408206	2.14697	0.125263
Hexane	0.0518414	0.0744252	0.220205	1.51446	0.0744252
Benzene	0.0203474	0.0288147	0.0913285	0.568723	0.0288147
Cyclohexane	0.0345077	0.0525367	0.146059	1.20214	0.0525367
i-Heptane	0.0483298	0.0819614	0.176351	2.22644	0.0819614
nC7	0.00931653	0.0177415	0.0326777	0.55495	0.0177415
Toluene	0.00819086	0.015778	0.0303578	0.499566	0.015778
i-Octane	0.0229764	0.0423742	0.0766848	1.27926	0.0423742
nC8	0.00133376	0.00392215	0.00384957	0.168968	0.00392215
Ethylbenzene	0.000666053	0.00196202	0.00208192	0.0845978	0.00196202
o-Xylene	0.001208	0.00392086	0.00363319	0.176903	0.00392086
Isononane	0.000853025	0.00391241	0.00221986	0.198991	0.00391241
nC9	0	0	0	0	0
Decane	0.000829583	0.00780829	0.00167271	0.452798	0.00780829
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0468145	0.214431	0.671048	10.9024	0.214431

Zr %s rt z %	8% , %	9% , %	:% , %	87% , %	:9% , %
Hydrogen Sulfide	0.000632516	0.000626942	0.00117338	0.000442144	0.000626942
Nitrogen	2.15759	2.09954	0.0573082	0.174658	2.09954
Methane	55.5971	54.2675	9.61315	10.1824	54.2675
Carbon Dioxide	4.08521	4.00641	2.86481	1.3938	4.00641
Ethane	16.6599	16.4647	29.5106	9.99216	16.4647
Propane	11.7657	11.8828	29.0995	15.7665	11.8828
i-Butane	1.92317	2.00835	5.74684	4.8327	2.00835
n-Butane	4.35885	4.63512	13.3699	13.7953	4.63512
i-Pentane	1.10027	1.24981	3.25011	6.20815	1.24981
n-Pentane	1.07906	1.26172	3.16101	7.31809	1.26172
i-Hexane	0.371701	0.490676	0.976999	4.43545	0.490676
Hexane	0.205966	0.291536	0.527039	3.12873	0.291536
Benzene	0.0732759	0.10231	0.198132	1.06499	0.10231
Cyclohexane	0.133892	0.200981	0.3414	2.42541	0.200981
i-Heptane	0.223268	0.373314	0.490777	5.3483	0.373314
nC7	0.0430393	0.080808	0.0909409	1.33308	0.080808
Toluene	0.0347941	0.0660819	0.0776858	1.10347	0.0660819

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	01. Plant Inlet

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8% , %	9% , %	: % , %	87% , %	: 9% , %
i-Octane	0.121002	0.220021	0.243285	3.50316	0.220021
nC8	0.00702404	0.0203652	0.0122129	0.462709	0.0203652
Ethylbenzene	0.00326006	0.00946831	0.00613872	0.215312	0.00946831
o-Xylene	0.00591269	0.0189213	0.0107128	0.450242	0.0189213
Isononane	0.00504396	0.0228091	0.00790736	0.611838	0.0228091
nC9	0	0	0	0	0
Decane	0.00544182	0.0505002	0.00660999	1.54448	0.0505002
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0388827	0.175597	0.335758	4.70858	0.175597

Zr %S %	8% s6y%	9% s6y%	: % s6y%	87% s6y%	: 9% s6y%
Hydrogen Sulfide	4.10307	4.18958	0.0767103	0.0865035	4.18958
Nitrogen	13996.1	14030.3	3.74655	34.171	14030.3
Methane	360653	362645	628.464	1992.13	362645
Carbon Dioxide	26500.4	26773.1	187.288	272.69	26773.1
Ethane	108072	110026	1929.27	1954.92	110026
Propane	76322.7	79407.4	1902.39	3084.65	79407.4
i-Butane	12475.4	13420.9	375.702	945.496	13420.9
n-Butane	28275.5	30974.5	874.064	2698.99	30974.5
i-Pentane	7137.32	8351.91	212.477	1214.59	8351.91
n-Pentane	6999.79	8431.54	206.653	1431.75	8431.54
i-Hexane	2411.19	3278.97	63.8717	867.776	3278.97
Hexane	1336.08	1948.2	34.4554	612.122	1948.2
Benzene	475.334	683.695	12.953	208.36	683.695
Cyclohexane	868.545	1343.07	22.3192	474.521	1343.07
i-Heptane	1448.32	2494.69	32.0848	1046.37	2494.69
nC7	279.192	540.004	5.9453	260.812	540.004
Toluene	225.706	441.596	5.07875	215.889	441.596
i-Octane	784.926	1470.3	15.9049	685.377	1470.3
nC8	45.5643	136.091	0.798422	90.527	136.091
Ethylbenzene	21.1477	63.2725	0.401321	42.1248	63.2725
o-Xylene	38.3551	126.443	0.700351	88.0877	126.443
Isononane	32.7197	152.423	0.516948	119.703	152.423
nC9	0	0	0	0	0
Decane	35.3006	337.47	0.432131	302.17	337.47
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	252.228	1173.44	21.9503	921.211	1173.44

d vr %a v zv %

a v %	f z %	8%	9%	: %	87%	: 9%
Temperature	°F	69.9448	91.2661	120.024	69.9448	70 *
Pressure	psig	1016	1017	1017	1016	1017
Molecular Weight	lb/lbmol	21.6903	21.9994	36.0055	41.713	21.9994
Std Liquid Volumetric Flow	sgpm	3620.57	3694.73	29.2442	74.1676	3694.73
Std Vapor Volumetric Flow	MMSCFD	272.382	276.653	1.65368	4.27172	276.653
Net Ideal Gas Heating Value	Btu/ft^3	1120.35	1134.51	1847.09	2037.6	1134.51
Gross Ideal Gas Heating Value	Btu/ft^3	1234.64	1249.82	2013.7	2218.12	1249.82
Mole Fraction Vapor	%	100	99.8766	0	0	98.4626
Mass Density	lb/ft^3	5.27208	4.95235	21.9369 ?	32.9322	5.41046

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	01. Plant Inlet	

d vr %a v zv %

a v %	f z %	8%	9%	:%	87%	:9%
Mass Flow	lb/h	648691	668255	6537.55	19564.5	668255
Specific Gravity		0.748908		0.351729 ?	0.528024	
API Gravity				181.847	132.239	

h r z x %

ProMax:ProMax!Project!Flowsheets!01. Plant Inlet!PStreams!1
Warning: The temperature of 69.9448 °F is within 10 °F of hydrate formation.
ProMax:ProMax!Project!Flowsheets!01. Plant Inlet!PStreams!10
Warning: The temperature of 69.9448 °F is within 10 °F of hydrate formation.
ProMax:ProMax!Project!Flowsheets!01. Plant Inlet!PStreams!32
Warning: The temperature of 70 °F is within 10 °F of hydrate formation.

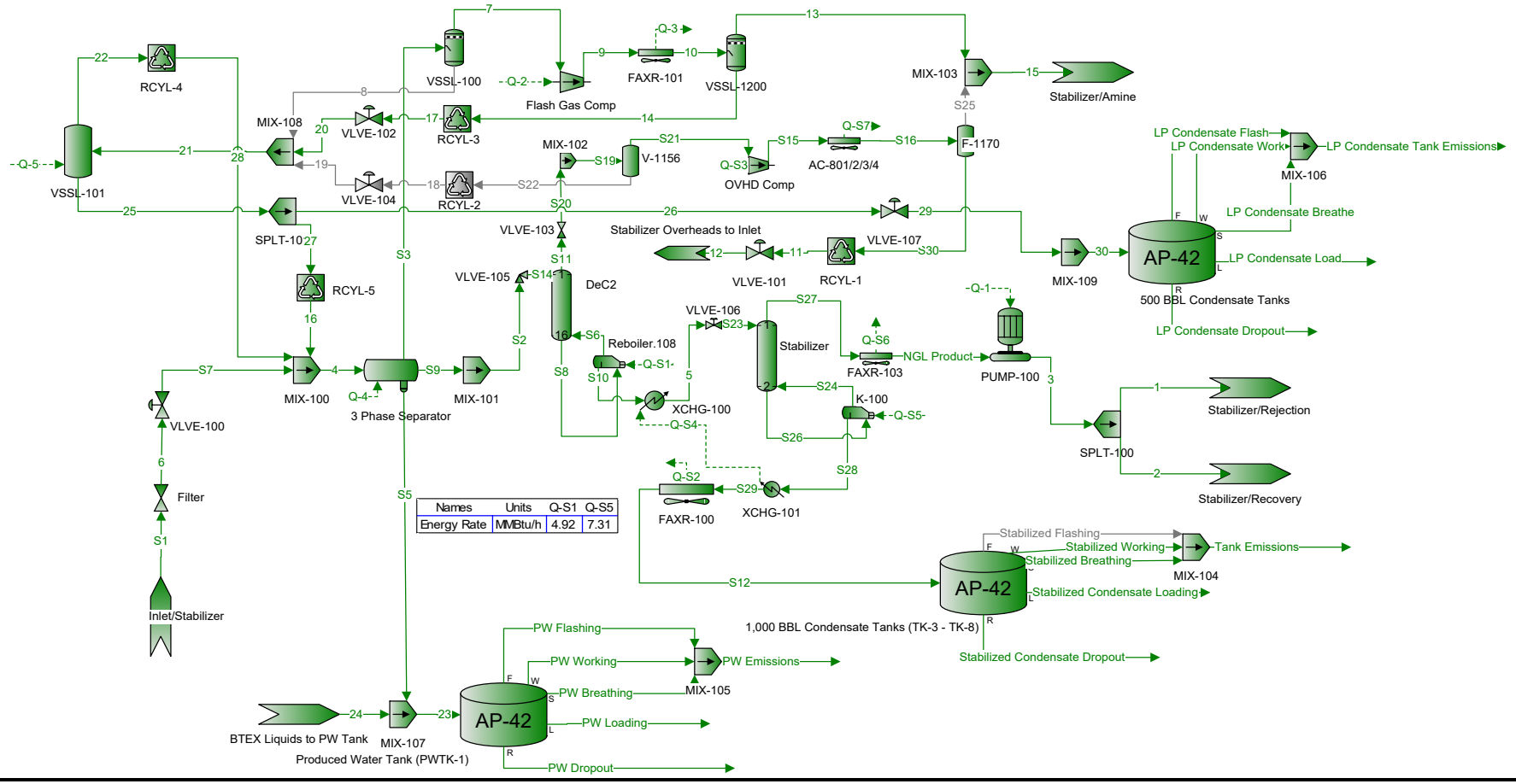
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a r %dtyv r zt%
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%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Trace Midstream
275 MM Inlet - Stabilizer



* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

Molar Flow Sum

Molar Flow Sum	2.04192	lbmol/h	Std Liquid Volumetric Flow Sum	0.424461	sgpm
Mole Fraction Sum	100	%	Std Liquid Volumetric Fraction Sum	100	%
Mass Flow Sum	126.349	lb/h	* Component Subset	VOCs	
Mass Fraction Sum	100	%	Atomic Basis	False	
Std Vapor Volumetric Flow Sum	0.018597	MMSCFD	Species in Results	Selected Species	
Normal Vapor Volumetric Flow Sum	0.017595	MMCFD	Fraction Denominator	Selected Species	

Component Subset

Component	Atomic Basis
Hydrogen Sulfide	False
Nitrogen	False
Methane	False
Carbon Dioxide	False
Ethane	False
Propane	True
i-Butane	True
n-Butane	True
i-Pentane	True
n-Pentane	True
i-Hexane	True
Hexane	True
Benzene	True
Cyclohexane	True
i-Heptane	True
nC7	True
Toluene	True
i-Octane	True
nC8	True
Ethylbenzene	True
o-Xylene	True
Isononane	True
nC9	True
Decane	True
Ethylene Glycol	True
MDEA	True
DEA	True
Piperazine	True
DGA	True
TEG	True
Water	False

Species in Results

Component	Fraction Denominator		
Propane	0.549347	26.9035	24.2238	19.1721
i-Butane	0.189888	9.29948	11.0367	8.73507
n-Butane	0.573654	28.0939	33.342	26.3888
i-Pentane	0.211209	10.3437	15.2385	12.0606
n-Pentane	0.235196	11.5184	16.9691	13.4303
i-Hexane	0.0912471	4.4687	7.86326	6.22344
Hexane	0.0524957	2.5709	4.52383	3.58042
Benzene	0.0197564	0.967542	1.54321	1.22138
Cyclohexane	0.0365025	1.78766	3.07203	2.43138

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N r v %ov %
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

ers r vu%Qr r%w G% zz %d s v %5%%ayr vG%e r %

Vuv %	Z r %S % s 6y%	Z v%S rt z % , %	Zr %S % s6y%	Zr %S rt z % , %
i-Heptane	0.0451603	2.21166	4.52515	3.58147
nC7	0.00803409	0.393458	0.805031	0.637148
Toluene	0.00700303	0.342964	0.645248	0.510687
i-Octane	0.0202616	0.992285	2.31446	1.83179
nC8	0.000746457	0.0365567	0.0852667	0.067485
Ethylbenzene	0.000364875	0.0178693	0.038737	0.0306587
o-Xylene	0.000601849	0.0294747	0.0638953	0.0505705
Isononane	0.000336992	0.0165037	0.0432209	0.0342075
nC9	0	0	0	0
Decane	0.000109609	0.00536796	0.0155954	0.0123431
Ethylene Glycol	0	0	0	0
MDEA	0	0	0	0
DEA	0	0	0	0
Piperazine	0	0	0	0
DGA	0	0	0	0
TEG	0	0	0	0

Vuv %	d u%gr %g v z t%S % ZZdPSQ%	^ r %gr %g v z t% S % ZZPSQ%	d u%z zu%g v z t% S % x %	d u%z zu%g v z t% S rt z % , %
Propane	0.00500325	0.00473367	0.0954783	22.494
i-Butane	0.00172942	0.00163624	0.0391997	9.23518
n-Butane	0.00522462	0.00494312	0.114093	26.8795
i-Pentane	0.00192361	0.00181997	0.0487289	11.4802
n-Pentane	0.00214208	0.00202666	0.0537842	12.6712
i-Hexane	0.000831044	0.000786267	0.0238945	5.62938
Hexane	0.000478111	0.00045235	0.0136185	3.20841
Benzene	0.000179934	0.000170239	0.00348804	0.821758
Cyclohexane	0.000332451	0.000314538	0.00783697	1.84634
i-Heptane	0.000411303	0.000389142	0.0132393	3.11909
nC7	7.31714E-05	6.92289E-05	0.00233834	0.550897
Toluene	6.37809E-05	6.03444E-05	0.00147945	0.348549
i-Octane	0.000184535	0.000174592	0.00664432	1.56536
nC8	6.79844E-06	6.43214E-06	0.000241247	0.056836
Ethylbenzene	3.32314E-06	3.14409E-06	8.88434E-05	0.0209309
o-Xylene	5.48141E-06	5.18607E-06	0.000144355	0.0340091
Isononane	3.06919E-06	2.90382E-06	0.00012045	0.0283771
nC9	0	0	0	0
Decane	9.9828E-07	9.44492E-07	4.24406E-05	0.00999871
Ethylene Glycol	0	0	0	0
MDEA	0	0	0	0
DEA	0	0	0	0
Piperazine	0	0	0	0
DGA	0	0	0	0
TEG	0	0	0	0

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N r z %w %d vr G%d87%

gr %a v v%8%

ayr vG%e r %			d r G%d vu%		
Bubble Point Temperature	200	°F	True Vapor Pressure	54.0656	psig
Bubble Point Pressure	178	psig	Reid Vapor Pressure	36.1924	psi
Dew Point Temperature	317.929	°F	Component Subset	All Selected	
Dew Point Pressure	17.0251	psig			

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Component				
Hydrogen Sulfide		True		
Nitrogen		True		
Methane		True		
Carbon Dioxide		True		
Ethane		True		
Propane		True		
i-Butane		True		
n-Butane		True		
i-Pentane		True		
n-Pentane		True		
i-Hexane		True		
Hexane		True		
Benzene		True		
Cyclohexane		True		
i-Heptane		True		
nC7		True		
Toluene		True		
i-Octane		True		
nC8		True		
Ethylbenzene		True		
o-Xylene		True		
Isononane		True		
nC9		True		
Decane		True		
Ethylene Glycol		True		
MDEA		True		
DEA		True		
Piperazine		True		
DGA		True		
TEG		True		
Water		True		

Minimum Pressure	1.89595	psig	Cricondentherm Pressure	602.294 psig
Minimum Temperature		°F	Cricondentherm Temperature	344.434 °F
Minimum Mole Fraction Vapor	100	%	Cricondenbar Pressure	623.836 psig
Maximum Mole Fraction Vapor	100	%	Cricondenbar Temperature	341.302 °F
Number of Steps	1		Critical Pressure	623.836 psig
Maximum Solids Curve Pressure		psig	Critical Temperature	341.302 °F
Approach to Critical Temperature	9	°F	Component Subset	Dry Basis
Approach to Critical Pressure	29.0075	psi		

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Vuv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	False			
MDEA	False			
DEA	False			
Piperazine	False			
DGA	False			
TEG	False			
Water	False			

Vuv %	Z v%S rt z % gr % , %	ev v r v% S%	a v v% zx%	Z r %R yr % O 6s %	Z r %R % O 6 s 1 S0%	Z r %Q v z % s 6wo: %
0	0	-15.7723	1.89595	-68343.7	53.766	0.652199
1	0	-6.2496	4.7967	-68046.2	54.4272	0.646757
2	0	2.40782	7.79862	-67772.3	55.0237	0.641759
3	0	10.5891	10.9811	-67510.4	55.5837	0.636991
4	0	19.1612	14.7032	-67232.6	56.1669	0.631946
5	0	27.755	18.8609	-66950.6	56.7482	0.626834
6	0	36.7592	23.7066	-66651.3	57.3539	0.621417
7	0	44.8689	28.5272	-66378.2	57.8967	0.616482
8	0	53.3256	34.0423	-66089.9	58.4602	0.611277
9	0	61.7623	40.0686	-65798.6	59.0201	0.606019
10	0	70.5583	46.9391	-65490.8	59.6016	0.600466
11	0	79.3318	54.4203	-65179.5	60.1796	0.59485
12	0	87.549	62.0237	-64884.1	60.7193	0.589515
13	0	96.0848	70.5604	-64573.3	61.2783	0.583892
14	0	104.566	79.7151	-64260.4	61.832	0.578218
15	0	113.37	89.9593	-63931	62.4057	0.572229
16	0	122.115	100.908	-63599	62.9746	0.566176
17	0	130.272	111.842	-63284.9	63.5047	0.560427
18	0	138.713	123.912	-62955.2	64.053	0.554367
19	0	147.069	136.639	-62624	64.5958	0.548249
20	0	155.714	150.646	-62276.1	65.1575	0.541782
21	0	164.272	165.37	-61926.3	65.714	0.535234
22	0	173.127	181.525	-61558.5	66.2905	0.52829

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795%d rszzr z %
N r v %v %
%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

ayr v%R v v%Qr r%v C%yr v%R v v%5%%%ayr vC%s r %

Vuv %	Z v%S rt z % gr % , %	ev v r v% S%	a v v% zx%	Z r%R yr % O 6s %	Z r%R % O 6s 1 S0%	Z r%Qv z % s 6wo: %
23	0	181.892	198.455	-61188.3	66.8623	0.521231
24	0	190.043	215.052	-60838.2	67.3955	0.514484
25	0	198.455	233.052	-60470.7	67.9474	0.507318
26	0	206.763	251.702	-60101.5	68.4945	0.500016
27	0	215.338	271.873	-59715.4	69.0589	0.492215
28	0	223.805	292.716	-59327.6	69.6182	0.484217
29	0	232.548	315.198	-58918.7	70.1998	0.475607
30	0	241.19	338.367	-58505.3	70.7799	0.46669
31	0	250.129	363.292	-58067.2	71.3863	0.456971
32	0	258.987	388.912	-57621.5	71.9951	0.446755
33	0	267.248	413.572	-57194.3	72.5711	0.436611
34	0	275.817	439.854	-56737.9	73.1789	0.421724
35	0	284.348	466.621	-56269.7	73.7948	0.398679
36	0	293.27	495.082	-55760.9	74.4559	0.365029
37	0	302.272	524.001	-55222.6	75.1468	0.344251
38	0	310.915	551.537	-54676	75.8404	0.326746
39	0	319.375	577.613	-54102.7	76.5606	0.305534
40	0	328.071	602.184	-53450.6	77.3731	0.278811
41	0	336.808	621.008	-52670.2	78.3414	0.244203
42	0	341.302	623.836	-52139.5	79.003	0.218368
43	100	104.848	1.89595	-54935.7	80.489	0.00249285
44	100	112.757	4.7967	-54747.9	80.4719	0.00295643
45	100	121.661	8.57392	-54536	80.4662	0.00355531
46	100	130.157	12.7361	-54333.3	80.4727	0.00421068
47	100	139.139	17.79	-54118.9	80.4911	0.0050021
48	100	147.299	23.0186	-53924.1	80.517	0.00581762
49	100	155.872	29.2261	-53719.7	80.5525	0.00678352
50	100	164.487	36.2649	-53514.8	80.5959	0.0078778
51	100	172.609	43.6993	-53322.3	80.6429	0.00903447
52	100	181.097	52.362	-53122.2	80.6975	0.0103856
53	100	189.576	62.0021	-52923.6	80.7568	0.0118957
54	100	198.424	73.1939	-52718.1	80.8228	0.0136605
55	100	207.251	85.6028	-52515.3	80.8918	0.015635
56	100	215.512	98.4314	-52328.1	80.9583	0.0176992
57	100	224.081	113.073	-52136.9	81.0282	0.0200873
58	100	232.575	129.033	-51951.1	81.0976	0.022734
59	100	241.364	147.183	-51763.2	81.1682	0.0258052
60	100	250.055	166.895	-51582.9	81.2357	0.0292221
61	100	259.022	189.232	-51403.5	81.3011	0.033207
62	100	267.857	213.405	-51234.8	81.3596	0.0376695
63	100	276.019	237.827	-51087.6	81.4062	0.0423541
64	100	284.368	265.092	-50947.7	81.4438	0.047818
65	100	291.694	291.123	-50835.9	81.4657	0.0532947
66	100	299.125	319.777	-50735.4	81.4743	0.0596577
67	100	305.59	346.773	-50661.4	81.467	0.0660212
68	100	311.439	373.083	-50608.3	81.4445	0.0726223
69	100	317.284	401.459	-50572.3	81.4021	0.0802617
70	100	322.285	427.683	-50559.5	81.3444	0.0878956
71	100	327.212	455.686	-50569.3	81.2603	0.0967935
72	100	331.799	484.259	-50607.7	81.1458	0.106878
73	100	335.747	511.573	-50676.6	81.0021	0.117777
74	100	339.4	540.492	-50794.6	80.8001	0.13122
75	100	342.12	566.759	-50960.3	80.5493	0.146067
76	100	344.009	594.36	-51242.6	80.1567	0.166803
77	100	344.21	608.054	-51472.2	79.853	0.181457
78	100	341.302	623.836	-52139.5	79.003	0.218368

cv r ►

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Nrzwd vrG9E

gr av v8

ayr vG e r		dr G d vu	
Bubble Point Temperature	333.95 °F	True Vapor Pressure	-3.25748 psig
Bubble Point Pressure	151 psig	Reid Vapor Pressure	9 psi
Dew Point Temperature	391.795 °F	Component Subset	All Selected
Dew Point Pressure	70.9365 psig		

dv vt vu8

Vuv	dv vt vu8 v			
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

cv r ►

Nrzwd vrG7

gr av v8

ayr vG e r		dr G d vu	
Bubble Point Temperature	17.2834 °F	True Vapor Pressure	1378.45 psig
Bubble Point Pressure	1400.83 psig	ASTM D6377 VPCRx Temperature	100.04 °F
Dew Point Temperature	168.642 °F	ASTM D6377 VPCRx V/L Ratio	4

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Dew Point Pressure	251.962 psig	Component Subset	All Selected

Vuv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

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a tv %d vr %sv % N %d vr %
ers r vu%s % r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	Ya% P uv r v% O vr yv%	Ya% P uv r v% Q %	Ya% P uv r v% Sr y%	Ya% P uv r v% Y ru%	Ya% P uv r v% er ▶% R z z %
From Block	500 BBL Condensate Tanks	500 BBL Condensate Tanks	500 BBL Condensate Tanks	500 BBL Condensate Tanks	MIX-106
To Block	MIX-106	--	MIX-106	--	--

d vr %R zz %

Z v%S rt z %	Ya% P uv r v% O vr yv% , %	Ya% P uv r v% Q % , %	Ya% P uv r v% Sr y% , %	Ya% P uv r v% Y ru% , %	Ya% P uv r v% er ▶% R z z % , %
Hydrogen Sulfide	0.00020221	0	0.000393142	0	0.000389826
Nitrogen	0.000148751	0	0.00766009	0	0.00752965
Methane	0.189202	0	2.79625	0	2.75097
Carbon Dioxide	0.061288	0	0.341698	0	0.336828
Ethane	3.54586	0	8.78379	0	8.69283
Propane	28.4186	0.200321	23.5709	4.18088	23.6551
i-Butane	9.34591	1.40556	8.15596	10.3143	8.17663
n-Butane	27.7278	7.09979	24.6483	35.1833	24.7018
i-Pentane	9.44759	7.50082	9.08851	14.5205	9.09475
n-Pentane	10.2802	11.3021	10.1249	16.2167	10.1276
i-Hexane	3.79299	10.6338	3.93154	6.28099	3.92914
Hexane	2.22441	8.84739	2.26112	3.52756	2.26048
Benzene	0.521818	3.35249	0.85653	1.34433	0.850717
Cyclohexane	1.26045	7.87499	1.57731	2.46582	1.57181
i-Heptane	1.79964	16.8466	1.94718	2.94667	1.94462
nC7	0.322007	4.39692	0.346374	0.510821	0.345951
Toluene	0.181614	4.0151	0.303673	0.447753	0.301553
i-Octane	0.816846	10.2443	0.873456	1.31531	0.872473
nC8	0.0258491	1.28685	0.0322539	0.0448824	0.0321427
Ethylbenzene	0.00964661	0.655364	0.0158188	0.0218092	0.0157117
o-Xylene	0.0135716	1.32899	0.026134	0.0357769	0.0259159
Isononane	0.0116612	1.26393	0.0145614	0.0195612	0.014511
nC9	0	0	0	0	0
Decane	0.00255166	1.74021	0.00475813	0.00584022	0.00471982
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.00016607	0.00451635	0.290889	0.617148	0.28584

Zr %S rt z %	Ya% P uv r v% O vr yv% , %	Ya% P uv r v% Q % , %	Ya% P uv r v% Sr y% , %	Ya% P uv r v% Y ru% , %	Ya% P uv r v% er ▶% R z z % , %
Hydrogen Sulfide	0.000116039	0	0.000232482	0	0.000230399
Nitrogen	7.01646E-05	0	0.0037233	0	0.00365796
Methane	0.0511079	0	0.77835	0	0.765343
Carbon Dioxide	0.0454164	0	0.260926	0	0.257071
Ethane	1.79528	0	4.58279	0	4.53293
Propane	21.1003	0.0992567	18.0343	2.72403	18.0892
i-Butane	9.14649	0.917972	8.22519	8.85793	8.24167
n-Butane	27.1362	4.63687	24.8575	30.2153	24.8982
i-Pentane	11.4773	6.081	11.3776	15.4796	11.3794
n-Pentane	12.4888	9.16275	12.6751	17.2878	12.6717

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	Ya% P uv r v% O vr yv% , %	Ya% P uv r v% Q % , %	Ya% P uv r v% Sr y% , %	Ya% P uv r v% Y ru% , %	Ya% P uv r v% er ▶% R z z % , %
i-Hexane	5.50372	10.297	5.87861	7.9976	5.8719
Hexane	3.22766	8.56714	3.38092	4.49165	3.37818
Benzene	0.686321	2.94253	1.16088	1.55157	1.15239
Cyclohexane	1.78616	7.44715	2.30329	3.06629	2.29404
i-Heptane	3.03636	18.9681	3.38541	4.3627	3.37917
nC7	0.543291	4.95065	0.602213	0.756298	0.601159
Toluene	0.281761	4.15695	0.485484	0.609575	0.481841
i-Octane	1.57111	13.149	1.73119	2.21999	1.72832
nC8	0.0497177	1.65174	0.0639272	0.0757528	0.0636731
Ethylbenzene	0.0172444	0.78181	0.0291397	0.0342113	0.0289269
o-Xylene	0.0242607	1.58541	0.0481411	0.056122	0.047714
Isononane	0.0251831	1.82153	0.0324045	0.0370696	0.0322753
nC9	0	0	0	0	0
Decane	0.00611311	2.78219	0.0117467	0.012278	0.0116459
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	5.03758E-05	0.000914253	0.0909278	0.164278	0.0893024

Zr %S %	Ya% P uv r v% O vr yv% s6y%	Ya% P uv r v% Q % s6y%	Ya% P uv r v% Sr y% s6y%	Ya% P uv r v% Y ru% s6y%	Ya% P uv r v% er ▶% R z z % s6y%
Hydrogen Sulfide	2.63813E-06	0	0.000305755	0	0.000308535
Nitrogen	1.59519E-06	0	0.00489681	0	0.0048985
Methane	0.00116193	0	1.02367	0	1.0249
Carbon Dioxide	0.00103254	0	0.343165	0	0.344253
Ethane	0.0408156	0	6.0272	0	6.0702
Propane	0.479714	0.0498126	23.7184	0.00224801	24.2238
i-Butane	0.207945	0.460691	10.8176	0.00731002	11.0367
n-Butane	0.616938	2.32705	32.6921	0.0249352	33.342
i-Pentane	0.260936	3.05179	14.9636	0.0127745	15.2385
n-Pentane	0.283931	4.59839	16.67	0.0142668	16.9691
i-Hexane	0.125127	5.16761	7.73143	0.00660003	7.86326
Hexane	0.0733806	4.29948	4.44653	0.00370674	4.52383
Benzene	0.0156034	1.47673	1.52677	0.00128044	1.54321
Cyclohexane	0.0406082	3.7374	3.02925	0.00253046	3.07203
i-Heptane	0.0690313	9.51929	4.45243	0.00360033	4.52515
nC7	0.0123517	2.48452	0.792018	0.000624137	0.805031
Toluene	0.00640582	2.08619	0.6385	0.000503053	0.645248
i-Octane	0.035719	6.59892	2.27682	0.00183205	2.31446
nC8	0.00113033	0.828936	0.0840758	6.25152E-05	0.0852667
Ethylbenzene	0.000392049	0.392357	0.0383239	2.82329E-05	0.038737
o-Xylene	0.000551564	0.795649	0.0633142	4.63147E-05	0.0638953
Isononane	0.000572535	0.914148	0.0426177	3.05918E-05	0.0432209
nC9	0	0	0	0	0
Decane	0.000138981	1.39626	0.015449	1.01324E-05	0.0155954
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	1.14529E-06	0.000458824	0.119586	0.000135571	0.119588

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v %	f z %	Ya% P uv r v% O vr yv%	Ya% P uv r v% Q %	Ya% P uv r v% Sr y%	Ya% P uv r v% Y ru%	Ya% P uv r v% er ►% R z z %
Temperature	°F	82.9575	82.9575	82.9575	82.9575	82.9575
Pressure	psig	0.08	0.08	0.08	0.08	0.08
Molecular Weight	lb/lbmol	59.3894	88.9944	57.633	67.6787	57.6635
Std Liquid Volumetric Flow	sgpm	0.00781648	0.145833	0.458212	0.000266272	0.466447
Std Vapor Volumetric Flow	MMSCFD	0.000348649	0.00513597	0.0207835	1.11055E-05	0.0211508
Net Ideal Gas Heating Value	Btu/ft^3	3064.4	4477.44	2965	3463.13	2966.72
Gross Ideal Gas Heating Value	Btu/ft^3	3318.48	4820.2	3211.08	3744.28	3212.94
Mole Fraction Vapor	%	100	0	100	82.5517	100
Mass Density	lb/ft^3	0.134618	42.4604	0.13044	0.186537	0.130512
Mass Flow	lb/h	2.27349	50.1857	131.518	0.0825252	133.913
Specific Gravity		2.05056	0.680795	1.98992		1.99097
API Gravity			72.7845			

cv r ►%

ProMax 7.0.26169.0
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a tv %d vr %sv %
N %d vr %
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%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	Ya% P uv r v% h ▶%	^TY%a u t %	ah %O vr yz x%	ah %Q %	ah % R z z %
From Block	500 BBL Condensate Tanks	FAXR-103	Produced Water Tank (PWTK-1)	Produced Water Tank (PWTK-1)	MIX-105
To Block	MIX-106	PUMP-100	MIX-105	--	--

d vr %R zz %

Z v%S rt z %	Ya% P uv r v% h ▶% , %	^TY%a u t % , %	ah %O vr yz x% , %	ah %Q % , %	ah % R z z % , %
Hydrogen Sulfide	0.00020221	0.000242782	0.00405745	6.27463E-06	0.00500804
Nitrogen	0.000148751	0	0.00208094	1.72888E-06	0.15192
Methane	0.189202	3.3019E-09	1.21124	0.000735439	30.0505
Carbon Dioxide	0.061288	2.50325E-05	8.68507	0.00402533	10.3067
Ethane	3.54586	3.67022	1.12098	0.000859748	17.7699
Propane	28.4186	23.0095	0.254984	0.000823563	10.5445
i-Butane	9.34591	8.74048	0.0182381	0.000167279	1.11392
n-Butane	27.7278	27.2739	0.0793844	0.00107581	4.62948
i-Pentane	9.44759	10.3187	0.0191091	0.000685047	1.19532
n-Pentane	10.2802	11.7921	0.0207367	0.00100598	1.36946
i-Hexane	3.79299	4.52805	0.00663692	0.000790817	0.475643
Hexane	2.22441	2.79606	0.00506598	0.00085015	0.345921
Benzene	0.521818	1.02418	0.125606	0.0338208	4.17639
Cyclohexane	1.26045	1.84875	0.0171512	0.0044924	1.05542
i-Heptane	1.79964	2.56769	0.00411579	0.00160922	0.305309
nC7	0.322007	0.523802	0.001063	0.00060482	0.07528
Toluene	0.181614	0.450157	0.036316	0.0333884	1.76112
i-Octane	0.816846	1.1556	0.00240812	0.00125901	0.185851
nC8	0.0258491	0.0780075	9.67997E-05	0.000200049	0.00815948
Ethylbenzene	0.00964661	0.0382812	0.00186679	0.00526281	0.0826344
o-Xylene	0.0135716	0.0696829	0.00297884	0.0121008	0.199004
Isononane	0.0116612	0.057234	4.2349E-05	0.000190401	0.00479113
nC9	0	0	0	0	0
Decane	0.00255166	0.0573046	1.17262E-05	0.000331545	0.00174699
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	7.29016E-09	3.25851E-05	6.43825E-05
DEA	0	0	0	0	0
Piperazine	0	0	7.22289E-06	7.75638E-05	8.48634E-07
DGA	0	0	0	0	0
TEG	0	0	2.91304E-11	1.73389E-06	3.96034E-12
Water	0.00016607	6.45077E-06	88.3807	99.8956	14.1859

Zr %S rt z %	Ya% P uv r v% h ▶% , %	^TY%a u t % , %	ah %O vr yz x% , %	ah %Q % , %	ah % R z z % , %
Hydrogen Sulfide	0.000116039	0.000133469	0.00669809	1.18235E-05	0.00494289
Nitrogen	7.01646E-05	0	0.00282366	2.67779E-06	0.123249
Methane	0.0511079	8.54453E-10	0.941214	0.000652326	13.9613
Carbon Dioxide	0.0454164	1.77707E-05	18.5143	0.00979478	13.1361
Ethane	1.79528	1.78018	1.6327	0.00142935	15.4742
Propane	21.1003	16.3665	0.544621	0.00200788	13.4655
i-Butane	9.14649	8.19466	0.0513462	0.000537565	1.87499
n-Butane	27.1362	25.5707	0.223493	0.00345721	7.79251
i-Pentane	11.4773	12.009	0.0667814	0.00273272	2.49756
n-Pentane	12.4888	13.7237	0.0724694	0.00401295	2.86142
i-Hexane	5.50372	6.2943	0.0277036	0.00376796	1.18704
Hexane	3.22766	3.88672	0.0211463	0.00405066	0.863304

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N %d vr %
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%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	Ya% P uv r v% h ▶% , %	^TY%a u t % , %	ah %O vr yz x% , %	ah %Q % , %	ah % R z z % , %
Benzene	0.686321	1.29046	0.475241	0.146065	9.44759
Cyclohexane	1.78616	2.50978	0.0699174	0.0209039	2.57235
i-Heptane	3.03636	4.15023	0.0199763	0.00891533	0.885968
nC7	0.543291	0.846635	0.00515937	0.0033508	0.218453
Toluene	0.281761	0.669049	0.162078	0.170092	4.69929
i-Octane	1.57111	2.1293	0.0133242	0.0079515	0.614812
nC8	0.0497177	0.143735	0.000535593	0.00126345	0.0269923
Ethylbenzene	0.0172444	0.0655571	0.00959984	0.030892	0.254065
o-Xylene	0.0242607	0.119333	0.0153185	0.0710302	0.611852
Isononane	0.0251831	0.118408	0.00026309	0.00135018	0.0177957
nC9	0	0	0	0	0
Decane	0.00611311	0.13152	8.08152E-05	0.00260818	0.00719851
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	4.20787E-08	0.000214686	0.000222182
DEA	0	0	0	0	0
Piperazine	0	0	3.01356E-05	0.000369393	2.11693E-06
DGA	0	0	0	0	0
TEG	0	0	2.11897E-10	1.43966E-05	1.72237E-11
Water	5.03758E-05	1.87459E-06	77.1232	99.5025	7.4012

Zr %S %	Ya% P uv r v% h ▶% s6y%	^TY%a u t % s6y%	ah %O vr yz x% s6y%	ah %Q % s6y%	ah % R z z % s6y%
Hydrogen Sulfide	1.41214E-07	0.0641027	6.22264E-07	0.00017239	3.17277E-05
Nitrogen	8.5387E-08	0	2.62323E-07	3.90431E-05	0.000791119
Methane	6.21959E-05	4.10377E-07	8.74405E-05	0.00951111	0.0896155
Carbon Dioxide	5.52696E-05	0.00853492	0.00172001	0.142811	0.0843188
Ethane	0.00218477	854.988	0.00015168	0.0208403	0.0993266
Propane	0.0256781	7860.54	5.05963E-05	0.0292756	0.0864331
i-Butane	0.0111308	3935.74	4.77015E-06	0.00783787	0.0120352
n-Butane	0.0330234	12281.1	2.07629E-05	0.0504072	0.0500189
i-Pentane	0.0139674	5767.69	6.20411E-06	0.039844	0.0160315
n-Pentane	0.0151982	6591.25	6.73254E-06	0.0585101	0.018367
i-Hexane	0.00669776	3023.03	2.57372E-06	0.054938	0.00761946
Hexane	0.00392791	1866.72	1.96452E-06	0.0590598	0.00554141
Benzene	0.00083522	619.785	4.41507E-05	2.12968	0.0606426
Cyclohexane	0.00217367	1205.4	6.49545E-06	0.304786	0.0165115
i-Heptane	0.0036951	1993.28	1.85584E-06	0.129988	0.00568689
nC7	0.000661159	406.623	4.79315E-07	0.0488558	0.00140222
Toluene	0.00034289	321.331	1.50574E-05	2.47999	0.030164
i-Octane	0.00191196	1022.66	1.23784E-06	0.115935	0.00394638
nC8	6.0504E-05	69.0334	4.97576E-08	0.0184215	0.000173259
Ethylbenzene	2.09856E-05	31.4859	8.91843E-07	0.450415	0.00163081
o-Xylene	2.95241E-05	57.3135	1.42311E-06	1.03564	0.00392738
Isononane	3.06466E-05	56.8692	2.44415E-08	0.019686	0.000114228
nC9	0	0	0	0	0
Decane	7.43936E-06	63.1666	7.50788E-09	0.0380281	4.62061E-05
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	3.90918E-12	0.00313019	1.42615E-06
DEA	0	0	0	0	0
Piperazine	0	0	2.79965E-09	0.00538586	1.35882E-08
DGA	0	0	0	0	0
TEG	0	0	1.96856E-14	0.000209907	1.10556E-13
Water	6.1305E-08	0.000900329	0.00716489	1450.78	0.0475072

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v %	f z %	Ya% P uv r v% h ►%	^TY%a u t %	ah %O vr yz x%	ah %Q %	ah % R z z %
Temperature	°F	82.9575	120 *	82.9575	82.9575	82.9561
Pressure	psig	0.08	145	0.08	0.08	0.08
Molecular Weight	lb/lbmol	59.3894	61.9936	20.6449	18.0864	34.53
Std Liquid Volumetric Flow	sgpm	0.0004184	161.813	2.04761E-05	2.91745	0.00245587
Std Vapor Volumetric Flow	MMSCFD	1.86625E-05	7.05592	4.09841E-06	0.734207	0.000169303
Net Ideal Gas Heating Value	Btu/ft^3	3064.4	3190.11	47.4474	4.13825	1423.18
Gross Ideal Gas Heating Value	Btu/ft^3	3318.48	3451.93	96.1004	54.6076	1549.79
Mole Fraction Vapor	%	100	0	12.1205	0	89.7143
Mass Density	lb/ft^3	0.134618	35.2397	0.376861	62.1046	0.0858209
Mass Flow	lb/h	0.121695	48028.1	0.00929018	1458.03	0.641885
Specific Gravity		2.05056	0.565022		0.995765	
API Gravity			102.487		10.0961	

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N %d vr %
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	ah %Sr yz x%	ah %% ruz x%	ah % ▶z x%	d rszz vu% O vr yz x%	d rszz vu% P uv r v% Q %
From Block	Produced Water Tank (PWTK-1)	Produced Water Tank (PWTK-1)	Produced Water Tank (PWTK-1)	1,000 BBL Condensate Tanks (TK-3 - TK-8)	1,000 BBL Condensate Tanks (TK-3 - TK-8)
To Block	MIX-105	--	MIX-105	MIX-104	--

d vr %R zz %

Z v%Srt z %	ah %Sr yz x% , %	ah %% ruz x% , %	ah % ▶z x% , %	d rszz vu% O vr yz x% , %	d rszz vu% P uv r v% Q % , %
Hydrogen Sulfide	0.00513406	0.00522072	0.00405745	7.21617E-05	1.43202E-06
Nitrogen	0.171785	0.189815	0.00208094	0	0
Methane	33.8738	36.8777	1.21124	1.20499E-10	8.91208E-13
Carbon Dioxide	10.5216	10.3784	8.68507	4.38991E-06	2.45143E-08
Ethane	19.9771	20.4129	1.12098	1.62471	0.0155336
Propane	11.9086	12.0899	0.254984	15.0421	0.632033
i-Butane	1.25917	1.21938	0.0182381	8.33499	1.00406
n-Butane	5.2327	5.02456	0.0793844	27.7135	4.94231
i-Pentane	1.35125	1.23222	0.0191091	13.0773	6.19257
n-Pentane	1.54826	1.38834	0.0207367	14.8281	9.51194
i-Hexane	0.53782	0.468393	0.00663692	6.43674	10.1643
Hexane	0.391109	0.330175	0.00506598	3.80675	8.47433
Benzene	4.71342	3.93057	0.125606	0.902835	3.22884
Cyclohexane	1.19306	0.991579	0.0171512	2.25586	7.84451
i-Heptane	0.345238	0.281142	0.00411579	3.30258	17.1615
nC7	0.0851191	0.0673639	0.001063	0.611626	4.62976
Toluene	1.98978	1.55146	0.036316	0.345205	4.22562
i-Octane	0.21017	0.170478	0.00240812	1.55624	10.8155
nC8	0.00922837	0.00690552	9.67997E-05	0.0598633	1.65119
Ethylbenzene	0.093342	0.0671322	0.00186679	0.0220178	0.828616
o-Xylene	0.224992	0.164192	0.00297884	0.0324916	1.76323
Isononane	0.00542069	0.00397327	4.2349E-05	0.0340549	2.04625
nC9	0	0	0	0	0
Decane	0.00197704	0.00133518	1.17262E-05	0.0129293	4.86793
Ethylene Glycol	0	0	0	0	0
MDEA	7.29169E-05	5.68181E-05	7.29016E-09	0	0
DEA	0	0	0	0	0
Piperazine	3.58323E-09	1.35356E-09	7.22289E-06	0	0
DGA	0	0	0	0	0
TEG	6.23484E-13	1.66385E-13	2.91304E-11	0	0
Water	4.34976	3.14688	88.3807	7.42175E-10	1.12055E-08

Zr %Srt z %	ah %Sr yz x% , %	ah %% ruz x% , %	ah % ▶z x% , %	d rszz vu% O vr yz x% , %	d rszz vu% P uv r v% Q % , %
Hydrogen Sulfide	0.00481081	0.00509509	0.00669809	3.73507E-05	5.27459E-07
Nitrogen	0.132312	0.152267	0.00282366	0	0
Methane	14.9411	16.9413	0.941214	2.93585E-11	1.54518E-13
Carbon Dioxide	12.7314	13.0793	18.5143	2.93416E-06	1.16599E-08
Ethane	16.5158	17.5766	1.6327	0.741953	0.00504803
Propane	14.4378	15.2661	0.544621	10.0736	0.301207
i-Butane	2.01222	2.02951	0.0513462	7.35747	0.630713
n-Butane	8.36208	8.36278	0.223493	24.4633	3.10457
i-Pentane	2.68048	2.54583	0.0667814	14.3294	4.82869
n-Pentane	3.07129	2.86837	0.0724694	16.2479	7.41698
i-Hexane	1.27429	1.15586	0.0277036	8.42424	9.46651

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	ah %Sr yz x% , %	ah %ruz x% , %	ah %▶z x% , %	d rszz vu% Ovr yz x% , %	d rszz vu% Puv r v% Q % , %
Hexane	0.926677	0.814776	0.0211463	4.98217	7.89256
Benzene	10.1228	8.79192	0.475241	1.07104	2.72579
Cyclohexane	2.76067	2.38969	0.0699174	2.88334	7.13507
i-Heptane	0.951135	0.806701	0.0199763	5.02586	18.5849
nC7	0.234504	0.193292	0.00515937	0.930773	5.01376
Toluene	5.04072	4.09347	0.162078	0.483058	4.20786
i-Octane	0.660074	0.557639	0.0133242	2.69981	13.3522
nC8	0.0289832	0.0225882	0.000535593	0.103852	2.03845
Ethylbenzene	0.272462	0.20409	0.00959984	0.0355007	0.950745
o-Xylene	0.656742	0.499164	0.0153185	0.0523882	2.02311
Isononane	0.0191151	0.0145926	0.00026309	0.0663339	2.83636
nC9	0	0	0	0	0
Decane	0.00773413	0.00544003	8.08152E-05	0.0279387	7.48553
Ethylene Glycol	0	0	0	0	0
MDEA	0.000238899	0.000193881	4.20787E-08	0	0
DEA	0	0	0	0	0
Piperazine	8.48602E-09	3.33865E-09	3.01356E-05	0	0
DGA	0	0	0	0	0
TEG	2.57433E-12	7.15513E-13	2.11897E-10	0	0
Water	2.15453	1.62343	77.1232	2.03062E-10	2.18174E-09

Zr %S %	ah %Sr yz x% s6y%	ah %ruz x% s6y%	ah %▶z x% s6y%	d rszz vu% Ovr yz x% s6y%	d rszz vu% Puv r v% Q % s6y%
Hydrogen Sulfide	2.87187E-05	2.69232E-06	2.38666E-06	1.33468E-06	0.00013367
Nitrogen	0.000789851	8.04603E-05	1.00613E-06	0	0
Methane	0.0891927	0.00895201	0.000335373	1.04909E-12	3.91585E-11
Carbon Dioxide	0.0760018	0.00691132	0.006597	1.04848E-07	2.9549E-06
Ethane	0.0985932	0.00928772	0.000581762	0.0265127	1.27929
Propane	0.0861885	0.00806686	0.000194059	0.359966	76.3328
i-Butane	0.0120122	0.00107242	1.82957E-05	0.262909	159.838
n-Butane	0.0499185	0.00441902	7.96349E-05	0.874163	786.771
i-Pentane	0.0160015	0.00134525	2.37955E-05	0.512043	1223.7
n-Pentane	0.0183344	0.00151569	2.58223E-05	0.580596	1879.64
i-Hexane	0.00760701	0.000610772	9.87135E-06	0.301029	2399.04
Hexane	0.00553191	0.00043054	7.53483E-06	0.178031	2000.16
Benzene	0.0604292	0.00464578	0.000169338	0.0382722	690.779
Cyclohexane	0.0164801	0.00126275	2.49129E-05	0.103032	1808.19
i-Heptane	0.00567792	0.000426273	7.11796E-06	0.179592	4709.84
nC7	0.0013999	0.000102138	1.83839E-06	0.0332599	1270.61
Toluene	0.0300912	0.00216305	5.77518E-05	0.0172614	1066.37
i-Octane	0.00394039	0.000294665	4.74766E-06	0.096474	3383.75
nC8	0.000173019	1.19359E-05	1.90843E-07	0.00371103	516.592
Ethylbenzene	0.00162649	0.000107844	3.42061E-06	0.00126857	240.941
o-Xylene	0.0039205	0.000263766	5.45828E-06	0.00187202	512.703
Isononane	0.00011411	7.71097E-06	9.37442E-08	0.00237035	718.802
nC9	0	0	0	0	0
Decane	4.61698E-05	2.87459E-06	2.87961E-08	0.000998352	1897.01
Ethylene Glycol	0	0	0	0	0
MDEA	1.42613E-06	1.0245E-07	1.49935E-11	0	0
DEA	0	0	0	0	0
Piperazine	5.06584E-11	1.76419E-12	1.07379E-08	0	0
DGA	0	0	0	0	0
TEG	1.53678E-14	3.78088E-16	7.55031E-14	0	0
Water	0.0128618	0.000857842	0.0274805	7.25614E-12	5.52904E-07

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Stream Report

Phase	Feed	Sour Gas	Sour Liquid	Overhead Vapor	Product Q
Temperature	°F	82.9575	82.9575	82.9575	82.0782	82.0782
Pressure	psig	0.08	0.08	0.08	0.08	0.08
Molecular Weight	lb/lbmol	36.3708	34.9212	20.6449	65.8444	92.5275
Std Liquid Volumetric Flow	sgpm	0.00235686	0.000215583	7.85352E-05	0.0117358	72.8918
Std Vapor Volumetric Flow	MMSCFD	0.000149485	1.37813E-05	1.57192E-05	0.000494269	2.49449
Net Ideal Gas Heating Value	Btu/ft^3	1605.56	1554.33	47.4474	3380.94	4649.5
Gross Ideal Gas Heating Value	Btu/ft^3	1742.51	1689.38	96.1004	3656.89	5003.76
Mole Fraction Vapor	%	100	100	12.1205	84.2501	0
Mass Density	lb/ft^3	0.0811095	0.077826	0.376861	0.177813	42.9425
Mass Flow	lb/h	0.596962	0.0528415	0.035632	3.57336	25342.4
Specific Gravity		1.25579	1.20574			0.688527
API Gravity						70.7189

Comments

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	d rszz vu% P uv r v% Y ruz x%	d rszz vu% S r yz x%	d rszz vu% h z x%	d8%	d9%
From Block	1,000 BBL Condensate Tanks (TK-3 - TK-8)	1,000 BBL Condensate Tanks (TK-3 - TK-8)	1,000 BBL Condensate Tanks (TK-3 - TK-8)	Inlet/Stabilizer	MIX-101
To Block	--	MIX-104	MIX-104	Filter	VLVE-105

d vr %R zz %

Z v%S rt z %	d rszz vu% P uv r v% Y ruz x% , %	d rszz vu% S r yz x% , %	d rszz vu% h z x% , %	d8% , %	d9% , %
Hydrogen Sulfide	8.73101E-05	7.88322E-05	7.21617E-05	0.000541159	0.000336019
Nitrogen	0	0	0	0.260072	0.0108693
Methane	4.74996E-10	4.14099E-10	1.20499E-10	26.4758	3.18353
Carbon Dioxide	4.55402E-06	4.35183E-06	4.38991E-06	1.32107	0.345823
Ethane	1.25089	1.15887	1.62471	13.8615	7.52605
Propane	14.4588	13.2913	15.0421	14.9146	18.1365
i-Butane	8.18538	7.80522	8.33499	3.46832	6.25399
n-Butane	27.2072	26.3546	27.7135	9.90061	19.5014
i-Pentane	13.2515	13.3629	13.0773	3.58926	8.118
n-Pentane	15.0892	15.48	14.8281	4.23098	9.77852
i-Hexane	6.58111	6.99892	6.43674	2.14697	5.17553
Hexane	3.70241	4.04769	3.80675	1.51446	3.68044
Benzene	1.42431	1.54134	0.902835	0.568723	1.37737
Cyclohexane	2.72197	2.97396	2.25586	1.20214	2.93247
i-Heptane	3.30397	3.73076	3.30258	2.22644	5.46398
nC7	0.591843	0.685268	0.611626	0.55495	1.36545
Toluene	0.513631	0.591595	0.345205	0.499566	1.22871
i-Octane	1.52211	1.73302	1.55624	1.27926	3.14703
nC8	0.0630247	0.0772993	0.0598633	0.168968	0.417286
Ethylbenzene	0.0295299	0.03612	0.0220178	0.0845978	0.208882
o-Xylene	0.0506629	0.0624301	0.0324916	0.176903	0.436949
Isononane	0.0347113	0.0442494	0.0340549	0.198991	0.491907
nC9	0	0	0	0	0
Decane	0.0176674	0.0242968	0.0129293	0.452798	1.12003
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	1.63703E-06	1.35374E-06	7.42175E-10	10.9024	0.0990107

Zr %S rt z %	d rszz vu% P uv r v% Y ruz x% , %	d rszz vu% S r yz x% , %	d rszz vu% h z x% , %	d8% , %	d9% , %
Hydrogen Sulfide	4.48283E-05	3.99007E-05	3.73507E-05	0.000442144	0.000176295
Nitrogen	0	0	0	0.174658	0.00468738
Methane	1.14799E-10	9.86602E-11	2.93585E-11	10.1824	0.786221
Carbon Dioxide	3.01938E-06	2.84436E-06	2.93416E-06	1.3938	0.234296
Ethane	0.566649	0.517512	0.741953	9.99216	3.48378
Propane	9.60517	8.70422	10.0736	15.7665	12.3115
i-Butane	7.16733	6.73742	7.35747	4.8327	5.59582
n-Butane	23.8233	22.7492	24.4633	13.7953	17.4491
i-Pentane	14.4036	14.3185	14.3294	6.20815	9.01659
n-Pentane	16.4011	16.587	16.2479	7.31809	10.8609
i-Hexane	8.54395	8.95738	8.42424	4.43545	6.86597

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srtz %	d rszzvu% Puv rv% Yruzx% , %	d rszzvu% Sryzx% , %	d rszzvu% h ▶zx% , %	d8% , %	d9% , %
Hexane	4.80666	5.18033	4.98217	3.12873	4.88255
Benzene	1.67609	1.78806	1.07104	1.06499	1.65627
Cyclohexane	3.45114	3.71711	2.88334	2.42541	3.79928
i-Heptane	4.98757	5.55188	5.02586	5.3483	8.42849
nC7	0.893428	1.01977	0.930773	1.33308	2.10627
Toluene	0.712966	0.809528	0.483058	1.10347	1.74283
i-Octane	2.61937	2.93999	2.69981	3.50316	5.53401
nC8	0.108458	0.131134	0.103852	0.462709	0.733791
Ethylbenzene	0.0472302	0.0569503	0.0355007	0.215312	0.341387
o-Xylene	0.0810304	0.0984332	0.0523882	0.450242	0.714128
Isononane	0.067069	0.0842847	0.0663339	0.611838	0.971229
nC9	0	0	0	0	0
Decane	0.0378702	0.0513411	0.0279387	1.54448	2.45325
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	4.44298E-07	3.62195E-07	2.03062E-10	4.70858	0.0274592

Zr %S %	d rszzvu% Puv rv% Yruzx% s6y%	d rszzvu% Sryzx% s6y%	d rszzvu% h ▶zx% s6y%	d8% s6y%	d9% s6y%
Hydrogen Sulfide	1.56953E-05	0	4.50828E-06	0.0865035	0.140893
Nitrogen	0	0	0	34.171	3.74612
Methane	4.01934E-11	0	3.54361E-12	1992.13	628.341
Carbon Dioxide	1.05715E-06	0	3.54157E-07	272.69	187.247
Ethane	0.198396	0	0.0895547	1954.92	2784.21
Propane	3.36297	0	1.2159	3084.65	9839.28
i-Butane	2.50943	0	0.888057	945.496	4472.13
n-Butane	8.34103	0	2.95275	2698.99	13945.1
i-Pentane	5.04299	0	1.72958	1214.59	7205.98
n-Pentane	5.74235	0	1.96114	1431.75	8679.96
i-Hexane	2.99141	0	1.01682	867.776	5487.23
Hexane	1.68291	0	0.601354	612.122	3902.1
Benzene	0.586835	0	0.129276	208.36	1323.68
Cyclohexane	1.20832	0	0.348023	474.521	3036.35
i-Heptane	1.74625	0	0.606628	1046.37	6735.98
nC7	0.312808	0	0.112346	260.812	1683.32
Toluene	0.249624	0	0.0583058	215.889	1392.85
i-Octane	0.917097	0	0.325871	685.377	4422.73
nC8	0.0379734	0	0.0125351	90.527	586.44
Ethylbenzene	0.0165363	0	0.00428498	42.1248	272.834
o-Xylene	0.0283704	0	0.00632333	88.0877	570.725
Isononane	0.0234822	0	0.00800659	119.703	776.198
nC9	0	0	0	0	0
Decane	0.0132591	0	0.00337224	302.17	1960.61
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	1.55558E-07	0	2.45099E-11	921.211	21.9452

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	a t v %d vr %v % N %d vr % ers r vu% % r %yr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v %	f z %	d rszz vu% P uv r v% Y ruz x%	d rszz vu% S r yz x%	d rszz vu% h z x%	d8%	d9%
Temperature	°F	82.0782	82.0782	82.0782	69.9448	110
Pressure	psig	0.08	0.08	0.08	1016	200
Molecular Weight	lb/lbmol	66.3779	67.3338	65.8444	41.713	64.9584
Std Liquid Volumetric Flow	sgpm	0.114249	0	0.0396414	74.1676	263.981
Std Vapor Volumetric Flow	MMSCFD	0.00480396	0	0.00166955	4.27172	11.2052
Net Ideal Gas Heating Value	Btu/ft^3	3403.87	3449.76	3380.94	2037.6	3316.93
Gross Ideal Gas Heating Value	Btu/ft^3	3680.3	3729.15	3656.89	2218.12	3585.29
Mole Fraction Vapor	%	81.6184	76.7836	84.2501	0	0
Mass Density	lb/ft^3	0.185026	0.199462	0.177813	32.9322	36.8209
Mass Flow	lb/h	35.0121	0	12.0701	19564.5	79919.2
Specific Gravity					0.528024	0.590374
API Gravity					132.239	95.8203

c v r %

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

P vt z %

	d: %	dB%	dC%	dD%	dE%
From Block	3 Phase Separator	3 Phase Separator	Reboiler.108	VLVE-100	DeC2
To Block	VSSL-100	MIX-107	DeC2	MIX-100	Reboiler.108

d vr %R zz %

Z v%S rt z %	d: % , %	dB% , %	dC% , %	dD% , %	dE% , %
Hydrogen Sulfide	0.000846767	1.17986E-05	0.000791239	0.000541159	0.000361829
Nitrogen	0.390727	5.85139E-05	0	0.260072	0
Methane	41.8721	0.0120596	3.75396E-08	26.4758	1.2892E-08
Carbon Dioxide	2.13624	0.0101976	0.000164996	1.32107	6.21245E-05
Ethane	22.1943	0.00742974	13.4936	13.8615	5.92513
Propane	19.3573	0.00410378	39.7615	14.9146	23.8937
i-Butane	2.9631	0.000337237	8.47733	3.46832	7.24344
n-Butane	6.87173	0.00123492	21.8079	9.90061	21.5513
i-Pentane	1.34068	0.000137115	5.31791	3.58926	8.07331
n-Pentane	1.29599	6.9484E-05	5.53313	4.23098	9.51054
i-Hexane	0.332336	6.9339E-06	1.71233	2.14697	4.72334
Hexane	0.17764	5.48961E-06	1.01205	1.51446	3.30616
Benzene	0.0733617	0.00122138	0.395825	0.568723	1.2413
Cyclohexane	0.117336	5.51095E-05	0.681077	1.20214	2.60051
i-Heptane	0.140647	1.41198E-06	0.923909	2.22644	4.75432
nC7	0.0258228	4.77232E-07	0.187165	0.55495	1.17647
Toluene	0.0238434	0.000278995	0.167971	0.499566	1.0584
i-Octane	0.0609469	1.11312E-06	0.420109	1.27926	2.70796
nC8	0.0029731	2.40555E-08	0.0278212	0.168968	0.35153
Ethylbenzene	0.00160252	1.37014E-05	0.0144552	0.0845978	0.176105
o-Xylene	0.00279007	3.55542E-05	0.0262257	0.176903	0.367277
Isononane	0.00169682	9.5341E-09	0.0195675	0.198991	0.410734
nC9	0	0	0	0	0
Decane	0.00124513	1.81935E-09	0.0191141	0.452798	0.928038
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.614769	99.9627	4.03559E-05	10.9024	1.53658E-05

Zr %S rt z %	d: % , %	dB% , %	dC% , %	dD% , %	dE% , %
Hydrogen Sulfide	0.000914063	2.23127E-05	0.000517311	0.000442144	0.000190727
Nitrogen	0.346689	9.09568E-05	0	0.174658	0
Methane	21.2763	0.0107353	1.1553E-08	10.1824	3.19882E-09
Carbon Dioxide	2.97782	0.0249032	0.000139301	1.3938	4.2287E-05
Ethane	21.1379	0.0123966	7.78359	9.99216	2.75559
Propane	27.0359	0.0100413	33.635	15.7665	16.2958
i-Butane	5.45493	0.00108765	9.45223	4.8327	6.51156
n-Butane	12.6506	0.00398283	24.3158	13.7953	19.3737
i-Pentane	3.06377	0.000548941	7.36043	6.20815	9.00903
n-Pentane	2.96163	0.000278179	7.65831	7.31809	10.6129
i-Hexane	0.907115	3.31567E-05	2.83076	4.43545	6.2955
Hexane	0.484869	2.62503E-05	1.67309	3.12873	4.40661
Benzene	0.181504	0.00529394	0.593135	1.06499	1.49965
Cyclohexane	0.312778	0.000257359	1.09959	2.42541	3.38501
i-Heptane	0.446383	7.85083E-06	1.77598	5.3483	7.36821
nC7	0.081956	2.65348E-06	0.359777	1.33308	1.82328
Toluene	0.0695842	0.00142642	0.296898	1.10347	1.50831
i-Octane	0.22051	7.05546E-06	0.920596	3.50316	4.78425
nC8	0.0107569	1.52475E-07	0.0609653	0.462709	0.621061

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srtz %	d:% , %	dB% , %	dC% , %	dD% , %	dE% , %
Ethylbenzene	0.00538871	8.07155E-05	0.02944	0.215312	0.289169
o-Xylene	0.00938203	0.000209451	0.0534122	0.450242	0.603077
Isononane	0.00689305	6.78523E-08	0.048144	0.611838	0.814766
nC9	0	0	0	0	0
Decane	0.00561132	1.4364E-08	0.0521717	1.54448	2.04227
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.350796	99.9286	1.3947E-05	4.70858	4.28148E-06

Zr %S %	d:% s6y%	dB% s6y%	dC% s6y%	dD% s6y%	dE% s6y%
Hydrogen Sulfide	0.102608	0.000203163	0.119948	0.0865035	0.184191
Nitrogen	38.9175	0.000828186	0	34.171	0
Methane	2388.37	0.0977479	2.67877E-06	1992.13	3.08919E-06
Carbon Dioxide	334.274	0.226751	0.0322995	272.69	0.0408378
Ethane	2372.83	0.112875	1804.77	1954.92	2661.16
Propane	3034.91	0.0914288	7798.92	3084.65	15737.4
i-Butane	612.342	0.00990332	2191.68	945.496	6288.41
n-Butane	1420.09	0.0362647	5638.08	2698.99	18709.8
i-Pentane	343.923	0.00499825	1706.66	1214.59	8700.3
n-Pentane	332.457	0.00253289	1775.72	1431.75	10249.2
i-Hexane	101.828	0.000301901	656.367	867.776	6079.76
Hexane	54.4289	0.000239016	387.938	612.122	4255.6
Benzene	20.3747	0.0482027	137.53	208.36	1448.26
Cyclohexane	35.1108	0.00234333	254.962	474.521	3269.01
i-Heptane	50.1086	7.14839E-05	411.795	1046.37	7115.7
nC7	9.19995	2.41607E-05	83.4212	260.812	1760.8
Toluene	7.81116	0.0129879	68.8416	215.889	1456.62
i-Octane	24.7533	6.42419E-05	213.458	685.377	4620.3
nC8	1.20751	1.38833E-06	14.136	90.527	599.778
Ethylbenzene	0.604909	0.000734936	6.82623	42.1248	279.259
o-Xylene	1.05318	0.00190711	12.3846	88.0877	582.41
Isononane	0.773778	6.17814E-07	11.1631	119.703	786.844
nC9	0	0	0	0	0
Decane	0.629898	1.30788E-07	12.097	302.17	1972.28
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	39.3785	909.876	0.00323388	921.211	0.00413476

d vr %a v zv %

a v %	f z %	d:%	dB%	dC%	dD%	dE%
Temperature	°F	110 *	110	200	31.2073	164.326
Pressure	psig	200	200	178	200 *	178
Molecular Weight	lb/lbmol	31.5718	18.0214	52.1275	41.713	64.655
Std Liquid Volumetric Flow	sgpm	52.2615	1.82145	85.5183	74.1676	320.274
Std Vapor Volumetric Flow	MMSCFD	3.23825	0.460159	4.05117	4.27172	13.6037
Net Ideal Gas Heating Value	Btu/ft^3	1625.16	0.441214	2707.97	2037.6	3314.16
Gross Ideal Gas Heating Value	Btu/ft^3	1775.95	50.7714	2936.56	2218.12	3583.04
Mole Fraction Vapor	%	100	0	100	35.4848	0
Mass Density	lb/ft^3	1.22523	61.8138	1.71556	4.70553	34.162
Mass Flow	lb/h	11225.5	910.527	23186.9	19564.5	96573
Specific Gravity		1.09009	0.991102	1.79983		0.547742

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v %	f z %	d: %	dB%	dC%	dD%	dE%
API Gravity			10.0073			97.2683

h r z x %

ProMax:ProMax!Project!Flowsheets!02. Stabilization!PStreams!S7
Warning: The temperature of 31.2073 °F is below ice formation.
Warning: The temperature of 31.2073 °F is below hydrate formation.

c v r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	dF%	d87%	d88%	d89%	d8A%
From Block	3 Phase Separator	Reboiler.108	DeC2	FAXR-100	VLVE-105
To Block	MIX-101	XCHG-100	VLVE-103	1,000 BBL Condensate Tanks (TK-3 - TK-8)	DeC2

d vr %R zz %

Z v%S rt z %	dF% , %	d87% , %	d88% , %	d89% , %	d8A% , %
Hydrogen Sulfide	0.000336019	0.000179719	0.00123946	1.49332E-06	0.000336019
Nitrogen	0.0108693	0	0.0736955	0	0.0108693
Methane	3.18353	2.43918E-09	21.5849	9.9487E-13	3.18353
Carbon Dioxide	0.345823	1.84974E-05	2.34463	2.82978E-08	0.345823
Ethane	7.52605	2.7154	35.3325	0.0169283	7.52605
Propane	18.1365	17.1642	23.7561	0.644522	18.1365
i-Butane	6.25399	6.72016	3.55947	1.01042	6.25399
n-Butane	19.5014	21.4425	8.28134	4.96205	19.5014
i-Pentane	8.118	9.24185	1.62193	6.19854	8.118
n-Pentane	9.77852	11.1973	1.57752	9.51654	9.77852
i-Hexane	5.17553	6.00029	0.408245	10.1611	5.17553
Hexane	3.68044	4.27907	0.22023	8.47029	3.68044
Benzene	1.37737	1.59986	0.0913363	3.22682	1.37737
Cyclohexane	2.93247	3.41453	0.146076	7.83966	2.93247
i-Heptane	5.46398	6.37876	0.176374	17.1494	5.46398
nC7	1.36545	1.59602	0.0326824	4.62628	1.36545
Toluene	1.22871	1.43603	0.0303616	4.22226	1.22871
i-Octane	3.14703	3.67821	0.076696	10.8075	3.14703
nC8	0.417286	0.488812	0.00385021	1.64981	0.417286
Ethylbenzene	0.208882	0.24466	0.00208222	0.827917	0.208882
o-Xylene	0.436949	0.511914	0.00363372	1.76173	0.436949
Isononane	0.491907	0.576625	0.00222029	2.0445	0.491907
nC9	0	0	0	0	0
Decane	1.12003	1.31351	0.00167302	4.86372	1.12003
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0990107	4.76773E-06	0.671283	1.11965E-08	0.0990107

Zr %S rt z %	dF% , %	d87% , %	d88% , %	d89% , %	d8A% , %
Hydrogen Sulfide	0.000176295	8.754E-05	0.00117328	5.50175E-07	0.000176295
Nitrogen	0.00468738	0	0.057341	0	0.00468738
Methane	0.786221	5.59263E-10	9.61788	1.72534E-13	0.786221
Carbon Dioxide	0.234296	1.16348E-05	2.86602	1.34628E-08	0.234296
Ethane	3.48378	1.16696	29.5088	0.00550263	3.48378
Propane	12.3115	10.8174	29.0956	0.307235	12.3115
i-Butane	5.59582	5.58243	5.74626	0.634863	5.59582
n-Butane	17.4491	17.8123	13.3691	3.11775	17.4491
i-Pentane	9.01659	9.52992	3.25027	4.83455	9.01659
n-Pentane	10.8609	11.5464	3.16127	7.42243	10.8609
i-Hexane	6.86597	7.39021	0.977152	9.46587	6.86597
Hexane	4.88255	5.27029	0.527131	7.89076	4.88255
Benzene	1.65627	1.78608	0.198161	2.72477	1.65627
Cyclohexane	3.79928	4.1071	0.34146	7.13244	3.79928
i-Heptane	8.42849	9.13512	0.490873	18.5765	8.42849
nC7	2.10627	2.28568	0.0909595	5.01124	2.10627

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%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	dF% , %	d87% , %	d88% , %	d89% , %	d8A% , %
Toluene	1.74283	1.89106	0.0777004	4.20556	1.74283
i-Octane	5.53401	6.005	0.243336	13.3456	5.53401
nC8	0.733791	0.798028	0.0122157	2.03726	0.733791
Ethylbenzene	0.341387	0.371232	0.00613997	0.95018	0.341387
o-Xylene	0.714128	0.776748	0.010715	2.02189	0.714128
Isononane	0.971229	1.05699	0.00790939	2.83466	0.971229
nC9	0	0	0	0	0
Decane	2.45325	2.67105	0.00661162	7.48093	2.45325
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0274592	1.22759E-06	0.335896	2.18052E-09	0.0274592

Zr %S %	dF% s6y%	d87% s6y%	d88% s6y%	d89% s6y%	d8A% s6y%
Hydrogen Sulfide	0.0217023	0.0642422	0.0766512	0.000139513	0.140893
Nitrogen	0.577028	0	3.74612	0	3.74612
Methane	96.7857	4.10421E-07	628.341	4.37512E-11	628.341
Carbon Dioxide	28.8424	0.00853833	187.239	3.4139E-06	187.247
Ethane	428.862	856.383	1927.83	1.39536	2784.21
Propane	1515.58	7938.45	1900.83	77.9087	9839.28
i-Butane	688.86	4096.73	375.406	160.989	4472.13
n-Butane	2148.02	13071.7	873.407	790.598	13945.1
i-Pentane	1109.96	6993.64	212.342	1225.95	7205.98
n-Pentane	1337.01	8473.43	206.527	1882.18	8679.96
i-Hexane	845.219	5423.39	63.8378	2400.36	5487.23
Hexane	601.055	3867.66	34.4377	2000.94	3902.1
Benzene	203.891	1310.73	12.946	690.947	1323.68
Cyclohexane	467.701	3014.04	22.3078	1808.64	3036.35
i-Heptane	1037.57	6703.91	32.069	4710.63	6735.98
nC7	259.288	1677.37	5.94243	1270.75	1683.32
Toluene	214.546	1387.78	5.0762	1066.45	1392.85
i-Octane	681.251	4406.84	15.8972	3384.17	4422.73
nC8	90.3316	585.642	0.798056	516.608	586.44
Ethylbenzene	42.0256	272.433	0.401127	240.947	272.834
o-Xylene	87.911	570.025	0.700014	512.712	570.725
Isononane	119.561	775.681	0.516724	718.812	776.198
nC9	0	0	0	0	0
Decane	302.001	1960.18	0.43194	1897.01	1960.61
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	3.3803	0.000900882	21.9443	5.52936E-07	21.9452

d vr %a v zv %

a v %	f z %	dF%	d87%	d88%	d89%	d8A%
Temperature	°F	110	200	117.315	120 *	108.171
Pressure	psig	200	178	175	141	175 *
Molecular Weight	lb/lbmol	64.9584	69.9678	36.0033	92.5043	64.9584
Std Liquid Volumetric Flow	sgpm	40.6619	234.756	29.2246	72.9431	263.981
Std Vapor Volumetric Flow	MMSCFD	1.72598	9.55257	1.65264	2.49665	11.2052
Net Ideal Gas Heating Value	Btu/ft^3	3316.93	3571.25	1846.96	4648.4	3316.93
Gross Ideal Gas Heating Value	Btu/ft^3	3585.29	3857.21	2013.56	5002.59	3585.29
Mole Fraction Vapor	%	0	0	100	0	1.76362

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N %d vr %
ers r vu% % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr % v zv %

a v %	f z %	dF%	d87%	d88%	d89%	d8A%
Mass Density	lb/ft^3	36.8209	34.0244	1.23865	41.7959	28.8092
Mass Flow	lb/h	12310.3	73386.1	6533.05	25358	79919.2
Specific Gravity		0.590374	0.545537	1.2431	0.670142	
API Gravity		95.8203	90.3739		70.3819	

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	d8B%	d8C%	d8F%	d97%	d98%
From Block	OVHD Comp	AC-801/2/3/4	MIX-102	VLVE-103	V-1156
To Block	AC-801/2/3/4	F-1170	V-1156	MIX-102	OVHD Comp

d vr %8 zz %

Z v%s rt z %	d8B% , %	d8C% , %	d8F% , %	d97% , %	d98% , %
Hydrogen Sulfide	0.00123946	0.00123946	0.00123946	0.00123946	0.00123946
Nitrogen	0.0736955	0.0736955	0.0736955	0.0736955	0.0736955
Methane	21.5849	21.5849	21.5849	21.5849	21.5849
Carbon Dioxide	2.34463	2.34463	2.34463	2.34463	2.34463
Ethane	35.3325	35.3325	35.3325	35.3325	35.3325
Propane	23.7561	23.7561	23.7561	23.7561	23.7561
i-Butane	3.55947	3.55947	3.55947	3.55947	3.55947
n-Butane	8.28134	8.28134	8.28134	8.28134	8.28134
i-Pentane	1.62193	1.62193	1.62193	1.62193	1.62193
n-Pentane	1.57752	1.57752	1.57752	1.57752	1.57752
i-Hexane	0.408245	0.408245	0.408245	0.408245	0.408245
Hexane	0.22023	0.22023	0.22023	0.22023	0.22023
Benzene	0.0913363	0.0913363	0.0913363	0.0913363	0.0913363
Cyclohexane	0.146076	0.146076	0.146076	0.146076	0.146076
i-Heptane	0.176374	0.176374	0.176374	0.176374	0.176374
nC7	0.0326824	0.0326824	0.0326824	0.0326824	0.0326824
Toluene	0.0303616	0.0303616	0.0303616	0.0303616	0.0303616
i-Octane	0.076696	0.076696	0.076696	0.076696	0.076696
nC8	0.00385021	0.00385021	0.00385021	0.00385021	0.00385021
Ethylbenzene	0.00208222	0.00208222	0.00208222	0.00208222	0.00208222
o-Xylene	0.00363372	0.00363372	0.00363372	0.00363372	0.00363372
Isononane	0.00222029	0.00222029	0.00222029	0.00222029	0.00222029
nC9	0	0	0	0	0
Decane	0.00167302	0.00167302	0.00167302	0.00167302	0.00167302
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.671283	0.671283	0.671283	0.671283	0.671283

Zr %s rt z %	d8B% , %	d8C% , %	d8F% , %	d97% , %	d98% , %
Hydrogen Sulfide	0.00117328	0.00117328	0.00117328	0.00117328	0.00117328
Nitrogen	0.057341	0.057341	0.057341	0.057341	0.057341
Methane	9.61788	9.61788	9.61788	9.61788	9.61788
Carbon Dioxide	2.86602	2.86602	2.86602	2.86602	2.86602
Ethane	29.5088	29.5088	29.5088	29.5088	29.5088
Propane	29.0956	29.0956	29.0956	29.0956	29.0956
i-Butane	5.74626	5.74626	5.74626	5.74626	5.74626
n-Butane	13.3691	13.3691	13.3691	13.3691	13.3691
i-Pentane	3.25027	3.25027	3.25027	3.25027	3.25027
n-Pentane	3.16127	3.16127	3.16127	3.16127	3.16127
i-Hexane	0.977152	0.977152	0.977152	0.977152	0.977152
Hexane	0.527131	0.527131	0.527131	0.527131	0.527131
Benzene	0.198161	0.198161	0.198161	0.198161	0.198161
Cyclohexane	0.34146	0.34146	0.34146	0.34146	0.34146
i-Heptane	0.490873	0.490873	0.490873	0.490873	0.490873
nC7	0.0909595	0.0909595	0.0909595	0.0909595	0.0909595
Toluene	0.0777004	0.0777004	0.0777004	0.0777004	0.0777004
i-Octane	0.243336	0.243336	0.243336	0.243336	0.243336
nC8	0.0122157	0.0122157	0.0122157	0.0122157	0.0122157
Ethylbenzene	0.00613997	0.00613997	0.00613997	0.00613997	0.00613997

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N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	d8B% , %	d8C% , %	d8F% , %	d97% , %	d98% , %
o-Xylene	0.010715	0.010715	0.010715	0.010715	0.010715
Isononane	0.00790939	0.00790939	0.00790939	0.00790939	0.00790939
nC9	0	0	0	0	0
Decane	0.00661162	0.00661162	0.00661162	0.00661162	0.00661162
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.335896	0.335896	0.335896	0.335896	0.335896

Zr %S %	d8B% s6y%	d8C% s6y%	d8F% s6y%	d97% s6y%	d98% s6y%
Hydrogen Sulfide	0.0766512	0.0766512	0.0766512	0.0766512	0.0766512
Nitrogen	3.74612	3.74612	3.74612	3.74612	3.74612
Methane	628.341	628.341	628.341	628.341	628.341
Carbon Dioxide	187.239	187.239	187.239	187.239	187.239
Ethane	1927.83	1927.83	1927.83	1927.83	1927.83
Propane	1900.83	1900.83	1900.83	1900.83	1900.83
i-Butane	375.406	375.406	375.406	375.406	375.406
n-Butane	873.407	873.407	873.407	873.407	873.407
i-Pentane	212.342	212.342	212.342	212.342	212.342
n-Pentane	206.527	206.527	206.527	206.527	206.527
i-Hexane	63.8378	63.8378	63.8378	63.8378	63.8378
Hexane	34.4377	34.4377	34.4377	34.4377	34.4377
Benzene	12.946	12.946	12.946	12.946	12.946
Cyclohexane	22.3078	22.3078	22.3078	22.3078	22.3078
i-Heptane	32.069	32.069	32.069	32.069	32.069
nC7	5.94243	5.94243	5.94243	5.94243	5.94243
Toluene	5.0762	5.0762	5.0762	5.0762	5.0762
i-Octane	15.8972	15.8972	15.8972	15.8972	15.8972
nC8	0.798056	0.798056	0.798056	0.798056	0.798056
Ethylbenzene	0.401127	0.401127	0.401127	0.401127	0.401127
o-Xylene	0.700014	0.700014	0.700014	0.700014	0.700014
Isononane	0.516724	0.516724	0.516724	0.516724	0.516724
nC9	0	0	0	0	0
Decane	0.43194	0.43194	0.43194	0.43194	0.43194
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	21.9443	21.9443	21.9443	21.9443	21.9443

d vr %a v zv %

a v %	f z %	d8B%	d8C%	d8F%	d97%	d98%
Temperature	°F	327.149	120 *	113.821	113.821	113.821
Pressure	psig	1021 *	1016	150	150 *	150
Molecular Weight	lb/lbmol	36.0033	36.0033	36.0033	36.0033	36.0033
Std Liquid Volumetric Flow	sgpm	29.2246	29.2246	29.2246	29.2246	29.2246
Std Vapor Volumetric Flow	MMSCFD	1.65264	1.65264	1.65264	1.65264	1.65264
Net Ideal Gas Heating Value	Btu/ft^3	1846.96	1846.96	1846.96	1846.96	1846.96
Gross Ideal Gas Heating Value	Btu/ft^3	2013.56	2013.56	2013.56	2013.56	2013.56
Mole Fraction Vapor	%	100	0	100	100	100
Mass Density	lb/ft^3	5.53916	21.9282 ?	1.06259	1.06259	1.06259
Mass Flow	lb/h	6533.05	6533.05	6533.05	6533.05	6533.05
Specific Gravity		1.2431	0.35159 ?	1.2431	1.2431	1.2431
API Gravity			181.888			

* User Specified Values
? Extrapolated or Approximate Values

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	d99%	d9: %	d9A%	d9B%	d9C%
From Block	V-1156	VLVE-106	K-100	F-1170	Stabilizer
To Block	RCYL-2	Stabilizer	Stabilizer	MIX-103	K-100

d vr %R zz %

Z v%s rt z %	d99% , %	d9: % , %	d9A% , %	d9B% , %	d9C% , %
Hydrogen Sulfide		0.000179719	1.15229E-05		8.42569E-06
Nitrogen		0	0		0
Methane		2.43918E-09	1.88201E-11		1.33156E-11
Carbon Dioxide		1.84974E-05	3.59891E-07		2.57493E-07
Ethane		2.7154	0.141339		0.10292
Propane		17.1642	3.09852		2.34071
i-Butane		6.72016	3.11544		2.4654
n-Butane		21.4425	13.2984		10.7241
i-Pentane		9.24185	11.0841		9.57542
n-Pentane		11.1973	15.393		13.5783
i-Hexane		6.00029	11.0717		10.7905
Hexane		4.27907	8.18693		8.27443
Benzene		1.59986	2.9755		3.05311
Cyclohexane		3.41453	6.45321		6.88135
i-Heptane		6.37876	11.5071		13.2495
nC7		1.59602	2.71031		3.30197
Toluene		1.43603	2.32178		2.90866
i-Octane		3.67821	6.03296		7.50737
nC8		0.488812	0.591525		0.91833
Ethylbenzene		0.24466	0.2771		0.447196
o-Xylene		0.511914	0.533154		0.912546
Isononane		0.576625	0.53297		0.999741
nC9		0	0		0
Decane		1.31351	0.674985		1.9685
Ethylene Glycol		0	0		0
MDEA		0	0		0
DEA		0	0		0
Piperazine		0	0		0
DGA		0	0		0
TEG		0	0		0
Water		4.76773E-06	1.18929E-07		8.56603E-08

Zr %s rt z %	d99% , %	d9: % , %	d9A% , %	d9B% , %	d9C% , %
Hydrogen Sulfide		8.754E-05	4.85668E-06		3.40007E-06
Nitrogen		0	0		0
Methane		5.59263E-10	3.73389E-12		2.52931E-12
Carbon Dioxide		1.16348E-05	1.95878E-07		1.34178E-07
Ethane		1.16696	0.0525593		0.0366431
Propane		10.8174	1.68973		1.22212
i-Butane		5.58243	2.23939		1.69668
n-Butane		17.8123	9.55893		7.38029
i-Pentane		9.52992	9.89003		8.18009
n-Pentane		11.5464	13.7347		11.5997
i-Hexane		7.39021	11.7995		11.0102
Hexane		5.27029	8.72513		8.44292
Benzene		1.78608	2.87438		2.82378
Cyclohexane		4.1071	6.71655		6.85722
i-Heptane		9.13512	14.2596		15.7198
nC7		2.28568	3.35864		3.91761
Toluene		1.89106	2.64564		3.17326
i-Octane		6.005	8.52262		10.1539
nC8		0.798028	0.835632		1.24207
Ethylbenzene		0.371232	0.363819		0.562147

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srtz %	d99% , %	d9: % , %	d9A% , %	d9B% , %	d9C% , %
o-Xylene		0.776748	0.700007		1.14712
Isononane		1.05699	0.845366		1.51822
nC9		0	0		0
Decane		2.67105	1.18771		3.31631
Ethylene Glycol		0	0		0
MDEA		0	0		0
DEA		0	0		0
Piperazine		0	0		0
DGA		0	0		0
TEG		0	0		0
Water		1.22759E-06	2.64969E-08		1.82722E-08

Zr %S %	d99% s6y%	d9: % s6y%	d9A% s6y%	d9B% s6y%	d9C% s6y%
Hydrogen Sulfide	0	0.0642422	0.00240956	0	0.00254908
Nitrogen	0	0	0	0	0
Methane	0	4.10421E-07	1.85251E-09	0	1.89626E-09
Carbon Dioxide	0	0.00853833	9.71815E-05	0	0.000100595
Ethane	0	856.383	26.0764	0	27.4718
Propane	0	7938.45	838.332	0	916.241
i-Butane	0	4096.73	1111.04	0	1272.02
n-Butane	0	13071.7	4742.5	0	5533.1
i-Pentane	0	6993.64	4906.77	0	6132.72
n-Pentane	0	8473.43	6814.24	0	8696.42
i-Hexane	0	5423.39	5854.15	0	8254.5
Hexane	0	3867.66	4328.83	0	6329.77
Benzene	0	1310.73	1426.08	0	2117.02
Cyclohexane	0	3014.04	3332.3	0	5140.95
i-Heptane	0	6703.91	7074.68	0	11785.3
nC7	0	1677.37	1666.33	0	2937.08
Toluene	0	1387.78	1312.59	0	2379.03
i-Octane	0	4406.84	4228.35	0	7612.53
nC8	0	585.642	414.585	0	931.193
Ethylbenzene	0	272.433	180.503	0	421.449
o-Xylene	0	570.025	347.297	0	860.008
Isononane	0	775.681	419.414	0	1138.23
nC9	0	0	0	0	0
Decane	0	1960.18	589.263	0	2486.28
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0	0.000900882	1.3146E-05	0	1.36989E-05

d vr %a v zv %

a v %	f z %	d99%	d9: %	d9A%	d9B%	d9C%
Temperature	°F		207.261	333.95	120	288.48
Pressure	psig	150	150 *	151	1016	151
Molecular Weight	lb/lbmol		69.9678	80.8597		84.4557
Std Liquid Volumetric Flow	sgpm	0	234.756	149.29	0	222.233
Std Vapor Volumetric Flow	MMSCFD	0	9.55257	5.58819	0	8.08484
Net Ideal Gas Heating Value	Btu/ft^3		3571.25	4094.18		4265.33
Gross Ideal Gas Heating Value	Btu/ft^3		3857.21	4413.94		4595.72
Mole Fraction Vapor	%		19.5569	100		0
Mass Density	lb/ft^3		7.88252	1.97451		33.6965
Mass Flow	lb/h	0	73386.1	49613.3	0	74971.3
Specific Gravity				2.79188		0.540279
API Gravity						76.1298

* User Specified Values
? Extrapolated or Approximate Values

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	a t v %d vr %ev % N %d vr % ers r vu%s %e r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	d9D%	d9E%	d9F%	d:7%	er ▶% R z z %
From Block	Stabilizer	K-100	XCHG-101	F-1170	MIX-104
To Block	FAXR-103	XCHG-101	FAXR-100	RCYL-1	--

d vr %R zz %

Z v%s rt z %	d9D% , %	d9E% , %	d9F% , %	d:7% , %	er ▶% R z z % , %
Hydrogen Sulfide	0.000242782	1.49332E-06	1.49332E-06	0.00123946	7.21617E-05
Nitrogen	0	0	0	0.0736955	0
Methane	3.3019E-09	9.9487E-13	9.9487E-13	21.5849	1.20499E-10
Carbon Dioxide	2.50325E-05	2.82978E-08	2.82978E-08	2.34463	4.38991E-06
Ethane	3.67022	0.0169283	0.0169283	35.3325	1.62471
Propane	23.0095	0.644522	0.644522	23.7561	15.0421
i-Butane	8.74048	1.01042	1.01042	3.55947	8.33499
n-Butane	27.2739	4.96205	4.96205	8.28134	27.7135
i-Pentane	10.3187	6.19854	6.19854	1.62193	13.0773
n-Pentane	11.7921	9.51654	9.51654	1.57752	14.8281
i-Hexane	4.52805	10.1611	10.1611	0.408245	6.43674
Hexane	2.79606	8.47029	8.47029	0.22023	3.80675
Benzene	1.02418	3.22682	3.22682	0.0913363	0.902835
Cyclohexane	1.84875	7.83966	7.83966	0.146076	2.25586
i-Heptane	2.56769	17.1494	17.1494	0.176374	3.30258
nC7	0.523802	4.62628	4.62628	0.0326824	0.611626
Toluene	0.450157	4.22226	4.22226	0.0303616	0.345205
i-Octane	1.1556	10.8075	10.8075	0.076696	1.55624
nC8	0.0780075	1.64981	1.64981	0.00385021	0.0598633
Ethylbenzene	0.0382812	0.827917	0.827917	0.00208222	0.0220178
o-Xylene	0.0696829	1.76173	1.76173	0.00363372	0.0324916
Isononane	0.057234	2.0445	2.0445	0.00222029	0.0340549
nC9	0	0	0	0	0
Decane	0.0573046	4.86372	4.86372	0.00167302	0.0129293
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	6.45077E-06	1.11965E-08	1.11965E-08	0.671283	7.42175E-10

Zr %s rt z %	d9D% , %	d9E% , %	d9F% , %	d:7% , %	er ▶% R z z % , %
Hydrogen Sulfide	0.000133469	5.50175E-07	5.50175E-07	0.00117328	3.73507E-05
Nitrogen	0	0	0	0.057341	0
Methane	8.54453E-10	1.72534E-13	1.72534E-13	9.61788	2.93585E-11
Carbon Dioxide	1.77707E-05	1.34628E-08	1.34628E-08	2.86602	2.93416E-06
Ethane	1.78018	0.00550263	0.00550263	29.5088	0.741953
Propane	16.3665	0.307235	0.307235	29.0956	10.0736
i-Butane	8.19466	0.634863	0.634863	5.74626	7.35747
n-Butane	25.5707	3.11775	3.11775	13.3691	24.4633
i-Pentane	12.009	4.83455	4.83455	3.25027	14.3294
n-Pentane	13.7237	7.42243	7.42243	3.16127	16.2479
i-Hexane	6.2943	9.46587	9.46587	0.977152	8.42424
Hexane	3.88672	7.89076	7.89076	0.527131	4.98217
Benzene	1.29046	2.72477	2.72477	0.198161	1.07104
Cyclohexane	2.50978	7.13244	7.13244	0.34146	2.88334
i-Heptane	4.15023	18.5765	18.5765	0.490873	5.02586
nC7	0.846635	5.01124	5.01124	0.0909595	0.930773
Toluene	0.669049	4.20556	4.20556	0.0777004	0.483058

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	d9D% , %	d9E% , %	d9F% , %	d:7% , %	er ▶% R z z % , %
i-Octane	2.1293	13.3456	13.3456	0.243336	2.69981
nC8	0.143735	2.03726	2.03726	0.0122157	0.103852
Ethylbenzene	0.0655571	0.95018	0.95018	0.00613997	0.0355007
o-Xylene	0.119333	2.02189	2.02189	0.010715	0.0523882
Isononane	0.118408	2.83466	2.83466	0.00790939	0.0663339
nC9	0	0	0	0	0
Decane	0.13152	7.48093	7.48093	0.00661162	0.0279387
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	1.87459E-06	2.18052E-09	2.18052E-09	0.335896	2.03062E-10

Zr %S %	d9D% s6y%	d9E% s6y%	d9F% s6y%	d:7% s6y%	er ▶% R z z % s6y%
Hydrogen Sulfide	0.0641027	0.000139513	0.000139513	0.0766512	5.84296E-06
Nitrogen	0	0	0	3.74612	0
Methane	4.10377E-07	4.37512E-11	4.37512E-11	628.341	4.5927E-12
Carbon Dioxide	0.00853492	3.4139E-06	3.4139E-06	187.239	4.59005E-07
Ethane	854.988	1.39536	1.39536	1927.83	0.116067
Propane	7860.54	77.9087	77.9087	1900.83	1.57586
i-Butane	3935.74	160.989	160.989	375.406	1.15097
n-Butane	12281.1	790.598	790.598	873.407	3.82692
i-Pentane	5767.69	1225.95	1225.95	212.342	2.24162
n-Pentane	6591.25	1882.18	1882.18	206.527	2.54174
i-Hexane	3023.03	2400.36	2400.36	63.8378	1.31785
Hexane	1866.72	2000.94	2000.94	34.4377	0.779386
Benzene	619.785	690.947	690.947	12.946	0.167548
Cyclohexane	1205.4	1808.64	1808.64	22.3078	0.451056
i-Heptane	1993.28	4710.63	4710.63	32.069	0.78622
nC7	406.623	1270.75	1270.75	5.94243	0.145605
Toluene	321.331	1066.45	1066.45	5.0762	0.0755672
i-Octane	1022.66	3384.17	3384.17	15.8972	0.422345
nC8	69.0334	516.608	516.608	0.798056	0.0162462
Ethylbenzene	31.4859	240.947	240.947	0.401127	0.00555354
o-Xylene	57.3135	512.712	512.712	0.700014	0.00819535
Isononane	56.8692	718.812	718.812	0.516724	0.0103769
nC9	0	0	0	0	0
Decane	63.1666	1897.01	1897.01	0.43194	0.00437059
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.000900329	5.52936E-07	5.52936E-07	21.9443	3.1766E-11

d vr %a v zv %

a v %	f z %	d9D%	d9E%	d9F%	d:7%	er ▶% R z z %
Temperature	°F	242.657	333.95	235.218	120	82.0782
Pressure	psig	150	151	146	1016	0.08
Molecular Weight	lb/lbmol	61.9936	92.5043	92.5043	36.0033	65.8444
Std Liquid Volumetric Flow	sgpm	161.813	72.9431	72.9431	29.2246	0.0513773
Std Vapor Volumetric Flow	MMSCFD	7.05592	2.49665	2.49665	1.65264	0.00216382
Net Ideal Gas Heating Value	Btu/ft^3	3190.11	4648.4	4648.4	1846.96	3380.94

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v %	f z %	d9D%	d9E%	d9F%	d:7%	er ►% R z z %
Gross Ideal Gas Heating Value	Btu/ft^3	3451.93	5002.59	5002.59	2013.56	3656.89
Mole Fraction Vapor	%	100	0	0	0	84.2501
Mass Density	lb/ft^3	1.6297	33.4009	37.7185	21.9282 ?	0.177813
Mass Flow	lb/h	48028.1	25358	25358	6533.05	15.6435
Specific Gravity		2.14048	0.535539	0.604767	0.35159 ?	
API Gravity			70.3571	70.3695	181.888	

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

P vt z %

	8%	9%	:%	A%	B%
From Block	SPLT-100	SPLT-100	PUMP-100	MIX-100	XCHG-100
To Block	Stabilizer/Reje ction	Stabilizer/Reco very	SPLT-100	3 Phase Separator	VLVE-106

d vr %R zz %

Z v%S rt z %	8% , %	9% , %	:% , %	A% , %	B% , %
Hydrogen Sulfide	0.000242782	0.000242782	0.000242782	0.000613422	0.000179719
Nitrogen	0	0	0	0.23672	0
Methane	3.3019E-09	3.3019E-09	3.3019E-09	26.0108	2.43918E-09
Carbon Dioxide	2.50325E-05	2.50325E-05	2.50325E-05	1.3862	1.84974E-05
Ethane	3.67022	3.67022	3.67022	15.6449	2.7154
Propane	23.0095	23.0095	23.0095	17.3271	17.1642
i-Butane	8.74048	8.74048	8.74048	3.75889	6.72016
n-Butane	27.2739	27.2739	27.2739	10.3075	21.4425
i-Pentane	10.3187	10.3187	10.3187	3.38343	9.24185
n-Pentane	11.7921	11.7921	11.7921	3.8851	11.1973
i-Hexane	4.52805	4.52805	4.52805	1.84519	6.00029
Hexane	2.79606	2.79606	2.79606	1.27712	4.27907
Benzene	1.02418	1.02418	1.02418	0.482162	1.59986
Cyclohexane	1.84875	1.84875	1.84875	1.00313	3.41453
i-Heptane	2.56769	2.56769	2.56769	1.82254	6.37876
nC7	0.523802	0.523802	0.523802	0.449885	1.59602
Toluene	0.450157	0.450157	0.450157	0.405219	1.43603
i-Octane	1.1556	1.1556	1.1556	1.03773	3.67821
nC8	0.0780075	0.0780075	0.0780075	0.134551	0.488812
Ethylbenzene	0.0382812	0.0382812	0.0382812	0.0674218	0.24466
o-Xylene	0.0696829	0.0696829	0.0696829	0.140701	0.511914
Isononane	0.057234	0.057234	0.057234	0.157532	0.576625
nC9	0	0	0	0	0
Decane	0.0573046	0.0573046	0.0573046	0.357123	1.31351
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	6.45077E-06	6.45077E-06	6.45077E-06	8.87849	4.76773E-06

Zr %S rt z %	8% , %	9% , %	:% , %	A% , %	B% , %
Hydrogen Sulfide	0.000133469	0.000133469	0.000133469	0.000509335	8.754E-05
Nitrogen	0	0	0	0.16156	0
Methane	8.54453E-10	8.54453E-10	8.54453E-10	10.1662	5.59263E-10
Carbon Dioxide	1.77707E-05	1.77707E-05	1.77707E-05	1.4863	1.16348E-05
Ethane	1.78018	1.78018	1.78018	11.4611	1.16696
Propane	16.3665	16.3665	16.3665	18.6146	10.8174
i-Butane	8.19466	8.19466	8.19466	5.32274	5.58243
n-Butane	25.5707	25.5707	25.5707	14.5959	17.8123
i-Pentane	12.009	12.009	12.009	5.9473	9.52992
n-Pentane	13.7237	13.7237	13.7237	6.82913	11.5464
i-Hexane	6.2943	6.2943	6.2943	3.874	7.39021
Hexane	3.88672	3.88672	3.88672	2.68133	5.27029
Benzene	1.29046	1.29046	1.29046	0.91758	1.78608
Cyclohexane	2.50978	2.50978	2.50978	2.05681	4.1071
i-Heptane	4.15023	4.15023	4.15023	4.44926	9.13512
nC7	0.846635	0.846635	0.846635	1.09828	2.28568
Toluene	0.669049	0.669049	0.669049	0.90963	1.89106
i-Octane	2.1293	2.1293	2.1293	2.88798	6.005
nC8	0.143735	0.143735	0.143735	0.37445	0.798028

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8% , %	9% , %	: % , %	A% , %	B% , %
Ethylbenzene	0.0655571	0.0655571	0.0655571	0.174388	0.371232
o-Xylene	0.119333	0.119333	0.119333	0.363925	0.776748
Isononane	0.118408	0.118408	0.118408	0.492241	1.05699
nC9	0	0	0	0	0
Decane	0.13152	0.13152	0.13152	1.23794	2.67105
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	1.87459E-06	1.87459E-06	1.87459E-06	3.89686	1.22759E-06

Zr %S %	8% s6y%	9% s6y%	: % s6y%	A% s6y%	B% s6y%
Hydrogen Sulfide	0.0641027	0.0641027	0.0641027	0.124513	0.0642422
Nitrogen	0	0	0	39.4954	0
Methane	4.10377E-07	4.10377E-07	4.10377E-07	2485.25	4.10421E-07
Carbon Dioxide	0.00853492	0.00853492	0.00853492	363.344	0.00853833
Ethane	854.988	854.988	854.988	2801.81	856.383
Propane	7860.54	7860.54	7860.54	4550.58	7938.45
i-Butane	3935.74	3935.74	3935.74	1301.21	4096.73
n-Butane	12281.1	12281.1	12281.1	3568.15	13071.7
i-Pentane	5767.69	5767.69	5767.69	1453.89	6993.64
n-Pentane	6591.25	6591.25	6591.25	1669.47	8473.43
i-Hexane	3023.03	3023.03	3023.03	947.047	5423.39
Hexane	1866.72	1866.72	1866.72	655.484	3867.66
Benzene	619.785	619.785	619.785	224.314	1310.73
Cyclohexane	1205.4	1205.4	1205.4	502.814	3014.04
i-Heptane	1993.28	1993.28	1993.28	1087.68	6703.91
nC7	406.623	406.623	406.623	268.488	1677.37
Toluene	321.331	321.331	321.331	222.371	1387.78
i-Octane	1022.66	1022.66	1022.66	706.004	4406.84
nC8	69.0334	69.0334	69.0334	91.5391	585.642
Ethylbenzene	31.4859	31.4859	31.4859	42.6313	272.433
o-Xylene	57.3135	57.3135	57.3135	88.9661	570.025
Isononane	56.8692	56.8692	56.8692	120.335	775.681
nC9	0	0	0	0	0
Decane	63.1666	63.1666	63.1666	302.631	1960.18
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.000900329	0.000900329	0.000900329	952.635	0.000900882

d vr %a v zv %

a v %	f z %	8%	9%	: %	A%	B%
Temperature	°F	132.123	132.123	132.123	67.0233	215 *
Pressure	psig	1215	1215	1215 *	200	173
Molecular Weight	lb/lbmol	61.9936	61.9936	61.9936	41.0455	69.9678
Std Liquid Volumetric Flow	sgpm	161.813	161.813	161.813	94.7449	234.756
Std Vapor Volumetric Flow	MMSCFD	7.05592	7.05592	7.05592	5.42439	9.55257
Net Ideal Gas Heating Value	Btu/ft^3	3190.11	3190.11	3190.11	2025.64	3571.25
Gross Ideal Gas Heating Value	Btu/ft^3	3451.93	3451.93	3451.93	2205.32	3857.21
Mole Fraction Vapor	%	0	0	0	46.3068	14.4736
Mass Density	lb/ft^3	35.7566	35.7566	35.7566	3.46381	10.8779
Mass Flow	lb/h	48028.1	48028.1	48028.1	24446.3	73386.1
Specific Gravity		0.57331	0.57331	0.57331		

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v % f z %	8%	9%	: %	A%	B%
API Gravity	98.0798	98.0798	98.0798		

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	C%	D%	E%	F%	87%
From Block	Filter	VSSL-100	VSSL-100	Flash Gas Comp	FAXR-101
To Block	VLVE-100	Flash Gas Comp	MIX-108	FAXR-101	VSSL-1200

d vr %R zz %

Z v%s rt z %	C% , %	D% , %	E% , %	F% , %	87% , %
Hydrogen Sulfide	0.000541159	0.000846767	0.000336019	0.000846767	0.000846767
Nitrogen	0.260072	0.390727	0.0108693	0.390727	0.390727
Methane	26.4758	41.8721	3.18353	41.8721	41.8721
Carbon Dioxide	1.32107	2.13624	0.345823	2.13624	2.13624
Ethane	13.8615	22.1943	7.52605	22.1943	22.1943
Propane	14.9146	19.3573	18.1365	19.3573	19.3573
i-Butane	3.46832	2.9631	6.25399	2.9631	2.9631
n-Butane	9.90061	6.87173	19.5014	6.87173	6.87173
i-Pentane	3.58926	1.34068	8.118	1.34068	1.34068
n-Pentane	4.23098	1.29599	9.77852	1.29599	1.29599
i-Hexane	2.14697	0.332336	5.17553	0.332336	0.332336
Hexane	1.51446	0.17764	3.68044	0.17764	0.17764
Benzene	0.568723	0.0733617	1.37737	0.0733617	0.0733617
Cyclohexane	1.20214	0.117336	2.93247	0.117336	0.117336
i-Heptane	2.22644	0.140647	5.46398	0.140647	0.140647
nC7	0.55495	0.0258228	1.36545	0.0258228	0.0258228
Toluene	0.499566	0.0238434	1.22871	0.0238434	0.0238434
i-Octane	1.27926	0.0609469	3.14703	0.0609469	0.0609469
nC8	0.168968	0.0029731	0.417286	0.0029731	0.0029731
Ethylbenzene	0.0845978	0.00160252	0.208882	0.00160252	0.00160252
o-Xylene	0.176903	0.00279007	0.436949	0.00279007	0.00279007
Isononane	0.198991	0.00169682	0.491907	0.00169682	0.00169682
nC9	0	0	0	0	0
Decane	0.452798	0.00124513	1.12003	0.00124513	0.00124513
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	10.9024	0.614769	0.0990107	0.614769	0.614769

Zr %s rt z %	C% , %	D% , %	E% , %	F% , %	87% , %
Hydrogen Sulfide	0.000442144	0.000914063	0.000176295	0.000914063	0.000914063
Nitrogen	0.174658	0.346689	0.00468738	0.346689	0.346689
Methane	10.1824	21.2763	0.786221	21.2763	21.2763
Carbon Dioxide	1.3938	2.97782	0.234296	2.97782	2.97782
Ethane	9.99216	21.1379	3.48378	21.1379	21.1379
Propane	15.7665	27.0359	12.3115	27.0359	27.0359
i-Butane	4.8327	5.45493	5.59582	5.45493	5.45493
n-Butane	13.7953	12.6506	17.4491	12.6506	12.6506
i-Pentane	6.20815	3.06377	9.01659	3.06377	3.06377
n-Pentane	7.31809	2.96163	10.8609	2.96163	2.96163
i-Hexane	4.43545	0.907115	6.86597	0.907115	0.907115
Hexane	3.12873	0.484869	4.88255	0.484869	0.484869
Benzene	1.06499	0.181504	1.65627	0.181504	0.181504
Cyclohexane	2.42541	0.312778	3.79928	0.312778	0.312778
i-Heptane	5.3483	0.446383	8.42849	0.446383	0.446383
nC7	1.33308	0.081956	2.10627	0.081956	0.081956
Toluene	1.10347	0.0695842	1.74283	0.0695842	0.0695842
i-Octane	3.50316	0.22051	5.53401	0.22051	0.22051

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	C% , %	D% , %	E% , %	F% , %	87% , %
nC8	0.462709	0.0107569	0.733791	0.0107569	0.0107569
Ethylbenzene	0.215312	0.00538871	0.341387	0.00538871	0.00538871
o-Xylene	0.450242	0.00938203	0.714128	0.00938203	0.00938203
Isononane	0.611838	0.00689305	0.971229	0.00689305	0.00689305
nC9	0	0	0	0	0
Decane	1.54448	0.00561132	2.45325	0.00561132	0.00561132
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	4.70858	0.350796	0.0274592	0.350796	0.350796

Zr %S %	C% s6y%	D% s6y%	E% s6y%	F% s6y%	87% s6y%
Hydrogen Sulfide	0.0865035	0.102608	0	0.102608	0.102608
Nitrogen	34.171	38.9175	0	38.9175	38.9175
Methane	1992.13	2388.37	0	2388.37	2388.37
Carbon Dioxide	272.69	334.274	0	334.274	334.274
Ethane	1954.92	2372.83	0	2372.83	2372.83
Propane	3084.65	3034.91	0	3034.91	3034.91
i-Butane	945.496	612.342	0	612.342	612.342
n-Butane	2698.99	1420.09	0	1420.09	1420.09
i-Pentane	1214.59	343.923	0	343.923	343.923
n-Pentane	1431.75	332.457	0	332.457	332.457
i-Hexane	867.776	101.828	0	101.828	101.828
Hexane	612.122	54.4289	0	54.4289	54.4289
Benzene	208.36	20.3747	0	20.3747	20.3747
Cyclohexane	474.521	35.1108	0	35.1108	35.1108
i-Heptane	1046.37	50.1086	0	50.1086	50.1086
nC7	260.812	9.19995	0	9.19995	9.19995
Toluene	215.889	7.81116	0	7.81116	7.81116
i-Octane	685.377	24.7533	0	24.7533	24.7533
nC8	90.527	1.20751	0	1.20751	1.20751
Ethylbenzene	42.1248	0.604909	0	0.604909	0.604909
o-Xylene	88.0877	1.05318	0	1.05318	1.05318
Isononane	119.703	0.773778	0	0.773778	0.773778
nC9	0	0	0	0	0
Decane	302.17	0.629898	0	0.629898	0.629898
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	921.211	39.3785	0	39.3785	39.3785

d vr %a v zv %

a v %	f z %	C%	D%	E%	F%	87%
Temperature	°F	69.8263	110	110	317.349	120 *
Pressure	psig	1011	200	200	1021 *	1016
Molecular Weight	lb/lbmol	41.713	31.5718	64.9584	31.5718	31.5718
Std Liquid Volumetric Flow	sgpm	74.1676	52.2615	0	52.2615	52.2615
Std Vapor Volumetric Flow	MMSCFD	4.27172	3.23825	0	3.23825	3.23825
Net Ideal Gas Heating Value	Btu/ft^3	2037.6	1625.16	3316.93	1625.16	1625.16
Gross Ideal Gas Heating Value	Btu/ft^3	2218.12	1775.95	3585.29	1775.95	1775.95
Mole Fraction Vapor	%	0.252108	100	0	100	64.3497
Mass Density	lb/ft^3	32.7405	1.22523	36.8209	4.58247	10.2855 ?
Mass Flow	lb/h	19564.5	11225.5	0	11225.5	11225.5

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v % f z %	C%	D%	E%	F%	87%
Specific Gravity		1.09009		1.09009	
API Gravity					

h r z x %
ProMax:ProMax!Project!Flowsheets!02. Stabilization!PStreams!6
Warning: The temperature of 69.8263 °F is within 10 °F of hydrate formation.

c v r ►%

ProMax 7.0.26169.0
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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	88%	89%	8: %	8A%	8B%
From Block	RCYL-1	VLVE-101	VSSL-1200	VSSL-1200	MIX-103
To Block	VLVE-101	Stabilizer Overheads to Inlet	MIX-103	RCYL-3	Stabilizer/Amine

d vr %R zz %

Z v%s rt z %	88% , %	89% , %	8: % , %	8A% , %	8B% , %
Hydrogen Sulfide	0.00123964	0.00123964	0.000828468	0.000879798	0.000828468
Nitrogen	0.0736579	0.0736579	0.524181	0.14984	0.524181
Methane	21.5756	21.5756	51.6433	24.2348	51.6433
Carbon Dioxide	2.34379	2.34379	2.41988	1.62427	2.41988
Ethane	35.3368	35.3368	22.1826	22.2155	22.1826
Propane	23.7607	23.7607	15.5396	26.2482	15.5396
i-Butane	3.56005	3.56005	1.92293	4.84063	1.92293
n-Butane	8.28238	8.28238	4.11983	11.839	4.11983
i-Pentane	1.62195	1.62195	0.623087	2.63597	0.623087
n-Pentane	1.57749	1.57749	0.56108	2.62251	0.56108
i-Hexane	0.408206	0.408206	0.107683	0.737841	0.107683
Hexane	0.220205	0.220205	0.0515516	0.405232	0.0515516
Benzene	0.0913285	0.0913285	0.0230145	0.164239	0.0230145
Cyclohexane	0.146059	0.146059	0.0317749	0.271776	0.0317749
i-Heptane	0.176351	0.176351	0.0320689	0.336633	0.0320689
nC7	0.0326777	0.0326777	0.00516224	0.0631156	0.00516224
Toluene	0.0303578	0.0303578	0.00496828	0.0579136	0.00496828
i-Octane	0.0766848	0.0766848	0.0122563	0.148835	0.0122563
nC8	0.00384957	0.00384957	0.000383128	0.00764807	0.000383128
Ethylbenzene	0.00208192	0.00208192	0.000220625	0.00409686	0.000220625
o-Xylene	0.00363319	0.00363319	0.000350827	0.00719295	0.000350827
Isononane	0.00221986	0.00221986	0.000144554	0.0044987	0.000144554
nC9	0	0	0	0	0
Decane	0.00167271	0.00167271	6.37995E-05	0.00337746	6.37995E-05
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.671048	0.671048	0.193069	1.37595	0.193069

Zr %s rt z %	88% , %	89% , %	8: % , %	8A% , %	8B% , %
Hydrogen Sulfide	0.00117338	0.00117338	0.00102079	0.000776133	0.00102079
Nitrogen	0.0573082	0.0573082	0.530882	0.108651	0.530882
Methane	9.61315	9.61315	29.9527	10.0636	29.9527
Carbon Dioxide	2.86481	2.86481	3.85027	1.85032	3.85027
Ethane	29.5106	29.5106	24.1147	17.2909	24.1147
Propane	29.0995	29.0995	24.7735	29.9597	24.7735
i-Butane	5.74684	5.74684	4.0407	7.28259	4.0407
n-Butane	13.3699	13.3699	8.65709	17.8114	8.65709
i-Pentane	3.25011	3.25011	1.62528	4.92279	1.62528
n-Pentane	3.16101	3.16101	1.46354	4.89766	1.46354
i-Hexane	0.976999	0.976999	0.335492	1.64584	0.335492
Hexane	0.527039	0.527039	0.160611	0.903918	0.160611
Benzene	0.198132	0.198132	0.0649935	0.332075	0.0649935
Cyclohexane	0.3414	0.3414	0.0966803	0.592048	0.0966803
i-Heptane	0.490777	0.490777	0.116175	0.873122	0.116175
nC7	0.0909409	0.0909409	0.018701	0.163703	0.018701
Toluene	0.0776858	0.0776858	0.01655	0.138122	0.01655
i-Octane	0.243285	0.243285	0.0506157	0.440069	0.0506157

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %syr v% %

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	88% , %	89% , %	8: % , %	8A% , %	8B% , %
nC8	0.0122129	0.0122129	0.00158223	0.0226135	0.00158223
Ethylbenzene	0.00613872	0.00613872	0.000846813	0.0112584	0.000846813
o-Xylene	0.0107128	0.0107128	0.00134656	0.0197665	0.00134656
Isononane	0.00790736	0.00790736	0.000670279	0.014935	0.000670279
nC9	0	0	0	0	0
Decane	0.00660999	0.00660999	0.000328184	0.0124389	0.000328184
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.335758	0.335758	0.125749	0.641632	0.125749

Zr %S %	88% s6y%	89% s6y%	8: % s6y%	8A% s6y%	8B% s6y%
Hydrogen Sulfide	0.0767103	0.0767103	0.064601	0.038007	0.064601
Nitrogen	3.74655	3.74655	33.5969	5.32061	33.5969
Methane	628.464	628.464	1895.56	492.811	1895.56
Carbon Dioxide	187.288	187.288	243.665	90.6095	243.665
Ethane	1929.27	1929.27	1526.1	846.73	1526.1
Propane	1902.39	1902.39	1567.79	1467.12	1567.79
i-Butane	375.702	375.702	255.716	356.626	255.716
n-Butane	874.064	874.064	547.865	872.22	547.865
i-Pentane	212.477	212.477	102.856	241.067	102.856
n-Pentane	206.653	206.653	92.6203	239.837	92.6203
i-Hexane	63.8717	63.8717	21.2316	80.5964	21.2316
Hexane	34.4554	34.4554	10.1643	44.2646	10.1643
Benzene	12.953	12.953	4.11312	16.2616	4.11312
Cyclohexane	22.3192	22.3192	6.11843	28.9924	6.11843
i-Heptane	32.0848	32.0848	7.35212	42.7565	7.35212
nC7	5.9453	5.9453	1.1835	8.01646	1.1835
Toluene	5.07875	5.07875	1.04737	6.76379	1.04737
i-Octane	15.9049	15.9049	3.20322	21.55	3.20322
nC8	0.798422	0.798422	0.100132	1.10738	0.100132
Ethylbenzene	0.401321	0.401321	0.0535907	0.551318	0.0535907
o-Xylene	0.700351	0.700351	0.0852171	0.967961	0.0852171
Isononane	0.516948	0.516948	0.0424187	0.731359	0.0424187
nC9	0	0	0	0	0
Decane	0.432131	0.432131	0.0207692	0.609129	0.0207692
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	21.9503	21.9503	7.95803	31.4205	7.95803

d vr %a v zv %

a v %	f z %	88%	89%	8: %	8A%	8B%
Temperature	°F	120	120.024	120	120	120
Pressure	psig	1016	1017 *	1016	1016	1016
Molecular Weight	lb/lbmol	36.0055	36.0055	27.6598	38.6329	27.6598
Std Liquid Volumetric Flow	sgpm	29.2442	29.2442	31.6376	20.624	31.6376
Std Vapor Volumetric Flow	MMSCFD	1.65368	1.65368	2.08381	1.15445	2.08381
Net Ideal Gas Heating Value	Btu/ft^3	1847.09	1847.09	1426.13	1984.42	1426.13
Gross Ideal Gas Heating Value	Btu/ft^3	2013.7	2013.7	1562.54	2161.17	1562.54
Mole Fraction Vapor	%	0	0	100	0	100
Mass Density	lb/ft^3	21.9322 ?	21.9369 ?	7.06242	25.073 ?	7.06242
Mass Flow	lb/h	6537.55	6537.55	6328.51	4896.97	6328.51

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %v %
N %d vr %
ers r vu%s %s r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v z%

a v % f z %	88%	89%	8: %	8A%	8B%
Specific Gravity	0.351654 ?	0.351729 ?	0.955021	0.402012 ?	0.955021
API Gravity	181.868	181.847		164.584	

c v r ►%

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a t v %d vr %sv %
N %d vr %
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%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	8C%	8D%	8E%	8F%	97%
From Block	RCYL-5	RCYL-3	RCYL-2	VLVE-104	VLVE-102
To Block	MIX-100	VLVE-102	VLVE-104	MIX-108	MIX-108

d vr %R zz %

Z v%s rt z %	8C% , %	8D% , %	8E% , %	8F% , %	97% , %
Hydrogen Sulfide	0.000313661	0.000879798	1.13915E-05	1.13915E-05	0.000879798
Nitrogen	0.00605849	0.14984	1.26743E-05	1.26743E-05	0.14984
Methane	2.21348	24.2348	0.00676616	0.00676616	24.2348
Carbon Dioxide	0.271018	1.62427	0.0114518	0.0114518	1.62427
Ethane	6.99441	22.2155	0.00787804	0.00787804	22.2155
Propane	19.0725	26.2482	0.00336299	0.00336299	26.2482
i-Butane	6.85368	4.84063	0.000282185	0.000282185	4.84063
n-Butane	21.2626	11.839	0.00107588	0.00107588	11.839
i-Pentane	8.78332	2.63597	0.000130571	0.000130571	2.63597
n-Pentane	10.3571	2.62251	6.87531E-05	6.87531E-05	2.62251
i-Hexane	5.23911	0.737841	7.45061E-06	7.45061E-06	0.737841
Hexane	3.54745	0.405232	6.02242E-06	6.02242E-06	0.405232
Benzene	1.33952	0.164239	0.00126776	0.00126776	0.164239
Cyclohexane	2.80334	0.271776	5.96945E-05	5.96945E-05	0.271776
i-Heptane	4.8562	0.336633	1.62655E-06	1.62655E-06	0.336633
nC7	1.13744	0.0631156	5.57895E-07	5.57895E-07	0.0631156
Toluene	1.02712	0.0579136	0.000313479	0.000313479	0.0579136
i-Octane	2.70356	0.148835	1.28381E-06	1.28381E-06	0.148835
nC8	0.277292	0.00764807	3.01547E-08	3.01547E-08	0.00764807
Ethylbenzene	0.140689	0.00409686	1.60982E-05	1.60982E-05	0.00409686
o-Xylene	0.280515	0.00719295	4.22857E-05	4.22857E-05	0.00719295
Isononane	0.258627	0.0044987	1.22561E-08	1.22561E-08	0.0044987
nC9	0	0	0	0	0
Decane	0.343804	0.00337746	2.43584E-09	2.43584E-09	0.00337746
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.230875	1.37595	99.9672	99.9672	1.37595

Zr %s rt z %	8C% , %	8D% , %	8E% , %	8F% , %	97% , %
Hydrogen Sulfide	0.000167592	0.000776133	2.15425E-05	2.15425E-05	0.000776133
Nitrogen	0.00266079	0.108651	1.97013E-05	1.97013E-05	0.108651
Methane	0.556709	10.0636	0.00602306	0.00602306	10.0636
Carbon Dioxide	0.186993	1.85032	0.0279656	0.0279656	1.85032
Ethane	3.29725	17.2909	0.0131444	0.0131444	17.2909
Propane	13.1851	29.9597	0.00822858	0.00822858	29.9597
i-Butane	6.24521	7.28259	0.000910082	0.000910082	7.28259
n-Butane	19.375	17.8114	0.00346983	0.00346983	17.8114
i-Pentane	9.93503	4.92279	0.000522732	0.000522732	4.92279
n-Pentane	11.7152	4.89766	0.000275249	0.000275249	4.89766
i-Hexane	7.07818	1.64584	3.5627E-05	3.5627E-05	1.64584
Hexane	4.7927	0.903918	2.87977E-05	2.87977E-05	0.903918
Benzene	1.64039	0.332075	0.0054949	0.0054949	0.332075
Cyclohexane	3.69879	0.592048	0.000278767	0.000278767	0.592048
i-Heptane	7.62876	0.873122	9.04375E-06	9.04375E-06	0.873122
nC7	1.78684	0.163703	3.10194E-06	3.10194E-06	0.163703
Toluene	1.48368	0.138122	0.0016027	0.0016027	0.138122
i-Octane	4.84163	0.440069	8.13731E-06	8.13731E-06	0.440069
nC8	0.496584	0.0226135	1.91132E-07	1.91132E-07	0.0226135
Ethylbenzene	0.234165	0.0112584	9.48339E-05	9.48339E-05	0.0112584

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N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8C% , %	8D% , %	8E% , %	8F% , %	97% , %
o-Xylene	0.466894	0.0197665	0.000249103	0.000249103	0.0197665
Isononane	0.520032	0.014935	8.72232E-08	8.72232E-08	0.014935
nC9	0	0	0	0	0
Decane	0.766904	0.0124389	1.9231E-08	1.9231E-08	0.0124389
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0652077	0.641632	99.9316	99.9316	0.641632

Zr %S %	8C% s6y%	8D% s6y%	8E% s6y%	8F% s6y%	97% s6y%
Hydrogen Sulfide	3.2734E-05	0.038007	0	0	0.038007
Nitrogen	0.000519706	5.32061	0	0	5.32061
Methane	0.108736	492.811	0	0	492.811
Carbon Dioxide	0.0365235	90.6095	0	0	90.6095
Ethane	0.644018	846.73	0	0	846.73
Propane	2.57531	1467.12	0	0	1467.12
i-Butane	1.21981	356.626	0	0	356.626
n-Butane	3.78431	872.22	0	0	872.22
i-Pentane	1.94051	241.067	0	0	241.067
n-Pentane	2.2882	239.837	0	0	239.837
i-Hexane	1.38251	80.5964	0	0	80.5964
Hexane	0.936109	44.2646	0	0	44.2646
Benzene	0.3204	16.2616	0	0	16.2616
Cyclohexane	0.722447	28.9924	0	0	28.9924
i-Heptane	1.49005	42.7565	0	0	42.7565
nC7	0.349005	8.01646	0	0	8.01646
Toluene	0.289793	6.76379	0	0	6.76379
i-Octane	0.945666	21.55	0	0	21.55
nC8	0.0969926	1.10738	0	0	1.10738
Ethylbenzene	0.045737	0.551318	0	0	0.551318
o-Xylene	0.0911936	0.967961	0	0	0.967961
Isononane	0.101572	0.731359	0	0	0.731359
nC9	0	0	0	0	0
Decane	0.149792	0.609129	0	0	0.609129
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0127364	31.4205	0	0	31.4205

d vr %a v zv %

a v %	f z %	8C%	8D%	8E%	8F%	97%
Temperature	°F	160	120	111.978	111.978	64.1896
Pressure	psig	250	1016	150	150 *	250 *
Molecular Weight	lb/lbmol	63.785	38.6329	18.0217	18.0217	38.6329
Std Liquid Volumetric Flow	sgpm	0.0649599	20.624	0	0	20.624
Std Vapor Volumetric Flow	MMSCFD	0.0027889	1.15445	0	0	1.15445
Net Ideal Gas Heating Value	Btu/ft^3	3261.89	1984.42	0.380327	0.380327	1984.42
Gross Ideal Gas Heating Value	Btu/ft^3	3526.97	2161.17	50.7062	50.7062	2161.17
Mole Fraction Vapor	%	0	0	0	0	49.1284
Mass Density	lb/ft^3	34.3091	25.073 ?	61.7883	61.7883	3.94932
Mass Flow	lb/h	19.532	4896.97	0	0	4896.97
Specific Gravity		0.550101	0.402012 ?			
API Gravity		97.4421	164.584			

* User Specified Values
? Extrapolated or Approximate Values

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

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a t v %d vr %sv %
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ers r vu%s %s r %ayr v%
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	98%	99%	9: %	9A%	9B%
From Block	MIX-108	VSSL-101	MIX-107	BTEX Liquids to PW Tank	VSSL-101
To Block	VSSL-101	RCYL-4	Produced Water Tank (PWTK-1)	MIX-107	SPLT-101

d vr %8 zz %

Z v%s rt z %	98% , %	99% , %	9: % , %	9A% , %	9B% , %
Hydrogen Sulfide	0.000879798	0.000882547	7.42773E-06	9.30649E-08	0.000313661
Nitrogen	0.14984	0.150538	3.67522E-05	2.34278E-07	0.00605849
Methane	24.2348	24.3418	0.00766312	0.000285427	2.21348
Carbon Dioxide	1.62427	1.63084	0.0064005	2.86122E-05	0.271018
Ethane	22.2155	22.2894	0.00495623	0.000805475	6.9944
Propane	26.2482	26.283	0.0032543	0.00182878	19.0725
i-Butane	4.84063	4.83086	0.000424043	0.000569712	6.85368
n-Butane	11.839	11.7932	0.00214285	0.00366642	21.2627
i-Pentane	2.63597	2.60612	0.000960458	0.0023421	8.78333
n-Pentane	2.62251	2.58496	0.00132146	0.00342239	10.3571
i-Hexane	0.737841	0.715988	0.00090029	0.00239942	5.23911
Hexane	0.405232	0.389977	0.000929703	0.00248061	3.54745
Benzene	0.164239	0.158534	0.0347758	0.091083	1.33952
Cyclohexane	0.271776	0.259486	0.00473468	0.0125874	2.80334
i-Heptane	0.336633	0.31469	0.00167923	0.00449476	4.85619
nC7	0.0631156	0.0578999	0.000622036	0.00166506	1.13744
Toluene	0.0579136	0.0532081	0.0337867	0.0900155	1.02711
i-Octane	0.148835	0.136432	0.00130156	0.00348382	2.70355
nC8	0.00764807	0.00633896	0.000201884	0.000540623	0.277291
Ethylbenzene	0.00409686	0.00343372	0.00528065	0.014119	0.140688
o-Xylene	0.00719295	0.00586599	0.0121439	0.0324628	0.280514
Isononane	0.0044987	0.00326492	0.000191462	0.000512734	0.258626
nC9	0	0	0	0	0
Decane	0.00337746	0.00172472	0.000331871	0.000888777	0.343803
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	3.25924E-05	8.72854E-05	0
DEA	0	0	0	0	0
Piperazine	0	0	7.75461E-05	0.000207675	0
DGA	0	0	0	0	0
TEG	0	0	1.73349E-06	4.64244E-06	0
Water	1.37595	1.38151	99.8758	99.73	0.230874

Zr %s rt z %	98% , %	99% , %	9: % , %	9A% , %	9B% , %
Hydrogen Sulfide	0.000776133	0.000781027	1.39934E-05	1.74217E-07	0.000167592
Nitrogen	0.108651	0.109504	5.69122E-05	3.60487E-07	0.0026608
Methane	10.0636	10.14	0.00679567	0.000251512	0.556709
Carbon Dioxide	1.85032	1.8637	0.015571	6.91656E-05	0.186993
Ethane	17.2909	17.4034	0.0082381	0.00133035	3.29725
Propane	29.9597	30.0946	0.00793246	0.00442945	13.1851
i-Butane	7.28259	7.29094	0.00136241	0.00181882	6.24521
n-Butane	17.8114	17.7989	0.00688476	0.0117052	19.375
i-Pentane	4.92279	4.88249	0.00383057	0.00928169	9.93503
n-Pentane	4.89766	4.84284	0.00527034	0.0135628	11.7152
i-Hexane	1.64584	1.60216	0.00428865	0.0113575	7.07819
Hexane	0.903918	0.872648	0.00442877	0.0117418	4.7927
Benzene	0.332075	0.321555	0.150158	0.390793	1.64039
Cyclohexane	0.592048	0.567066	0.0220267	0.0581878	3.69879
i-Heptane	0.873122	0.818798	0.00930127	0.0247386	7.62875
nC7	0.163703	0.150651	0.00344546	0.00916431	1.78684
Toluene	0.138122	0.127302	0.172085	0.455565	1.48368

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

Zr %Srt z %	98% , %	99% , %	9: % , %	9A% , %	9B% , %
i-Octane	0.440069	0.404675	0.00821854	0.0218587	4.84162
nC8	0.0226135	0.0188023	0.00127477	0.00339205	0.496582
Ethylbenzene	0.0112584	0.00946593	0.0309902	0.082334	0.234164
o-Xylene	0.0197665	0.0161711	0.0712682	0.189304	0.466892
Isononane	0.014935	0.0108734	0.00135741	0.0036121	0.52003
nC9	0	0	0	0	0
Decane	0.0124389	0.00637212	0.0026102	0.00694599	0.766902
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0.00021469	0.000571311	0
DEA	0	0	0	0	0
Piperazine	0	0	0.000369231	0.000982562	0
DGA	0	0	0	0	0
TEG	0	0	1.43903E-05	3.8294E-05	0
Water	0.641632	0.646267	99.462	98.687	0.0652076

Zr %S %	98% s6y%	99% s6y%	9: % s6y%	9A% s6y%	9B% s6y%
Hydrogen Sulfide	0.038007	0.0379415	0.000204118	9.54962E-07	6.54669E-05
Nitrogen	5.32061	5.31957	0.000830162	1.976E-06	0.0010394
Methane	492.811	492.594	0.0991266	0.00137865	0.217469
Carbon Dioxide	90.6095	90.5365	0.22713	0.000379128	0.0730458
Ethane	846.73	845.442	0.120167	0.00729224	1.28801
Propane	1467.12	1461.97	0.115709	0.0242799	5.15054
i-Butane	356.626	354.186	0.0198731	0.0099698	2.43959
n-Butane	872.22	864.652	0.100426	0.0641613	7.5685
i-Pentane	241.067	237.186	0.0558754	0.0508772	3.88095
n-Pentane	239.837	235.26	0.0768771	0.0743442	4.57634
i-Hexane	80.5964	77.8314	0.0625574	0.0622555	2.76497
Hexane	44.2646	42.3924	0.0646012	0.0643622	1.87219
Benzene	16.2616	15.6208	2.19032	2.14212	0.640791
Cyclohexane	28.9924	27.5475	0.321298	0.318954	1.44487
i-Heptane	42.7565	39.7764	0.135675	0.135604	2.98004
nC7	8.01646	7.31846	0.050258	0.0502338	0.697998
Toluene	6.76379	6.18422	2.51015	2.49716	0.579575
i-Octane	21.55	19.6587	0.119882	0.119817	1.8913
nC8	1.10738	0.913395	0.0185947	0.0185934	0.193982
Ethylbenzene	0.551318	0.459846	0.452045	0.45131	0.0914723
o-Xylene	0.967961	0.785577	1.03957	1.03766	0.182384
Isononane	0.731359	0.528218	0.0198002	0.0197996	0.203141
nC9	0	0	0	0	0
Decane	0.609129	0.309551	0.0380743	0.0380742	0.299577
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0.00313162	0.00313162	0
DEA	0	0	0	0	0
Piperazine	0	0	0.00538588	0.00538588	0
DGA	0	0	0	0	0
TEG	0	0	0.000209907	0.000209907	0
Water	31.4205	31.395	1450.83	540.949	0.0254723

d vr %a v zv %

a v %	f z %	98%	99%	9: %	9A%	9B%
Temperature	°F	64.1896	160 *	113.931	120	160
Pressure	psig	250	250 *	0	0	250
Molecular Weight	lb/lbmol	38.6329	38.5108	18.0902	18.2057	63.785
Std Liquid Volumetric Flow	sgpm	20.624	20.4941	2.91991	1.09846	0.129918
Std Vapor Volumetric Flow	MMSCFD	1.15445	1.14887	0.734376	0.274217	0.0055777
Net Ideal Gas Heating Value	Btu/ft^3	1984.42	1978.22	4.4654	11.2183	3261.89
Gross Ideal Gas Heating Value	Btu/ft^3	2161.17	2154.54	54.9523	61.9683	3526.97
Mole Fraction Vapor	%	49.1284	100	0.0301022	0	0
Mass Density	lb/ft^3	3.94932	1.79897	41.4666	61.5177	34.3091

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N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

d vr %a v zv %

a v %	f z %	98%	99%	9: %	9A%	9B%
Mass Flow	lb/h	4896.97	4857.9	1458.67	548.146	39.0633
Specific Gravity			1.32968		0.986355	0.550101
API Gravity					10.3011	97.4421

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

P vt z %

	9C%	9D%	9E%	9F%	:7%
From Block	SPLT-101	SPLT-101	RCYL-4	VLVE-107	MIX-109
To Block	VLVE-107	RCYL-5	MIX-100	MIX-109	500 BBL Condensate Tanks

d vr %R zz %

Z v%s rt z %	9C% , %	9D% , %	9E% , %	9F% , %	:7% , %
Hydrogen Sulfide	0.000313661	0.000313661	0.000882596	0.000313661	0.000313661
Nitrogen	0.00605849	0.00605849	0.150527	0.00605849	0.00605849
Methane	2.21348	2.21348	24.3408	2.21348	2.21348
Carbon Dioxide	0.271018	0.271018	1.63084	0.271018	0.271018
Ethane	6.9944	6.9944	22.2908	6.9944	6.9944
Propane	19.0725	19.0725	26.2848	19.0725	19.0725
i-Butane	6.85368	6.85368	4.8308	6.85368	6.85368
n-Butane	21.2627	21.2627	11.7926	21.2627	21.2627
i-Pentane	8.78333	8.78333	2.6057	8.78333	8.78333
n-Pentane	10.3571	10.3571	2.5845	10.3571	10.3571
i-Hexane	5.23911	5.23911	0.715883	5.23911	5.23911
Hexane	3.54745	3.54745	0.389938	3.54745	3.54745
Benzene	1.33952	1.33952	0.158519	1.33952	1.33952
Cyclohexane	2.80334	2.80334	0.259476	2.80334	2.80334
i-Heptane	4.85619	4.85619	0.314727	4.85619	4.85619
nC7	1.13744	1.13744	0.0579149	1.13744	1.13744
Toluene	1.02711	1.02711	0.0532222	1.02711	1.02711
i-Octane	2.70355	2.70355	0.136467	2.70355	2.70355
nC8	0.277291	0.277291	0.00634539	0.277291	0.277291
Ethylbenzene	0.140688	0.140688	0.003437	0.140688	0.140688
o-Xylene	0.280514	0.280514	0.00587273	0.280514	0.280514
Isononane	0.258626	0.258626	0.00327112	0.258626	0.258626
nC9	0	0	0	0	0
Decane	0.343803	0.343803	0.00173128	0.343803	0.343803
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.230874	0.230874	1.38101	0.230874	0.230874

Zr %s rt z %	9C% , %	9D% , %	9E% , %	9F% , %	:7% , %
Hydrogen Sulfide	0.000167592	0.000167592	0.000781072	0.000167592	0.000167592
Nitrogen	0.0026608	0.0026608	0.109496	0.0026608	0.0026608
Methane	0.556709	0.556709	10.1397	0.556709	0.556709
Carbon Dioxide	0.186993	0.186993	1.8637	0.186993	0.186993
Ethane	3.29725	3.29725	17.4046	3.29725	3.29725
Propane	13.1851	13.1851	30.0967	13.1851	13.1851
i-Butane	6.24521	6.24521	7.29088	6.24521	6.24521
n-Butane	19.375	19.375	17.7979	19.375	19.375
i-Pentane	9.93503	9.93503	4.8817	9.93503	9.93503
n-Pentane	11.7152	11.7152	4.842	11.7152	11.7152
i-Hexane	7.07819	7.07819	1.60193	7.07819	7.07819
Hexane	4.7927	4.7927	0.872564	4.7927	4.7927
Benzene	1.64039	1.64039	0.321526	1.64039	1.64039
Cyclohexane	3.69879	3.69879	0.567047	3.69879	3.69879
i-Heptane	7.62875	7.62875	0.818896	7.62875	7.62875
nC7	1.78684	1.78684	0.15069	1.78684	1.78684
Toluene	1.48368	1.48368	0.127336	1.48368	1.48368
i-Octane	4.84162	4.84162	0.404782	4.84162	4.84162

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Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	02. Stabilization

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	9C% , %	9D% , %	9E% , %	9F% , %	:7% , %
nC8	0.496582	0.496582	0.0188214	0.496582	0.496582
Ethylbenzene	0.234164	0.234164	0.00947501	0.234164	0.234164
o-Xylene	0.466892	0.466892	0.0161898	0.466892	0.466892
Isononane	0.52003	0.52003	0.0108941	0.52003	0.52003
nC9	0	0	0	0	0
Decane	0.766902	0.766902	0.00639638	0.766902	0.766902
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0652076	0.0652076	0.646037	0.0652076	0.0652076

Zr %S %	9C% s6y%	9D% s6y%	9E% s6y%	9F% s6y%	:7% s6y%
Hydrogen Sulfide	3.27335E-05	3.27335E-05	0.0379772	3.27335E-05	0.000308535
Nitrogen	0.000519698	0.000519698	5.3239	0.000519698	0.0048985
Methane	0.108735	0.108735	493.011	0.108735	1.0249
Carbon Dioxide	0.0365229	0.0365229	90.6166	0.0365229	0.344253
Ethane	0.644007	0.644007	846.245	0.644007	6.0702
Propane	2.57527	2.57527	1463.36	2.57527	24.2736
i-Butane	1.21979	1.21979	354.496	1.21979	11.4974
n-Butane	3.78425	3.78425	865.368	3.78425	35.6691
i-Pentane	1.94048	1.94048	237.358	1.94048	18.2903
n-Pentane	2.28817	2.28817	235.427	2.28817	21.5675
i-Hexane	1.38249	1.38249	77.8889	1.38249	13.0309
Hexane	0.936094	0.936094	42.4257	0.936094	8.82331
Benzene	0.320395	0.320395	15.6332	0.320395	3.01994
Cyclohexane	0.722435	0.722435	27.5709	0.722435	6.80943
i-Heptane	1.49002	1.49002	39.8163	1.49002	14.0444
nC7	0.348999	0.348999	7.32684	0.348999	3.28955
Toluene	0.289788	0.289788	6.19134	0.289788	2.73144
i-Octane	0.945649	0.945649	19.6813	0.945649	8.91337
nC8	0.0969908	0.0969908	0.915132	0.0969908	0.914203
Ethylbenzene	0.0457361	0.0457361	0.460693	0.0457361	0.431094
o-Xylene	0.0911919	0.0911919	0.787177	0.0911919	0.859544
Isononane	0.10157	0.10157	0.52969	0.10157	0.957369
nC9	0	0	0	0	0
Decane	0.149789	0.149789	0.311004	0.149789	1.41186
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0127361	0.0127361	31.4116	0.0127361	0.120047

d vr %a v zv %

a v %	f z %	9C%	9D%	9E%	9F%	:7%
Temperature	°F	160	160	160	137.231	137.231
Pressure	psig	250	250	250	120	120
Molecular Weight	lb/lbmol	63.785	63.785	38.5107	63.785	63.785
Std Liquid Volumetric Flow	sgpm	0.0649588	0.0649588	20.5123	0.0649588	0.61228
Std Vapor Volumetric Flow	MMSCFD	0.00278885	0.00278885	1.14989	0.00278885	0.0262868
Net Ideal Gas Heating Value	Btu/ft^3	3261.89	3261.89	1978.21	3261.89	3261.89
Gross Ideal Gas Heating Value	Btu/ft^3	3526.97	3526.97	2154.54	3526.97	3526.97
Mole Fraction Vapor	%	0	0	100	16.2161	16.2161
Mass Density	lb/ft^3	34.3091	34.3091	1.79896	7.50354	7.50354
Mass Flow	lb/h	19.5317	19.5317	4862.19	19.5317	184.099

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	02. Stabilization	

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a v % f z %	9C%	9D%	9E%	9F%	:7%
Specific Gravity	0.550101	0.550101	1.32967		
API Gravity	97.4421	97.4421			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

P vt z %

d vr %	P vt z % v%	` yv %O t ►%	d vr %	P vt z % v%	` yv %O t ►%
23	Inlet	MIX-107	PW Flashing	Flashing Losses Stream	MIX-105
PW Working	Working Losses Stream	MIX-105	PW Breathing	Standing Losses Stream	MIX-105
PW Loading	Loading Losses Stream		PW Dropout	Residual Liquid Stream	

h ►z x% u%d r uz x%a v zv %

	Tank Geometry	Vertical Cylinder		Roof Type	Cone
*	Shell Length	16 ft		Slope of Coned Roof	0.0625
*	Shell Diameter	15.5 ft		Breather Vent Pressure	0.03 psi
*	Number of Storage Tanks	1		Breather Vacuum Pressure	-0.03 psi
	Maximum Fraction Fill of Tank	90 %	*	Location	Roswell, NM
	Average Fraction Fill of Tank	50 %		Time Frame	Year
	Minimum Fraction Fill of Tank	10 %		Known Liquid Bulk Temperature?	False
*	Material Category	Light Organics		Liquid Bulk Temperature	66.3494 °F
	Insulation	Uninsulated	*	Use AP 42 Raoult's Vapor Pressure?	True
	Bolted or Riveted Construction?	False		Flashing Temperature	82.9575 °F
	Vapor Balanced Tank?	False		Average Daily Maximum Ambient Temperature	75.8 °F
	Known Sum of Increases in Liquid Level?	False		Average Daily Minimum Ambient Temperature	47.6 °F
	Sum of Increases in Liquid Level	1087.67 ft/yr		Atmospheric Pressure at Tank Location	12.88 psia
*	Shell Color	Dark Green		Daily Solar Insolation	1722 Btu/(day*ft^2)
	Shell Paint Condition	Average		Average Wind Speed	8.7 mph
*	Roof Color	Dark Green	*	Include Short Term Emissions	True
	Roof Paint Condition	Average	*	Shell Height	16 ft

P zz %d s v%a v zv %

Component Subset	VOCs	Species in Results	Selected Species
Atomic Basis	False	Fraction Denominator	Selected Species

ers r vu%R zz %d s v%a v zv %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	False			
Nitrogen	False			
Methane	False			
Carbon Dioxide	False			
Ethane	False			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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Vuv %	dv vt vu% v %	%	%	%
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	False			

Qv rz %d v zv %

Vapor Space Volume	1540	ft^3	Tank Roof Height	0.484375	ft
Vapor Density	0.00152087	lb/ft^3	Tank Shell Radius	7.75	ft
Vapor Space Expansion Factor	0.112615	1/day	Vapor Molecular Weight	20.6449	lb/lbmol
Vented Vapor Saturation Factor	0.845329		Average Vapor Temperature	535.051	°R
Vapor Space Outage	8.16146	ft	Average Daily Ambient Temperature	521.37	°R
Average Daily Vapor Temperature Range	48.3695	°R	Net Working Loss Throughput	205235	ft^3/yr
Average Daily Vapor Pressure Range	0.327123	psi	Working Loss Turnover (Saturation) Factor	1	
Breather Vent Pressure Setting Range	0.06	psi	Number of Turnovers per Year	84.9744	
Vapor Pressure at Average Daily Liquid Surface Temperature	0.422998	psia	Annual Net Throughput	36557.7	bbl/yr
Average Daily Liquid Surface Temperature	530.535	°R	Maximum Liquid Height	14.4	ft
Average Daily Ambient Temperature Range	28.2	°R	Minimum Liquid Height	1.6	ft
Tank Roof Surface Solar Absorptance	0.9		Working Loss Product Factor	1	
Tank Shell Surface Solar Absorptance	0.9		Vent Setting Correction Factor	1	
Vapor Pressure at Maximum Liquid Surface Temperature	0.614803	psia	Saturation Factor	1	
Vapor Pressure at Minimum Liquid Surface Temperature	0.287679	psia	Vapor Pressure of Liquid Loaded	0.364457	psia
Maximum Liquid Surface Temperature	542.628	°R	Collection Efficiency	70	%
Minimum Liquid Surface Temperature	518.443	°R	Annual Net Throughput Per Tank	36557.7	bbl/yr
Liquid Height	8	ft	Loading Vapor Molecular Weight	34.9212	lb/lbmol
Roof Outage	0.161458	ft			

Y ruz x%d v zv %

Cargo Carrier	Tank Truck or Rail Tank Car		Truck Annual Leak Test Passed	None	
* Land Based Mode of Operation	Submerged Loading: Dedicated Vapor Balance Service		Overall Reduction Efficiency	0	%
* Control Efficiency	0	%			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

cv %a v zv %

Flashing Losses	1.39939	ton/yr	Standing Losses per Tank	0.000723927	ton/yr
Working Losses	0.00277658	ton/yr	Flashing Losses per Tank	1.39939	ton/yr
Standing Losses	0.000723927	ton/yr	Working and Standing Losses	0.00350051	ton/yr
Loading Losses	0.117163	ton/yr	Working and Standing Losses per Tank	0.00350051	ton/yr
Working Losses per Tank	0.00277658	ton/yr	Loading Losses per Tank	0.117163	ton/yr

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Vuv %	Sr yz x% v %Zr % S % 6 %	h ►z x% v %Zr % S % 6 %	d r uz x% v %Zr % S % 6 %	Y ruz x% v %Zr % S % 6 %
Propane	0.377505	0.000849979	0.000221612	0.0353328
i-Butane	0.0526134	8.0135E-05	2.08933E-05	0.00469721
n-Butane	0.218643	0.000348801	9.09414E-05	0.0193553
i-Pentane	0.0700865	0.000104224	2.7174E-05	0.00589222
n-Pentane	0.0803048	0.000113102	2.94885E-05	0.00663873
i-Hexane	0.0333187	4.32365E-05	1.12729E-05	0.00267518
Hexane	0.0242298	3.30026E-05	8.60462E-06	0.00188576
Benzene	0.26468	0.000741699	0.00019338	0.0203485
Cyclohexane	0.072183	0.000109119	2.84501E-05	0.00553083
i-Heptane	0.0248693	3.11767E-05	8.12856E-06	0.00186708
nC7	0.00613156	8.05214E-06	2.0994E-06	0.000447366
Toluene	0.131799	0.000252953	6.59513E-05	0.00947417
i-Octane	0.0172589	2.07948E-05	5.42173E-06	0.00129063
nC8	0.000757822	8.3589E-07	2.17938E-07	5.22794E-05
Ethylbenzene	0.00712404	1.49823E-05	3.90627E-06	0.000472359
o-Xylene	0.0171718	2.39073E-05	6.23324E-06	0.00115529
Isononane	0.000499801	4.10599E-07	1.07054E-07	3.37741E-05
nC9	0	0	0	0
Decane	0.000202224	1.26127E-07	3.28845E-08	1.25907E-05
Ethylene Glycol	0	0	0	0
MDEA	6.24647E-06	6.56714E-11	1.71222E-11	4.4873E-07
DEA	0	0	0	0
Piperazine	2.21884E-10	4.70321E-08	1.22625E-08	7.72715E-12
DGA	0	0	0	0
TEG	6.73109E-14	3.30704E-13	8.6223E-14	1.65602E-15

Vuv %	h ►z x% u%d r uz x% Y v %Zr %S % 6 %	% %	% %	% %
Propane	0.00107159			
i-Butane	0.000101028			
n-Butane	0.000439742			
i-Pentane	0.000131398			
n-Pentane	0.00014259			
i-Hexane	5.45094E-05			
Hexane	4.16072E-05			
Benzene	0.00093508			
Cyclohexane	0.000137569			
i-Heptane	3.93052E-05			
nC7	1.01515E-05			
Toluene	0.000318904			
i-Octane	2.62165E-05			
nC8	1.05383E-06			
Ethylbenzene	1.88886E-05			
o-Xylene	3.01405E-05			
Isononane	5.17653E-07			
nC9	0			
Decane	1.59011E-07			
Ethylene Glycol	0			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

Vuv %	h ►z x% u%d r uz x% Y v %Z r %S % 6 %	% %	% %	% %
MDEA	8.27936E-11			
DEA	0			
Piperazine	5.92946E-08			
DGA	0			
TEG	4.16927E-13			

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*	Maximum Battery Filling Rate	220 bbl/hr	Short-Term Loading Losses per Tank	4.10261	lb/h
	Short-Term Number of Storage Tanks	1	Short-Term Vapor Molecular Weight	19.5105	lb/lbmol
	Worst-Case Liquid Surface Temperature	95 °F	Vapor Pressure at Worst-Case Temperature	0.870246	psia
*	Maximum Loading Rate	220 bbl/hr	* Short-Term Control Efficiency	0	%
	Worst-Case Flashing Losses	22.0247 lb/h	Short-Term Truck Annual Leak Test Passed	None	
	Short-Term Working Losses	0.0479833 lb/h	Short-Term Overall Reduction Efficiency	0	%
	Short-Term Loading Losses	4.10261 lb/h	Short-Term Collection Efficiency	70	%
	Worst-Case Flashing Losses per Tank	22.0247 lb/h	Vapor Pressure of Liquid Loaded (STE)	0.867752	psia
	Short-Term Working Losses per Tank	0.0479833 lb/h	Loading Vapor Molecular Weight (STE)	38.8539	lb/lbmol

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Vuv %	h 4Pr v%S r yz x% Y v %Z r %S % s6y%	dy 4ev % ►z x% Y v %Z r %S % s6y%	dy 4ev % ruz x% Y v %Z r %S % s6y%	% %
Propane	4.85416	0.0110063	0.898645	
i-Butane	0.712562	0.00110337	0.132654	
n-Butane	3.07337	0.00503922	0.572717	
i-Pentane	1.08546	0.00169892	0.202535	
n-Pentane	1.27862	0.00191878	0.23863	
i-Hexane	0.567779	0.000812016	0.106	
Hexane	0.427644	0.000646091	0.0798418	
Benzene	4.77546	0.0155179	0.891491	
Cyclohexane	1.30633	0.00222238	0.243901	
i-Heptane	0.459699	0.000658127	0.0858311	
nC7	0.116318	0.000176443	0.0217179	
Toluene	2.52434	0.00573266	0.47128	
i-Octane	0.321489	0.000443431	0.0600252	
nC8	0.0150892	2.05418E-05	0.00281717	
Ethylbenzene	0.145352	0.000369438	0.0271352	
o-Xylene	0.346396	0.000602896	0.064667	
Isononane	0.010132	1.05036E-05	0.00189169	
nC9	0	0	0	
Decane	0.00433409	2.80963E-06	0.000809061	
Ethylene Glycol	0	0	0	
MDEA	0.000115087	3.06121E-09	2.14798E-05	
DEA	0	0	0	
Piperazine	6.86431E-09	1.40818E-06	1.28137E-09	
DGA	0	0	0	
TEG	2.61305E-12	1.72729E-11	4.87549E-13	

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ProMax:ProMax!Project!Flowsheets!02. Stabilization!Blocks!Produced Water Tank (PWTK-1)

Warning: Raoult's Law is not recommended for aqueous mixtures.

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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S12	Inlet	FAXR-100	Stabilized Flashing	Flashing Losses Stream	MIX-104
Stabilized Working	Working Losses Stream	MIX-104	Stabilized Breathing	Standing Losses Stream	MIX-104
Stabilized Condensate Loading	Loading Losses Stream		Stabilized Condensate Dropout	Residual Liquid Stream	

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	Tank Geometry	Vertical Cylinder		Roof Type	Cone
*	Shell Length	30 ft		Slope of Coned Roof	0.0625
*	Shell Diameter	15.5 ft		Breather Vent Pressure	0.03 psi
*	Number of Storage Tanks	6		Breather Vacuum Pressure	-0.03 psi
	Maximum Fraction Fill of Tank	90 %	*	Location	Roswell, NM
	Average Fraction Fill of Tank	50 %		Time Frame	Year
	Minimum Fraction Fill of Tank	10 %		Known Liquid Bulk Temperature?	False
*	Material Category	Light Organics		Liquid Bulk Temperature	66.3494 °F
	Insulation	Uninsulated	*	Use AP 42 Raoult's Vapor Pressure?	True
	Bolted or Riveted Construction?	False		Flashing Temperature	82.0782 °F
	Vapor Balanced Tank?	False		Average Daily Maximum Ambient Temperature	75.8 °F
	Known Sum of Increases in Liquid Level?	False		Average Daily Minimum Ambient Temperature	47.6 °F
	Sum of Increases in Liquid Level	4528.87 ft/yr		Atmospheric Pressure at Tank Location	12.88 psia
*	Shell Color	Dark Green		Daily Solar Insolation	1722 Btu/(day*ft^2)
	Shell Paint Condition	Average		Average Wind Speed	8.7 mph
*	Roof Color	Dark Green	*	Include Short Term Emissions	True
	Roof Paint Condition	Average	*	Shell Height	30 ft

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Component Subset	VOCs	Species in Results	Selected Species
Atomic Basis	False	Fraction Denominator	Selected Species

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Hydrogen Sulfide	False			
Nitrogen	False			
Methane	False			
Carbon Dioxide	False			
Ethane	False			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	False			

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Vapor Space Volume	2860.84	ft^3	Tank Roof Height	0.484375	ft
Vapor Density	0.063325	lb/ft^3	Tank Shell Radius	7.75	ft
Vapor Space Expansion Factor	0.42805	1/day	Vapor Molecular Weight	65.8444	lb/lbmol
Vented Vapor Saturation Factor	0.184321		Average Vapor Temperature	533.591	°R
Vapor Space Outage	15.1615	ft	Average Daily Ambient Temperature	521.37	°R
Average Daily Vapor Temperature Range	47.7713	°R	Net Working Loss Throughput	854561	ft^3/yr
Average Daily Vapor Pressure Range	2.55114	psi	Working Loss Turnover (Saturation) Factor	0.325647	
Breather Vent Pressure Setting Range	0.06	psi	Number of Turnovers per Year	188.703	
Vapor Pressure at Average Daily Liquid Surface Temperature	5.50718	psia	Annual Net Throughput	913318	bbl/yr
Average Daily Liquid Surface Temperature	529.805	°R	Maximum Liquid Height	27	ft
Average Daily Ambient Temperature Range	28.2	°R	Minimum Liquid Height	3	ft
Tank Roof Surface Solar Absorptance	0.9		Working Loss Product Factor	1	
Tank Shell Surface Solar Absorptance	0.9		Vent Setting Correction Factor	1	
Vapor Pressure at Maximum Liquid Surface Temperature	6.90221	psia	Saturation Factor	1	
Vapor Pressure at Minimum Liquid Surface Temperature	4.35107	psia	Vapor Pressure of Liquid Loaded	5.08523	psia
Maximum Liquid Surface Temperature	541.748	°R	Collection Efficiency	70	%
Minimum Liquid Surface Temperature	517.863	°R	Annual Net Throughput Per Tank	152220	bbl/yr
Liquid Height	15	ft	Loading Vapor Molecular Weight	66.3779	lb/lbmol
Roof Outage	0.161458	ft			

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Cargo Carrier	Tank Truck or Rail Tank Car		Truck Annual Leak Test Passed	None	
* Land Based Mode of Operation	Submerged Loading: Dedicated Vapor Balance Service		Overall Reduction Efficiency	0	%
* Control Efficiency	0	%			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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Flashing Losses	0	ton/yr	Standing Losses per Tank	2.5892	ton/yr
Working Losses	52.4749	ton/yr	Flashing Losses per Tank	0	ton/yr
Standing Losses	15.5352	ton/yr	Working and Standing Losses	68.0101	ton/yr
Loading Losses	152.484	ton/yr	Working and Standing Losses per Tank	11.335	ton/yr
Working Losses per Tank	8.74582	ton/yr	Loading Losses per Tank	25.414	ton/yr

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Propane	0	5.32563	1.57665	14.7298
i-Butane	0	3.88969	1.15154	10.9913
n-Butane	0	12.9331	3.82883	36.5337
i-Pentane	0	7.57557	2.24275	22.0883
n-Pentane	0	8.58981	2.54301	25.1515
i-Hexane	0	4.45366	1.31851	13.1024
Hexane	0	2.63393	0.779776	7.37116
Benzene	0	0.56623	0.167632	2.57034
Cyclohexane	0	1.52434	0.451282	5.29243
i-Heptane	0	2.65703	0.786614	7.64858
nC7	0	0.492074	0.145678	1.3701
Toluene	0	0.255379	0.075605	1.09335
i-Octane	0	1.42731	0.422556	4.01689
nC8	0	0.0549039	0.0162543	0.166323
Ethylbenzene	0	0.0187682	0.00555633	0.0724289
o-Xylene	0	0.0276962	0.00819946	0.124262
Isononane	0	0.0350689	0.0103821	0.102852
nC9	0	0	0	0
Decane	0	0.0147704	0.00437278	0.058075
Ethylene Glycol	0	0	0	0
MDEA	0	0	0	0
DEA	0	0	0	0
Piperazine	0	0	0	0
DGA	0	0	0	0
TEG	0	0	0	0

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Propane	6.90228			
i-Butane	5.04123			
n-Butane	16.7619			
i-Pentane	9.81831			
n-Pentane	11.1328			
i-Hexane	5.77217			
Hexane	3.41371			
Benzene	0.733862			
Cyclohexane	1.97562			
i-Heptane	3.44365			
nC7	0.637752			
Toluene	0.330984			
i-Octane	1.84987			
nC8	0.0711582			
Ethylbenzene	0.0243245			
o-Xylene	0.0358956			
Isononane	0.045451			
nC9	0			
Decane	0.0191432			
Ethylene Glycol	0			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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MDEA	0			
DEA	0			
Piperazine	0			
DGA	0			
TEG	0			

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*	Maximum Battery Filling Rate	220 bbl/hr		Short-Term Loading Losses per Tank	20.2558 lb/h
	Short-Term Number of Storage Tanks	6		Short-Term Vapor Molecular Weight	67.3053 lb/lbmol
	Worst-Case Liquid Surface Temperature	95 °F		Vapor Pressure at Worst-Case Temperature	8.72452 psia
*	Maximum Loading Rate	220 bbl/hr	*	Short-Term Control Efficiency	0 %
	Worst-Case Flashing Losses	0 lb/h		Short-Term Truck Annual Leak Test Passed	None
	Short-Term Working Losses	121.106 lb/h		Short-Term Overall Reduction Efficiency	0 %
	Short-Term Loading Losses	121.535 lb/h		Short-Term Collection Efficiency	70 %
	Worst-Case Flashing Losses per Tank	0 lb/h		Vapor Pressure of Liquid Loaded (STE)	8.57353 psia
	Short-Term Working Losses per Tank	20.1843 lb/h		Loading Vapor Molecular Weight (STE)	68.5285 lb/lbmol

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Propane	0	10.6526	9.18085	
i-Butane	0	8.20995	7.70624	
n-Butane	0	27.7935	26.5999	
i-Pentane	0	17.3538	17.4897	
n-Pentane	0	20.1781	20.5715	
i-Hexane	0	11.0672	11.4679	
Hexane	0	6.72967	6.7773	
Benzene	0	1.50164	2.32272	
Cyclohexane	0	3.98626	4.86652	
i-Heptane	0	7.18101	7.45821	
nC7	0	1.37217	1.39688	
Toluene	0	0.730156	1.10476	
i-Octane	0	3.87837	3.97655	
nC8	0	0.170453	0.187953	
Ethylbenzene	0	0.0582634	0.0814317	
o-Xylene	0	0.0879982	0.141597	
Isononane	0	0.113234	0.124541	
nC9	0	0	0	
Decane	0	0.0412559	0.0804297	
Ethylene Glycol	0	0	0	
MDEA	0	0	0	
DEA	0	0	0	
Piperazine	0	0	0	
DGA	0	0	0	
TEG	0	0	0	

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* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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30	Inlet	MIX-109	LP Condensate Flash	Flashing Losses Stream	MIX-106
LP Condensate Work	Working Losses Stream	MIX-106	LP Condensate Breathe	Standing Losses Stream	MIX-106
LP Condensate Load	Loading Losses Stream		LP Condensate Dropout	Residual Liquid Stream	

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	Tank Geometry	Vertical Cylinder		Roof Type	Cone
*	Shell Length	16 ft		Slope of Coned Roof	0.0625
*	Shell Diameter	15.5 ft		Breather Vent Pressure	0.03 psi
*	Number of Storage Tanks	2		Breather Vacuum Pressure	-0.03 psi
	Maximum Fraction Fill of Tank	90 %	*	Location	Roswell, NM
	Average Fraction Fill of Tank	50 %		Time Frame	Year
	Minimum Fraction Fill of Tank	10 %		Known Liquid Bulk Temperature?	False
*	Material Category	Light Organics		Liquid Bulk Temperature	66.3494 °F
	Insulation	Uninsulated	*	Use AP 42 Raoult's Vapor Pressure?	True
	Bolted or Riveted Construction?	False		Flashing Temperature	82.9575 °F
	Vapor Balanced Tank?	False		Average Daily Maximum Ambient Temperature	75.8 °F
	Known Sum of Increases in Liquid Level?	False		Average Daily Minimum Ambient Temperature	47.6 °F
	Sum of Increases in Liquid Level	28.6784 ft/yr		Atmospheric Pressure at Tank Location	12.88 psia
*	Shell Color	Dark Green		Daily Solar Insolation	1722 Btu/(day*ft^2)
	Shell Paint Condition	Average		Average Wind Speed	8.7 mph
*	Roof Color	Dark Green	*	Include Short Term Emissions	True
	Roof Paint Condition	Average	*	Shell Height	16 ft

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Component Subset	VOCs	Species in Results	Selected Species
Atomic Basis	False	Fraction Denominator	Selected Species

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Hydrogen Sulfide	False			
Nitrogen	False			
Methane	False			
Carbon Dioxide	False			
Ethane	False			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	False			

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Vapor Space Volume	1540	ft^3	Tank Roof Height	0.484375	ft
Vapor Density	0.103747	lb/ft^3	Tank Shell Radius	7.75	ft
Vapor Space Expansion Factor	1	1/day	Vapor Molecular Weight	56.5063	lb/lbmol
Vented Vapor Saturation Factor	0.179851		Average Vapor Temperature	535.051	°R
Vapor Space Outage	8.16146	ft	Average Daily Ambient Temperature	521.37	°R
Average Daily Vapor Temperature Range	48.3695	°R	Net Working Loss Throughput	5411.37	ft^3/yr
Average Daily Vapor Pressure Range	4.3477	psi	Working Loss Turnover (Saturation) Factor	1	
Breather Vent Pressure Setting Range	0.06	psi	Number of Turnovers per Year	2.2405	
Vapor Pressure at Average Daily Liquid Surface Temperature	10.5423	psia	Annual Net Throughput	1927.81	bbl/yr
Average Daily Liquid Surface Temperature	530.535	°R	Maximum Liquid Height	14.4	ft
Average Daily Ambient Temperature Range	28.2	°R	Minimum Liquid Height	1.6	ft
Tank Roof Surface Solar Absorptance	0.9		Working Loss Product Factor	1	
Tank Shell Surface Solar Absorptance	0.9		Vent Setting Correction Factor	1	
Vapor Pressure at Maximum Liquid Surface Temperature	12.8971	psia	Saturation Factor	1	
Vapor Pressure at Minimum Liquid Surface Temperature	8.54942	psia	Vapor Pressure of Liquid Loaded	5.5694	psia
Maximum Liquid Surface Temperature	542.628	°R	Collection Efficiency	70	%
Minimum Liquid Surface Temperature	518.443	°R	Annual Net Throughput Per Tank	963.907	bbl/yr
Liquid Height	8	ft	Loading Vapor Molecular Weight	67.6787	lb/lbmol
Roof Outage	0.161458	ft			

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Cargo Carrier	Tank Truck or Rail Tank Car		Truck Annual Leak Test Passed	None	
* Land Based Mode of Operation	Submerged Loading: Dedicated Vapor Balance Service		Overall Reduction Efficiency	0	%
* Control Efficiency	0	%			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
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Flashing Losses	543.117 ton/yr	Standing Losses per Tank	4.88474 ton/yr
Working Losses	0.52294 ton/yr	Flashing Losses per Tank	271.558 ton/yr
Standing Losses	9.76949 ton/yr	Working and Standing Losses	10.2924 ton/yr
Loading Losses	0.360866 ton/yr	Working and Standing Losses per Tank	5.14621 ton/yr
Working Losses per Tank	0.26147 ton/yr	Loading Losses per Tank	0.180433 ton/yr

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Propane	103.887	0.11247	2.10115	0.00984628
i-Butane	47.3811	0.0487531	0.910798	0.0320179
n-Butane	143.191	0.144643	2.70219	0.109216
i-Pentane	65.5405	0.061177	1.1429	0.0559525
n-Pentane	73.0146	0.0665683	1.24362	0.0624886
i-Hexane	33.8637	0.0293362	0.548054	0.0289081
Hexane	19.4758	0.0172042	0.321407	0.0162355
Benzene	6.68725	0.00365826	0.0683431	0.00560832
Cyclohexane	13.2681	0.00952067	0.177864	0.0110834
i-Heptane	19.5016	0.0161846	0.302357	0.0157694
nC7	3.46904	0.00289588	0.0541003	0.00273372
Toluene	2.79663	0.00150186	0.0280575	0.00220337
i-Octane	9.97249	0.00837439	0.156449	0.00802439
nC8	0.368252	0.000265008	0.00495083	0.000273816
Ethylbenzene	0.167859	9.19167E-05	0.00171717	0.00012366
o-Xylene	0.277316	0.000129315	0.00241585	0.000202859
Isononane	0.186666	0.000134232	0.0025077	0.000133992
nC9	0	0	0	0
Decane	0.0676665	3.25844E-05	0.000608737	4.438E-05
Ethylene Glycol	0	0	0	0
MDEA	0	0	0	0
DEA	0	0	0	0
Piperazine	0	0	0	0
DGA	0	0	0	0
TEG	0	0	0	0

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Propane	2.21362			
i-Butane	0.959551			
n-Butane	2.84683			
i-Pentane	1.20408			
n-Pentane	1.31019			
i-Hexane	0.57739			
Hexane	0.338611			
Benzene	0.0720013			
Cyclohexane	0.187384			
i-Heptane	0.318542			
nC7	0.0569962			
Toluene	0.0295594			
i-Octane	0.164823			
nC8	0.00521584			
Ethylbenzene	0.00180909			
o-Xylene	0.00254517			
Isononane	0.00264194			
nC9	0			
Decane	0.000641321			
Ethylene Glycol	0			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026	
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026	

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MDEA	0			
DEA	0			
Piperazine	0			
DGA	0			
TEG	0			

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*	Maximum Battery Filling Rate	220 bbl/hr		Short-Term Loading Losses per Tank	68.5534 lb/h
	Short-Term Number of Storage Tanks	2		Short-Term Vapor Molecular Weight	59.1308 lb/lbmol
	Worst-Case Liquid Surface Temperature	95 °F		Vapor Pressure at Worst-Case Temperature	12.9681 psia
*	Maximum Loading Rate	220 bbl/hr	*	Short-Term Control Efficiency	0 %
	Worst-Case Flashing Losses	35634 lb/h		Short-Term Truck Annual Leak Test Passed	None
	Short-Term Working Losses	149.919 lb/h		Short-Term Overall Reduction Efficiency	0 %
	Short-Term Loading Losses	137.107 lb/h		Short-Term Collection Efficiency	70 %
	Worst-Case Flashing Losses per Tank	17817 lb/h		Vapor Pressure of Liquid Loaded (STE)	10.0283 psia
	Short-Term Working Losses per Tank	74.9593 lb/h		Loading Vapor Molecular Weight (STE)	65.9306 lb/lbmol

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Propane	6033.7	27.5681	16.1232	
i-Butane	2806.02	12.325	10.4267	
n-Butane	8594.99	37.2833	33.5685	
i-Pentane	4165.59	17.3376	17.3165	
n-Pentane	4774.16	19.6456	20.0318	
i-Hexane	2499.73	10.1025	10.6625	
Hexane	1542.57	6.41124	6.59845	
Benzene	525.66	1.43214	2.24787	
Cyclohexane	1102.94	3.78604	4.72852	
i-Heptane	1824.79	7.3336	7.82944	
nC7	352.55	1.44444	1.51354	
Toluene	283.194	0.778884	1.21384	
i-Octane	992.4	4.03403	4.2637	
nC8	45.488	0.17145	0.1955	
Ethylbenzene	20.4456	0.0599355	0.0875029	
o-Xylene	34.5324	0.0878355	0.147823	
Isononane	25.2466	0.0956582	0.108702	
nC9	0	0	0	
Decane	9.97167	0.0211456	0.042753	
Ethylene Glycol	0	0	0	
MDEA	0	0	0	
DEA	0	0	0	
Piperazine	0	0	0	
DGA	0	0	0	
TEG	0	0	0	

h r z x

ProMax:ProMax!Project!Flowsheets!02. Stabilization!Blocks!500 BBL Condensate Tanks

Warning: Vapor adjusted to ensure mass balance.

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	O t ► % B77%OOY%R uv r v%r ►% er ►% v % %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	Modified: 12:20 PM, 7/9/2026
Flowsheet:	02. Stabilization	Status: Solved 12:20 PM, 7/9/2026

Warning: Short Term vapor adjusted to ensure mass balance.

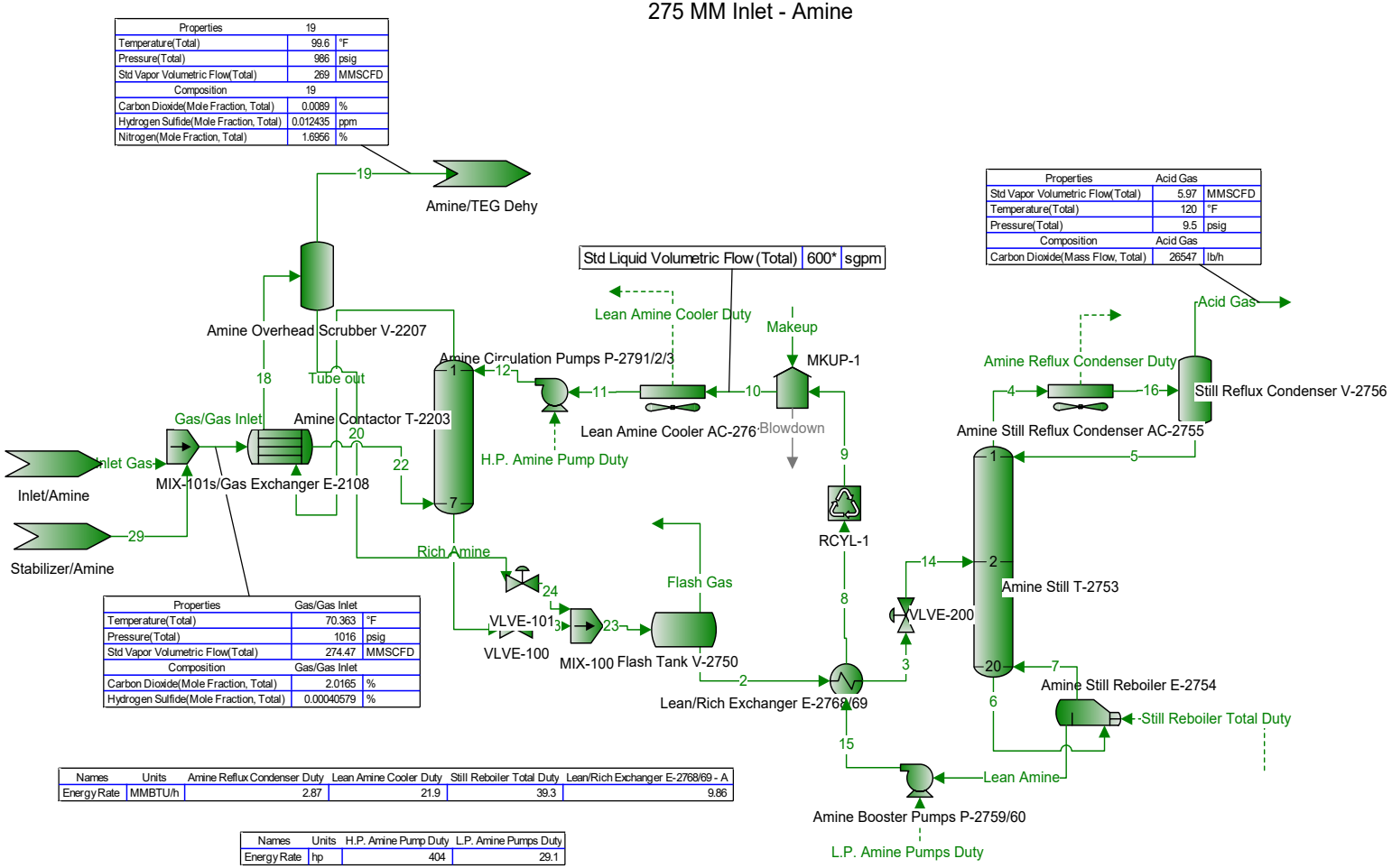
cv r ►

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7: 5% z v% vr z x%
a r %dtyv r zt%
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Trace Midstream
275 MM Inlet - Amine



Names	Units	Amine Reflux Condenser Duty	Lean Amine Cooler Duty	Still Reboiler Total Duty	Lean/Rich Exchanger E-2768/69 - A
Energy Rate	MMBTU/h	2.87	21.9	39.3	9.86

Names	Units	H.P. Amine Pump Duty	L.P. Amine Pumps Duty
Energy Rate	hp	404	29.1

Names	Units	Rich Amine
CO2 Loading Mole/Mole Amine		0.48329
H2S Loading Mole/Mole Amine		9.7634e-05
Total Acid Gas Loading/Mole Amine		0.48339

* User Specified Values
? Extrapolated or Approximate Values

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7: 5%N z v%s vr z x%
N r v %v %
%
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

N r z %v %d vr GNtzu%r %
P zz %d s v %8%

ayr vG%e r %			d r G%d vu%		
Molar Flow Sum	0.349121	lbmol/h	Std Liquid Volumetric Flow Sum	0.0646393	sgpm
Mole Fraction Sum	100	%	Std Liquid Volumetric Fraction Sum	100	%
Mass Flow Sum	24.0379	lb/h	* Component Subset	VOCs	
Mass Fraction Sum	100	%	Atomic Basis	False	
Std Vapor Volumetric Flow Sum	0.00317966	MMSCFD	Species in Results	Selected Species	
Normal Vapor Volumetric Flow Sum	0.00300834	MMCFD	Fraction Denominator	Selected Species	

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	False			
Nitrogen	False			
Methane	False			
Carbon Dioxide	False			
Ethane	False			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	False			

ers r vu%Qr r%v G%R zz %d s v %85%%ayr vG%e r %

V uv %	Z r %s % s 6y%	Z v%s rt z % , %	Zr %s % s6y%	Zr %s rt z % , %
Propane	0.101207	28.9891	4.46279	18.5657
i-Butane	0.00594457	1.70273	0.345512	1.43736
n-Butane	0.0277418	7.94617	1.61241	6.70779
i-Pentane	0.00129924	0.372146	0.0937386	0.389962
n-Pentane	0.00202218	0.579219	0.145898	0.606948
i-Hexane	0.000361875	0.103653	0.0311847	0.129731
Hexane	0.000188683	0.0540451	0.0162598	0.0676424
Benzene	0.152963	43.8138	11.9482	49.7058
Cyclohexane	0.00329175	0.942868	0.277032	1.15248

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7: 5%N z v%e vr z x%
N r v %ov %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

ers r vu%Qr r%v G% zz %d s v %5%%ayr vG%e r %

Vuv %	Z r %S % s 6y%	Z v%S rt z % , %	Zr %S % s6y%	Zr %S rt z % , %
i-Heptane	1.78507E-05	0.00511303	0.00178867	0.00744105
nC7	3.22443E-06	0.000923585	0.000323094	0.0013441
Toluene	0.0455405	13.0443	4.19603	17.4559
i-Octane	1.64939E-05	0.0047244	0.00188407	0.00783793
nC8	1.55792E-06	0.000446241	0.000177959	0.000740326
Ethylbenzene	0.00249361	0.714254	0.264734	1.10132
o-Xylene	0.00602733	1.72643	0.639891	2.66201
Isononane	4.05178E-08	1.16056E-05	5.19661E-06	2.16184E-05
nC9	0	0	0	0
Decane	0	0	0	0
Ethylene Glycol	0	0	0	0
MDEA	0	0	0	0
DEA	0	0	0	0
Piperazine	0	0	0	0
DGA	0	0	0	0
TEG	0	0	0	0

Vuv %	d u%gr %g v zt%S % ZZdPSQ%	^ r %gr %g v zt% S % ZZPSQ%	d u%z zu%g v zt% S % x %	d u%z zu%g v zt% S rt z % , %
Propane	0.000921757	0.000872092	0.0175901	27.2128
i-Butane	5.41409E-05	5.12238E-05	0.00122718	1.8985
n-Butane	0.000252661	0.000239048	0.0055175	8.53584
i-Pentane	1.1833E-05	1.11954E-05	0.000299753	0.463731
n-Pentane	1.84172E-05	1.74249E-05	0.000462427	0.715397
i-Hexane	3.29582E-06	3.11824E-06	9.47628E-05	0.146602
Hexane	1.71845E-06	1.62586E-06	4.89482E-05	0.0757252
Benzene	0.00139313	0.00131807	0.0270061	41.7796
Cyclohexane	2.998E-05	2.83647E-05	0.000706729	1.09334
i-Heptane	1.62577E-07	1.53817E-07	5.23316E-06	0.00809594
nC7	2.93669E-08	2.77846E-08	9.3848E-07	0.00145187
Toluene	0.000414766	0.000392418	0.00962084	14.8839
i-Octane	1.5022E-07	1.42126E-07	5.40878E-06	0.00836764
nC8	1.41889E-08	1.34244E-08	5.03503E-07	0.000778942
Ethylbenzene	2.27109E-05	2.14872E-05	0.000607169	0.93932
o-Xylene	5.48946E-05	5.19369E-05	0.00144567	2.23652
Isononane	3.6902E-10	3.49137E-10	1.44821E-08	2.24045E-05
nC9	0	0	0	0
Decane	0	0	0	0
Ethylene Glycol	0	0	0	0
MDEA	0	0	0	0
DEA	0	0	0	0
Piperazine	0	0	0	0
DGA	0	0	0	0
TEG	0	0	0	0

U9d%

ayr vG%e r %			d r G%d vu%	
Molar Flow Sum	605.531	lbmol/h	Std Liquid Volumetric Flow Sum	65.2399 sgpm
Mole Fraction Sum	100	%	Std Liquid Volumetric Fraction Sum	100 %
Mass Flow Sum	26610.4	lb/h	Component Subset	Dry Basis
Mass Fraction Sum	100	%	Atomic Basis	False
Std Vapor Volumetric Flow Sum	5.51494	MMSCFD	Species in Results	Selected Species
Normal Vapor Volumetric Flow Sum	5.2178	MMCFD	Fraction Denominator	Selected Species

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7: 5%N z v%e vr z x%
N r v %ov %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	False			
MDEA	False			
DEA	False			
Piperazine	False			
DGA	False			
TEG	False			
Water	False			

ers r vu%Qr r%w C%U9d5%%ayr vC%e r %

V uv %	Z r %s % s 6y%	Z v%s rt z % , %	Zr %s % s6y%	Zr %s rt z % , %
Hydrogen Sulfide	0.12135	0.0200403	4.13571	0.0155417
Nitrogen	0.00227664	0.000375975	0.0637766	0.000239668
Methane	1.45591	0.240436	23.3564	0.0877719
Carbon Dioxide	603.21	99.6167	26547	99.7618
Ethane	0.392098	0.0647527	11.79	0.044306
Propane	0.101207	0.0167138	4.46279	0.0167709
i-Butane	0.00594457	0.000981713	0.345512	0.00129841
n-Butane	0.0277418	0.0045814	1.61241	0.00605934
i-Pentane	0.00129924	0.000214562	0.0937386	0.000352264
n-Pentane	0.00202218	0.000333951	0.145898	0.000548274
i-Hexane	0.000361875	5.97616E-05	0.0311847	0.00011719
Hexane	0.000188683	3.11599E-05	0.0162598	6.11034E-05
Benzene	0.152963	0.025261	11.9482	0.0449007
Cyclohexane	0.00329175	0.000543614	0.277032	0.00104107
i-Heptane	1.78507E-05	2.94794E-06	0.00178867	6.72171E-06
nC7	3.22443E-06	5.32497E-07	0.000323094	1.21417E-06
Toluene	0.0455405	0.00752076	4.19603	0.0157684
i-Octane	1.64939E-05	2.72387E-06	0.00188407	7.08022E-06
nC8	1.55792E-06	2.57282E-07	0.000177959	6.68758E-07
Ethylbenzene	0.00249361	0.000411806	0.264734	0.000994854
o-Xylene	0.00602733	0.000995379	0.639891	0.00240467
Isononane	4.05178E-08	6.69128E-09	5.19661E-06	1.95285E-08
nC9	0	0	0	0
Decane	0	0	0	0

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7: 5%N z v%e vr z x%
N r v %ov %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Vuv %	d u%gr %g v zt%S % ZZdPSQ%	^ r %gr %g v zt% S % ZZPSQ%	d u%z zu%g v zt% S % x %	d u%z zu%g v zt% S rt z % , %
Hydrogen Sulfide	0.00110521	0.00104566	0.0103493	0.0158635
Nitrogen	2.07348E-05	1.96176E-05	0.000158009	0.000242197
Methane	0.0132599	0.0125454	0.155709	0.238672
Carbon Dioxide	5.49381	5.1978	64.9429	99.5447
Ethane	0.00357107	0.00337866	0.0661527	0.101399
Propane	0.000921757	0.000872092	0.0175901	0.0269622
i-Butane	5.41409E-05	5.12238E-05	0.00122718	0.00188102
n-Butane	0.000252661	0.000239048	0.0055175	0.00845725
i-Pentane	1.1833E-05	1.11954E-05	0.000299753	0.000459462
n-Pentane	1.84172E-05	1.74249E-05	0.000462427	0.00070881
i-Hexane	3.29582E-06	3.11824E-06	9.47628E-05	0.000145253
Hexane	1.71845E-06	1.62586E-06	4.89482E-05	7.50281E-05
Benzene	0.00139313	0.00131807	0.0270061	0.041395
Cyclohexane	2.998E-05	2.83647E-05	0.000706729	0.00108328
i-Heptane	1.62577E-07	1.53817E-07	5.23316E-06	8.0214E-06
nC7	2.93669E-08	2.77846E-08	9.3848E-07	1.43851E-06
Toluene	0.000414766	0.000392418	0.00962084	0.0147469
i-Octane	1.5022E-07	1.42126E-07	5.40878E-06	8.2906E-06
nC8	1.41889E-08	1.34244E-08	5.03503E-07	7.71771E-07
Ethylbenzene	2.27109E-05	2.14872E-05	0.000607169	0.000930671
o-Xylene	5.48946E-05	5.19369E-05	0.00144567	0.00221593
Isononane	3.6902E-10	3.49137E-10	1.44821E-08	2.21982E-08
nC9	0	0	0	0
Decane	0	0	0	0

cv r ►

N r z %v %d vr C%vr %N z v%
N z v%N r z %8%

ayr vC%e r %			d r C%d vu%	
CO2 Loading Mass/Volume	305.05	gr/gal	Total Acid Gas Loading/Mole Amine	0.0266142
CO2 Loading Volume/Volume	0.375768	scf/gal	pH	9.07172
CO2 Loading Mole/Mole Amine	0.0266086		Molarity	4.4592 mol/L
H2S Loading Mass/Volume	0.0496782	gr/gal	Include Ammonia in Calculations	False
H2S Loading Volume/Volume	7.90225E-05	scf/gal	Total Amine Mass Fraction	50.219 %
H2S Loading Mole/Mole Amine	5.59569E-06			

cv r ►

N r z %v %d vr C%zty%N z v%
N z v%N r z %8%

ayr vC%e r %			d r C%d vu%	
CO2 Loading Mass/Volume	5940.33	gr/gal	Total Acid Gas Loading/Mole Amine	0.483389

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Rich/Lean Analysis

Rich Amine

CO2 Loading Volume/Volume	7.31745	scf/gal	pH	8.11883	
CO2 Loading Mole/Mole Amine	0.483291		Molarity	4.7809	mol/L
H2S Loading Mass/Volume	0.929322	gr/gal	Include Ammonia in Calculations	False	
H2S Loading Volume/Volume	0.00147826	scf/gal	Total Amine Mass Fraction	45.9875	%
H2S Loading Mole/Mole Amine	9.76338E-05				

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a tv %d vr %sv % N %d vr %

ers r vu%s % r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

P vt z %

	Ntzu%r %	O u %	Sr y%r %	Tr 6Tr %v %	V v%r %
From Block	Still Reflux Condenser V-2756	MKUP-1	Amine Flash Tank V-2750	MIX-101	Inlet/Amine
To Block	--	--	--	Gas/Gas Exchanger E-2108	MIX-101

d vr %B zz %

Z v%rt z %	Ntzu%r % , %	O u % , %	Sr y%r % , %	Tr 6Tr %v % , %	V v%r % , %
Hydrogen Sulfide	0.0184995	7.93555E-05	0.00286491	0.000405789	0.000402555
Nitrogen	0.00034707	0	0.467151	1.66188	1.67058
Methane	0.221951	0	69.9103	74.9916	75.1703
Carbon Dioxide	91.9581	0.377363	9.29584	2.0165	2.01341
Ethane	0.0597744	0	12.2215	12.0948	12.0176
Propane	0.0154288	0	3.87677	5.86147	5.78743
i-Butane	0.000906238	0	0.301742	0.726846	0.717696
n-Butane	0.00422917	0	0.946562	1.64558	1.62665
i-Pentane	0.000198066	0	0.0838698	0.332995	0.330775
n-Pentane	0.000308277	0	0.10309	0.326199	0.324402
i-Hexane	5.51671E-05	0	0.0214542	0.0936641	0.0935569
Hexane	2.87643E-05	0	0.0112367	0.0518392	0.0518414
Benzene	0.0233189	0	0.0647832	0.0203677	0.0203474
Cyclohexane	0.000501821	0	0.0335702	0.034487	0.0345077
i-Heptane	2.7213E-06	0	0.00314117	0.0482063	0.0483298
nC7	4.91558E-07	0	0.000570122	0.00928499	0.00931653
Toluene	0.00694256	0	0.020749	0.0081664	0.00819086
i-Octane	2.51446E-06	0	0.00192375	0.022895	0.0229764
nC8	2.37502E-07	0	0.000130654	0.00132654	0.00133376
Ethylbenzene	0.000380146	0	0.00134668	0.000662671	0.000666053
o-Xylene	0.000918853	0	0.00229602	0.0012015	0.001208
Isononane	6.17685E-09	0	1.55264E-05	0.000847646	0.000853025
nC9	0	0	0	0	0
Decane	0	0	4.39333E-06	0.000823769	0.000829583
Ethylene Glycol	0	0	0	0	0
MDEA	0	10.5372	0.000179279	0	0
DEA	0	0	0	0	0
Piperazine	0	3.64434	3.24478E-05	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	7.68811	85.441	2.62887	0.0479249	0.0468145

Zr %rt z %	Ntzu%r % , %	O u % , %	Sr y%r % , %	Tr 6Tr %v % , %	V v%r % , %
Hydrogen Sulfide	0.0150286	8.65332E-05	0.0043798	0.000636267	0.000632516
Nitrogen	0.000231756	0	0.587023	2.14187	2.15759
Methane	0.0848741	0	50.3088	55.3493	55.5971
Carbon Dioxide	96.4682	0.531374	18.3513	4.08294	4.08521
Ethane	0.0428433	0	16.4845	16.732	16.6599
Propane	0.0162172	0	7.66826	11.8913	11.7657
i-Butane	0.00125554	0	0.786701	1.94363	1.92317
n-Butane	0.00585929	0	2.46788	4.40038	4.35885
i-Pentane	0.000340634	0	0.271435	1.10534	1.10027
n-Pentane	0.000530173	0	0.333641	1.08278	1.07906
i-Hexane	0.000113321	0	0.0829331	0.371352	0.371701
Hexane	5.9086E-05	0	0.0434366	0.205528	0.205966
Benzene	0.0434183	0	0.226992	0.0731959	0.0732759
Cyclohexane	0.0010067	0	0.126733	0.133532	0.133892
i-Heptane	6.4998E-06	0	0.0141188	0.222233	0.223268
nC7	1.17408E-06	0	0.00256257	0.0428042	0.0430393

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Zr %Srtz %	Ntzu%Tr % , %	O u % , %	Sr y%Tr % , %	Tr 6Tr %Wv % , %	V v%Tr % , %
Toluene	0.0152478	0	0.085757	0.0346178	0.0347941
i-Octane	6.84647E-06	0	0.00985722	0.120322	0.121002
nC8	6.46679E-07	0	0.000669467	0.00697147	0.00702404
Ethylbenzene	0.00096201	0	0.00641326	0.00323674	0.00326006
o-Xylene	0.00232528	0	0.0109342	0.00586857	0.00591269
Isononane	1.88838E-08	0	8.93257E-05	0.0050017	0.00504396
nC9	0	0	0	0	0
Decane	0	0	2.80398E-05	0.00539241	0.00544182
Ethylene Glycol	0	0	0	0	0
MDEA	0	40.1752	0.000958299	0	0
DEA	0	0	0	0	0
Piperazine	0	10.0438	0.000125372	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	3.30148	49.2495	2.12443	0.039722	0.0388827

Zr %S %	Ntzu%Tr % s6y%	O u % s6y%	Sr y%Tr % s6y%	Tr 6Tr %Wv % s6y%	V v%Tr % s6y%
Hydrogen Sulfide	4.13571	0	0.019447	4.16767	4.10307
Nitrogen	0.0637766	0	2.60648	14029.7	13996.1
Methane	23.3564	0	223.379	362549	360653
Carbon Dioxide	26547	0	81.4827	26744.1	26500.4
Ethane	11.79	0	73.194	109598	108072
Propane	4.46279	0	34.0483	77890.5	76322.7
i-Butane	0.345512	0	3.49308	12731.1	12475.4
n-Butane	1.61241	0	10.9578	28823.3	28275.5
i-Pentane	0.0937386	0	1.20522	7240.17	7137.32
n-Pentane	0.145898	0	1.48142	7092.41	6999.79
i-Hexane	0.0311847	0	0.368237	2432.42	2411.19
Hexane	0.0162598	0	0.192865	1346.25	1336.08
Benzene	11.9482	0	1.00788	479.447	475.334
Cyclohexane	0.277032	0	0.562713	874.663	868.545
i-Heptane	0.00178867	0	0.0626899	1455.67	1448.32
nC7	0.000323094	0	0.0113782	280.376	279.192
Toluene	4.19603	0	0.380775	226.754	225.706
i-Octane	0.00188407	0	0.0437677	788.129	784.926
nC8	0.000177959	0	0.00297254	45.6645	45.5643
Ethylbenzene	0.264734	0	0.0284759	21.2013	21.1477
o-Xylene	0.639891	0	0.0485498	38.4403	38.3551
Isononane	5.19661E-06	0	0.000396621	32.7621	32.7197
nC9	0	0	0	0	0
Decane	0	0	0.000124501	35.3213	35.3006
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0.004255	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0.000556671	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	908.531	0	9.43282	260.186	252.228

d vr %a v zv %

a v %	f z %	Ntzu%Tr %	O u %	Sr y%Tr %	Tr 6Tr %Wv %	V v%Tr %
Temperature	°F	120	208.352	136.605	70.3628	69.9502
Pressure	psig	9.5	75	75	1016	1016
Molecular Weight	lb/lbmol	41.952	31.254	22.293	21.7356	21.6903
Std Liquid Volumetric Flow	sgpm	67.0561	0	2.32405	3652.2	3620.57
Std Vapor Volumetric Flow	MMSCFD	5.97425	0	0.181399	274.465	272.382
Net Ideal Gas Heating Value	Btu/ft^3	4.84866	493.095	974.42	1122.67	1120.35
Gross Ideal Gas Heating Value	Btu/ft^3	9.13895	579.663	1076.38	1237.13	1234.64
Mole Fraction Vapor	%	100	0	100	99.9984	99.9996

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr %a v zv %

a v %	f z %	Ntzu%r %	O u %	Sr y%r %	Tr 6Tr %v v %	V v%r %
Mass Density	lb/ft^3	0.151455	62.4735	0.310443	5.28349	5.27197
Mass Flow	lb/h	27518.9	0	444.016	655019	648691
Specific Gravity		1.44849		0.769719		
API Gravity						

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

P vt z %

	Yvr %N z v%	Zr▶v %	cz▶y%N z v%	e sv% %	9%
From Block	Amine Still Reboiler E-2754	--	Amine Contactor T-2203	Amine Contactor T-2203	Amine Flash Tank V-2750
To Block	Amine Booster Pumps P-2759/60	MKUP-1	VLVE-100	Gas/Gas Exchanger E-2108	Lean/Rich Exchanger E-2768/69

d vr %R zz %

Z v%S rt z %	Yvr %N z v% , %	Zr▶v % , %	cz▶y%N z v% , %	e sv% % , %	9% , %
Hydrogen Sulfide	7.93553E-05	0	0.00129903	1.27207E-06	0.00128787
Nitrogen	0	0	0.000949967	1.69201	2.27706E-05
Methane	0	0	0.15392	76.3141	0.0145618
Carbon Dioxide	0.377351	0	6.43024	0.00939209	6.3858
Ethane	0	0	0.0283145	12.3069	0.00392169
Propane	0	0	0.00875153	5.96594	0.00101226
i-Butane	0	0	0.00066217	0.739943	5.94566E-05
n-Butane	0	0	0.00216847	1.67501	0.000277469
i-Pentane	0	0	0.000180533	0.339036	1.29948E-05
n-Pentane	0	0	0.000226183	0.3321	2.02255E-05
i-Hexane	0	0	4.65025E-05	0.0953649	3.61941E-06
Hexane	0	0	2.43477E-05	0.052781	1.88718E-06
Benzene	0	0	0.00166234	0.0201817	0.00152991
Cyclohexane	0	0	0.000100069	0.0350853	3.29236E-05
i-Heptane	0	0	6.45198E-06	0.0490876	1.78539E-07
nC7	0	0	1.17091E-06	0.00945474	3.22502E-08
Toluene	0	0	0.000498032	0.00814851	0.000455489
i-Octane	0	0	4.01181E-06	0.0233132	1.64969E-07
nC8	0	0	2.76859E-07	0.00135076	1.55821E-08
Ethylbenzene	0	0	2.76961E-05	0.000665497	2.49407E-05
o-Xylene	0	0	6.502E-05	0.00120164	6.02843E-05
Isononane	0	0	3.14346E-08	0.000863169	4.05252E-10
nC9	0	0	0	0	0
Decane	0	0	8.82059E-09	0.000838862	0
Ethylene Glycol	0	0	0	0	0
MDEA	10.5372	0.000395316	9.88749	0.000189166	9.84585
DEA	0	0	0	0	0
Piperazine	3.64434	0.00164948	3.41762	0.000747821	3.40524
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	85.4411	99.998	80.0657	0.326278	80.3398

Zr %S rt z %	Yvr %N z v% , %	Zr▶v % , %	cz▶y%N z v% , %	e sv% % , %	9% , %
Hydrogen Sulfide	8.6533E-05	0	0.00138257	2.03813E-06	0.00137351
Nitrogen	0	0	0.000831056	2.22833	1.99614E-05
Methane	0	0	0.0771121	57.5552	0.00731031
Carbon Dioxide	0.531357	0	8.83751	0.019432	8.79451
Ethane	0	0	0.026588	17.3971	0.00369014
Propane	0	0	0.0120513	12.3675	0.00139681
i-Butane	0	0	0.0012019	2.02185	0.000108141
n-Butane	0	0	0.00393597	4.57686	0.000504668
i-Pentane	0	0	0.000406764	1.14996	2.93392E-05
n-Pentane	0	0	0.000509618	1.12644	4.56644E-05
i-Hexane	0	0	0.000125145	0.38635	9.76048E-06
Hexane	0	0	6.55236E-05	0.213831	5.08915E-06
Benzene	0	0	0.00405501	0.0741111	0.00373967
Cyclohexane	0	0	0.000263002	0.138815	8.67081E-05
i-Heptane	0	0	2.01895E-05	0.231237	5.59835E-07
nC7	0	0	3.664E-06	0.0445384	1.01125E-07

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Zr %Srt z %	Yvr %N z v% , %	Zr▶v % , %	city%N z v% , %	e sv% % , %	9% , %
Toluene	0	0	0.00143303	0.0352962	0.00131331
i-Octane	0	0	1.4311E-05	0.125195	5.89695E-07
nC8	0	0	9.8762E-07	0.00725373	5.56992E-08
Ethylbenzene	0	0	9.18239E-05	0.00332152	8.2859E-05
o-Xylene	0	0	0.000215568	0.00599743	0.000200279
Isononane	0	0	1.25904E-07	0.00520451	1.62648E-09
nC9	0	0	0	0	0
Decane	0	0	3.91925E-08	0.00561111	0
Ethylene Glycol	0	0	0	0	0
MDEA	40.1752	0.0026146	36.7943	0.00105972	36.7149
DEA	0	0	0	0	0
Piperazine	10.0438	0.00788591	9.19313	0.00302824	9.17868
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	49.2496	99.9895	45.0447	0.276336	45.292

Zr %S %	Yvr %N z v% s6y%	Zr▶v % s6y%	city%N z v% s6y%	e sv% % s6y%	9% s6y%
Hydrogen Sulfide	0.25266	0	4.4075	0.0128298	4.38837
Nitrogen	0	0	2.64934	14027	0.0637766
Methane	0	0	245.827	362303	23.3564
Carbon Dioxide	1551.46	0	28173.2	122.322	28098.4
Ethane	0	0	84.7602	109513	11.79
Propane	0	0	38.4187	77852.1	4.46279
i-Butane	0	0	3.83155	12727.3	0.345512
n-Butane	0	0	12.5475	28810.8	1.61241
i-Pentane	0	0	1.29673	7238.88	0.0937386
n-Pentane	0	0	1.62462	7090.79	0.145898
i-Hexane	0	0	0.398953	2432.03	0.0311847
Hexane	0	0	0.208884	1346.04	0.0162598
Benzene	0	0	12.927	466.52	11.9482
Cyclohexane	0	0	0.838428	873.825	0.277032
i-Heptane	0	0	0.0643623	1455.61	0.00178867
nC7	0	0	0.0116805	280.364	0.000323094
Toluene	0	0	4.56837	222.185	4.19603
i-Octane	0	0	0.0456224	788.084	0.00188407
nC8	0	0	0.00314845	45.6613	0.000177959
Ethylbenzene	0	0	0.292727	20.9086	0.264734
o-Xylene	0	0	0.687213	37.7531	0.639891
Isononane	0	0	0.00040137	32.7617	5.19661E-06
nC9	0	0	0	0	0
Decane	0	0	0.000124942	35.3212	0
Ethylene Glycol	0	0	0	0	0
MDEA	117304	0.0334433	117297	6.67079	117304
DEA	0	0	0	0	0
Piperazine	29325.9	0.100869	29306.9	19.0624	29325.9
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	143799	1278.96	143599	1739.5	144708

d vr %a v zv %

a v %	f z %	Yvr %N z v%	Zr▶v %	city%N z v%	e sv% %	9%
Temperature	°F	245.817	100 *	133.885	143.177	136.605
Pressure	psig	12	80 *	996	991	75
Molecular Weight	lb/lbmol	31.254	18.0168	32.0217	21.2711	31.9558
Std Liquid Volumetric Flow	sgpm	597.443	2.55708	664.498	3587.71	664.5
Std Vapor Volumetric Flow	MMSCFD	85.0852	0.646593	90.6709	269.526	91.0595
Net Ideal Gas Heating Value	Btu/ft^3	493.095	0.0666304	464.889	1142.52	461.062
Gross Ideal Gas Heating Value	Btu/ft^3	579.662	50.381	546.289	1259.13	542.231
Mole Fraction Vapor	%	0	0	0	100	0

* User Specified Values
? Extrapolated or Approximate Values

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr %a v zv %

a v %	f z %	Yvr %N z v%	Zr►v %	cztY%N z v%	e sv% %	9%
Mass Density	lb/ft^3	61.3505	61.9556	71.8314	3.87275	71.8125
Mass Flow	lb/h	291981	1279.1	318791	629487	319500
Specific Gravity		0.983674	0.993376	1.15172	0.734437	1.15142
API Gravity		3.12982	9.98758	-9.22069		-9.23114

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

P vt z %

	: %	A%	B%	C%	D%
From Block	Lean/Rich Exchanger E-2768/69	Amine Still T-2753	Still Reflux Condenser V-2756	Amine Still T-2753	Amine Still Reboiler E-2754
To Block	VLVE-200	Amine Still Reflux Condenser AC-2755	Amine Still T-2753	Amine Still Reboiler E-2754	Amine Still T-2753

d vr %R zz %

Z v%S rt z %	: % , %	A% , %	B% , %	C% , %	D% , %
Hydrogen Sulfide	0.00128787	0.0152738	3.16453E-05	0.000132138	0.000361625
Nitrogen	2.27706E-05	0.000286448	4.92956E-09	0	0
Methane	0.0145618	0.183184	6.0885E-06	0	0
Carbon Dioxide	6.3858	75.9046	0.0497981	0.876516	3.0468
Ethane	0.00392169	0.0493341	1.83063E-06	0	0
Propane	0.00101226	0.012734	3.62904E-07	0	0
i-Butane	5.94566E-05	0.000747949	1.34438E-08	0	0
n-Butane	0.000277469	0.00349049	9.45275E-08	0	0
i-Pentane	1.29948E-05	0.000163471	2.23361E-09	0	0
n-Pentane	2.02255E-05	0.000254431	4.2922E-09	0	0
i-Hexane	3.61941E-06	4.55312E-05	4.35408E-10	0	0
Hexane	1.88718E-06	2.37401E-05	2.26717E-10	0	0
Benzene	0.00152991	0.0192545	4.93867E-05	0	0
Cyclohexane	3.29236E-05	0.000414174	3.16865E-08	0	0
i-Heptane	1.78539E-07	2.24597E-06	0	0	0
nC7	3.22502E-08	4.05698E-07	0	0	0
Toluene	0.000455489	0.00573184	1.1061E-05	0	0
i-Octane	1.64969E-07	2.07526E-06	0	0	0
nC8	1.55821E-08	1.96018E-07	0	0	0
Ethylbenzene	2.49407E-05	0.000313833	4.9341E-07	0	0
o-Xylene	6.02843E-05	0.000758671	1.78685E-06	0	0
Isononane	4.05252E-10	5.09795E-09	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	9.84585	2.5501E-07	1.45996E-06	8.57635	0.0510098
DEA	0	0	0	0	0
Piperazine	3.40524	1.60334E-07	9.17931E-07	2.99702	0.18256
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	80.3398	23.8034	99.9501	87.55	96.7193

Zr %S rt z %	: % , %	A% , %	B% , %	C% , %	D% , %
Hydrogen Sulfide	0.00137351	0.0137808	5.98227E-05	0.000155506	0.00064923
Nitrogen	1.99614E-05	0.000212436	7.65984E-09	0	0
Methane	0.00731031	0.0777991	5.41785E-06	0	0
Carbon Dioxide	8.79451	88.4362	0.121564	1.33204	7.06348
Ethane	0.00369014	0.0392719	3.05327E-06	0	0
Propane	0.00139681	0.0148653	8.87633E-07	0	0
i-Butane	0.000108141	0.00115088	4.33421E-08	0	0
n-Butane	0.000504668	0.00537086	3.04752E-07	0	0
i-Pentane	2.93392E-05	0.000312237	8.93888E-09	0	0
n-Pentane	4.56644E-05	0.000485976	1.71773E-08	0	0
i-Hexane	9.76048E-06	0.000103874	2.08126E-09	0	0
Hexane	5.08915E-06	5.41604E-05	1.08371E-09	0	0
Benzene	0.00373967	0.0398166	0.00021398	0	0
Cyclohexane	8.67081E-05	0.000922787	1.47919E-07	0	0
i-Heptane	5.59835E-07	5.95795E-06	0	0	0

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Zr %Srtz %	:% , %	A% , %	B% , %	C% , %	D% , %
nC7	1.01125E-07	1.07621E-06	0	0	0
Toluene	0.00131331	0.0139814	5.65301E-05	0	0
i-Octane	5.89695E-07	6.27572E-06	0	0	0
nC8	5.56992E-08	5.92769E-07	0	0	0
Ethylbenzene	8.2859E-05	0.000882054	2.9056E-06	0	0
o-Xylene	0.000200279	0.00213231	1.05224E-05	0	0
Isononane	1.62648E-09	1.73096E-08	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	36.7149	8.04472E-07	9.64999E-06	35.2899	0.3202
DEA	0	0	0	0	0
Piperazine	9.17868	3.65614E-07	4.3857E-06	8.91418	0.828354
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	45.292	11.3526	99.8781	54.4637	91.7873

Zr %S %	:% s6y%	A% s6y%	B% s6y%	C% s6y%	D% s6y%
Hydrogen Sulfide	4.38837	4.13721	0.00149722	0.517477	0.264818
Nitrogen	0.0637766	0.0637768	1.91707E-07	0	0
Methane	23.3564	23.3566	0.000135596	0	0
Carbon Dioxide	28098.4	26550	3.04245	4432.62	2881.16
Ethane	11.79	11.7901	7.64159E-05	0	0
Propane	4.46279	4.46282	2.22153E-05	0	0
i-Butane	0.345512	0.345513	1.08475E-06	0	0
n-Butane	1.61241	1.61242	7.62719E-06	0	0
i-Pentane	0.0937386	0.0937388	2.23718E-07	0	0
n-Pentane	0.145898	0.145898	4.29906E-07	0	0
i-Hexane	0.0311847	0.0311848	5.20888E-08	0	0
Hexane	0.0162598	0.0162599	2.71227E-08	0	0
Benzene	11.9482	11.9536	0.00535539	0	0
Cyclohexane	0.277032	0.277036	3.70205E-06	0	0
i-Heptane	0.00178867	0.00178867	0	0	0
nC7	0.000323094	0.000323095	0	0	0
Toluene	4.19603	4.19745	0.00141481	0	0
i-Octane	0.00188407	0.00188407	0	0	0
nC8	0.000177959	0.000177959	0	0	0
Ethylbenzene	0.264734	0.264807	7.272E-05	0	0
o-Xylene	0.639891	0.640155	0.00026335	0	0
Isononane	5.19661E-06	5.19661E-06	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	117304	0.000241516	0.000241516	117434	130.608
DEA	0	0	0	0	0
Piperazine	29325.9	0.000109763	0.000109763	29663.8	337.882
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	144708	3408.24	2499.71	181239	37439.6

d vr %a v zv %

a v %	f z %	:%	A%	B%	C%	D%
Temperature	°F	180 *	164.408	120	242.59	245.817
Pressure	psig	73	9.5	9.5	12	12
Molecular Weight	lb/lbmol	31.9558	37.7732	18.0283	28.9594	18.9833
Std Liquid Volumetric Flow	sgpm	664.5	72.0607	5.00456	680.525	83.0811
Std Vapor Volumetric Flow	MMSCFD	91.0595	7.23861	1.26436	104.655	19.5696
Net Ideal Gas Heating Value	Btu/ft^3	461.062	4.00223	0.00272463	402.318	7.63633
Gross Ideal Gas Heating Value	Btu/ft^3	542.231	16.3263	50.2877	481.914	56.9214

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr %a v zv %

a v %	f z %	: %	A%	B%	C%	D%
Mole Fraction Vapor	%	0.0138325	100	0	0	100
Mass Density	lb/ft^3	69.6936	0.126599	61.6892	62.2848	0.0629686
Mass Flow	lb/h	319500	30021.6	2502.76	332770	40789.5
Specific Gravity			1.30421	0.989105	0.998653	0.655444
API Gravity				9.959	2.2408	

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

P vt z %

	E%	F%	87%	88%	89%
From Block	Lean/Rich Exchanger E-2768/69	RCYL-1	MKUP-1	Lean Amine Cooler AC-2761	Amine Circulation Pumps P-2791/2/3
To Block	RCYL-1	MKUP-1	Lean Amine Cooler AC-2761	Amine Circulation Pumps P-2791/2/3	Amine Contactor T-2203

d vr %R zz %

Z v%s rt z %	E% , %	F% , %	87% , %	88% , %	89% , %
Hydrogen Sulfide	7.93553E-05	7.93555E-05	7.8757E-05	7.8757E-05	7.8757E-05
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	0.377351	0.377363	0.374517	0.374517	0.374517
Ethane	0	0	0	0	0
Propane	0	0	0	0	0
i-Butane	0	0	0	0	0
n-Butane	0	0	0	0	0
i-Pentane	0	0	0	0	0
n-Pentane	0	0	0	0	0
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	10.5372	10.5372	10.4577	10.4577	10.4577
DEA	0	0	0	0	0
Piperazine	3.64434	3.64434	3.61687	3.61687	3.61687
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	85.4411	85.441	85.5508	85.5508	85.5508

Zr %s rt z %	E% , %	F% , %	87% , %	88% , %	89% , %
Hydrogen Sulfide	8.6533E-05	8.65332E-05	8.61557E-05	8.61557E-05	8.61557E-05
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	0.531357	0.531374	0.529056	0.529056	0.529056
Ethane	0	0	0	0	0
Propane	0	0	0	0	0
i-Butane	0	0	0	0	0
n-Butane	0	0	0	0	0
i-Pentane	0	0	0	0	0
n-Pentane	0	0	0	0	0
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03. Amine Treating

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	E% , %	F% , %	87% , %	88% , %	89% , %
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	40.1752	40.1752	40	40	40
DEA	0	0	0	0	0
Piperazine	10.0438	10.0438	10	10	10
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	49.2496	49.2495	49.4709	49.4709	49.4709

Zr %S %	E% s6y%	F% s6y%	87% s6y%	88% s6y%	89% s6y%
Hydrogen Sulfide	0.25266	0.25266	0.25266	0.25266	0.25266
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	1551.46	1551.51	1551.51	1551.51	1551.51
Ethane	0	0	0	0	0
Propane	0	0	0	0	0
i-Butane	0	0	0	0	0
n-Butane	0	0	0	0	0
i-Pentane	0	0	0	0	0
n-Pentane	0	0	0	0	0
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	117304	117304	117304	117304	117304
DEA	0	0	0	0	0
Piperazine	29325.9	29325.9	29326	29326	29326
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	143799	143799	145078	145078	145078

d vr %a v zv %

a v %	f z %	E%	F%	87%	88%	89%
Temperature	°F	208.353	208.352	207.83	120 *	121.667
Pressure	psig	75	75	75	74	991 *
Molecular Weight	lb/lbmol	31.254	31.254	31.1541	31.1541	31.1541
Std Liquid Volumetric Flow	sgpm	597.443	597.443	600 *	600	600
Std Vapor Volumetric Flow	MMSCFD	85.0852	85.0851	85.7317	85.7317	85.7317
Net Ideal Gas Heating Value	Btu/ft^3	493.095	493.095	489.377	489.377	489.377

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr %a v zv %

a v %	f z %	E%	F%	87%	88%	89%
Gross Ideal Gas Heating Value	Btu/ft^3	579.662	579.663	575.671	575.671	575.671
Mole Fraction Vapor	%	0	0	0	0	0
Mass Density	lb/ft^3	62.4734	62.4735	62.4767	64.566	64.6183
Mass Flow	lb/h	291981	291981	293260	293260	293260
Specific Gravity		1.00168	1.00168	1.00173	1.03523	1.03607
API Gravity		3.11928	3.11924	3.14671	3.14687	2.9946

cv r ►%

87G

Can stabilize at 350 gpm; GPSA predicts 502 gpm based on 50 wt% DGA

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03. Amine Treating

Job: 275 MMSCFD Apollo GP

P vt z %

	8: %	8A%	8B%	8C%	8E%
From Block	VLVE-100	VLVE-200	Amine Booster Pumps P-2759/60	Amine Still Reflux Condenser AC-2755	Gas/Gas Exchanger E-2108
To Block	MIX-100	Amine Still T-2753	Lean/Rich Exchanger E-2768/69	Still Reflux Condenser V-2756	Amine Overhead Scrubber V-2207

d vr %R zz %

Z v%s rt z %	8: % , %	8A% , %	8B% , %	8C% , %	8E% , %
Hydrogen Sulfide	0.00129903	0.00128787	7.93553E-05	0.0152738	1.27207E-06
Nitrogen	0.000949967	2.27706E-05	0	0.000286448	1.69201
Methane	0.15392	0.0145618	0	0.183184	76.3141
Carbon Dioxide	6.43024	6.3858	0.377351	75.9046	0.00939209
Ethane	0.0283145	0.00392169	0	0.0493341	12.3069
Propane	0.00875153	0.00101226	0	0.012734	5.96594
i-Butane	0.00066217	5.94566E-05	0	0.000747949	0.739943
n-Butane	0.00216847	0.000277469	0	0.00349049	1.67501
i-Pentane	0.000180533	1.29948E-05	0	0.000163471	0.339036
n-Pentane	0.000226183	2.02255E-05	0	0.000254431	0.3321
i-Hexane	4.65025E-05	3.61941E-06	0	4.55312E-05	0.0953649
Hexane	2.43477E-05	1.88718E-06	0	2.37401E-05	0.052781
Benzene	0.00166234	0.00152991	0	0.0192545	0.0201817
Cyclohexane	0.000100069	3.29236E-05	0	0.000414174	0.0350853
i-Heptane	6.45198E-06	1.78539E-07	0	2.24597E-06	0.0490876
nC7	1.17091E-06	3.22502E-08	0	4.05698E-07	0.00945474
Toluene	0.000498032	0.000455489	0	0.00573184	0.00814851
i-Octane	4.01181E-06	1.64969E-07	0	2.07526E-06	0.0233132
nC8	2.76859E-07	1.55821E-08	0	1.96018E-07	0.00135076
Ethylbenzene	2.76961E-05	2.49407E-05	0	0.000313833	0.000665497
o-Xylene	6.502E-05	6.02843E-05	0	0.000758671	0.00120164
Isononane	3.14346E-08	4.05252E-10	0	5.09795E-09	0.000863169
nC9	0	0	0	0	0
Decane	8.82059E-09	0	0	0	0.000838862
Ethylene Glycol	0	0	0	0	0
MDEA	9.88749	9.84585	10.5372	2.5501E-07	0.000189166
DEA	0	0	0	0	0
Piperazine	3.41762	3.40524	3.64434	1.60334E-07	0.000747821
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	80.0657	80.3398	85.4411	23.8034	0.326278

Zr %s rt z %	8: % , %	8A% , %	8B% , %	8C% , %	8E% , %
Hydrogen Sulfide	0.00138257	0.00137351	8.6533E-05	0.0137808	2.03813E-06
Nitrogen	0.000831056	1.99614E-05	0	0.000212436	2.22833
Methane	0.0771121	0.00731031	0	0.0777991	57.5552
Carbon Dioxide	8.83751	8.79451	0.531357	88.4362	0.019432
Ethane	0.026588	0.00369014	0	0.0392719	17.3971
Propane	0.0120513	0.00139681	0	0.0148653	12.3675
i-Butane	0.0012019	0.000108141	0	0.00115088	2.02185
n-Butane	0.00393597	0.000504668	0	0.00537086	4.57686
i-Pentane	0.000406764	2.93392E-05	0	0.000312237	1.14996
n-Pentane	0.000509618	4.56644E-05	0	0.000485976	1.12644
i-Hexane	0.000125145	9.76048E-06	0	0.000103874	0.38635
Hexane	6.55236E-05	5.08915E-06	0	5.41604E-05	0.213831
Benzene	0.00405501	0.00373967	0	0.0398166	0.0741111
Cyclohexane	0.000263002	8.67081E-05	0	0.000922787	0.138815

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03. Amine Treating

Job: 275 MMSCFD Apollo GP

Zr %Srtz %	8: % , %	8A% , %	8B% , %	8C% , %	8E% , %
i-Heptane	2.01895E-05	5.59835E-07	0	5.95795E-06	0.231237
nC7	3.664E-06	1.01125E-07	0	1.07621E-06	0.0445384
Toluene	0.00143303	0.00131331	0	0.0139814	0.0352962
i-Octane	1.4311E-05	5.89695E-07	0	6.27572E-06	0.125195
nC8	9.8762E-07	5.56992E-08	0	5.92769E-07	0.00725373
Ethylbenzene	9.18239E-05	8.2859E-05	0	0.000882054	0.00332152
o-Xylene	0.000215568	0.000200279	0	0.00213231	0.00599743
Isononane	1.25904E-07	1.62648E-09	0	1.73096E-08	0.00520451
nC9	0	0	0	0	0
Decane	3.91925E-08	0	0	0	0.00561111
Ethylene Glycol	0	0	0	0	0
MDEA	36.7943	36.7149	40.1752	8.04472E-07	0.00105972
DEA	0	0	0	0	0
Piperazine	9.19313	9.17868	10.0438	3.65614E-07	0.00302824
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	45.0447	45.292	49.2496	11.3526	0.276336

Zr %S %	8: % s6y%	8A% s6y%	8B% s6y%	8C% s6y%	8E% s6y%
Hydrogen Sulfide	4.4075	4.38837	0.25266	4.13721	0.0128298
Nitrogen	2.64934	0.0637766	0	0.0637768	14027
Methane	245.827	23.3564	0	23.3566	362303
Carbon Dioxide	28173.2	28098.4	1551.46	26550	122.322
Ethane	84.7602	11.79	0	11.7901	109513
Propane	38.4187	4.46279	0	4.46282	77852.1
i-Butane	3.83155	0.345512	0	0.345513	12727.3
n-Butane	12.5475	1.61241	0	1.61242	28810.8
i-Pentane	1.29673	0.0937386	0	0.0937388	7238.88
n-Pentane	1.62462	0.145898	0	0.145898	7090.79
i-Hexane	0.398953	0.0311847	0	0.0311848	2432.03
Hexane	0.208884	0.0162598	0	0.0162599	1346.04
Benzene	12.927	11.9482	0	11.9536	466.52
Cyclohexane	0.838428	0.277032	0	0.277036	873.825
i-Heptane	0.0643623	0.00178867	0	0.00178867	1455.61
nC7	0.0116805	0.000323094	0	0.000323095	280.364
Toluene	4.56837	4.19603	0	4.19745	222.185
i-Octane	0.0456224	0.00188407	0	0.00188407	788.084
nC8	0.00314845	0.000177959	0	0.000177959	45.6613
Ethylbenzene	0.292727	0.264734	0	0.264807	20.9086
o-Xylene	0.687213	0.639891	0	0.640155	37.7531
Isononane	0.00040137	5.19661E-06	0	5.19661E-06	32.7617
nC9	0	0	0	0	0
Decane	0.000124942	0	0	0	35.3212
Ethylene Glycol	0	0	0	0	0
MDEA	117297	117304	117304	0.000241516	6.67079
DEA	0	0	0	0	0
Piperazine	29306.9	29325.9	29325.9	0.000109763	19.0624
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	143599	144708	143799	3408.24	1739.5

d vr %a v zv %

a v %	f z %	8: %	8A%	8B%	8C%	8E%
Temperature	°F	136.753	171.779	245.966	120 *	99.5703
Pressure	psig	90 *	10 *	75 *	9.5	986
Molecular Weight	lb/lbmol	32.0217	31.9558	31.254	37.7732	21.2711
Std Liquid Volumetric Flow	sgpm	664.498	664.5	597.443	72.0607	3587.71
Std Vapor Volumetric Flow	MMSCFD	90.6709	91.0595	85.0852	7.23861	269.526
Net Ideal Gas Heating Value	Btu/ft^3	464.889	461.062	493.095	4.00223	1142.52

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr %a v zv %

a v %	f z %	8: %	8A%	8B%	8C%	8E%
Gross Ideal Gas Heating Value	Btu/ft^3	546.289	542.231	579.662	16.3263	1259.13
Mole Fraction Vapor	%	0.191599	0.833822	0	82.5332	99.7885
Mass Density	lb/ft^3	56.9529	10.9869	61.3537	0.165192	4.43189
Mass Flow	lb/h	318791	319500	291981	30021.6	629487
Specific Gravity				0.983726		
API Gravity				3.11928		

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

P vt z %

	8F%	97%	99%	9: %	9A%
From Block	Amine Overhead Scrubber V-2207	Amine Overhead Scrubber V-2207	Gas/Gas Exchanger E-2108	MIX-100	VLVE-101
To Block	Amine/TEG Dehy	VLVE-101	Amine Contactor T-2203	Amine Flash Tank V-2750	MIX-100

d vr %R zz %

Z v%S rt z %	8F% , %	97% , %	99% , %	9: % , %	9A% , %
Hydrogen Sulfide	1.24352E-06	1.47444E-05	0.000405789	0.00129101	1.47444E-05
Nitrogen	1.6956	0.00119299	1.66188	0.000951485	0.00119299
Methane	76.4756	0.0905074	74.9916	0.153524	0.0905074
Carbon Dioxide	0.00889811	0.242465	2.0165	6.39159	0.242465
Ethane	12.333	0.0118958	12.0948	0.0282119	0.0118958
Propane	5.97857	0.00334951	5.86147	0.00871778	0.00334951
i-Butane	0.741511	0.000193626	0.726846	0.000659243	0.000193626
n-Butane	1.67856	0.000622162	1.64558	0.00215881	0.000622162
i-Pentane	0.339755	4.93087E-05	0.332995	0.000179713	4.93087E-05
n-Pentane	0.332804	5.97751E-05	0.326199	0.000225143	5.97751E-05
i-Hexane	0.095567	8.67794E-06	0.0936641	4.62661E-05	8.67794E-06
Hexane	0.0528928	4.4779E-06	0.0518392	2.42236E-05	4.4779E-06
Benzene	0.0202232	0.000595131	0.0203677	0.00165567	0.000595131
Cyclohexane	0.0351596	2.49978E-05	0.034487	9.96001E-05	2.49978E-05
i-Heptane	0.0491916	1.8539E-06	0.0482063	6.42325E-06	1.8539E-06
nC7	0.00947478	3.31792E-07	0.00928499	1.16567E-06	3.31792E-07
Toluene	0.00816547	0.000146343	0.0081664	0.000495835	0.000146343
i-Octane	0.0233626	4.10155E-07	0.022895	3.98931E-06	4.10155E-07
nC8	0.00135362	2.87004E-08	0.00132654	2.75309E-07	2.87004E-08
Ethylbenzene	0.000666892	7.27806E-06	0.000662671	2.75685E-05	7.27806E-06
o-Xylene	0.00120415	1.84829E-05	0.0012015	6.47293E-05	1.84829E-05
Isononane	0.000864998	5.56589E-09	0.000847646	3.1273E-08	5.56589E-09
nC9	0	0	0	0	0
Decane	0.00084064	2.03687E-09	0.000823769	8.77821E-09	2.03687E-09
Ethylene Glycol	0	0	0	0	0
MDEA	2.68173E-07	0.0893162	0	9.82628	0.0893162
DEA	0	0	0	0	0
Piperazine	3.70946E-06	0.35184	0	3.39847	0.35184
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.116707	99.2077	0.0479249	80.1853	99.2077

Zr %S rt z %	8F% , %	97% , %	99% , %	9: % , %	9A% , %
Hydrogen Sulfide	1.99181E-06	2.72953E-05	0.000636267	0.00137769	2.72953E-05
Nitrogen	2.23241	0.00181532	2.14187	0.000834601	0.00181532
Methane	57.6606	0.0788686	55.3493	0.0771184	0.0788686
Carbon Dioxide	0.0184047	0.579621	4.08294	8.80777	0.579621
Ethane	17.429	0.0194295	16.732	0.0265622	0.0194295
Propane	12.3902	0.00802281	11.8913	0.0120368	0.00802281
i-Butane	2.02556	0.0006113	1.94363	0.00119977	0.0006113
n-Butane	4.58525	0.00196424	4.40038	0.00392887	0.00196424
i-Pentane	1.15207	0.000193242	1.10534	0.000405995	0.000193242
n-Pentane	1.1285	0.00023426	1.08278	0.000508626	0.00023426
i-Hexane	0.387058	4.06208E-05	0.371352	0.000124841	4.06208E-05
Hexane	0.214223	2.09607E-05	0.205528	6.53631E-05	2.09607E-05
Benzene	0.0742424	0.0025251	0.0731959	0.0040495	0.0025251
Cyclohexane	0.13907	0.000114276	0.133532	0.000262467	0.000114276
i-Heptane	0.231661	1.00905E-05	0.222233	2.01531E-05	1.00905E-05

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03. Amine Treating

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8F% , %	97% , %	99% , %	9: % , %	9A% , %
nC7	0.0446201	1.80589E-06	0.0428042	3.6573E-06	1.80589E-06
Toluene	0.0353596	0.000732424	0.0346178	0.0014305	0.000732424
i-Octane	0.125424	2.54491E-06	0.120322	1.42687E-05	2.54491E-06
nC8	0.00726703	1.78079E-07	0.00697147	9.84705E-07	1.78079E-07
Ethylbenzene	0.00332753	4.19707E-05	0.00323674	9.16443E-05	4.19707E-05
o-Xylene	0.00600823	0.000106586	0.00586857	0.000215176	0.000106586
Isononane	0.00521405	3.87756E-08	0.0050017	1.2559E-07	3.87756E-08
nC9	0	0	0	0	0
Decane	0.0056214	1.57421E-08	0.00539241	3.9108E-08	1.57421E-08
Ethylene Glycol	0	0	0	0	0
MDEA	1.5019E-06	0.57812	0	36.6639	0.57812
DEA	0	0	0	0	0
Piperazine	1.50168E-05	1.64618	0	9.16595	1.64618
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0.0988149	97.0813	0.039722	45.2321	97.0813

Zr %S %	8F% s6y%	97% s6y%	99% s6y%	9: % s6y%	9A% s6y%
Hydrogen Sulfide	0.0125153	0.000314508	4.16767	4.40782	0.000314508
Nitrogen	14027	0.0209169	14029.7	2.67025	0.0209169
Methane	362302	0.908759	362549	246.736	0.908759
Carbon Dioxide	115.643	6.67865	26744.1	28179.9	6.67865
Ethane	109513	0.223875	109598	84.984	0.223875
Propane	77852	0.0924423	77890.5	38.5111	0.0924423
i-Butane	12727.3	0.00704366	12731.1	3.83859	0.00704366
n-Butane	28810.8	0.0226328	28823.3	12.5702	0.0226328
i-Pentane	7238.88	0.00222662	7240.17	1.29896	0.00222662
n-Pentane	7090.78	0.00269925	7092.41	1.62732	0.00269925
i-Hexane	2432.02	0.000468051	2432.42	0.399421	0.000468051
Hexane	1346.04	0.000241519	1346.25	0.209125	0.000241519
Benzene	466.491	0.0290953	479.447	12.9561	0.0290953
Cyclohexane	873.823	0.00131673	874.663	0.839745	0.00131673
i-Heptane	1455.61	0.000116267	1455.67	0.0644786	0.000116267
nC7	280.364	2.08083E-05	280.376	0.0117013	2.08083E-05
Toluene	222.177	0.00843931	226.754	4.57681	0.00843931
i-Octane	788.084	2.93236E-05	788.129	0.0456517	2.93236E-05
nC8	45.6613	2.0519E-06	45.6645	0.0031505	2.0519E-06
Ethylbenzene	20.9081	0.000483605	21.2013	0.29321	0.000483605
o-Xylene	37.7518	0.00122813	38.4403	0.688441	0.00122813
Isononane	32.7617	4.46789E-07	32.7621	0.000401817	4.46789E-07
nC9	0	0	0	0	0
Decane	35.3212	1.81387E-07	35.3213	0.000125124	1.81387E-07
Ethylene Glycol	0	0	0	0	0
MDEA	0.00943694	6.66135	0	117304	6.66135
DEA	0	0	0	0	0
Piperazine	0.0943561	18.968	0	29325.9	18.968
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	620.889	1118.61	260.186	144717	1118.61

d vr %a v zv %

a v %	f z %	8F%	97%	99%	9: %	9A%
Temperature	°F	99.5703	99.5703	113 *	136.599	101.701
Pressure	psig	986	986	1011	90	95 *
Molecular Weight	lb/lbmol	21.2772	18.4099	21.7356	31.9366	18.4099
Std Liquid Volumetric Flow	sgpm	3585.38	2.32586	3652.2	666.824	2.32586
Std Vapor Volumetric Flow	MMSCFD	268.956	0.570031	274.465	91.2409	0.570031
Net Ideal Gas Heating Value	Btu/ft^3	1144.9	15.5438	1122.67	462.082	15.5438
Gross Ideal Gas Heating Value	Btu/ft^3	1261.66	66.7506	1237.13	543.293	66.7506

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %v %
N %d vr %
ers r vu% % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr % v zv %

a v %	f z %	8F%	97%	99%	9: %	9A%
Mole Fraction Vapor	%	100	0	100	0.190923	0.0939522
Mass Density	lb/ft^3	4.42436	62.1439	4.44947	56.933	52.9759
Mass Flow	lb/h	628335	1152.24	655019	319944	1152.24
Specific Gravity		0.734647	0.996395	0.750473		
API Gravity			9.55518			

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

P vt z %

	9F%				
From Block	Stabilizer/Amine				
To Block	MIX-101				

d vr %R zz %

Z v%S rt z %	9F% , %				
Hydrogen Sulfide	0.000828468				
Nitrogen	0.524181				
Methane	51.6433				
Carbon Dioxide	2.41988				
Ethane	22.1826				
Propane	15.5396				
i-Butane	1.92293				
n-Butane	4.11983				
i-Pentane	0.623087				
n-Pentane	0.56108				
i-Hexane	0.107683				
Hexane	0.0515516				
Benzene	0.0230145				
Cyclohexane	0.0317749				
i-Heptane	0.0320689				
nC7	0.00516224				
Toluene	0.00496828				
i-Octane	0.0122563				
nC8	0.000383128				
Ethylbenzene	0.000220625				
o-Xylene	0.000350827				
Isononane	0.000144554				
nC9	0				
Decane	6.37995E-05				
Ethylene Glycol	0				
MDEA	0				
DEA	0				
Piperazine	0				
DGA	0				
TEG	0				
Water	0.193069				

Zr %S rt z %	9F% , %				
Hydrogen Sulfide	0.00102079				
Nitrogen	0.530882				
Methane	29.9527				
Carbon Dioxide	3.85027				
Ethane	24.1147				
Propane	24.7735				
i-Butane	4.0407				
n-Butane	8.65709				
i-Pentane	1.62528				
n-Pentane	1.46354				
i-Hexane	0.335492				
Hexane	0.160611				
Benzene	0.0649935				
Cyclohexane	0.0966803				
i-Heptane	0.116175				
nC7	0.018701				
Toluene	0.01655				
i-Octane	0.0506157				
nC8	0.00158223				

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

Zr %Srtz %	9F% , %				
Ethylbenzene	0.000846813				
o-Xylene	0.00134656				
Isononane	0.000670279				
nC9	0				
Decane	0.000328184				
Ethylene Glycol	0				
MDEA	0				
DEA	0				
Piperazine	0				
DGA	0				
TEG	0				
Water	0.125749				

Zr %S %	9F% s6y%				
Hydrogen Sulfide	0.064601				
Nitrogen	33.5969				
Methane	1895.56				
Carbon Dioxide	243.665				
Ethane	1526.1				
Propane	1567.79				
i-Butane	255.716				
n-Butane	547.865				
i-Pentane	102.856				
n-Pentane	92.6203				
i-Hexane	21.2316				
Hexane	10.1643				
Benzene	4.11312				
Cyclohexane	6.11843				
i-Heptane	7.35212				
nC7	1.1835				
Toluene	1.04737				
i-Octane	3.20322				
nC8	0.100132				
Ethylbenzene	0.0535907				
o-Xylene	0.0852171				
Isononane	0.0424187				
nC9	0				
Decane	0.0207692				
Ethylene Glycol	0				
MDEA	0				
DEA	0				
Piperazine	0				
DGA	0				
TEG	0				
Water	7.95803				

d vr %a v zv %

a v %	f z %	9F%				
Temperature	°F	120.023				
Pressure	psig	1016				
Molecular Weight	lb/lbmol	27.6598				
Std Liquid Volumetric Flow	sgpm	31.6376				
Std Vapor Volumetric Flow	MMSCFD	2.08381				
Net Ideal Gas Heating Value	Btu/ft^3	1426.13				
Gross Ideal Gas Heating Value	Btu/ft^3	1562.54				
Mole Fraction Vapor	%	99.9843				
Mass Density	lb/ft^3	7.06153 ?				
Mass Flow	lb/h	6328.51				
Specific Gravity						

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a t v %d vr %v %
N %d vr %
ers r vu% % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03. Amine Treating	

d vr %a v zv %

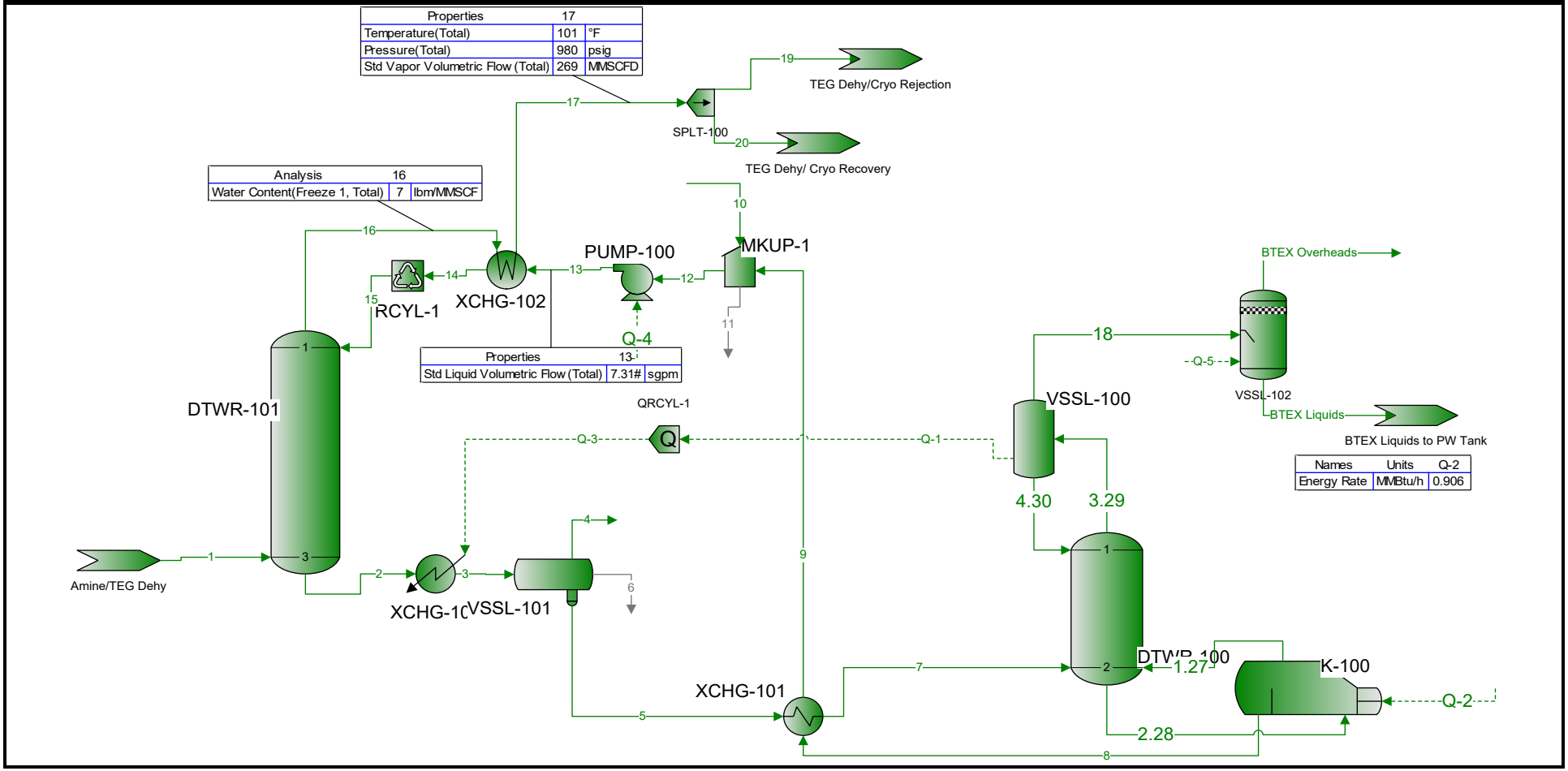
a v % f z %	9F%				
API Gravity					

cv r ►%

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7: s5%eRT%Qvy %
a r %dtyv r zt%
%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03b. TEG Dehy



* User Specified Values
? Extrapolated or Approximate Values

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7: s5%eRT%Qvy %
N r v %v %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

N r z %v %d vr C%C%

S vv v%%

ayr vC%e r %			d r C%d vu%		
Solids Formation Temperature	41.5899	°F	High Temperature Hydrate Point	41.5899	°F
Degrees above Solids Formation	59.3657	°F	High Temperature Water Freeze Point	28.2741	°F
Water Content	6.99659	lbm/MMSCF	High Temperature CO2 Freeze Point	-269.466	°F
? Water Dew Point	37.2015	°F			

h r z x

ProMax:ProMax!Project!Flowsheets!03b. TEG Dehy!PStreams!16!Analyses!Freeze 1!Properties!Water Dew Point

Warning: Water dew point temperature is thermodynamically unstable as other phases will form instead of a free aqueous liquid phase.

c v r ►

N r z %v %d vr C%D%

S vv v%%

ayr vC%e r %			d r C%d vu%		
Solids Formation Temperature	41.5092	°F	High Temperature Hydrate Point	41.5092	°F
Degrees above Solids Formation	59.7872	°F	High Temperature Water Freeze Point	28.2635	°F
Water Content	6.99659	lbm/MMSCF	High Temperature CO2 Freeze Point	-269.468	°F
? Water Dew Point	37.1155	°F			

h r z x

ProMax:ProMax!Project!Flowsheets!03b. TEG Dehy!PStreams!17!Analyses!Freeze 1!Properties!Water Dew Point

Warning: Water dew point temperature is thermodynamically unstable as other phases will form instead of a free aqueous liquid phase.

c v r ►

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a t v %d vr %sv %
N %d vr %
ers r vu%s % r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM		
Flowsheet:	03b. TEG Dehy		

P vt z %

	OeRi %z zu %	OeRi % ` v yvru %	8%	859D%	9%
From Block	VSSL-102	VSSL-102	Amine/TEG Dehy	K-100	DTWR-101
To Block	BTEX Liquids to PW Tank	--	DTWR-101	DTWR-100	XCHG-100

d vr %8 zz %

Z v%s rt z %	OeRi %z zu % , %	OeRi % ` v yvru % , %	8% , %	859D% , %	9% , %
Hydrogen Sulfide	9.30649E-08	0.000100098	1.24352E-06	2.37845E-08	1.08802E-06
Nitrogen	2.34278E-07	0.0236534	1.6956	9.14024E-08	0.0103893
Methane	0.000285427	12.3377	76.4756	0.000130604	1.56547
Carbon Dioxide	2.86122E-05	0.0956038	0.00889811	5.52262E-06	0.00193373
Ethane	0.000805475	14.5551	12.333	0.000379179	0.651823
Propane	0.00182878	16.0951	5.97857	0.000693311	0.456374
i-Butane	0.000569712	2.49658	0.741511	0.00013376	0.0597315
n-Butane	0.00366642	10.6781	1.67856	0.000803005	0.198462
i-Pentane	0.0023421	2.92663	0.339755	0.000314475	0.0453601
n-Pentane	0.00342239	3.40905	0.332804	0.000424637	0.0505137
i-Hexane	0.00239942	1.1207	0.095567	0.000255266	0.0153312
Hexane	0.00248061	0.831831	0.0528928	0.000233269	0.0108942
Benzene	0.091083	12.4273	0.0202232	0.0275695	0.141619
Cyclohexane	0.0125874	2.54597	0.0351596	0.00158745	0.0289672
i-Heptane	0.00449476	0.75016	0.0491916	0.000232878	0.0109011
nC7	0.00166506	0.192639	0.00947478	8.3136E-05	0.00289591
Toluene	0.0900155	4.92815	0.00816547	0.0255617	0.0826059
i-Octane	0.00348382	0.456833	0.0233626	0.000194239	0.00663737
nC8	0.000540623	0.0230083	0.00135362	2.33375E-05	0.000514944
Ethylbenzene	0.014119	0.246422	0.000666892	0.00399246	0.00892962
o-Xylene	0.0324628	0.609211	0.00120415	0.0120518	0.0209249
Isononane	0.000512734	0.0143083	0.000864998	2.35763E-05	0.000403259
nC9	0	0	0	0	0
Decane	0.000888777	0.00620066	0.00084064	5.25071E-05	0.000515124
Ethylene Glycol	0	0	0	0	0
MDEA	8.72854E-05	0.000214071	2.68173E-07	0.00146435	0.00235342
DEA	0	0	0	0	0
Piperazine	0.000207675	1.02228E-07	3.70946E-06	0.0252761	0.00353457
DGA	0	0	0	0	0
TEG	4.64244E-06	3.42023E-11	0	7.08824	44.2183
Water	99.73	13.2293	0.116707	92.8103	52.4046

Zr %s rt z %	OeRi %z zu % , %	OeRi % ` v yvru % , %	8% , %	859D% , %	9% , %
Hydrogen Sulfide	1.74217E-07	7.01714E-05	1.99181E-06	2.95254E-08	4.81498E-07
Nitrogen	3.60487E-07	0.0136297	2.23241	9.3264E-08	0.00377922
Methane	0.000251512	4.07128	57.6606	7.63167E-05	0.32611
Carbon Dioxide	6.91656E-05	0.0865459	0.0184047	8.85284E-06	0.00110507
Ethane	0.00133035	9.00246	17.429	0.000415293	0.254506
Propane	0.00442945	14.5987	12.3902	0.00111356	0.261316
i-Butane	0.00181882	2.98479	2.02556	0.000283178	0.0450811
n-Butane	0.0117052	12.7662	4.58525	0.00170001	0.149785
i-Pentane	0.00928169	4.34331	1.15207	0.000826429	0.0424964
n-Pentane	0.0135628	5.05927	1.1285	0.00111593	0.0473246
i-Hexane	0.0113575	1.98655	0.387058	0.000801249	0.0171557
Hexane	0.0117418	1.47449	0.214223	0.000732201	0.0121906
Benzene	0.390793	19.9673	0.0742424	0.0784397	0.143644
Cyclohexane	0.0581878	4.40739	0.13907	0.00486623	0.0316562
i-Heptane	0.0247386	1.54616	0.231661	0.000849953	0.014184

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

Zr %Srt z %	OeRi %z au % , %	OeRi % ` v yvru % , %	8% , %	85D% , %	9% , %
nC7	0.00916431	0.397051	0.0446201	0.000303428	0.00376799
Toluene	0.455565	9.34006	0.0353596	0.085787	0.0988328
i-Octane	0.0218587	1.07339	0.125424	0.000808169	0.00984509
nC8	0.00339205	0.054061	0.00726703	9.71001E-05	0.000763807
Ethylbenzene	0.082334	0.538128	0.00332753	0.0154388	0.0123101
o-Xylene	0.189304	1.33038	0.00600823	0.046604	0.0288466
Isononane	0.0036121	0.0377475	0.00521405	0.000110139	0.000671595
nC9	0	0	0	0	0
Decane	0.00694599	0.0181473	0.0056214	0.000272118	0.000951721
Ethylene Glycol	0	0	0	0	0
MDEA	0.000571311	0.000524711	1.5019E-06	0.00635586	0.00364156
DEA	0	0	0	0	0
Piperazine	0.000982562	1.81125E-07	1.50168E-05	0.0793019	0.00395338
DGA	0	0	0	0	0
TEG	3.8294E-05	1.05651E-10	0	38.7722	86.227
Water	98.687	4.90234	0.0988149	60.9015	12.2591

Zr %S %	OeRi %z au % s6y%	OeRi % ` v yvru % s6y%	8% s6y%	85D% s6y%	9% s6y%
Hydrogen Sulfide	9.54962E-07	1.57409E-05	0.0125153	2.11295E-07	2.28189E-05
Nitrogen	1.976E-06	0.00305742	14027	6.67433E-07	0.179102
Methane	0.00137865	0.913274	362302	0.000546152	15.4548
Carbon Dioxide	0.000379128	0.0194141	115.643	6.33544E-05	0.052371
Ethane	0.00729224	2.01944	109513	0.002972	12.0614
Propane	0.0242799	3.2748	77852	0.00796908	12.3841
i-Butane	0.0099698	0.669551	12727.3	0.00202653	2.13645
n-Butane	0.0641613	2.86372	28810.8	0.0121659	7.09853
i-Pentane	0.0508772	0.974297	7238.88	0.00591425	2.01396
n-Pentane	0.0743442	1.1349	7090.78	0.00798605	2.24278
i-Hexane	0.0622555	0.445625	2432.02	0.00573405	0.813034
Hexane	0.0643622	0.33076	1346.04	0.00523991	0.577731
Benzene	2.14212	4.47909	466.491	0.561345	6.80748
Cyclohexane	0.318954	0.988671	873.823	0.0348247	1.50023
i-Heptane	0.135604	0.346837	1455.61	0.00608259	0.672197
nC7	0.0502338	0.0890669	280.364	0.00217145	0.17857
Toluene	2.49716	2.09517	222.177	0.613925	4.68382
i-Octane	0.119817	0.240784	788.084	0.00578357	0.466573
nC8	0.0185934	0.012127	45.6613	0.000694886	0.0361979
Ethylbenzene	0.45131	0.120713	20.9081	0.110486	0.583395
o-Xylene	1.03766	0.298431	37.7518	0.333516	1.36708
Isononane	0.0197996	0.00846756	32.7617	0.000788198	0.0318278
nC9	0	0	0	0	0
Decane	0.0380742	0.00407082	35.3212	0.00194738	0.0451034
Ethylene Glycol	0	0	0	0	0
MDEA	0.00313162	0.000117704	0.00943694	0.045485	0.172578
DEA	0	0	0	0	0
Piperazine	0.00538588	4.06301E-08	0.0943561	0.567515	0.187356
DGA	0	0	0	0	0
TEG	0.000209907	2.36997E-11	0	277.469	4086.41
Water	540.949	1.0997	620.889	435.835	580.977

d vr %a v zv %

a v %	f z %	OeRi %z au %	OeRi % ` v yvru %	8%	85D%	9%
Temperature	°F	120	120 *	99.5703	390 *	100.475
Pressure	psig	0	0 *	986	1	986
Molecular Weight	lb/lbmol	18.2057	48.6155	21.2772	27.4542	77.0107
Std Liquid Volumetric Flow	sgpm	1.09846	0.0742555	3585.38	1.36797	8.70235

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

d vr %a v zv %

a v %	f z %	OeRi %z zu %	OeRi % ` v yvru %	8%	859D%	9%
Std Vapor Volumetric Flow	MMSCFD	0.274217	0.00420243	268.956	0.237405	0.560471
Net Ideal Gas Heating Value	Btu/ft^3	11.2183	2319.71	1144.9	271.659	1730.63
Gross Ideal Gas Heating Value	Btu/ft^3	61.9683	2496.79	1261.66	343.507	1917.72
Mole Fraction Vapor	%	0	100	100	100	0
Mass Density	lb/ft^3	61.5177	0.10141	4.42436	0.0418129	67.8243
Mass Flow	lb/h	548.146	22.4321	628335	715.639	4739.14
Specific Gravity		0.986355	1.67857	0.734647	0.947923	1.08747
API Gravity		10.3011				-3.30586

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

P vt z %

	95DE%	:%	:5DF%	A%	A57%
From Block	DTWR-100	XCHG-100	DTWR-100	VSSL-101	VSSL-100
To Block	K-100	VSSL-101	VSSL-100	--	DTWR-100

d vr %R zz %

Z v%s rt z %	95DE% , %	:% , %	:5DF% , %	A% , %	A57% , %
Hydrogen Sulfide	1.12648E-08	1.08802E-06	1.33559E-06	1.1074E-05	8.93594E-10
Nitrogen	4.30101E-08	0.0103893	0.000297711	0.387442	2.67855E-09
Methane	6.14803E-05	1.56547	0.155421	55.8794	2.6426E-06
Carbon Dioxide	2.60371E-06	0.00193373	0.00122605	0.045638	2.47599E-07
Ethane	0.000178623	0.651823	0.18374	20.5749	3.1075E-06
Propane	0.000326842	0.456374	0.20395	12.7023	2.49698E-06
i-Butane	6.30938E-05	0.0597315	0.0318703	1.54543	1.71306E-07
n-Butane	0.000378985	0.198462	0.137321	4.42395	1.63275E-06
i-Pentane	0.000148603	0.0453601	0.0387341	0.844919	2.31674E-07
n-Pentane	0.000200741	0.0505137	0.0456889	0.883145	2.52622E-07
i-Hexane	0.000121241	0.0153312	0.0160658	0.218278	4.32349E-08
Hexane	0.000110916	0.0108942	0.0124989	0.130604	4.01315E-08
Benzene	0.0133525	0.141619	0.231093	0.133909	0.000132307
Cyclohexane	0.00075859	0.0289672	0.0423552	0.140694	1.01679E-06
i-Heptane	0.000110501	0.0109011	0.0131248	0.116722	1.5653E-08
nC7	3.94947E-05	0.00289591	0.00378968	0.0241489	6.54625E-09
Toluene	0.012519	0.0826059	0.135879	0.0443165	6.49121E-05
i-Octane	9.22349E-05	0.00663737	0.00860553	0.0571666	1.61311E-08
nC8	1.1117E-05	0.000514944	0.000733123	0.00295165	8.15859E-10
Ethylbenzene	0.00198394	0.00892962	0.0146886	0.0029862	4.67721E-06
o-Xylene	0.00605041	0.0209249	0.0343096	0.00496987	1.68023E-05
Isononane	1.12625E-05	0.000403259	0.000600803	0.00170576	2.51702E-10
nC9	0	0	0	0	0
Decane	2.52875E-05	0.000515124	0.000807461	0.00126181	1.24875E-10
Ethylene Glycol	0	0	0	0	0
MDEA	0.00325317	0.00235342	7.55704E-05	5.8701E-07	7.42708E-06
DEA	0	0	0	0	0
Piperazine	0.0157018	0.00353457	0.00134298	2.0545E-05	0.00703519
DGA	0	0	0	0	0
TEG	52.4405	44.2183	0.000639857	0.000185761	0.00381628
Water	47.504	52.4046	98.6851	1.83293	99.9889

Zr %s rt z %	95DE% , %	:% , %	:5DF% , %	A% , %	A57% , %
Hydrogen Sulfide	4.39467E-09	4.81498E-07	2.45272E-06	1.41276E-05	1.68954E-09
Nitrogen	1.3792E-08	0.00377922	0.000449394	0.40628	4.16278E-09
Methane	1.12901E-05	0.32611	0.134353	33.5565	2.35191E-06
Carbon Dioxide	1.31169E-06	0.00110507	0.00290751	0.0751842	6.04524E-07
Ethane	6.14822E-05	0.254506	0.297707	23.1585	5.18381E-06
Propane	0.000164978	0.261316	0.484601	20.9668	6.10842E-06
i-Butane	4.19779E-05	0.0450811	0.0998145	3.36237	5.52372E-07
n-Butane	0.000252148	0.149785	0.430076	9.62512	5.26478E-06
i-Pentane	0.000122729	0.0424964	0.150587	2.28191	9.2731E-07
n-Pentane	0.00016579	0.0473246	0.177626	2.38514	1.01116E-06
i-Hexane	0.000119598	0.0171557	0.0746022	0.704121	2.06698E-07
Hexane	0.000109413	0.0121906	0.0580393	0.421301	1.91861E-07
Benzene	0.0119391	0.143644	0.972678	0.391545	0.000573349
Cyclohexane	0.000730805	0.0316562	0.192077	0.443232	4.74738E-06
i-Heptane	0.000126746	0.014184	0.0708654	0.437807	8.70143E-08
nC7	4.53009E-05	0.00376799	0.0204618	0.0905787	3.63904E-08
Toluene	0.0132039	0.0988328	0.674619	0.152848	0.000331806
i-Octane	0.000120604	0.00984509	0.0529685	0.244439	1.02225E-07
nC8	1.45363E-05	0.000763807	0.0045125	0.012621	5.17021E-09
Ethylbenzene	0.00241103	0.0123101	0.0840287	0.0118674	2.75478E-05

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03b. TEG Dehy

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	95DE% , %	: % , %	:5DF% , %	A% , %	A57% , %
o-Xylene	0.00735289	0.0288466	0.196274	0.0197506	9.89622E-05
Isononane	1.65348E-05	0.000671595	0.00415214	0.00818928	1.79093E-09
nC9	0	0	0	0	0
Decane	4.11858E-05	0.000951721	0.00619066	0.0067204	9.85694E-10
Ethylene Glycol	0	0	0	0	0
MDEA	0.00443749	0.00364156	0.000485239	2.61841E-06	4.90993E-05
DEA	0	0	0	0	0
Piperazine	0.0154819	0.00395338	0.00623332	6.62434E-05	0.0336184
DGA	0	0	0	0	0
TEG	90.1467	86.227	0.00517775	0.00104424	0.0317944
Water	9.79633	12.2591	95.7985	1.23606	99.9335

Zr %S %	95DE% s6y%	: % s6y%	:5DF% s6y%	A% s6y%	A57% s6y%
Hydrogen Sulfide	2.1274E-07	2.28189E-05	1.66977E-05	6.12154E-06	1.86198E-09
Nitrogen	6.67654E-07	0.179102	0.0030594	0.176043	4.58764E-09
Methane	0.00054654	15.4548	0.914655	14.5402	2.59195E-06
Carbon Dioxide	6.3497E-05	0.052371	0.0197939	0.0325776	6.66223E-07
Ethane	0.00297627	12.0614	2.02674	10.0347	5.71288E-06
Propane	0.00798635	12.3841	3.29909	9.08501	6.73186E-06
i-Butane	0.00203209	2.13645	0.679521	1.45693	6.08748E-07
n-Butane	0.0122061	7.09853	2.92789	4.17061	5.80212E-06
i-Pentane	0.00594116	2.01396	1.02518	0.988759	1.02195E-06
n-Pentane	0.00802566	2.24278	1.20925	1.03349	1.11436E-06
i-Hexane	0.00578958	0.813034	0.50788	0.305099	2.27794E-07
Hexane	0.00529655	0.577731	0.395123	0.182552	2.11443E-07
Benzene	0.577954	6.80748	6.62184	0.169658	0.000631867
Cyclohexane	0.0353773	1.50023	1.30763	0.192054	5.2319E-06
i-Heptane	0.00613561	0.672197	0.48244	0.189704	9.58951E-08
nC7	0.00219296	0.17857	0.139301	0.0392481	4.01045E-08
Toluene	0.639182	4.68382	4.5927	0.0662296	0.000365671
i-Octane	0.00583828	0.466573	0.360602	0.105916	1.12658E-07
nC8	0.000703681	0.0361979	0.0307204	0.00546872	5.69789E-09
Ethylbenzene	0.116715	0.583395	0.572054	0.00514218	3.03594E-05
o-Xylene	0.355944	1.36708	1.3362	0.008558	0.000109062
Isononane	0.000800429	0.0318278	0.0282671	0.00354845	1.97372E-09
nC9	0	0	0	0	0
Decane	0.00199375	0.0451034	0.042145	0.00291198	1.0863E-09
Ethylene Glycol	0	0	0	0	0
MDEA	0.214813	0.172578	0.00330343	1.13457E-06	5.41104E-05
DEA	0	0	0	0	0
Piperazine	0.749456	0.187356	0.0424355	2.87036E-05	0.0370495
DGA	0	0	0	0	0
TEG	4363.88	4086.41	0.0352493	0.000452473	0.0350394
Water	474.227	580.977	652.181	0.53559	110.133

d vr %a v zv %

a v %	f z %	95DE%	: %	:5DF%	A%	A57%
Temperature	°F	251.505	136.092	204.785	139.141	204.342
Pressure	psig	1	981	0	60 *	0
Molecular Weight	lb/lbmol	87.3591	77.0107	18.5581	26.7145	18.0253
Std Liquid Volumetric Flow	sgpm	8.67755	8.70235	1.39304	0.220057	0.220331
Std Vapor Volumetric Flow	MMSCFD	0.504684	0.560471	0.334103	0.0147724	0.0556838
Net Ideal Gas Heating Value	Btu/ft^3	1982.8	1730.63	38.4482	1418	0.377088
Gross Ideal Gas Heating Value	Btu/ft^3	2191.32	1917.72	90.7182	1554.73	50.713
Mole Fraction Vapor	%	0	0	100	100	0
Mass Density	lb/ft^3	64.1684	66.8282	0.0335705	0.309258	60.0416
Mass Flow	lb/h	4840.87	4739.14	680.784	43.3304	110.206
Specific Gravity		1.02886	1.0715	0.640764	0.922381	0.962688
API Gravity		-5.47891	-3.30475			9.98794

* User Specified Values
? Extrapolated or Approximate Values

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

P vt z %

	B%	C%	D%	E%	F%
From Block	VSSL-101	VSSL-101	XCHG-101	K-100	XCHG-101
To Block	XCHG-101	--	DTWR-100	XCHG-101	MKUP-1

d vr %8 zz %

Z v%s rt z %	B% , %	C% , %	D% , %	E% , %	F% , %
Hydrogen Sulfide	8.17689E-07		8.17689E-07	1.44437E-10	1.44437E-10
Nitrogen	0.000182273		0.000182273	2.68036E-11	2.68036E-11
Methane	0.0951563		0.0951563	8.245E-08	8.245E-08
Carbon Dioxide	0.000750628		0.000750628	1.10458E-08	1.10458E-08
Ethane	0.112494		0.112494	4.84301E-07	4.84301E-07
Propane	0.124868		0.124868	1.33417E-06	1.33417E-06
i-Butane	0.0195126		0.0195126	3.26328E-07	3.26328E-07
n-Butane	0.0840755		0.0840755	2.35855E-06	2.35855E-06
i-Pentane	0.0237155		0.0237155	1.27115E-06	1.27115E-06
n-Pentane	0.0279738		0.0279738	1.871E-06	1.871E-06
i-Hexane	0.00983734		0.00983734	2.19573E-06	2.19573E-06
Hexane	0.00765355		0.00765355	2.23953E-06	2.23953E-06
Benzene	0.141827		0.141827	0.000724554	0.000724554
Cyclohexane	0.0259427		0.0259427	2.23765E-05	2.23765E-05
i-Heptane	0.0080365		0.0080365	1.80282E-06	1.80282E-06
nC7	0.00232058		0.00232058	7.31322E-07	7.31322E-07
Toluene	0.0836425		0.0836425	0.000934075	0.000934075
i-Octane	0.00526952		0.00526952	1.6319E-06	1.6319E-06
nC8	0.000448981		0.000448981	2.62363E-07	2.62363E-07
Ethylbenzene	0.00909051		0.00909051	0.000199925	0.000199925
o-Xylene	0.0213569		0.0213569	0.000719846	0.000719846
Isononane	0.000367999		0.000367999	3.24963E-07	3.24963E-07
nC9	0		0	0	0
Decane	0.00049491		0.00049491	1.11037E-06	1.11037E-06
Ethylene Glycol	0		0	0	0
MDEA	0.00241711		0.00241711	0.00484205	0.00484205
DEA	0		0	0	0
Piperazine	0.0036297		0.0036297	0.00719761	0.00719761
DGA	0		0	0	0
TEG	45.4153		45.4153	92.7235	92.7235
Water	53.7736		53.7736	7.26185	7.26185

Zr %s rt z %	B% , %	C% , %	D% , %	E% , %	F% , %
Hydrogen Sulfide	3.55579E-07		3.55579E-07	3.50188E-11	3.50188E-11
Nitrogen	6.51517E-05		6.51517E-05	5.34159E-12	5.34159E-12
Methane	0.0194781		0.0194781	9.40967E-09	9.40967E-09
Carbon Dioxide	0.000421511		0.000421511	3.45825E-09	3.45825E-09
Ethane	0.0431606		0.0431606	1.03597E-07	1.03597E-07
Propane	0.0702563		0.0702563	4.18523E-07	4.18523E-07
i-Butane	0.0144709		0.0144709	1.3493E-07	1.3493E-07
n-Butane	0.0623519		0.0623519	9.75216E-07	9.75216E-07
i-Pentane	0.0218323		0.0218323	6.52435E-07	6.52435E-07
n-Pentane	0.0257524		0.0257524	9.60317E-07	9.60317E-07
i-Hexane	0.0108168		0.0108168	1.34609E-06	1.34609E-06
Hexane	0.00841557		0.00841557	1.37294E-06	1.37294E-06
Benzene	0.141356		0.141356	0.000402625	0.000402625
Cyclohexane	0.0278584		0.0278584	1.3397E-05	1.3397E-05
i-Heptane	0.010275		0.010275	1.28511E-06	1.28511E-06
nC7	0.00296695		0.00296695	5.21312E-07	5.21312E-07
Toluene	0.0983344		0.0983344	0.000612259	0.000612259
i-Octane	0.00768038		0.00768038	1.32611E-06	1.32611E-06
nC8	0.000654396		0.000654396	2.13202E-07	2.13202E-07
Ethylbenzene	0.0123142		0.0123142	0.000150995	0.000150995

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N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

Zr %Srt z %	B% , %	C% , %	D% , %	E% , %	F% , %
o-Xylene	0.0289305		0.0289305	0.000543668	0.000543668
Isononane	0.000602226		0.000602226	2.96498E-07	2.96498E-07
nC9	0		0	0	0
Decane	0.00089849		0.00089849	1.1239E-06	1.1239E-06
Ethylene Glycol	0		0	0	0
MDEA	0.00367513		0.00367513	0.00410469	0.00410469
DEA	0		0	0	0
Piperazine	0.00398925		0.00398925	0.00441046	0.00441046
DGA	0		0	0	0
TEG	87.0226		87.0226	99.0591	99.0591
Water	12.3608		12.3608	0.930682	0.930682

Zr %S %	B% s6y%	C% s6y%	D% s6y%	E% s6y%	F% s6y%
Hydrogen Sulfide	1.66973E-05	0	1.66973E-05	1.44461E-09	1.44461E-09
Nitrogen	0.0030594	0	0.0030594	2.20353E-10	2.20353E-10
Methane	0.914653	0	0.914653	3.88171E-07	3.88171E-07
Carbon Dioxide	0.0197934	0	0.0197934	1.42661E-07	1.42661E-07
Ethane	2.02674	0	2.02674	4.27362E-06	4.27362E-06
Propane	3.2991	0	3.2991	1.7265E-05	1.7265E-05
i-Butane	0.679526	0	0.679526	5.56618E-06	5.56618E-06
n-Butane	2.92792	0	2.92792	4.02299E-05	4.02299E-05
i-Pentane	1.0252	0	1.0252	2.69145E-05	2.69145E-05
n-Pentane	1.20929	0	1.20929	3.96153E-05	3.96153E-05
i-Hexane	0.507936	0	0.507936	5.55295E-05	5.55295E-05
Hexane	0.395179	0	0.395179	5.6637E-05	5.6637E-05
Benzene	6.63782	0	6.63782	0.0166092	0.0166092
Cyclohexane	1.30818	0	1.30818	0.000552658	0.000552658
i-Heptane	0.482493	0	0.482493	5.30138E-05	5.30138E-05
nC7	0.139322	0	0.139322	2.15053E-05	2.15053E-05
Toluene	4.61759	0	4.61759	0.0252571	0.0252571
i-Octane	0.360656	0	0.360656	5.47052E-05	5.47052E-05
nC8	0.0307292	0	0.0307292	8.79506E-06	8.79506E-06
Ethylbenzene	0.578253	0	0.578253	0.00622887	0.00622887
o-Xylene	1.35852	0	1.35852	0.0224276	0.0224276
Isononane	0.0282794	0	0.0282794	1.22312E-05	1.22312E-05
nC9	0	0	0	0	0
Decane	0.0421914	0	0.0421914	4.63635E-05	4.63635E-05
Ethylene Glycol	0	0	0	0	0
MDEA	0.172577	0	0.172577	0.169328	0.169328
DEA	0	0	0	0	0
Piperazine	0.187328	0	0.187328	0.181942	0.181942
DGA	0	0	0	0	0
TEG	4086.41	0	4086.41	4086.41	4086.41
Water	580.441	0	580.441	38.3928	38.3928

d vr %a v zv %

a v %	f z %	B%	C%	D%	E%	F%
Temperature	°F	139.141		280 *	390	216.648
Pressure	psig	60	60	59.5	1	0.5
Molecular Weight	lb/lbmol	78.3722		78.3722	140.568	140.568
Std Liquid Volumetric Flow	sgpm	8.48229	0	8.48229	7.30958	7.30958
Std Vapor Volumetric Flow	MMSCFD	0.545699	0	0.545699	0.26728	0.26728
Net Ideal Gas Heating Value	Btu/ft^3	1739.09		1739.09	3502.69	3502.69
Gross Ideal Gas Heating Value	Btu/ft^3	1927.55		1927.55	3832.6	3832.6
Mole Fraction Vapor	%	0		0.257018	0	0
Mass Density	lb/ft^3	67.628		51.5139	58.4694	65.1023
Mass Flow	lb/h	4695.81	0	4695.81	4125.23	4125.23
Specific Gravity		1.08433			0.937479	1.04383
API Gravity		-4.87785			-6.7057	-6.70563

* User Specified Values
? Extrapolated or Approximate Values

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

cv r ►%

ProMax 7.0.26169.0
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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	03b. TEG Dehy

Job: 275 MMSCFD Apollo GP

P vt z %

	87%	88%	89%	8: %	8A%
From Block	--	MKUP-1	MKUP-1	PUMP-100	XCHG-102
To Block	MKUP-1	--	PUMP-100	XCHG-102	RCYL-1

d vr %8 zz %

Z v%s rt z %	87% , %	88% , %	89% , %	8: % , %	8A% , %
Hydrogen Sulfide	0	1.44437E-10	0	0	0
Nitrogen	0	2.68036E-11	0	0	0
Methane	0	8.245E-08	0	0	0
Carbon Dioxide	0	1.10458E-08	0	0	0
Ethane	0	4.84301E-07	4.84054E-07	4.84054E-07	4.84054E-07
Propane	0	1.33417E-06	1.33349E-06	1.33349E-06	1.33349E-06
i-Butane	0	3.26328E-07	3.26162E-07	3.26162E-07	3.26162E-07
n-Butane	0	2.35855E-06	2.35735E-06	2.35735E-06	2.35735E-06
i-Pentane	0	1.27115E-06	1.2705E-06	1.2705E-06	1.2705E-06
n-Pentane	0	1.871E-06	1.87004E-06	1.87004E-06	1.87004E-06
i-Hexane	0	2.19573E-06	2.19461E-06	2.19461E-06	2.19461E-06
Hexane	0	2.23953E-06	2.23839E-06	2.23839E-06	2.23839E-06
Benzene	0	0.000724554	0.000724185	0.000724185	0.000724185
Cyclohexane	0	2.23765E-05	2.23651E-05	2.23651E-05	2.23651E-05
i-Heptane	0	1.80282E-06	1.8019E-06	1.8019E-06	1.8019E-06
nC7	0	7.31322E-07	7.3095E-07	7.3095E-07	7.3095E-07
Toluene	0	0.000934075	0.000933599	0.000933599	0.000933599
i-Octane	0	1.6319E-06	1.63107E-06	1.63107E-06	1.63107E-06
nC8	0	2.62363E-07	2.6223E-07	2.6223E-07	2.6223E-07
Ethylbenzene	0	0.000199925	0.000199823	0.000199823	0.000199823
o-Xylene	0	0.000719846	0.000719479	0.000719479	0.000719479
Isononane	0	3.24963E-07	3.24797E-07	3.24797E-07	3.24797E-07
nC9	0	0	0	0	0
Decane	0	1.11037E-06	1.1098E-06	1.1098E-06	1.1098E-06
Ethylene Glycol	0	0	0	0	0
MDEA	0	0.00484205	0.00483958	0.00483958	0.00483958
DEA	0	0	0	0	0
Piperazine	0	0.00719761	0.00719394	0.00719394	0.00719394
DGA	0	0	0	0	0
TEG	99.0002	92.7235	92.7267	92.7267	92.7267
Water	0.999765	7.26185	7.25866	7.25866	7.25866

Zr %s rt z %	87% , %	88% , %	89% , %	8: % , %	8A% , %
Hydrogen Sulfide	0	3.50188E-11	0	0	0
Nitrogen	0	5.34159E-12	0	0	0
Methane	0	9.40967E-09	0	0	0
Carbon Dioxide	0	3.45825E-09	0	0	0
Ethane	0	1.03597E-07	1.03541E-07	1.03541E-07	1.03541E-07
Propane	0	4.18523E-07	4.18297E-07	4.18297E-07	4.18297E-07
i-Butane	0	1.3493E-07	1.34857E-07	1.34857E-07	1.34857E-07
n-Butane	0	9.75216E-07	9.7469E-07	9.7469E-07	9.7469E-07
i-Pentane	0	6.52435E-07	6.52083E-07	6.52083E-07	6.52083E-07
n-Pentane	0	9.60317E-07	9.59798E-07	9.59798E-07	9.59798E-07
i-Hexane	0	1.34609E-06	1.34537E-06	1.34537E-06	1.34537E-06
Hexane	0	1.37294E-06	1.3722E-06	1.3722E-06	1.3722E-06
Benzene	0	0.000402625	0.000402407	0.000402407	0.000402407
Cyclohexane	0	1.3397E-05	1.33898E-05	1.33898E-05	1.33898E-05
i-Heptane	0	1.28511E-06	1.28442E-06	1.28442E-06	1.28442E-06
nC7	0	5.21312E-07	5.21031E-07	5.21031E-07	5.21031E-07
Toluene	0	0.000612259	0.000611929	0.000611929	0.000611929
i-Octane	0	1.32611E-06	1.3254E-06	1.3254E-06	1.3254E-06
nC8	0	2.13202E-07	2.13087E-07	2.13087E-07	2.13087E-07
Ethylbenzene	0	0.000150995	0.000150913	0.000150913	0.000150913

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

Zr %Srt z %	87% , %	88% , %	89% , %	8: % , %	8A% , %
o-Xylene	0	0.000543668	0.000543375	0.000543375	0.000543375
Isononane	0	2.96498E-07	2.96338E-07	2.96338E-07	2.96338E-07
nC9	0	0	0	0	0
Decane	0	1.1239E-06	1.12329E-06	1.12329E-06	1.12329E-06
Ethylene Glycol	0	0	0	0	0
MDEA	0	0.00410469	0.00410247	0.00410247	0.00410247
DEA	0	0	0	0	0
Piperazine	0	0.00441046	0.00440808	0.00440808	0.00440808
DGA	0	0	0	0	0
TEG	99.879	99.0591	99.0595	99.0595	99.0595
Water	0.121	0.930682	0.930245	0.930245	0.930245

Zr %S %	87% s6y%	88% s6y%	89% s6y%	8: % s6y%	8A% s6y%
Hydrogen Sulfide	0	0	0	0	0
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	0	0	0	0	0
Ethane	0	0	4.27362E-06	4.27362E-06	4.27362E-06
Propane	0	0	1.7265E-05	1.7265E-05	1.7265E-05
i-Butane	0	0	5.56618E-06	5.56618E-06	5.56618E-06
n-Butane	0	0	4.02299E-05	4.02299E-05	4.02299E-05
i-Pentane	0	0	2.69145E-05	2.69145E-05	2.69145E-05
n-Pentane	0	0	3.96153E-05	3.96153E-05	3.96153E-05
i-Hexane	0	0	5.55295E-05	5.55295E-05	5.55295E-05
Hexane	0	0	5.6637E-05	5.6637E-05	5.6637E-05
Benzene	0	0	0.0166092	0.0166092	0.0166092
Cyclohexane	0	0	0.000552658	0.000552658	0.000552658
i-Heptane	0	0	5.30138E-05	5.30138E-05	5.30138E-05
nC7	0	0	2.15053E-05	2.15053E-05	2.15053E-05
Toluene	0	0	0.0252571	0.0252571	0.0252571
i-Octane	0	0	5.47052E-05	5.47052E-05	5.47052E-05
nC8	0	0	8.79506E-06	8.79506E-06	8.79506E-06
Ethylbenzene	0	0	0.00622887	0.00622887	0.00622887
o-Xylene	0	0	0.0224276	0.0224276	0.0224276
Isononane	0	0	1.22312E-05	1.22312E-05	1.22312E-05
nC9	0	0	0	0	0
Decane	0	0	4.63635E-05	4.63635E-05	4.63635E-05
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0.169328	0.169328	0.169328
DEA	0	0	0	0	0
Piperazine	0	0	0.181942	0.181942	0.181942
DGA	0	0	0	0	0
TEG	2.22517	0	4088.64	4088.64	4088.64
Water	0.00269571	0	38.3955	38.3955	38.3955

d vr %a v zv %

a v %	f z %	87%	88%	89%	8: %	8A%
Temperature	°F	70 *	216.648	216.574	219.426	105.956
Pressure	psig	80 *	0.5	0.5	991 *	986
Molecular Weight	lb/lbmol	148.852	140.568	140.572	140.572	140.572
Std Liquid Volumetric Flow	sgpm	0.00394333	0	7.31352	7.31352 *	7.31352
Std Vapor Volumetric Flow	MMSCFD	0.000136314	0	0.267416	0.267416	0.267416
Net Ideal Gas Heating Value	Btu/ft^3	3739.25	3502.69	3502.81	3502.81	3502.81
Gross Ideal Gas Heating Value	Btu/ft^3	4088.05	3832.6	3832.73	3832.73	3832.73
Mole Fraction Vapor	%	0	0	0	0	0
Mass Density	lb/ft^3	70.5657	65.1023	65.1051	65.0962	69.19
Mass Flow	lb/h	2.22786	0	4127.46	4127.46	4127.46
Specific Gravity		1.13143		1.04387	1.04373	1.10937
API Gravity		-7.08314		-6.7058	-6.84552	-6.84482

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	a t v %d vr %sv % N %d vr % ers r vu%s %s r %ayr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

P vt z %

	8B%	8C%	8D%	8E%	8F%
From Block	RCYL-1	DTWR-101	XCHG-102	VSSL-100	SPLT-100
To Block	DTWR-101	XCHG-102	SPLT-100	VSSL-102	TEG Dehy/Cryo Rejection

d vr %R zz %

Z v%s rt z %	8B% , %	8C% , %	8D% , %	8E% , %	8F% , %
Hydrogen Sulfide	0	1.24261E-06	1.24261E-06	1.60252E-06	1.24261E-06
Nitrogen	0	1.69743	1.69743	0.000357253	1.69743
Methane	0	76.5558	76.5558	0.186505	76.5558
Carbon Dioxide	0	0.00890379	0.00890379	0.00147121	0.00890379
Ethane	4.84186E-07	12.3451	12.3451	0.220487	12.3451
Propane	1.33405E-06	5.98414	5.98414	0.244739	5.98414
i-Butane	3.26301E-07	0.742196	0.742196	0.0382443	0.742196
n-Butane	2.35826E-06	1.67997	1.67997	0.164785	1.67997
i-Pentane	1.2705E-06	0.340031	0.340031	0.0464809	0.340031
n-Pentane	1.86976E-06	0.333062	0.333062	0.0548266	0.333062
i-Hexane	2.19297E-06	0.0956393	0.0956393	0.019279	0.0956393
Hexane	2.2361E-06	0.0529278	0.0529278	0.0149987	0.0529278
Benzene	0.000723596	0.0199505	0.0199505	0.277285	0.0199505
Cyclohexane	2.23392E-05	0.0351375	0.0351375	0.050826	0.0351375
i-Heptane	1.79892E-06	0.0492225	0.0492225	0.0157497	0.0492225
nC7	7.29523E-07	0.00947908	0.00947908	0.00454761	0.00947908
Toluene	0.000931915	0.00800297	0.00800297	0.163042	0.00800297
i-Octane	1.62791E-06	0.0233742	0.0233742	0.0103266	0.0233742
nC8	2.61494E-07	0.00135402	0.00135402	0.000879747	0.00135402
Ethylbenzene	0.000199303	0.00064919	0.00064919	0.0176254	0.00064919
o-Xylene	0.000717509	0.00116252	0.00116252	0.0411682	0.00116252
Isononane	3.23696E-07	0.000865101	0.000865101	0.000720963	0.000865101
nC9	0	0	0	0	0
Decane	1.10565E-06	0.000840483	0.000840483	0.000968954	0.000840483
Ethylene Glycol	0	0	0	0	0
MDEA	0.00470169	3.87694E-08	3.87694E-08	8.9199E-05	3.87694E-08
DEA	0	0	0	0	0
Piperazine	0.00718091	3.48746E-06	3.48746E-06	0.000204542	3.48746E-06
DGA	0	0	0	0	0
TEG	92.7264	5.02836E-05	5.02836E-05	4.57237E-06	5.02836E-05
Water	7.25912	0.0147358	0.0147358	98.4244	0.0147358

Zr %s rt z %	8B% , %	8C% , %	8D% , %	8E% , %	8F% , %
Hydrogen Sulfide	0	1.99012E-06	1.99012E-06	2.92614E-06	1.99012E-06
Nitrogen	0	2.23456	2.23456	0.000536193	2.23456
Methane	0	57.7144	57.7144	0.160303	57.7144
Carbon Dioxide	0	0.0184143	0.0184143	0.00346898	0.0184143
Ethane	1.0357E-07	17.4441	17.4441	0.355207	17.4441
Propane	4.18475E-07	12.4003	12.4003	0.5782	12.4003
i-Butane	1.34916E-07	2.02719	2.02719	0.119093	2.02719
n-Butane	9.7507E-07	4.58859	4.58859	0.513143	4.58859
i-Pentane	6.52084E-07	1.15287	1.15287	0.179673	1.15287
n-Pentane	9.59659E-07	1.12925	1.12925	0.211933	1.12925
i-Hexane	1.34436E-06	0.387306	0.387306	0.0890115	0.387306
Hexane	1.37081E-06	0.214339	0.214339	0.0692495	0.214339
Benzene	0.000402082	0.0732329	0.0732329	1.16044	0.0732329
Cyclohexane	1.33743E-05	0.138966	0.138966	0.229175	0.138966
i-Heptane	1.2823E-06	0.231779	0.231779	0.0845529	0.231779
nC7	5.20016E-07	0.0446352	0.0446352	0.024414	0.0446352
Toluene	0.000610827	0.0346519	0.0346519	0.804857	0.0346519
i-Octane	1.32284E-06	0.125472	0.125472	0.0631993	0.125472

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

Zr %Srt z %	8B% , %	8C% , %	8D% , %	8E% , %	8F% , %
nC8	2.12489E-07	0.00726835	0.00726835	0.00538408	0.00726835
Ethylbenzene	0.000150521	0.00323883	0.00323883	0.100253	0.00323883
o-Xylene	0.000541889	0.00579986	0.00579986	0.234165	0.00579986
Isononane	2.95334E-07	0.00521406	0.00521406	0.00495412	0.00521406
nC9	0	0	0	0	0
Decane	1.1191E-06	0.0056197	0.0056197	0.00738637	0.0056197
Ethylene Glycol	0	0	0	0	0
MDEA	0.00398561	2.17101E-07	2.17101E-07	0.000569479	2.17101E-07
DEA	0	0	0	0	0
Piperazine	0.00440011	1.41165E-05	1.41165E-05	0.00094394	1.41165E-05
DGA	0	0	0	0	0
TEG	99.0596	0.000354857	0.000354857	3.67885E-05	0.000354857
Water	0.930307	0.0124753	0.0124753	94.9998	0.0124753

Zr %S %	8B% s6y%	8C% s6y%	8D% s6y%	8E% s6y%	8F% s6y%
Hydrogen Sulfide	0	0.0124924	0.0124924	1.66959E-05	0.0124924
Nitrogen	0	14026.8	14026.8	0.0030594	14026.8
Methane	0	362287	362287	0.914653	362287
Carbon Dioxide	0	115.591	115.591	0.0197932	115.591
Ethane	4.2748E-06	109501	109501	2.02673	109501
Propane	1.72724E-05	77839.6	77839.6	3.29908	77839.6
i-Butane	5.56859E-06	12725.2	12725.2	0.679521	12725.2
n-Butane	4.02456E-05	28803.7	28803.7	2.92788	28803.7
i-Pentane	2.69145E-05	7236.86	7236.86	1.02517	7236.86
n-Pentane	3.96095E-05	7088.54	7088.54	1.20925	7088.54
i-Hexane	5.5488E-05	2431.21	2431.21	0.50788	2431.21
Hexane	5.65795E-05	1345.46	1345.46	0.395122	1345.46
Benzene	0.0165958	459.7	459.7	6.62121	459.7
Cyclohexane	0.000552019	872.324	872.324	1.30762	872.324
i-Heptane	5.29263E-05	1454.93	1454.93	0.48244	1454.93
nC7	2.14634E-05	280.185	280.185	0.139301	280.185
Toluene	0.0252116	217.518	217.518	4.59234	217.518
i-Octane	5.45996E-05	787.617	787.617	0.360601	787.617
nC8	8.77041E-06	45.6251	45.6251	0.0307204	45.6251
Ethylbenzene	0.00621268	20.3309	20.3309	0.572024	20.3309
o-Xylene	0.0223662	36.4071	36.4071	1.33609	36.4071
Isononane	1.21898E-05	32.7299	32.7299	0.0282671	32.7299
nC9	0	0	0	0	0
Decane	4.61902E-05	35.2762	35.2762	0.042145	35.2762
Ethylene Glycol	0	0	0	0	0
MDEA	0.164504	0.0013628	0.0013628	0.00324932	0.0013628
DEA	0	0	0	0	0
Piperazine	0.181613	0.0886124	0.0886124	0.00538592	0.0886124
DGA	0	0	0	0	0
TEG	4088.64	2.22752	2.22752	0.000209907	2.22752
Water	38.398	78.3104	78.3104	542.048	78.3104

d vr %a v zv %

a v %	f z %	8B%	8C%	8D%	8E%	8F%
Temperature	°F	105.963	100.956	101.296	204.342	101.296
Pressure	psig	986	984.5	979.5	0	979.5
Molecular Weight	lb/lbmol	140.572	21.2797	21.2797	18.6647	21.2797
Std Liquid Volumetric Flow	sgpm	7.31352	3583.99	3583.99	1.17271	3583.99
Std Vapor Volumetric Flow	MMSCFD	0.267417	268.663	268.663	0.278419	268.663
Net Ideal Gas Heating Value	Btu/ft^3	3502.79	1146.03	1146.03	46.0625	1146.03
Gross Ideal Gas Heating Value	Btu/ft^3	3832.71	1262.85	1262.85	98.7192	1262.85
Mole Fraction Vapor	%	0	100	100	100	100
Mass Density	lb/ft^3	69.1897	4.39511	4.36343	0.0337858	4.36343
Mass Flow	lb/h	4127.46	627724	627724	570.578	627724

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

d vr %a v zv %

a v % f z %	8B%	8C%	8D%	8E%	8F%
Specific Gravity	1.10937	0.734732	0.734732	0.644443	0.734732
API Gravity	-6.84481				

h r z x %

ProMax:ProMax!Project!Flowsheets!03b. TEG Dehy!PStreams!16!Analyses!Freeze 1!Properties!Water Dew Point
Warning: Water dew point temperature is thermodynamically unstable as other phases will form instead of a free aqueous liquid phase.
ProMax:ProMax!Project!Flowsheets!03b. TEG Dehy!PStreams!17!Analyses!Freeze 1!Properties!Water Dew Point
Warning: Water dew point temperature is thermodynamically unstable as other phases will form instead of a free aqueous liquid phase.

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

P vt z %

	97%				
From Block	SPLT-100				
To Block	TEG Dehy/ Cryo Recovery				

d vr %R zz %

Z v%S rt z %	97% , %				
Hydrogen Sulfide	1.24261E-06				
Nitrogen	1.69743				
Methane	76.5558				
Carbon Dioxide	0.00890379				
Ethane	12.3451				
Propane	5.98414				
i-Butane	0.742196				
n-Butane	1.67997				
i-Pentane	0.340031				
n-Pentane	0.333062				
i-Hexane	0.0956393				
Hexane	0.0529278				
Benzene	0.0199505				
Cyclohexane	0.0351375				
i-Heptane	0.0492225				
nC7	0.00947908				
Toluene	0.00800297				
i-Octane	0.0233742				
nC8	0.00135402				
Ethylbenzene	0.00064919				
o-Xylene	0.00116252				
Isononane	0.000865101				
nC9	0				
Decane	0.000840483				
Ethylene Glycol	0				
MDEA	3.87694E-08				
DEA	0				
Piperazine	3.48746E-06				
DGA	0				
TEG	5.02836E-05				
Water	0.0147358				

Zr %S rt z %	97% , %				
Hydrogen Sulfide	1.99012E-06				
Nitrogen	2.23456				
Methane	57.7144				
Carbon Dioxide	0.0184143				
Ethane	17.4441				
Propane	12.4003				
i-Butane	2.02719				
n-Butane	4.58859				
i-Pentane	1.15287				
n-Pentane	1.12925				
i-Hexane	0.387306				
Hexane	0.214339				
Benzene	0.0732329				
Cyclohexane	0.138966				
i-Heptane	0.231779				
nC7	0.0446352				
Toluene	0.0346519				
i-Octane	0.125472				
nC8	0.00726835				

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

Zr %Srt z %	97% , %				
Ethylbenzene	0.00323883				
o-Xylene	0.00579986				
Isononane	0.00521406				
nC9	0				
Decane	0.0056197				
Ethylene Glycol	0				
MDEA	2.17101E-07				
DEA	0				
Piperazine	1.41165E-05				
DGA	0				
TEG	0.000354857				
Water	0.0124753				

Zr %S %	97% s6y%				
Hydrogen Sulfide	0.0124924				
Nitrogen	14026.8				
Methane	362287				
Carbon Dioxide	115.591				
Ethane	109501				
Propane	77839.6				
i-Butane	12725.2				
n-Butane	28803.7				
i-Pentane	7236.86				
n-Pentane	7088.54				
i-Hexane	2431.21				
Hexane	1345.46				
Benzene	459.7				
Cyclohexane	872.324				
i-Heptane	1454.93				
nC7	280.185				
Toluene	217.518				
i-Octane	787.617				
nC8	45.6251				
Ethylbenzene	20.3309				
o-Xylene	36.4071				
Isononane	32.7299				
nC9	0				
Decane	35.2762				
Ethylene Glycol	0				
MDEA	0.0013628				
DEA	0				
Piperazine	0.0886124				
DGA	0				
TEG	2.22752				
Water	78.3104				

d vr %a v zv %

a v %	f z %	97%				
Temperature	°F	101.296				
Pressure	psig	979.5				
Molecular Weight	lb/lbmol	21.2797				
Std Liquid Volumetric Flow	sgpm	3583.99				
Std Vapor Volumetric Flow	MMSCFD	268.663				
Net Ideal Gas Heating Value	Btu/ft^3	1146.03				
Gross Ideal Gas Heating Value	Btu/ft^3	1262.85				
Mole Fraction Vapor	%	100				
Mass Density	lb/ft^3	4.36343				
Mass Flow	lb/h	627724				
Specific Gravity		0.734732				

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a t v %d vr %v %
N %d vr %
ers r vu% % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	03b. TEG Dehy	

d vr %a v zv %

a v % f z %	97%				
API Gravity					

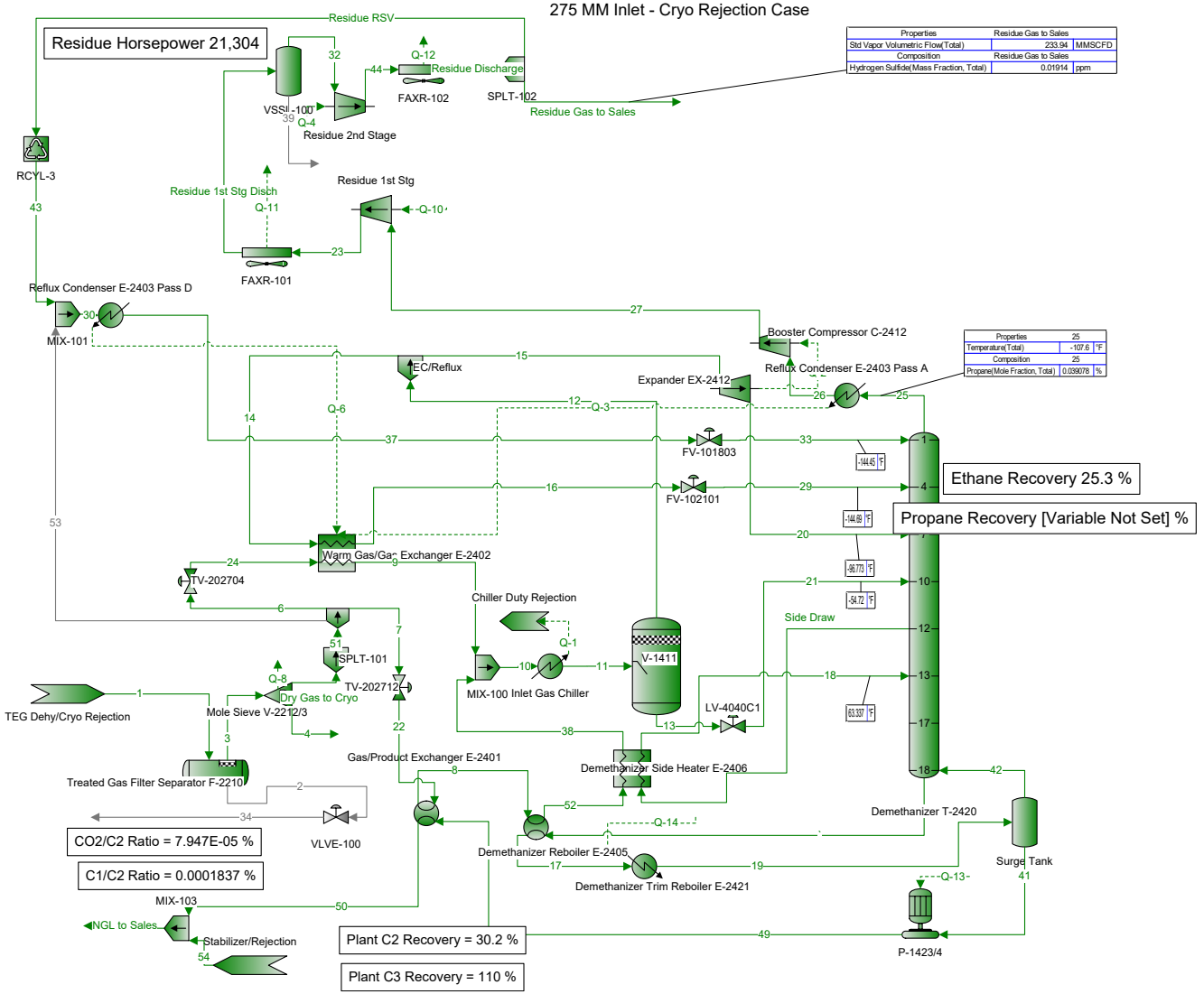
cv r ►%

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7Ar5?8 %a r 4cv°vt z %
a r %dtyv r zt %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Trace Midstream
275 MM Inlet - Cryo Rejection Case



* User Specified Values
? Extrapolated or Approximate Values

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7Ar3R %ar 4cv^vt z %
N r v %cv %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

N r z %v %d vr C%%
gr %a v v%8%

ayr vC%e r %			d r C%d vu%		
Bubble Point Temperature	69.7217	°F	? Reid Vapor Pressure		psi
Bubble Point Pressure	242.1	psig	ASTM D6377 VPCRx Temperature	100.04	°F
Dew Point Temperature	146.71	°F	ASTM D6377 VPCRx V/L Ratio	4	
Dew Point Pressure	-10.4126	psig	Component Subset	All Selected	
True Vapor Pressure	340.028	psig			

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

h r z x

ProMax:ProMax!Project!Flowsheets!04a. Cryo Plant-Rejection!PStreams!`!Analyses!Vapor Pressure 1!Properties!Reid Vapor Pressure
Warning: At presaturation conditions of 1 atm and 0.5°C there is no liquid present. Reid Vapor Pressure cannot be calculated. Refer to ProMax help for more information.

c v r ►

N r z %v %d vr C%Q %Tr % %R %
S vv v%8%

ayr vC%e r %			d r C%d vu%		

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Sales Gas Hydrate Summary

Solids

Solids Formation Temperature	-269.467	°F	High Temperature Hydrate Point		°F
Degrees above Solids Formation	377.467	°F	High Temperature Water Freeze Point		°F
Water Content		lbm/MMSCF	High Temperature CO2 Freeze Point	-269.467	°F
Water Dew Point		°F			

Cover ▶

Sales Gas Heating Value and Specific Gravity

Properties

Volumetric Gross Ideal Gas Heating Value	1067.28	Btu/ft^3	Sulfuric Acid Dew Point Temperature	164.593	°F
Energy Content	13004.1	MMBtu/h	Nitric Acid Dew Point Temperature		°F
Heat Release	11740.4	MMBtu/h	Component Subset	All Selected	

Component Selection

Component	Selected			
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

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7Ar5R %ar 4cv°vt z %
N r v %v %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

S vv v%%

ayr vG%e r %		d r G%d vu%	
Water Content	lbm/MMSCF	High Temperature Water Freeze Point	°F
Water Dew Point	°F	High Temperature CO2 Freeze Point	-267.702 °F

cv r ►

N r z %v %d vr G%: %

ayr v%R v v%%

ayr vG%e r %			d r G%d vu%		
Minimum Pressure	0	psig	Cricondentherm Pressure	777.196	psig
Minimum Temperature		°F	Cricondentherm Temperature	-74.8663	°F
Minimum Mole Fraction Vapor	100	%	Cricondenbar Pressure	841.034	psig
Maximum Mole Fraction Vapor	100	%	Cricondenbar Temperature	-83.1778	°F
Number of Steps	1		Critical Pressure	841.034	psig
Maximum Solids Curve Pressure		psig	Critical Temperature	-83.1778	°F
Approach to Critical Temperature	9	°F	Component Subset	Dry Basis	
Approach to Critical Pressure	29.0075	psi			

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	False			
MDEA	False			
DEA	False			
Piperazine	False			

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7Ar5%R %ar 4cv°vtz %
Nr v %ov %
% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

dv vt vu%R v %

Vuv %	dv vt vu%R v %	%	%	%
DGA	False			
TEG	False			
Water	False			

ayr v%R v v%Qr r%w C%ayr v%R v v%5%%ayr vC%e r %

Vuv %	Z v%S rt z % gr % , %	ev v r v% S%	a v v% zx%	Z r %R yr % O 6s %	Z r %R % O 6 s 1 S0%	Z r %Qv z % s 6wo: %
0	0	-271.139	0	-38723.6	19.2705	1.65093
1	0	-266.097	2.90075	-38657.2	19.6164	1.63696
2	0	-257.31	9.1892	-38540.6	20.2025	1.61224
3	0	-248.591	17.2397	-38423.4	20.7653	1.58721
4	0	-239.984	27.2702	-38306.1	21.3049	1.56195
5	0	-231.529	39.4498	-38189.2	21.8216	1.53654
6	0	-223.271	53.8837	-38073.3	22.3137	1.51109
7	0	-214.329	72.7017	-37945.4	22.836	1.48275
8	0	-205.999	93.538	-37823.6	23.3147	1.45553
9	0	-197.019	119.926	-37689	23.8241	1.42517
10	0	-188.693	148.338	-37560.8	24.292	1.39596
11	0	-181.497	176.172	-37446.9	24.6943	1.36976
12	0	-175.34	202.523	-37347	25.0378	1.34656
13	0	-169.528	229.631	-37250.4	25.3621	1.32392
14	0	-164.061	257.174	-37157.2	25.668	1.30186
15	0	-158.935	284.844	-37067.6	25.9562	1.28043
16	0	-154.141	312.358	-36981.6	26.2272	1.25966
17	0	-149.67	339.458	-36899.5	26.4819	1.23956
18	0	-145.51	365.924	-36821.1	26.721	1.22015
19	0	-141.213	394.524	-36738	26.9705	1.19927
20	0	-137.394	421.004	-36662.1	27.1949	1.17992
21	0	-133.456	449.33	-36581.8	27.4293	1.15906
22	0	-129.568	478.281	-36500.1	27.6644	1.13741
23	0	-125.958	506	-36422	27.8864	1.115
24	0	-122.61	532.38	-36347.3	28.0961	1.08736
25	0	-119.158	560.195	-36267.9	28.3166	1.05075
26	0	-115.747	588.224	-36186.9	28.5393	1.00581
27	0	-112.573	614.706	-36109.8	28.7485	0.955601
28	0	-109.288	642.434	-36027.7	28.9694	0.894599
29	0	-106.023	670.184	-35942.7	29.1959	0.893826
30	0	-102.611	699.19	-35849.4	29.4422	0.883481
31	0	-99.1695	728.168	-35749.9	29.703	0.86447
32	0	-95.8701	755.327	-35648.3	29.9674	0.841011
33	0	-92.2864	783.549	-35529.5	30.2749	0.794607
34	0	-90.4191	797.436	-35463.3	30.4457	0.768821
35	0	-89.4311	804.476	-35426.9	30.5396	0.754655
36	0	-89.1772	806.246	-35417.3	30.5642	0.75095
37	0	-89.0491	807.132	-35412.5	30.5767	0.74907
38	0	-83.1778	841.034	-35165.3	31.2145	0.653534
39	100	-188.151	0	-34109.1	40.9575	0.00446229
40	100	-183.882	2.90075	-34079.1	40.6686	0.00540434
41	100	-174.69	10.9971	-34016.7	40.0834	0.00798704
42	100	-165.882	21.6818	-33960.5	39.5633	0.0113306
43	100	-157.16	35.8436	-33909.1	39.0796	0.0157028
44	100	-148.594	54.0739	-33863.8	38.6282	0.0212885
45	100	-140.255	76.8968	-33825.7	38.2048	0.028275
46	100	-132.208	104.725	-33795.8	37.8052	0.0368482
47	100	-125.999	130.885	-33778.4	37.4987	0.0450076
48	100	-120.171	159.834	-33767.6	37.2092	0.0541886
49	100	-115.286	187.904	-33763.3	36.9625	0.0632743
50	100	-111.229	214.251	-33763.9	36.7524	0.0719923

* User Specified Values
? Extrapolated or Approximate Values

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7Ar5R %a r 4cv°vt z %
N r v %ov %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

ayr v°R v v°Qr r%w G%ayr v°R v v°%5%%%ayr vG% r %

V uv %	Z v%S rt z % gr % , %	ev v r v% S%	a v v% zx%	Z r °R yr % O 6s %	Z r °R % O 6 s 1 S0%	Z r °Qv z % s 6wo: %
51	100	-107.511	241.153	-33768.3	36.5539	0.0811068
52	100	-104.117	268.303	-33776	36.3664	0.0905464
53	100	-101.033	295.41	-33786.7	36.1891	0.100238
54	100	-98.2412	322.21	-33799.9	36.0214	0.110107
55	100	-95.7223	348.472	-33815.1	35.8628	0.120083
56	100	-93.2067	376.945	-33834.2	35.6957	0.131272
57	100	-91.0505	403.389	-33854.1	35.544	0.142048
58	100	-88.9125	431.757	-33877.9	35.3837	0.154063
59	100	-87.0938	457.843	-33901.9	35.2377	0.165571
60	100	-85.3049	485.567	-33929.8	35.0831	0.178343
61	100	-83.631	513.726	-33960.7	34.9257	0.191955
62	100	-82.1656	540.526	-33992.6	34.7746	0.20559
63	100	-80.7511	568.785	-34029.2	34.613	0.22079
64	100	-79.4593	597.263	-34069.4	34.4464	0.237098
65	100	-78.3625	624.169	-34110.9	34.2843	0.253582
66	100	-77.3462	652.344	-34158.4	34.1079	0.272186
67	100	-76.4727	680.542	-34210.9	33.9222	0.292495
68	100	-75.7962	707.014	-34265.9	33.7368	0.313502
69	100	-75.2623	734.565	-34330.5	33.5278	0.337987
70	100	-74.9441	761.974	-34404.9	33.2968	0.366033
71	100	-74.9253	790.455	-34498.6	33.0175	0.401192
72	100	-75.4458	818.747	-34622.1	32.6641	0.447506
73	100	-83.1778	841.034	-35165.3	31.2145	0.653534

cv r ►

N r z %w %d vr G%8%
gr %a v v%%

ayr vG%e r %

Bubble Point Temperature	94.5048	°F	
Bubble Point Pressure	242.1	psig	
Dew Point Temperature	174.338	°F	
Dew Point Pressure	-6.56007	psig	
True Vapor Pressure	257.467	psig	

d r G%d vu%

Reid Vapor Pressure	31.0504	psi
ASTM D6377 VPCRx Temperature	100.04	°F
ASTM D6377 VPCRx V/L Ratio	4	
Component Subset	All Selected	

dv vt vu°R v %

V uv %	dv vt vu°R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

V uv %	dv vt vu% v %	%	%	%
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

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a tv %d vr %sv %
N %d vr %
ers r vu%s % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	d%	Q %r % % P %	^TY% %dr v %	cv zu v% Qz tyr xv%	cv zu v%r % %dr v %
From Block	Demethanizer T-2420	Mole Sieve V-2212/3	MIX-103	FAXR-102	SPLT-102
To Block	Demethanizer Reboiler E-2405	SPLT-101	--	SPLT-102	--

d vr %R zz %

Z v%s rt z %	d% , %	Q %r % % P % , %	^TY% %dr v % , %	cv zu v% Qz tyr xv% , %	cv zu v%r % %dr v % , %
Hydrogen Sulfide	4.25274E-06	1.24279E-06	4.34527E-05	9.94139E-07	9.94139E-07
Nitrogen	1.7939E-10	1.69768	1.50655E-11	1.94969	1.94969
Methane	0.000228915	76.5671	4.34262E-05	87.9328	87.9328
Carbon Dioxide	4.49402E-05	0.0089051	1.87842E-05	0.0102374	0.0102374
Ethane	41.4886	12.3469	23.6356	10.0682	10.0682
Propane	41.3351	5.98503	42.1531	0.0390781	0.0390781
i-Butane	4.06255	0.742305	6.24952	4.41268E-06	4.41268E-06
n-Butane	8.73226	1.68022	15.411	3.4015E-06	3.4015E-06
i-Pentane	1.58056	0.340081	3.92969	3.78682E-10	3.78682E-10
n-Pentane	1.5207	0.333111	4.13373	1.11948E-10	1.11948E-10
i-Hexane	0.415291	0.0956534	1.37989	6.68865E-14	6.68865E-14
Hexane	0.2273	0.0529356	0.812659	0	0
Benzene	0.0866429	0.0199535	0.301295	4.0467E-14	4.0467E-14
Cyclohexane	0.150328	0.0351427	0.53824	0	0
i-Heptane	0.208073	0.0492298	0.750256	0	0
nC7	0.0398464	0.00948047	0.149435	0	0
Toluene	0.0337526	0.00800415	0.127503	0	0
i-Octane	0.0982587	0.0233777	0.345512	0	0
nC8	0.00563317	0.00135422	0.0218839	0	0
Ethylbenzene	0.0027054	0.000649285	0.010641	0	0
o-Xylene	0.00483795	0.00116269	0.0192462	0	0
Isononane	0.0035846	0.000865229	0.0152307	0	0
nC9	0	0	0	0	0
Decane	0.00347639	0.000840607	0.0150843	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.00020799	5.0291E-05	0.000323386	0	0
Water	0	0	1.08956E-06	0	0

Zr %s rt z %	d% , %	Q %r % % P % , %	^TY% %dr v % , %	cv zu v% Qz tyr xv% , %	cv zu v%r % %dr v % , %
Hydrogen Sulfide	3.48906E-06	1.99037E-06	3.07296E-05	1.91398E-06	1.91398E-06
Nitrogen	1.20974E-10	2.23484	8.75748E-12	3.08539	3.08539
Methane	8.84045E-05	57.7216	1.44561E-05	79.6896	79.6896
Carbon Dioxide	4.76113E-05	0.0184166	1.71541E-05	0.0254518	0.0254518
Ethane	30.0315	17.4463	14.7474	17.1021	17.1021
Propane	43.8777	12.4019	38.5704	0.097344	0.097344
i-Butane	5.68421	2.02745	7.53733	1.44885E-05	1.44885E-05
n-Butane	12.2179	4.58916	18.5867	1.11684E-05	1.11684E-05
i-Pentane	2.74517	1.15302	5.88324	1.54342E-09	1.54342E-09
n-Pentane	2.64121	1.12939	6.18871	4.56275E-10	4.56275E-10
i-Hexane	0.861519	0.387355	2.46749	3.25613E-13	3.25613E-13
Hexane	0.471533	0.214366	1.45318	0	0
Benzene	0.162922	0.0732421	0.488357	1.78565E-13	1.78565E-13
Cyclohexane	0.304559	0.138984	0.939958	0	0

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Zr %Srt z %	d% , %	Q %r % % P % , %	^TY% %dr v % , %	cv zu v% Qz tyr xv% , %	cv zu v%r % %dr v % , %
i-Heptane	0.501903	0.231808	1.55996	0	0
nC7	0.0961157	0.0446407	0.310711	0	0
Toluene	0.0748647	0.0346562	0.243775	0	0
i-Octane	0.270194	0.125488	0.818967	0	0
nC8	0.0154902	0.00726925	0.0518713	0	0
Ethylbenzene	0.00691419	0.00323923	0.0234418	0	0
o-Xylene	0.0123644	0.00580059	0.042399	0	0
Isononane	0.0110674	0.00521472	0.0405345	0	0
nC9	0	0	0	0	0
Decane	0.0119071	0.0056204	0.0445353	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000751907	0.000354901	0.00100773	0	0
Water	0	0	4.07307E-07	0	0

Zr %S %	d% s6y%	Q %r % % P % s6y%	^TY% %dr v % s6y%	cv zu v% Qz tyr xv% s6y%	cv zu v%r % %dr v % s6y%
Hydrogen Sulfide	0.0103476	0.0124924	0.0679259	0.0108784	0.00870273
Nitrogen	3.58776E-07	14026.8	1.93579E-08	17536.3	14029.1
Methane	0.262184	362287	0.0319544	452929	362343
Carbon Dioxide	0.141202	115.591	0.0379181	144.659	115.727
Ethane	89065.4	109501	32598.3	97202.7	77762.2
Propane	130129	77839.6	85257.6	553.27	442.616
i-Butane	16857.8	12725.2	16660.8	0.0823478	0.0658783
n-Butane	36235.1	28803.7	41084.7	0.0634777	0.0507821
i-Pentane	8141.43	7236.86	13004.6	8.77227E-06	7.01782E-06
n-Pentane	7833.12	7088.54	13679.8	2.59331E-06	2.07465E-06
i-Hexane	2555.03	2431.21	5454.25	1.85067E-09	1.48054E-09
Hexane	1398.44	1345.46	3212.18	0	0
Benzene	483.182	459.7	1079.48	1.0149E-09	8.11924E-10
Cyclohexane	903.24	872.324	2077.72	0	0
i-Heptane	1488.51	1454.93	3448.21	0	0
nC7	285.053	280.185	686.808	0	0
Toluene	222.029	217.518	538.85	0	0
i-Octane	801.321	787.617	1810.28	0	0
nC8	45.9397	45.6251	114.659	0	0
Ethylbenzene	20.5056	20.3309	51.8167	0	0
o-Xylene	36.6694	36.4071	93.7206	0	0
Isononane	32.8228	32.7299	89.5992	0	0
nC9	0	0	0	0	0
Decane	35.3133	35.2762	98.4427	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	2.22995	2.22752	2.22752	0	0
Water	0	0	0.000900329	0	0

d vr %a v zv %

a v %	f z %	d%	Q %r % % P %	^TY% %dr v %	cv zu v% Qz tyr xv%	cv zu v%r % %dr v %
Temperature	°F	69.7217	108 *	114.849	120 *	120
Pressure	psig	242.1	890 *	1215	800 *	800
Molecular Weight	lb/lbmol	41.5404	21.2802	48.1916	17.7019	17.7019

* User Specified Values
? Extrapolated or Approximate Values

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	d%	Q %r % % P %	^TY% %dr v %	cv zu v% Qz tyr xv%	cv zu v%r % %dr v %
Std Liquid Volumetric Flow	sgpm	1271.19	3583.83	857.334	3610.9	2888.72
Std Vapor Volumetric Flow	MMSCFD	65.0228	268.624	41.7747	292.424	233.939
Net Ideal Gas Heating Value	Btu/ft^3	2186.71	1146.2	2513.96	963.569	963.569
Gross Ideal Gas Heating Value	Btu/ft^3	2378.34	1263.03	2728.74	1067.28	1067.28
Mole Fraction Vapor	%	0	100	0	100	100
Mass Density	lb/ft^3	29.9242	3.81303	31.9528	2.54934	2.54934
Mass Flow	lb/h	296573	627645	221044	568366	454693
Specific Gravity		0.479794	0.734749	0.512321	0.611201	0.611201
API Gravity		157.664		124.927		

h r z x %

ProMax:ProMax!Project!Flowsheets!04a. Cryo Plant-Rejection!PStreams!`!Analyses!Vapor Pressure 1!Properties!Reid Vapor Pressure
Warning: At presaturation conditions of 1 atm and 0.5°C there is no liquid present. Reid Vapor Pressure cannot be calculated. Refer to ProMax help for more information.

cv r ►%

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	cv zu v%dg%	cv zu v% % dx%Qzty%	dzuv%Qr %	8%	9%
From Block	SPLT-102	FAXR-101	Demethanizer T-2420	TEG Dehy/Cryo Rejection	Treated Gas Filter Separator F-2210
To Block	RCYL-3	VSSL-100	Demethanizer Side Heater E-2406	Treated Gas Filter Separator F-2210	VLVE-100

d vr %8 zz %

Z v%Srt z %	cv zu v%dg% , %	cv zu v% % dx%Qzty% , %	dzuv%Qr % , %	8% , %	9% , %
Hydrogen Sulfide	9.94139E-07	9.94139E-07	5.74852E-06	1.24261E-06	
Nitrogen	1.94969	1.94969	0.000153864	1.69743	
Methane	87.9328	87.9328	0.547883	76.5558	
Carbon Dioxide	0.0102374	0.0102374	0.00189092	0.00890379	
Ethane	10.0682	10.0682	59.8661	12.3451	
Propane	0.0390781	0.0390781	27.834	5.98414	
i-Butane	4.41268E-06	4.41268E-06	2.70799	0.742196	
n-Butane	3.4015E-06	3.4015E-06	5.92244	1.67997	
i-Pentane	3.78682E-10	3.78682E-10	1.1105	0.340031	
n-Pentane	1.11948E-10	1.11948E-10	1.07552	0.333062	
i-Hexane	6.68865E-14	6.68865E-14	0.300769	0.0956393	
Hexane	0	0	0.165521	0.0529278	
Benzene	4.0467E-14	4.0467E-14	0.0628085	0.0199505	
Cyclohexane	0	0	0.1097	0.0351375	
i-Heptane	0	0	0.152893	0.0492225	
nC7	0	0	0.0293745	0.00947908	
Toluene	0	0	0.024846	0.00800297	
i-Octane	0	0	0.072458	0.0233742	
nC8	0	0	0.00418011	0.00135402	
Ethylbenzene	0	0	0.00200541	0.00064919	
o-Xylene	0	0	0.00358939	0.00116252	
Isononane	0	0	0.00266706	0.000865101	
nC9	0	0	0	0	
Decane	0	0	0.00258984	0.000840483	
Ethylene Glycol	0	0	0	0	
MDEA	0	0	0	3.87694E-08	
DEA	0	0	0	0	
Piperazine	0	0	0	3.48746E-06	
DGA	0	0	0	0	
TEG	0	0	0.000154947	5.02836E-05	
Water	0	0	0	0.0147358	

Zr %Srt z %	cv zu v%dg% , %	cv zu v% % dx%Qzty% , %	dzuv%Qr % , %	8% , %	9% , %
Hydrogen Sulfide	1.91398E-06	1.91398E-06	5.18204E-06	1.99012E-06	
Nitrogen	3.08539	3.08539	0.000114009	2.23456	
Methane	79.6896	79.6896	0.232484	57.7144	
Carbon Dioxide	0.0254518	0.0254518	0.00220118	0.0184143	
Ethane	17.1021	17.1021	47.614	17.4441	
Propane	0.097344	0.097344	32.4642	12.4003	
i-Butane	1.44885E-05	1.44885E-05	4.16317	2.02719	
n-Butane	1.11684E-05	1.11684E-05	9.10494	4.58859	
i-Pentane	1.54342E-09	1.54342E-09	2.11925	1.15287	
n-Pentane	4.56275E-10	4.56275E-10	2.05249	1.12925	
i-Hexane	3.25613E-13	3.25613E-13	0.685568	0.387306	

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Zr %Srt z %	cv zu v%dg% , %	cv zu v%% d x%Qz t y% , %	dzuv%Q r % , %	8% , %	9% , %
Hexane	0	0	0.377285	0.214339	
Benzene	1.78565E-13	1.78565E-13	0.129769	0.0732329	
Cyclohexane	0	0	0.2442	0.138966	
i-Heptane	0	0	0.405227	0.231779	
nC7	0	0	0.0778539	0.0446352	
Toluene	0	0	0.0605523	0.0346519	
i-Octane	0	0	0.218925	0.125472	
nC8	0	0	0.0126298	0.00726835	
Ethylbenzene	0	0	0.00563142	0.00323883	
o-Xylene	0	0	0.0100794	0.00579986	
Isononane	0	0	0.00904778	0.00521406	
nC9	0	0	0	0	
Decane	0	0	0.00974666	0.0056197	
Ethylene Glycol	0	0	0	0	
MDEA	0	0	0	2.17101E-07	
DEA	0	0	0	0	
Piperazine	0	0	0	1.41165E-05	
DGA	0	0	0	0	
TEG	0	0	0.000615473	0.000354857	
Water	0	0	0	0.0124753	

Zr %S %	cv zu v%dg% s6y%	cv zu v%% d x%Qz t y% s6y%	dzuv%Q r % s6y%	8% s6y%	9% s6y%
Hydrogen Sulfide	0.00217568	0.0108784	0.00937998	0.0124924	0
Nitrogen	3507.27	17536.3	0.206366	14026.8	0
Methane	90585.8	452929	420.817	362287	0
Carbon Dioxide	28.9318	144.659	3.98433	115.591	0
Ethane	19440.5	97202.7	86185.7	109501	0
Propane	110.654	553.27	58763.2	77839.6	0
i-Butane	0.0164696	0.0823478	7535.72	12725.2	0
n-Butane	0.0126955	0.0634777	16480.8	28803.7	0
i-Pentane	1.75445E-06	8.77227E-06	3836.03	7236.86	0
n-Pentane	5.18662E-07	2.59331E-06	3715.19	7088.54	0
i-Hexane	3.70135E-10	1.85067E-09	1240.94	2431.21	0
Hexane	0	0	682.92	1345.46	0
Benzene	2.02981E-10	1.0149E-09	234.893	459.7	0
Cyclohexane	0	0	442.024	872.324	0
i-Heptane	0	0	733.498	1454.93	0
nC7	0	0	140.923	280.185	0
Toluene	0	0	109.605	217.518	0
i-Octane	0	0	396.274	787.617	0
nC8	0	0	22.8611	45.6251	0
Ethylbenzene	0	0	10.1934	20.3309	0
o-Xylene	0	0	18.2447	36.4071	0
Isononane	0	0	16.3773	32.7299	0
nC9	0	0	0	0	0
Decane	0	0	17.6424	35.2762	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0.0013628	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0.0886124	0
DGA	0	0	0	0	0
TEG	0	0	1.11406	2.22752	0
Water	0	0	0	78.3104	0

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	cv zu v%dg%	cv zu v%a % d x%Qz t y%	dzuv%Q r %	8%	9%
Temperature	°F	120	120 *	42.1161	101.296	
Pressure	psig	800	498	241.5	979.5	979.4
Molecular Weight	lb/lbmol	17.7019	17.7019	37.8064	21.2797	
Std Liquid Volumetric Flow	sgpm	722.181	3610.9	836.869	3583.99	0
Std Vapor Volumetric Flow	MMSCFD	58.4848	292.424	43.6053	268.663	0
Net Ideal Gas Heating Value	Btu/ft^3	963.569	963.569	2001.75	1146.03	
Gross Ideal Gas Heating Value	Btu/ft^3	1067.28	1067.28	2180.04	1262.85	
Mole Fraction Vapor	%	100	100	0	100	
Mass Density	lb/ft^3	2.54934	1.54945	29.5824	4.36343	
Mass Flow	lb/h	113673	568366	181009	627724	0
Specific Gravity		0.611201	0.611201	0.474315	0.734732	
API Gravity				179.59		

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	: %	A%	C%	D%	E%
From Block	Treated Gas Filter Separator F-2210	Mole Sieve V-2212/3	SPLT-100	SPLT-100	Gas/Product Exchanger E-2401
To Block	Mole Sieve V-2212/3	--	TV-202704	TV-202712	Demethanizer Reboiler E-2405

d vr %R zz %

Z v%s rt z %	: % , %	A% , %	C% , %	D% , %	E% , %
Hydrogen Sulfide	1.24261E-06	0	1.24279E-06	1.24279E-06	1.24279E-06
Nitrogen	1.69743	0	1.69768	1.69768	1.69768
Methane	76.5558	0	76.5671	76.5671	76.5671
Carbon Dioxide	0.00890379	0	0.0089051	0.0089051	0.0089051
Ethane	12.3451	0	12.3469	12.3469	12.3469
Propane	5.98414	0	5.98503	5.98503	5.98503
i-Butane	0.742196	0	0.742305	0.742305	0.742305
n-Butane	1.67997	0	1.68022	1.68022	1.68022
i-Pentane	0.340031	0	0.340081	0.340081	0.340081
n-Pentane	0.333062	0	0.333111	0.333111	0.333111
i-Hexane	0.0956393	0	0.0956534	0.0956534	0.0956534
Hexane	0.0529278	0	0.0529356	0.0529356	0.0529356
Benzene	0.0199505	0	0.0199535	0.0199535	0.0199535
Cyclohexane	0.0351375	0	0.0351427	0.0351427	0.0351427
i-Heptane	0.0492225	0	0.0492298	0.0492298	0.0492298
nC7	0.00947908	0	0.00948047	0.00948047	0.00948047
Toluene	0.00800297	0	0.00800415	0.00800415	0.00800415
i-Octane	0.0233742	0	0.0233777	0.0233777	0.0233777
nC8	0.00135402	0	0.00135422	0.00135422	0.00135422
Ethylbenzene	0.00064919	0	0.000649285	0.000649285	0.000649285
o-Xylene	0.00116252	0	0.00116269	0.00116269	0.00116269
Isononane	0.000865101	0	0.000865229	0.000865229	0.000865229
nC9	0	0	0	0	0
Decane	0.000840483	0	0.000840607	0.000840607	0.000840607
Ethylene Glycol	0	0	0	0	0
MDEA	3.87694E-08	0.000263033	0	0	0
DEA	0	0	0	0	0
Piperazine	3.48746E-06	0.0236608	0	0	0
DGA	0	0	0	0	0
TEG	5.02836E-05	0	5.0291E-05	5.0291E-05	5.0291E-05
Water	0.0147358	99.9761	0	0	0

Zr %s rt z %	: % , %	A% , %	C% , %	D% , %	E% , %
Hydrogen Sulfide	1.99012E-06	0	1.99037E-06	1.99037E-06	1.99037E-06
Nitrogen	2.23456	0	2.23484	2.23484	2.23484
Methane	57.7144	0	57.7216	57.7216	57.7216
Carbon Dioxide	0.0184143	0	0.0184166	0.0184166	0.0184166
Ethane	17.4441	0	17.4463	17.4463	17.4463
Propane	12.4003	0	12.4019	12.4019	12.4019
i-Butane	2.02719	0	2.02745	2.02745	2.02745
n-Butane	4.58859	0	4.58916	4.58916	4.58916
i-Pentane	1.15287	0	1.15302	1.15302	1.15302
n-Pentane	1.12925	0	1.12939	1.12939	1.12939
i-Hexane	0.387306	0	0.387355	0.387355	0.387355
Hexane	0.214339	0	0.214366	0.214366	0.214366
Benzene	0.0732329	0	0.0732421	0.0732421	0.0732421
Cyclohexane	0.138966	0	0.138984	0.138984	0.138984
i-Heptane	0.231779	0	0.231808	0.231808	0.231808

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Zr %Srtz %	:% , %	A% , %	C% , %	D% , %	E% , %
nC7	0.0446352	0	0.0446407	0.0446407	0.0446407
Toluene	0.0346519	0	0.0346562	0.0346562	0.0346562
i-Octane	0.125472	0	0.125488	0.125488	0.125488
nC8	0.00726835	0	0.00726925	0.00726925	0.00726925
Ethylbenzene	0.00323883	0	0.00323923	0.00323923	0.00323923
o-Xylene	0.00579986	0	0.00580059	0.00580059	0.00580059
Isononane	0.00521406	0	0.00521472	0.00521472	0.00521472
nC9	0	0	0	0	0
Decane	0.0056197	0	0.0056204	0.0056204	0.0056204
Ethylene Glycol	0	0	0	0	0
MDEA	2.17101E-07	0.00173825	0	0	0
DEA	0	0	0	0	0
Piperazine	1.41165E-05	0.113026	0	0	0
DGA	0	0	0	0	0
TEG	0.000354857	0	0.000354901	0.000354901	0.000354901
Water	0.0124753	99.8852	0	0	0

Zr %S %	:% s6y%	A% s6y%	C% s6y%	D% s6y%	E% s6y%
Hydrogen Sulfide	0.0124924	0	0.00499698	0.00749546	0.00749546
Nitrogen	14026.8	0	5610.74	8416.1	8416.1
Methane	362287	0	144915	217372	217372
Carbon Dioxide	115.591	0	46.2364	69.3547	69.3547
Ethane	109501	0	43800.2	65700.4	65700.4
Propane	77839.6	0	31135.9	46703.8	46703.8
i-Butane	12725.2	0	5090.07	7635.1	7635.1
n-Butane	28803.7	0	11521.5	17282.2	17282.2
i-Pentane	7236.86	0	2894.74	4342.12	4342.12
n-Pentane	7088.54	0	2835.42	4253.12	4253.12
i-Hexane	2431.21	0	972.485	1458.73	1458.73
Hexane	1345.46	0	538.184	807.275	807.275
Benzene	459.7	0	183.88	275.82	275.82
Cyclohexane	872.324	0	348.929	523.394	523.394
i-Heptane	1454.93	0	581.974	872.96	872.96
nC7	280.185	0	112.074	168.111	168.111
Toluene	217.518	0	87.0073	130.511	130.511
i-Octane	787.617	0	315.047	472.57	472.57
nC8	45.6251	0	18.25	27.3751	27.3751
Ethylbenzene	20.3309	0	8.13235	12.1985	12.1985
o-Xylene	36.4071	0	14.5628	21.8443	21.8443
Isononane	32.7299	0	13.092	19.6379	19.6379
nC9	0	0	0	0	0
Decane	35.2762	0	14.1105	21.1657	21.1657
Ethylene Glycol	0	0	0	0	0
MDEA	0.0013628	0.0013628	0	0	0
DEA	0	0	0	0	0
Piperazine	0.0886124	0.0886124	0	0	0
DGA	0	0	0	0	0
TEG	2.22752	0	0.891008	1.33651	1.33651
Water	78.3104	78.3104	0	0	0

d vr %a v zv %

a v %	f z %	:%	A%	C%	D%	E%
Temperature	°F	101.29	101.29	108	108	107.026
Pressure	psig	979.4	979.4	890	890	875
Molecular Weight	lb/lbmol	21.2797	18.0317	21.2802	21.2802	21.2802
Std Liquid Volumetric Flow	sgpm	3583.99	0.156797	1433.53	2150.3	2150.3
Std Vapor Volumetric Flow	MMSCFD	268.663	0.0395993	107.449	161.174	161.174
Net Ideal Gas Heating Value	Btu/ft^3	1146.03	0.762229	1146.2	1146.2	1146.2
Gross Ideal Gas Heating Value	Btu/ft^3	1262.85	51.1205	1263.03	1263.03	1263.03

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	: %	A%	C%	D%	E%
Mole Fraction Vapor	%	100	0	100	100	100
Mass Density	lb/ft^3	4.363	61.9961	3.81303	3.81303	3.7504
Mass Flow	lb/h	627724	78.4004	251058	376587	376587
Specific Gravity		0.734732	0.994025	0.734749	0.734749	0.734749
API Gravity			9.86825			

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	F%	87%	88%	89%	8: %
From Block	Warm Gas/Gas Exchanger E-2402	MIX-100	Inlet Gas Chiller	V-1411	V-1411
To Block	MIX-100	Inlet Gas Chiller	V-1411	EC/Reflux	LV-4040C1

d vr %R zz %

Z v%S rt z %	F% , %	87% , %	88% , %	89% , %	8: % , %
Hydrogen Sulfide	1.24279E-06	1.24279E-06	1.24279E-06	9.71445E-07	2.34976E-06
Nitrogen	1.69768	1.69768	1.69768	2.01512	0.402636
Methane	76.5671	76.5671	76.5671	84.4959	44.2206
Carbon Dioxide	0.0089051	0.0089051	0.0089051	0.00870109	0.00973735
Ethane	12.3469	12.3469	12.3469	9.89747	22.3395
Propane	5.98503	5.98503	5.98503	2.9072	18.5413
i-Butane	0.742305	0.742305	0.742305	0.205908	2.93059
n-Butane	1.68022	1.68022	1.68022	0.388394	6.95036
i-Pentane	0.340081	0.340081	0.340081	0.038321	1.57114
n-Pentane	0.333111	0.333111	0.333111	0.0325602	1.55924
i-Hexane	0.0956534	0.0956534	0.0956534	0.0047545	0.466484
Hexane	0.0529356	0.0529356	0.0529356	0.00189225	0.261172
Benzene	0.0199535	0.0199535	0.0199535	0.000927002	0.0975739
Cyclohexane	0.0351427	0.0351427	0.0351427	0.0010553	0.174206
i-Heptane	0.0492298	0.0492298	0.0492298	0.00107358	0.245688
nC7	0.00948047	0.00948047	0.00948047	0.000147372	0.0475558
Toluene	0.00800415	0.00800415	0.00800415	0.000148108	0.0400537
i-Octane	0.0233777	0.0233777	0.0233777	0.000391661	0.117151
nC8	0.00135422	0.00135422	0.00135422	8.00125E-06	0.00684627
Ethylbenzene	0.000649285	0.000649285	0.000649285	4.70665E-06	0.00327891
o-Xylene	0.00116269	0.00116269	0.00116269	6.50977E-06	0.00587947
Isononane	0.000865229	0.000865229	0.000865229	2.17326E-06	0.00438615
nC9	0	0	0	0	0
Decane	0.000840607	0.000840607	0.000840607	7.25187E-07	0.00426699
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	5.0291E-05	5.0291E-05	5.0291E-05	3.62053E-08	0.000255311
Water	0	0	0	0	0

Zr %S rt z %	F% , %	87% , %	88% , %	89% , %	8: % , %
Hydrogen Sulfide	1.99037E-06	1.99037E-06	1.99037E-06	1.76224E-06	2.54633E-06
Nitrogen	2.23484	2.23484	2.23484	3.0047	0.358639
Methane	57.7216	57.7216	57.7216	72.1509	22.5567
Carbon Dioxide	0.0184166	0.0184166	0.0184166	0.0203824	0.013626
Ethane	17.4463	17.4463	17.4463	15.8409	21.3586
Propane	12.4019	12.4019	12.4019	6.82347	25.9966
i-Butane	2.02745	2.02745	2.02745	0.637015	5.41598
n-Butane	4.58916	4.58916	4.58916	1.20157	12.8448
i-Pentane	1.15302	1.15302	1.15302	0.147164	3.60432
n-Pentane	1.12939	1.12939	1.12939	0.125041	3.57701
i-Hexane	0.387355	0.387355	0.387355	0.0218084	1.2782
Hexane	0.214366	0.214366	0.214366	0.00867955	0.715632
Benzene	0.0732421	0.0732421	0.0732421	0.00385419	0.242343
Cyclohexane	0.138984	0.138984	0.138984	0.0047273	0.466171
i-Heptane	0.231808	0.231808	0.231808	0.00572593	0.782779
nC7	0.0446407	0.0446407	0.0446407	0.000786009	0.151516

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04a. Cryo Plant-Rejection

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	F% , %	87% , %	88% , %	89% , %	8: % , %
Toluene	0.0346562	0.0346562	0.0346562	0.000726367	0.117345
i-Octane	0.125488	0.125488	0.125488	0.00238134	0.425502
nC8	0.00726925	0.00726925	0.00726925	4.86483E-05	0.0248661
Ethylbenzene	0.00323923	0.00323923	0.00323923	2.65968E-05	0.0110685
o-Xylene	0.00580059	0.00580059	0.00580059	3.6786E-05	0.0198472
Isononane	0.00521472	0.00521472	0.00521472	1.48362E-05	0.017887
nC9	0	0	0	0	0
Decane	0.0056204	0.0056204	0.0056204	5.49205E-06	0.0193041
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000354901	0.000354901	0.000354901	2.894E-07	0.0012191
Water	0	0	0	0	0

Zr %S %	F% s6y%	87% s6y%	88% s6y%	89% s6y%	8: % s6y%
Hydrogen Sulfide	0.00499698	0.0124924	0.0124924	0.00784253	0.00464991
Nitrogen	5610.74	14026.8	14026.8	13371.9	654.92
Methane	144915	362287	362287	321095	41191.3
Carbon Dioxide	46.2364	115.591	115.591	90.7084	24.8827
Ethane	43800.2	109501	109501	70497.1	39003.5
Propane	31135.9	77839.6	77839.6	30366.7	47472.9
i-Butane	5090.07	12725.2	12725.2	2834.93	9890.25
n-Butane	11521.5	28803.7	28803.7	5347.4	23456.3
i-Pentane	2894.74	7236.86	7236.86	654.928	6581.93
n-Pentane	2835.42	7088.54	7088.54	556.472	6532.07
i-Hexane	972.485	2431.21	2431.21	97.0545	2334.16
Hexane	538.184	1345.46	1345.46	38.6268	1306.83
Benzene	183.88	459.7	459.7	17.1524	442.548
Cyclohexane	348.929	872.324	872.324	21.038	851.285
i-Heptane	581.974	1454.93	1454.93	25.4823	1429.45
nC7	112.074	280.185	280.185	3.498	276.687
Toluene	87.0073	217.518	217.518	3.23257	214.286
i-Octane	315.047	787.617	787.617	10.5977	777.019
nC8	18.25	45.6251	45.6251	0.216501	45.4086
Ethylbenzene	8.13235	20.3309	20.3309	0.118364	20.2125
o-Xylene	14.5628	36.4071	36.4071	0.16371	36.2434
Isononane	13.092	32.7299	32.7299	0.0660258	32.6639
nC9	0	0	0	0	0
Decane	14.1105	35.2762	35.2762	0.0244414	35.2517
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.891008	2.22752	2.22752	0.00128793	2.22623
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	F%	87%	88%	89%	8: %
Temperature	°F	-25 *	17.4516	-15.75 *	-16.0589	-16.0589
Pressure	psig	870	870	860	855	855
Molecular Weight	lb/lbmol	21.2802	21.2802	21.2802	18.7873	31.45
Std Liquid Volumetric Flow	sgpm	1433.53	3583.83	3583.83	2722.08	861.751
Std Vapor Volumetric Flow	MMSCFD	107.449	268.624	268.624	215.741	52.8828
Net Ideal Gas Heating Value	Btu/ft^3	1146.2	1146.2	1146.2	1016.9	1673.66
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03	1263.03	1263.03	1124.41	1828.52
Mole Fraction Vapor	%	75.9072	90.93	80.3117	100	0

* User Specified Values
? Extrapolated or Approximate Values

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N %d vr %
ers r vu% % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	F%	87%	88%	89%	8: %
Mass Density	lb/ft^3	7.42922	5.4784	6.74069	5.09741	28.4176
Mass Flow	lb/h	251058	627645	627645	445033	182612
Specific Gravity					0.648677	0.455639
API Gravity						287.911 ?

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	8A%	8B%	8C%	8D%	8E%
From Block	EC/Reflux	EC/Reflux	Warm Gas/Gas Exchanger E-2402	Demethanizer Reboiler E-2405	Demethanizer Side Heater E-2406
To Block	Warm Gas/Gas Exchanger E-2402	Expander EX-2412	FV-102101	Demethanizer Trim Reboiler E-2421	Demethanizer T-2420

d vr %R zz %

Z v%s rt z %	8A% , %	8B% , %	8C% , %	8D% , %	8E% , %
Hydrogen Sulfide	9.71445E-07	9.71445E-07	9.71445E-07	4.25274E-06	5.74852E-06
Nitrogen	2.01512	2.01512	2.01512	1.7939E-10	0.000153864
Methane	84.4959	84.4959	84.4959	0.000228915	0.547883
Carbon Dioxide	0.00870109	0.00870109	0.00870109	4.49402E-05	0.00189092
Ethane	9.89747	9.89747	9.89747	41.4886	59.8661
Propane	2.9072	2.9072	2.9072	41.3351	27.834
i-Butane	0.205908	0.205908	0.205908	4.06255	2.70799
n-Butane	0.388394	0.388394	0.388394	8.73226	5.92244
i-Pentane	0.038321	0.038321	0.038321	1.58056	1.1105
n-Pentane	0.0325602	0.0325602	0.0325602	1.5207	1.07552
i-Hexane	0.0047545	0.0047545	0.0047545	0.415291	0.300769
Hexane	0.00189225	0.00189225	0.00189225	0.2273	0.165521
Benzene	0.000927002	0.000927002	0.000927002	0.0866429	0.0628085
Cyclohexane	0.0010553	0.0010553	0.0010553	0.150328	0.1097
i-Heptane	0.00107358	0.00107358	0.00107358	0.208073	0.152893
nC7	0.000147372	0.000147372	0.000147372	0.0398464	0.0293745
Toluene	0.000148108	0.000148108	0.000148108	0.0337526	0.024846
i-Octane	0.000391661	0.000391661	0.000391661	0.0982587	0.072458
nC8	8.00125E-06	8.00125E-06	8.00125E-06	0.00563317	0.00418011
Ethylbenzene	4.70665E-06	4.70665E-06	4.70665E-06	0.0027054	0.00200541
o-Xylene	6.50977E-06	6.50977E-06	6.50977E-06	0.00483795	0.00358939
Isononane	2.17326E-06	2.17326E-06	2.17326E-06	0.0035846	0.00266706
nC9	0	0	0	0	0
Decane	7.25187E-07	7.25187E-07	7.25187E-07	0.00347639	0.00258984
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	3.62053E-08	3.62053E-08	3.62053E-08	0.00020799	0.000154947
Water	0	0	0	0	0

Zr %s rt z %	8A% , %	8B% , %	8C% , %	8D% , %	8E% , %
Hydrogen Sulfide	1.76224E-06	1.76224E-06	1.76224E-06	3.48906E-06	5.18204E-06
Nitrogen	3.0047	3.0047	3.0047	1.20974E-10	0.000114009
Methane	72.1509	72.1509	72.1509	8.84045E-05	0.232484
Carbon Dioxide	0.0203824	0.0203824	0.0203824	4.76113E-05	0.00220118
Ethane	15.8409	15.8409	15.8409	30.0315	47.614
Propane	6.82347	6.82347	6.82347	43.8777	32.4642
i-Butane	0.637015	0.637015	0.637015	5.68421	4.16317
n-Butane	1.20157	1.20157	1.20157	12.2179	9.10494
i-Pentane	0.147164	0.147164	0.147164	2.74517	2.11925
n-Pentane	0.125041	0.125041	0.125041	2.64121	2.05249
i-Hexane	0.0218084	0.0218084	0.0218084	0.861519	0.685568
Hexane	0.00867955	0.00867955	0.00867955	0.471533	0.377285
Benzene	0.00385419	0.00385419	0.00385419	0.162922	0.129769
Cyclohexane	0.0047273	0.0047273	0.0047273	0.304559	0.2442

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N %d vr %
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Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04a. Cryo Plant-Rejection

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8A% , %	8B% , %	8C% , %	8D% , %	8E% , %
i-Heptane	0.00572593	0.00572593	0.00572593	0.501903	0.405227
nC7	0.000786009	0.000786009	0.000786009	0.0961157	0.0778539
Toluene	0.000726367	0.000726367	0.000726367	0.0748647	0.0605523
i-Octane	0.00238134	0.00238134	0.00238134	0.270194	0.218925
nC8	4.86483E-05	4.86483E-05	4.86483E-05	0.0154902	0.0126298
Ethylbenzene	2.65968E-05	2.65968E-05	2.65968E-05	0.00691419	0.00563142
o-Xylene	3.6786E-05	3.6786E-05	3.6786E-05	0.0123644	0.0100794
Isononane	1.48362E-05	1.48362E-05	1.48362E-05	0.0110674	0.00904778
nC9	0	0	0	0	0
Decane	5.49205E-06	5.49205E-06	5.49205E-06	0.0119071	0.00974666
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	2.894E-07	2.894E-07	2.894E-07	0.000751907	0.000615473
Water	0	0	0	0	0

Zr %S %	8A% s6y%	8B% s6y%	8C% s6y%	8D% s6y%	8E% s6y%
Hydrogen Sulfide	0.00180378	0.00603875	0.00180378	0.0103476	0.00937998
Nitrogen	3075.54	10296.4	3075.54	3.58776E-07	0.206366
Methane	73851.9	247243	73851.9	0.262184	420.817
Carbon Dioxide	20.8629	69.8455	20.8629	0.141202	3.98433
Ethane	16214.3	54282.8	16214.3	89065.4	86185.7
Propane	6984.34	23382.4	6984.34	130129	58763.2
i-Butane	652.033	2182.89	652.033	16857.8	7535.72
n-Butane	1229.9	4117.5	1229.9	36235.1	16480.8
i-Pentane	150.633	504.294	150.633	8141.43	3836.03
n-Pentane	127.989	428.483	127.989	7833.12	3715.19
i-Hexane	22.3225	74.732	22.3225	2555.03	1240.94
Hexane	8.88417	29.7427	8.88417	1398.44	682.92
Benzene	3.94505	13.2073	3.94505	483.182	234.893
Cyclohexane	4.83875	16.1993	4.83875	903.24	442.024
i-Heptane	5.86092	19.6213	5.86092	1488.51	733.498
nC7	0.804539	2.69346	0.804539	285.053	140.923
Toluene	0.743491	2.48908	0.743491	222.029	109.605
i-Octane	2.43748	8.16025	2.43748	801.321	396.274
nC8	0.0497952	0.166706	0.0497952	45.9397	22.8611
Ethylbenzene	0.0272238	0.0911405	0.0272238	20.5056	10.1934
o-Xylene	0.0376532	0.126056	0.0376532	36.6694	18.2447
Isononane	0.0151859	0.0508399	0.0151859	32.8228	16.3773
nC9	0	0	0	0	0
Decane	0.00562152	0.0188199	0.00562152	35.3133	17.6424
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000296223	0.000991703	0.000296223	2.22995	1.11406
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	8A%	8B%	8C%	8D%	8E%
Temperature	°F	-16.0589	-16.0589	-78 *	72.8539	63.337
Pressure	psig	855	855	848	242.1	241.5
Molecular Weight	lb/lbmol	18.7873	18.7873	18.7873	41.5404	37.8064
Std Liquid Volumetric Flow	sgpm	626.079	2096	626.079	1271.19	836.869
Std Vapor Volumetric Flow	MMSCFD	49.6204	166.12	49.6204	65.0228	43.6053
Net Ideal Gas Heating Value	Btu/ft^3	1016.9	1016.9	1016.9	2186.71	2001.75

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	8A%	8B%	8C%	8D%	8E%
Gross Ideal Gas Heating Value	Btu/ft^3	1124.41	1124.41	1124.41	2378.34	2180.04
Mole Fraction Vapor	%	100	100	44.5201	6.67724	45.8789
Mass Density	lb/ft^3	5.09741	5.09741	12.0034 ?	16.8242	4.37455
Mass Flow	lb/h	102358	342675	102358	296573	181009
Specific Gravity		0.648677	0.648677			
API Gravity						

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	8F%	97%	98%	99%	9: %
From Block	Demethanizer Trim Reboiler E-2421	Expander EX-2412	LV-4040C1	TV-202712	Residue 1st Stg
To Block	Surge Tank	Demethanizer T-2420	Demethanizer T-2420	Gas/Product Exchanger E-2401	FAXR-101

d vr %8 zz %

Z v%s rt z %	8F% , %	97% , %	98% , %	99% , %	9: % , %
Hydrogen Sulfide	4.25274E-06	9.71445E-07	2.34976E-06	1.24279E-06	9.94139E-07
Nitrogen	1.7939E-10	2.01512	0.402636	1.69768	1.94969
Methane	0.000228915	84.4959	44.2206	76.5671	87.9328
Carbon Dioxide	4.49402E-05	0.00870109	0.00973735	0.0089051	0.0102374
Ethane	41.4886	9.89747	22.3395	12.3469	10.0682
Propane	41.3351	2.9072	18.5413	5.98503	0.0390781
i-Butane	4.06255	0.205908	2.93059	0.742305	4.41268E-06
n-Butane	8.73226	0.388394	6.95036	1.68022	3.4015E-06
i-Pentane	1.58056	0.038321	1.57114	0.340081	3.78682E-10
n-Pentane	1.5207	0.0325602	1.55924	0.333111	1.11948E-10
i-Hexane	0.415291	0.0047545	0.466484	0.0956534	6.68865E-14
Hexane	0.2273	0.00189225	0.261172	0.0529356	0
Benzene	0.0866429	0.000927002	0.0975739	0.0199535	4.0467E-14
Cyclohexane	0.150328	0.0010553	0.174206	0.0351427	0
i-Heptane	0.208073	0.00107358	0.245688	0.0492298	0
nC7	0.0398464	0.000147372	0.0475558	0.00948047	0
Toluene	0.0337526	0.000148108	0.0400537	0.00800415	0
i-Octane	0.0982587	0.000391661	0.117151	0.0233777	0
nC8	0.00563317	8.00125E-06	0.00684627	0.00135422	0
Ethylbenzene	0.0027054	4.70665E-06	0.00327891	0.000649285	0
o-Xylene	0.00483795	6.50977E-06	0.00587947	0.00116269	0
Isononane	0.0035846	2.17326E-06	0.00438615	0.000865229	0
nC9	0	0	0	0	0
Decane	0.00347639	7.25187E-07	0.00426699	0.000840607	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.00020799	3.62053E-08	0.000255311	5.0291E-05	0
Water	0	0	0	0	0

Zr %s rt z %	8F% , %	97% , %	98% , %	99% , %	9: % , %
Hydrogen Sulfide	3.48906E-06	1.76224E-06	2.54633E-06	1.99037E-06	1.91398E-06
Nitrogen	1.20974E-10	3.0047	0.358639	2.23484	3.08539
Methane	8.84045E-05	72.1509	22.5567	57.7216	79.6896
Carbon Dioxide	4.76113E-05	0.0203824	0.013626	0.0184166	0.0254518
Ethane	30.0315	15.8409	21.3586	17.4463	17.1021
Propane	43.8777	6.82347	25.9966	12.4019	0.097344
i-Butane	5.68421	0.637015	5.41598	2.02745	1.44885E-05
n-Butane	12.2179	1.20157	12.8448	4.58916	1.11684E-05
i-Pentane	2.74517	0.147164	3.60432	1.15302	1.54342E-09
n-Pentane	2.64121	0.125041	3.57701	1.12939	4.56275E-10
i-Hexane	0.861519	0.0218084	1.2782	0.387355	3.25613E-13
Hexane	0.471533	0.00867955	0.715632	0.214366	0
Benzene	0.162922	0.00385419	0.242343	0.0732421	1.78565E-13
Cyclohexane	0.304559	0.0047273	0.466171	0.138984	0
i-Heptane	0.501903	0.00572593	0.782779	0.231808	0
nC7	0.0961157	0.000786009	0.151516	0.0446407	0

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Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04a. Cryo Plant-Rejection

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8F% , %	97% , %	98% , %	99% , %	9: % , %
Toluene	0.0748647	0.000726367	0.117345	0.0346562	0
i-Octane	0.270194	0.00238134	0.425502	0.125488	0
nC8	0.0154902	4.86483E-05	0.0248661	0.00726925	0
Ethylbenzene	0.00691419	2.65968E-05	0.0110685	0.00323923	0
o-Xylene	0.0123644	3.6786E-05	0.0198472	0.00580059	0
Isononane	0.0110674	1.48362E-05	0.017887	0.00521472	0
nC9	0	0	0	0	0
Decane	0.0119071	5.49205E-06	0.0193041	0.0056204	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000751907	2.894E-07	0.0012191	0.000354901	0
Water	0	0	0	0	0

Zr %S %	8F% s6y%	97% s6y%	98% s6y%	99% s6y%	9: % s6y%
Hydrogen Sulfide	0.0103476	0.00603875	0.00464991	0.00749546	0.0108784
Nitrogen	3.58776E-07	10296.4	654.92	8416.1	17536.3
Methane	0.262184	247243	41191.3	217372	452929
Carbon Dioxide	0.141202	69.8455	24.8827	69.3547	144.659
Ethane	89065.4	54282.8	39003.5	65700.4	97202.7
Propane	130129	23382.4	47472.9	46703.8	553.27
i-Butane	16857.8	2182.89	9890.25	7635.1	0.0823478
n-Butane	36235.1	4117.5	23456.3	17282.2	0.0634777
i-Pentane	8141.43	504.294	6581.93	4342.12	8.77227E-06
n-Pentane	7833.12	428.483	6532.07	4253.12	2.59331E-06
i-Hexane	2555.03	74.732	2334.16	1458.73	1.85067E-09
Hexane	1398.44	29.7427	1306.83	807.275	0
Benzene	483.182	13.2073	442.548	275.82	1.0149E-09
Cyclohexane	903.24	16.1993	851.285	523.394	0
i-Heptane	1488.51	19.6213	1429.45	872.96	0
nC7	285.053	2.69346	276.687	168.111	0
Toluene	222.029	2.48908	214.286	130.511	0
i-Octane	801.321	8.16025	777.019	472.57	0
nC8	45.9397	0.166706	45.4086	27.3751	0
Ethylbenzene	20.5056	0.0911405	20.2125	12.1985	0
o-Xylene	36.6694	0.126056	36.2434	21.8443	0
Isononane	32.8228	0.0508399	32.6639	19.6379	0
nC9	0	0	0	0	0
Decane	35.3133	0.0188199	35.2517	21.1657	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	2.22995	0.000991703	2.22623	1.33651	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	8F%	97%	98%	99%	9: %
Temperature	°F	94.5048	-96.7728	-54.7204	107.351	222.214
Pressure	psig	242.1	241 *	300 *	880	500 *
Molecular Weight	lb/lbmol	41.5404	18.7873	31.45	21.2802	17.7019
Std Liquid Volumetric Flow	sgpm	1271.19	2096	861.751	2150.3	3610.9
Std Vapor Volumetric Flow	MMSCFD	65.0228	166.12	52.8828	161.174	292.424
Net Ideal Gas Heating Value	Btu/ft^3	2186.71	1016.9	1673.66	1146.2	963.569
Gross Ideal Gas Heating Value	Btu/ft^3	2378.34	1124.41	1828.52	1263.03	1067.28
Mole Fraction Vapor	%	46.6053	91.2196	34.3926	100	100

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %s v zv %

a v %	f z %	8F%	97%	98%	99%	9: %
Mass Density	lb/ft^3	4.49562	1.56902	6.55549	3.77129	1.27902
Mass Flow	lb/h	296573	342675	182612	376587	568366
Specific Gravity					0.734749	0.611201
API Gravity						

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	9A%	9B%	9C%	9D%	9F%
From Block	TV-202704	Demethanizer T-2420	Reflux Condenser E-2403 Pass A	Booster Compressor C-2412	FV-102101
To Block	Warm Gas/Gas Exchanger E-2402	Reflux Condenser E-2403 Pass A	Booster Compressor C-2412	Residue 1st Stg	Demethanizer T-2420

d vr %R zz %

Z v%S rt z %	9A% , %	9B% , %	9C% , %	9D% , %	9F% , %
Hydrogen Sulfide	1.24279E-06	9.94139E-07	9.94139E-07	9.94139E-07	9.71445E-07
Nitrogen	1.69768	1.94969	1.94969	1.94969	2.01512
Methane	76.5671	87.9328	87.9328	87.9328	84.4959
Carbon Dioxide	0.0089051	0.0102374	0.0102374	0.0102374	0.00870109
Ethane	12.3469	10.0682	10.0682	10.0682	9.89747
Propane	5.98503	0.0390781	0.0390781	0.0390781	2.9072
i-Butane	0.742305	4.41268E-06	4.41268E-06	4.41268E-06	0.205908
n-Butane	1.68022	3.4015E-06	3.4015E-06	3.4015E-06	0.388394
i-Pentane	0.340081	3.78682E-10	3.78682E-10	3.78682E-10	0.038321
n-Pentane	0.333111	1.11948E-10	1.11948E-10	1.11948E-10	0.0325602
i-Hexane	0.0956534	6.68865E-14	6.68865E-14	6.68865E-14	0.0047545
Hexane	0.0529356	0	0	0	0.00189225
Benzene	0.0199535	4.0467E-14	4.0467E-14	4.0467E-14	0.000927002
Cyclohexane	0.0351427	0	0	0	0.0010553
i-Heptane	0.0492298	0	0	0	0.00107358
nC7	0.00948047	0	0	0	0.000147372
Toluene	0.00800415	0	0	0	0.000148108
i-Octane	0.0233777	0	0	0	0.000391661
nC8	0.00135422	0	0	0	8.00125E-06
Ethylbenzene	0.000649285	0	0	0	4.70665E-06
o-Xylene	0.00116269	0	0	0	6.50977E-06
Isononane	0.000865229	0	0	0	2.17326E-06
nC9	0	0	0	0	0
Decane	0.000840607	0	0	0	7.25187E-07
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	5.0291E-05	0	0	0	3.62053E-08
Water	0	0	0	0	0

Zr %S rt z %	9A% , %	9B% , %	9C% , %	9D% , %	9F% , %
Hydrogen Sulfide	1.99037E-06	1.91398E-06	1.91398E-06	1.91398E-06	1.76224E-06
Nitrogen	2.23484	3.08539	3.08539	3.08539	3.0047
Methane	57.7216	79.6896	79.6896	79.6896	72.1509
Carbon Dioxide	0.0184166	0.0254518	0.0254518	0.0254518	0.0203824
Ethane	17.4463	17.1021	17.1021	17.1021	15.8409
Propane	12.4019	0.097344	0.097344	0.097344	6.82347
i-Butane	2.02745	1.44885E-05	1.44885E-05	1.44885E-05	0.637015
n-Butane	4.58916	1.11684E-05	1.11684E-05	1.11684E-05	1.20157
i-Pentane	1.15302	1.54342E-09	1.54342E-09	1.54342E-09	0.147164
n-Pentane	1.12939	4.56275E-10	4.56275E-10	4.56275E-10	0.125041
i-Hexane	0.387355	3.25613E-13	3.25613E-13	3.25613E-13	0.0218084
Hexane	0.214366	0	0	0	0.00867955
Benzene	0.0732421	1.78565E-13	1.78565E-13	1.78565E-13	0.00385419
Cyclohexane	0.138984	0	0	0	0.0047273
i-Heptane	0.231808	0	0	0	0.00572593

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N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Zr %Srt z %	9A% , %	9B% , %	9C% , %	9D% , %	9F% , %
nC7	0.0446407	0	0	0	0.000786009
Toluene	0.0346562	0	0	0	0.000726367
i-Octane	0.125488	0	0	0	0.00238134
nC8	0.00726925	0	0	0	4.86483E-05
Ethylbenzene	0.00323923	0	0	0	2.65968E-05
o-Xylene	0.00580059	0	0	0	3.6786E-05
Isononane	0.00521472	0	0	0	1.48362E-05
nC9	0	0	0	0	0
Decane	0.0056204	0	0	0	5.49205E-06
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000354901	0	0	0	2.894E-07
Water	0	0	0	0	0

Zr %S %	9A% s6y%	9B% s6y%	9C% s6y%	9D% s6y%	9F% s6y%
Hydrogen Sulfide	0.00499698	0.0108784	0.0108784	0.0108784	0.00180378
Nitrogen	5610.74	17536.3	17536.3	17536.3	3075.54
Methane	144915	452929	452929	452929	73851.9
Carbon Dioxide	46.2364	144.659	144.659	144.659	20.8629
Ethane	43800.2	97202.7	97202.7	97202.7	16214.3
Propane	31135.9	553.27	553.27	553.27	6984.34
i-Butane	5090.07	0.0823478	0.0823478	0.0823478	652.033
n-Butane	11521.5	0.0634777	0.0634777	0.0634777	1229.9
i-Pentane	2894.74	8.77227E-06	8.77227E-06	8.77227E-06	150.633
n-Pentane	2835.42	2.59331E-06	2.59331E-06	2.59331E-06	127.989
i-Hexane	972.485	1.85067E-09	1.85067E-09	1.85067E-09	22.3225
Hexane	538.184	0	0	0	8.88417
Benzene	183.88	1.0149E-09	1.0149E-09	1.0149E-09	3.94505
Cyclohexane	348.929	0	0	0	4.83875
i-Heptane	581.974	0	0	0	5.86092
nC7	112.074	0	0	0	0.804539
Toluene	87.0073	0	0	0	0.743491
i-Octane	315.047	0	0	0	2.43748
nC8	18.25	0	0	0	0.0497952
Ethylbenzene	8.13235	0	0	0	0.0272238
o-Xylene	14.5628	0	0	0	0.0376532
Isononane	13.092	0	0	0	0.0151859
nC9	0	0	0	0	0
Decane	14.1105	0	0	0	0.00562152
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.891008	0	0	0	0.000296223
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	9A%	9B%	9C%	9D%	9F%
Temperature	°F	107.351	-107.6	87.1769	120.412	-144.693
Pressure	psig	880	240.4	232.4	279.243	241 *
Molecular Weight	lb/lbmol	21.2802	17.7019	17.7019	17.7019	18.7873
Std Liquid Volumetric Flow	sgpm	1433.53	3610.9	3610.9	3610.9	626.079
Std Vapor Volumetric Flow	MMSCFD	107.449	292.424	292.424	292.424	49.6204
Net Ideal Gas Heating Value	Btu/ft^3	1146.2	963.569	963.569	963.569	1016.9
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03	1067.28	1067.28	1067.28	1124.41

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	9A%	9B%	9C%	9D%	9F%
Mole Fraction Vapor	%	100	100	100	100	68.4712
Mass Density	lb/ft^3	3.77129	1.43112	0.769384	0.862034	2.51512
Mass Flow	lb/h	251058	568366	568366	568366	102358
Specific Gravity		0.734749	0.611201	0.611201	0.611201	
API Gravity						

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	: 7%	: 9%	: : %	: A%	: D%
From Block	MIX-101	VSSL-100	FV-101803	VLVE-100	Reflux Condenser E-2403 Pass D
To Block	Reflux Condenser E-2403 Pass D	Residue 2nd Stage	Demethanizer T-2420	--	FV-101803

d vr %R zz %

Z v%S rt z %	: 7% , %	: 9% , %	: : % , %	: A% , %	: D% , %
Hydrogen Sulfide	1.00889E-06	9.94139E-07	1.00889E-06		1.00889E-06
Nitrogen	1.94978	1.94969	1.94978		1.94978
Methane	87.936	87.9328	87.936		87.936
Carbon Dioxide	0.01029	0.0102374	0.01029		0.01029
Ethane	10.0648	10.0682	10.0648		10.0648
Propane	0.0391087	0.0390781	0.0391087		0.0391087
i-Butane	4.42625E-06	4.41268E-06	4.42625E-06		4.42625E-06
n-Butane	3.41203E-06	3.4015E-06	3.41203E-06		3.41203E-06
i-Pentane	3.80044E-10	3.78682E-10	3.80044E-10		3.80044E-10
n-Pentane	1.12358E-10	1.11948E-10	1.12358E-10		1.12358E-10
i-Hexane	6.71336E-14	6.68865E-14	6.71336E-14		6.71336E-14
Hexane	0	0	0		0
Benzene	0	4.0467E-14	0		0
Cyclohexane	0	0	0		0
i-Heptane	0	0	0		0
nC7	0	0	0		0
Toluene	0	0	0		0
i-Octane	0	0	0		0
nC8	0	0	0		0
Ethylbenzene	0	0	0		0
o-Xylene	0	0	0		0
Isononane	0	0	0		0
nC9	0	0	0		0
Decane	0	0	0		0
Ethylene Glycol	0	0	0		0
MDEA	0	0	0		0
DEA	0	0	0		0
Piperazine	0	0	0		0
DGA	0	0	0		0
TEG	0	0	0		0
Water	0	0	0		0

Zr %S rt z %	: 7% , %	: 9% , %	: : % , %	: A% , %	: D% , %
Hydrogen Sulfide	1.94242E-06	1.91398E-06	1.94242E-06		1.94242E-06
Nitrogen	3.08562	3.08539	3.08562		3.08562
Methane	79.6945	79.6896	79.6945		79.6945
Carbon Dioxide	0.025583	0.0254518	0.025583		0.025583
Ethane	17.0969	17.1021	17.0969		17.0969
Propane	0.0974226	0.097344	0.0974226		0.0974226
i-Butane	1.45334E-05	1.44885E-05	1.45334E-05		1.45334E-05
n-Butane	1.12033E-05	1.11684E-05	1.12033E-05		1.12033E-05
i-Pentane	1.54901E-09	1.54342E-09	1.54901E-09		1.54901E-09
n-Pentane	4.57955E-10	4.56275E-10	4.57955E-10		4.57955E-10
i-Hexane	3.26824E-13	3.25613E-13	3.26824E-13		3.26824E-13
Hexane	0	0	0		0
Benzene	0	1.78565E-13	0		0
Cyclohexane	0	0	0		0
i-Heptane	0	0	0		0
nC7	0	0	0		0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Zr %Srt z %	:7% , %	:9% , %	::% , %	:A% , %	:D% , %
Toluene	0	0	0		0
i-Octane	0	0	0		0
nC8	0	0	0		0
Ethylbenzene	0	0	0		0
o-Xylene	0	0	0		0
Isononane	0	0	0		0
nC9	0	0	0		0
Decane	0	0	0		0
Ethylene Glycol	0	0	0		0
MDEA	0	0	0		0
DEA	0	0	0		0
Piperazine	0	0	0		0
DGA	0	0	0		0
TEG	0	0	0		0
Water	0	0	0		0

Zr %S %	:7% s6y%	:9% s6y%	::% s6y%	:A% s6y%	:D% s6y%
Hydrogen Sulfide	0.00220926	0.0108784	0.00220926	0	0.00220926
Nitrogen	3509.49	17536.3	3509.49	0	3509.49
Methane	90642.1	452929	90642.1	0	90642.1
Carbon Dioxide	29.0974	144.659	29.0974	0	29.0974
Ethane	19445.5	97202.7	19445.5	0	19445.5
Propane	110.806	553.27	110.806	0	110.806
i-Butane	0.0165299	0.0823478	0.0165299	0	0.0165299
n-Butane	0.0127423	0.0634777	0.0127423	0	0.0127423
i-Pentane	1.76179E-06	8.77227E-06	1.76179E-06	0	1.76179E-06
n-Pentane	5.20864E-07	2.59331E-06	5.20864E-07	0	5.20864E-07
i-Hexane	3.7172E-10	1.85067E-09	3.7172E-10	0	3.7172E-10
Hexane	0	0	0	0	0
Benzene	0	1.0149E-09	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	:7%	:9%	::%	:A%	:D%
Temperature	°F	120	119.889	-144.449		-83 *
Pressure	psig	800	496	241 *	75 *	798
Molecular Weight	lb/lbmol	17.7015	17.7019	17.7015		17.7015
Std Liquid Volumetric Flow	sgpm	722.591	3610.9	722.591	0	722.591
Std Vapor Volumetric Flow	MMSCFD	58.519	292.424	58.519	0	58.519
Net Ideal Gas Heating Value	Btu/ft^3	963.545	963.569	963.545		963.545
Gross Ideal Gas Heating Value	Btu/ft^3	1067.25	1067.28	1067.25		1067.25
Mole Fraction Vapor	%	100	100	77.9982		76.042

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	:7%	:9%	::%	:A%	:D%
Mass Density	lb/ft^3	2.54926	1.5434	2.11616		9.17266 ?
Mass Flow	lb/h	113737	568366	113737	0	113737
Specific Gravity		0.611186	0.611201			
API Gravity						

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04a. Cryo Plant-Rejection

Job: 275 MMSCFD Apollo GP

P vt z %

	: E%	: F%	A8%	A9%	A: %
From Block	Demethanizer Side Heater E-2406	VSSL-100	Surge Tank	Surge Tank	RCYL-3
To Block	MIX-100	--	P-1423/4	Demethanizer T-2420	MIX-101

d vr %8 zz %

Z v%s rt z %	: E% , %	: F% , %	A8% , %	A9% , %	A: % , %
Hydrogen Sulfide	1.24279E-06		2.94283E-06	5.75347E-06	1.00889E-06
Nitrogen	1.69768		1.81273E-11	3.64144E-10	1.94978
Methane	76.5671		5.22511E-05	0.000431315	87.936
Carbon Dioxide	0.0089051		1.75143E-05	7.63614E-05	0.01029
Ethane	12.3469		27.6932	57.2937	10.0648
Propane	5.98503		46.0437	35.9406	0.0391087
i-Butane	0.742305		5.74328	2.13697	4.42625E-06
n-Butane	1.68022		13.0001	3.84272	3.41203E-06
i-Pentane	0.340081		2.63125	0.376806	3.80044E-10
n-Pentane	0.333111		2.57732	0.310158	1.12358E-10
i-Hexane	0.0956534		0.740083	0.0431826	6.71336E-14
Hexane	0.0529356		0.40957	0.0184775	0
Benzene	0.0199535		0.154383	0.00903465	0
Cyclohexane	0.0351427		0.271904	0.0110404	0
i-Heptane	0.0492298		0.380897	0.0100705	0
nC7	0.00948047		0.0733517	0.00146007	0
Toluene	0.00800415		0.0619292	0.00147124	0
i-Octane	0.0233777		0.180876	0.00360553	0
nC8	0.00135422		0.0104778	8.27603E-05	0
Ethylbenzene	0.000649285		0.00502361	4.94669E-05	0
o-Xylene	0.00116269		0.00899593	7.4235E-05	0
Isononane	0.000865229		0.00669439	2.17658E-05	0
nC9	0		0	0	0
Decane	0.000840607		0.00650389	7.84128E-06	0
Ethylene Glycol	0		0	0	0
MDEA	0		0	0	0
DEA	0		0	0	0
Piperazine	0		0	0	0
DGA	0		0	0	0
TEG	5.0291E-05		0.000389108	4.87218E-07	0
Water	0		0	0	0

Zr %s rt z %	: E% , %	: F% , %	A8% , %	A9% , %	A: % , %
Hydrogen Sulfide	1.99037E-06		2.20978E-06	5.28043E-06	1.94242E-06
Nitrogen	2.23484		1.11885E-11	2.74706E-10	3.08562
Methane	57.7216		1.84688E-05	0.000186335	79.6945
Carbon Dioxide	0.0184166		1.69829E-05	9.05002E-05	0.025583
Ethane	17.4463		18.347	46.3933	17.0969
Propane	12.4019		44.734	42.6786	0.0974226
i-Butane	2.02745		7.35487	3.34479	1.45334E-05
n-Butane	4.58916		16.6479	6.01464	1.12033E-05
i-Pentane	1.15302		4.18277	0.732109	1.54901E-09
n-Pentane	1.12939		4.09704	0.602616	4.57955E-10
i-Hexane	0.387355		1.40519	0.100212	3.26824E-13
Hexane	0.214366		0.777649	0.04288	0
Benzene	0.0732421		0.265698	0.0190045	0
Cyclohexane	0.138984		0.504186	0.0250217	0
i-Heptane	0.231808		0.840924	0.0271742	0
nC7	0.0446407		0.161942	0.00393983	0
Toluene	0.0346562		0.125721	0.0036505	0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04a. Cryo Plant-Rejection

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	: E% , %	: F% , %	A8% , %	A9% , %	A: % , %
i-Octane	0.125488		0.455228	0.011091	0
nC8	0.00726925		0.0263704	0.000254581	0
Ethylbenzene	0.00323923		0.0117509	0.000141425	0
o-Xylene	0.00580059		0.0210426	0.000212236	0
Isononane	0.00521472		0.0189173	7.51758E-05	0
nC9	0		0	0	0
Decane	0.0056204		0.0203889	3.00445E-05	0
Ethylene Glycol	0		0	0	0
MDEA	0		0	0	0
DEA	0		0	0	0
Piperazine	0		0	0	0
DGA	0		0	0	0
TEG	0.000354901		0.00128746	1.97035E-06	0
Water	0		0	0	0

Zr %S %	: E% s6y%	: F% s6y%	A8% s6y%	A9% s6y%	A: % s6y%
Hydrogen Sulfide	0.00749546	0	0.00382327	0.00652434	0.00220926
Nitrogen	8416.1	0	1.93579E-08	3.39418E-07	3509.49
Methane	217372	0	0.031954	0.23023	90642.1
Carbon Dioxide	69.3547	0	0.0293832	0.111819	29.0974
Ethane	65700.4	0	31743.3	57322.1	19445.5
Propane	46703.8	0	77397.1	52732.3	110.806
i-Butane	7635.1	0	12725.1	4132.72	0.0165299
n-Butane	17282.2	0	28803.6	7431.5	0.0127423
i-Pentane	4342.12	0	7236.86	904.57	1.76179E-06
n-Pentane	4253.12	0	7088.54	744.574	5.20864E-07
i-Hexane	1458.73	0	2431.21	123.819	3.7172E-10
Hexane	807.275	0	1345.46	52.9811	0
Benzene	275.82	0	459.7	23.4814	0
Cyclohexane	523.394	0	872.324	30.9161	0
i-Heptane	872.96	0	1454.93	33.5756	0
nC7	168.111	0	280.185	4.86793	0
Toluene	130.511	0	217.518	4.51044	0
i-Octane	472.57	0	787.617	13.7037	0
nC8	27.3751	0	45.6251	0.314552	0
Ethylbenzene	12.1985	0	20.3309	0.17474	0
o-Xylene	21.8443	0	36.4071	0.262232	0
Isononane	19.6379	0	32.7299	0.0928848	0
nC9	0	0	0	0	0
Decane	21.1657	0	35.2762	0.037122	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	1.33651	0	2.22752	0.00243451	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	: E%	: F%	A8%	A9%	A: %
Temperature	°F	50 *		94.5048	94.5048	120
Pressure	psig	875	496	242.1	242.1	800
Molecular Weight	lb/lbmol	21.2802		45.3866	37.1339	17.7015
Std Liquid Volumetric Flow	sgpm	2150.3	0	695.521	575.669	722.591
Std Vapor Volumetric Flow	MMSCFD	161.174	0	34.7187	30.3041	58.519
Net Ideal Gas Heating Value	Btu/ft^3	1146.2		2376.55	1969.22	963.545
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03		2581.76	2145.29	1067.25
Mole Fraction Vapor	%	97.538		0	100	100
Mass Density	lb/ft^3	4.66787		30.3842	2.04988	2.54926

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	: E%	: F%	A8%	A9%	A: %
Mass Flow	lb/h	376587	0	173016	123557	113737
Specific Gravity				0.48717	1.28214	0.611186
API Gravity				141.502		

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	AA%	AF%	B7%	B8%	B9%
From Block	Residue 2nd Stage	P-1423/4	Gas/Product Exchanger E-2401	SPLT-101	Demethanizer Reboiler E-2405
To Block	FAXR-102	Gas/Product Exchanger E-2401	MIX-103	SPLT-100	Demethanizer Side Heater E-2406

d vr %R zz %

Z v%S rt z %	AA% , %	AF% , %	B7% , %	B8% , %	B9% , %
Hydrogen Sulfide	9.94139E-07	2.94283E-06	2.94283E-06	1.24279E-06	1.24279E-06
Nitrogen	1.94969	1.81273E-11	1.81273E-11	1.69768	1.69768
Methane	87.9328	5.22511E-05	5.22511E-05	76.5671	76.5671
Carbon Dioxide	0.0102374	1.75143E-05	1.75143E-05	0.0089051	0.0089051
Ethane	10.0682	27.6932	27.6932	12.3469	12.3469
Propane	0.0390781	46.0437	46.0437	5.98503	5.98503
i-Butane	4.41268E-06	5.74328	5.74328	0.742305	0.742305
n-Butane	3.4015E-06	13.0001	13.0001	1.68022	1.68022
i-Pentane	3.78682E-10	2.63125	2.63125	0.340081	0.340081
n-Pentane	1.11948E-10	2.57732	2.57732	0.333111	0.333111
i-Hexane	6.68865E-14	0.740083	0.740083	0.0956534	0.0956534
Hexane	0	0.40957	0.40957	0.0529356	0.0529356
Benzene	4.0467E-14	0.154383	0.154383	0.0199535	0.0199535
Cyclohexane	0	0.271904	0.271904	0.0351427	0.0351427
i-Heptane	0	0.380897	0.380897	0.0492298	0.0492298
nC7	0	0.0733517	0.0733517	0.00948047	0.00948047
Toluene	0	0.0619292	0.0619292	0.00800415	0.00800415
i-Octane	0	0.180876	0.180876	0.0233777	0.0233777
nC8	0	0.0104778	0.0104778	0.00135422	0.00135422
Ethylbenzene	0	0.00502361	0.00502361	0.000649285	0.000649285
o-Xylene	0	0.00899593	0.00899593	0.00116269	0.00116269
Isononane	0	0.00669439	0.00669439	0.000865229	0.000865229
nC9	0	0	0	0	0
Decane	0	0.00650389	0.00650389	0.000840607	0.000840607
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0.000389108	0.000389108	5.0291E-05	5.0291E-05
Water	0	0	0	0	0

Zr %S rt z %	AA% , %	AF% , %	B7% , %	B8% , %	B9% , %
Hydrogen Sulfide	1.91398E-06	2.20978E-06	2.20978E-06	1.99037E-06	1.99037E-06
Nitrogen	3.08539	1.11885E-11	1.11885E-11	2.23484	2.23484
Methane	79.6896	1.84688E-05	1.84688E-05	57.7216	57.7216
Carbon Dioxide	0.0254518	1.69829E-05	1.69829E-05	0.0184166	0.0184166
Ethane	17.1021	18.347	18.347	17.4463	17.4463
Propane	0.097344	44.734	44.734	12.4019	12.4019
i-Butane	1.44885E-05	7.35487	7.35487	2.02745	2.02745
n-Butane	1.11684E-05	16.6479	16.6479	4.58916	4.58916
i-Pentane	1.54342E-09	4.18277	4.18277	1.15302	1.15302
n-Pentane	4.56275E-10	4.09704	4.09704	1.12939	1.12939
i-Hexane	3.25613E-13	1.40519	1.40519	0.387355	0.387355
Hexane	0	0.777649	0.777649	0.214366	0.214366
Benzene	1.78565E-13	0.265698	0.265698	0.0732421	0.0732421
Cyclohexane	0	0.504186	0.504186	0.138984	0.138984
i-Heptane	0	0.840924	0.840924	0.231808	0.231808
nC7	0	0.161942	0.161942	0.0446407	0.0446407

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04a. Cryo Plant-Rejection

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	AA% , %	AF% , %	B7% , %	B8% , %	B9% , %
Toluene	0	0.125721	0.125721	0.0346562	0.0346562
i-Octane	0	0.455228	0.455228	0.125488	0.125488
nC8	0	0.0263704	0.0263704	0.00726925	0.00726925
Ethylbenzene	0	0.0117509	0.0117509	0.00323923	0.00323923
o-Xylene	0	0.0210426	0.0210426	0.00580059	0.00580059
Isononane	0	0.0189173	0.0189173	0.00521472	0.00521472
nC9	0	0	0	0	0
Decane	0	0.0203889	0.0203889	0.0056204	0.0056204
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0.00128746	0.00128746	0.000354901	0.000354901
Water	0	0	0	0	0

Zr %S %	AA% s6y%	AF% s6y%	B7% s6y%	B8% s6y%	B9% s6y%
Hydrogen Sulfide	0.0108784	0.00382327	0.00382327	0.0124924	0.00749546
Nitrogen	17536.3	1.93579E-08	1.93579E-08	14026.8	8416.1
Methane	452929	0.031954	0.031954	362287	217372
Carbon Dioxide	144.659	0.0293832	0.0293832	115.591	69.3547
Ethane	97202.7	31743.3	31743.3	109501	65700.4
Propane	553.27	77397.1	77397.1	77839.6	46703.8
i-Butane	0.0823478	12725.1	12725.1	12725.2	7635.1
n-Butane	0.0634777	28803.6	28803.6	28803.7	17282.2
i-Pentane	8.77227E-06	7236.86	7236.86	7236.86	4342.12
n-Pentane	2.59331E-06	7088.54	7088.54	7088.54	4253.12
i-Hexane	1.85067E-09	2431.21	2431.21	2431.21	1458.73
Hexane	0	1345.46	1345.46	1345.46	807.275
Benzene	1.0149E-09	459.7	459.7	459.7	275.82
Cyclohexane	0	872.324	872.324	872.324	523.394
i-Heptane	0	1454.93	1454.93	1454.93	872.96
nC7	0	280.185	280.185	280.185	168.111
Toluene	0	217.518	217.518	217.518	130.511
i-Octane	0	787.617	787.617	787.617	472.57
nC8	0	45.6251	45.6251	45.6251	27.3751
Ethylbenzene	0	20.3309	20.3309	20.3309	12.1985
o-Xylene	0	36.4071	36.4071	36.4071	21.8443
Isononane	0	32.7299	32.7299	32.7299	19.6379
nC9	0	0	0	0	0
Decane	0	35.2762	35.2762	35.2762	21.1657
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	2.22752	2.22752	2.22752	1.33651
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	AA%	AF%	B7%	B8%	B9%
Temperature	°F	207.024	110.091	110.089	108	95 *
Pressure	psig	810	1220 *	1218	890	875
Molecular Weight	lb/lbmol	17.7019	45.3866	45.3866	21.2802	21.2802
Std Liquid Volumetric Flow	sgpm	3610.9	695.521	695.521	3583.83	2150.3
Std Vapor Volumetric Flow	MMSCFD	292.424	34.7187	34.7187	268.624	161.174
Net Ideal Gas Heating Value	Btu/ft^3	963.569	2376.55	2376.55	1146.2	1146.2
Gross Ideal Gas Heating Value	Btu/ft^3	1067.28	2581.76	2581.76	1263.03	1263.03
Mole Fraction Vapor	%	100	0	0	100	100

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v %	f z %	AA%	AF%	B7%	B8%	B9%
Mass Density	lb/ft^3	2.14205	30.9548	30.9523	3.81303	3.90359
Mass Flow	lb/h	568366	173016	173016	627645	376587
Specific Gravity		0.611201	0.496319	0.496279	0.734749	0.734749
API Gravity			133.339	133.353		

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

P vt z %

	B: %	BA%			
From Block	SPLT-100	Stabilizer/Rejection			
To Block	MIX-101	MIX-103			

d vr %R zz %

Z v%S rt z %	B: % , %	BA% , %			
Hydrogen Sulfide	1.24279E-06	0.000242782			
Nitrogen	1.69768	0			
Methane	76.5671	3.3019E-09			
Carbon Dioxide	0.0089051	2.50325E-05			
Ethane	12.3469	3.67022			
Propane	5.98503	23.0095			
i-Butane	0.742305	8.74048			
n-Butane	1.68022	27.2739			
i-Pentane	0.340081	10.3187			
n-Pentane	0.333111	11.7921			
i-Hexane	0.0956534	4.52805			
Hexane	0.0529356	2.79606			
Benzene	0.0199535	1.02418			
Cyclohexane	0.0351427	1.84875			
i-Heptane	0.0492298	2.56769			
nC7	0.00948047	0.523802			
Toluene	0.00800415	0.450157			
i-Octane	0.0233777	1.1556			
nC8	0.00135422	0.0780075			
Ethylbenzene	0.000649285	0.0382812			
o-Xylene	0.00116269	0.0696829			
Isononane	0.000865229	0.057234			
nC9	0	0			
Decane	0.000840607	0.0573046			
Ethylene Glycol	0	0			
MDEA	0	0			
DEA	0	0			
Piperazine	0	0			
DGA	0	0			
TEG	5.0291E-05	0			
Water	0	6.45077E-06			

Zr %S rt z %	B: % , %	BA% , %			
Hydrogen Sulfide	1.99037E-06	0.000133469			
Nitrogen	2.23484	0			
Methane	57.7216	8.54453E-10			
Carbon Dioxide	0.0184166	1.77707E-05			
Ethane	17.4463	1.78018			
Propane	12.4019	16.3665			
i-Butane	2.02745	8.19466			
n-Butane	4.58916	25.5707			
i-Pentane	1.15302	12.009			
n-Pentane	1.12939	13.7237			
i-Hexane	0.387355	6.2943			
Hexane	0.214366	3.88672			
Benzene	0.0732421	1.29046			
Cyclohexane	0.138984	2.50978			
i-Heptane	0.231808	4.15023			
nC7	0.0446407	0.846635			
Toluene	0.0346562	0.669049			
i-Octane	0.125488	2.1293			
nC8	0.00726925	0.143735			

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a tv %d vr %sv %
N %d vr %
ers r vu%s %a r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

Zr %Srt z %	B: % , %	BA% , %			
Ethylbenzene	0.00323923	0.0655571			
o-Xylene	0.00580059	0.119333			
Isononane	0.00521472	0.118408			
nC9	0	0			
Decane	0.0056204	0.13152			
Ethylene Glycol	0	0			
MDEA	0	0			
DEA	0	0			
Piperazine	0	0			
DGA	0	0			
TEG	0.000354901	0			
Water	0	1.87459E-06			

Zr %S %	B: % s6y%	BA% s6y%			
Hydrogen Sulfide	0	0.0641027			
Nitrogen	0	0			
Methane	0	4.10377E-07			
Carbon Dioxide	0	0.00853492			
Ethane	0	854.988			
Propane	0	7860.54			
i-Butane	0	3935.74			
n-Butane	0	12281.1			
i-Pentane	0	5767.69			
n-Pentane	0	6591.25			
i-Hexane	0	3023.03			
Hexane	0	1866.72			
Benzene	0	619.785			
Cyclohexane	0	1205.4			
i-Heptane	0	1993.28			
nC7	0	406.623			
Toluene	0	321.331			
i-Octane	0	1022.66			
nC8	0	69.0334			
Ethylbenzene	0	31.4859			
o-Xylene	0	57.3135			
Isononane	0	56.8692			
nC9	0	0			
Decane	0	63.1666			
Ethylene Glycol	0	0			
MDEA	0	0			
DEA	0	0			
Piperazine	0	0			
DGA	0	0			
TEG	0	0			
Water	0	0.000900329			

d vr %a v zv %

a v %	f z %	B: %	BA%			
Temperature	°F	108	132.123			
Pressure	psig	890	1215			
Molecular Weight	lb/lbmol	21.2802	61.9936			
Std Liquid Volumetric Flow	sgpm	0	161.813			
Std Vapor Volumetric Flow	MMSCFD	0	7.05592			
Net Ideal Gas Heating Value	Btu/ft^3	1146.2	3190.11			
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03	3451.93			
Mole Fraction Vapor	%	100	0			
Mass Density	lb/ft^3	3.81303	35.7566			
Mass Flow	lb/h	0	48028.1			
Specific Gravity			0.57331			

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a t v %d vr %v %
N %d vr %
ers r vu% % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04a. Cryo Plant-Rejection	

d vr %a v zv %

a v % f z %	B: %	BA%			
API Gravity		98.0798			

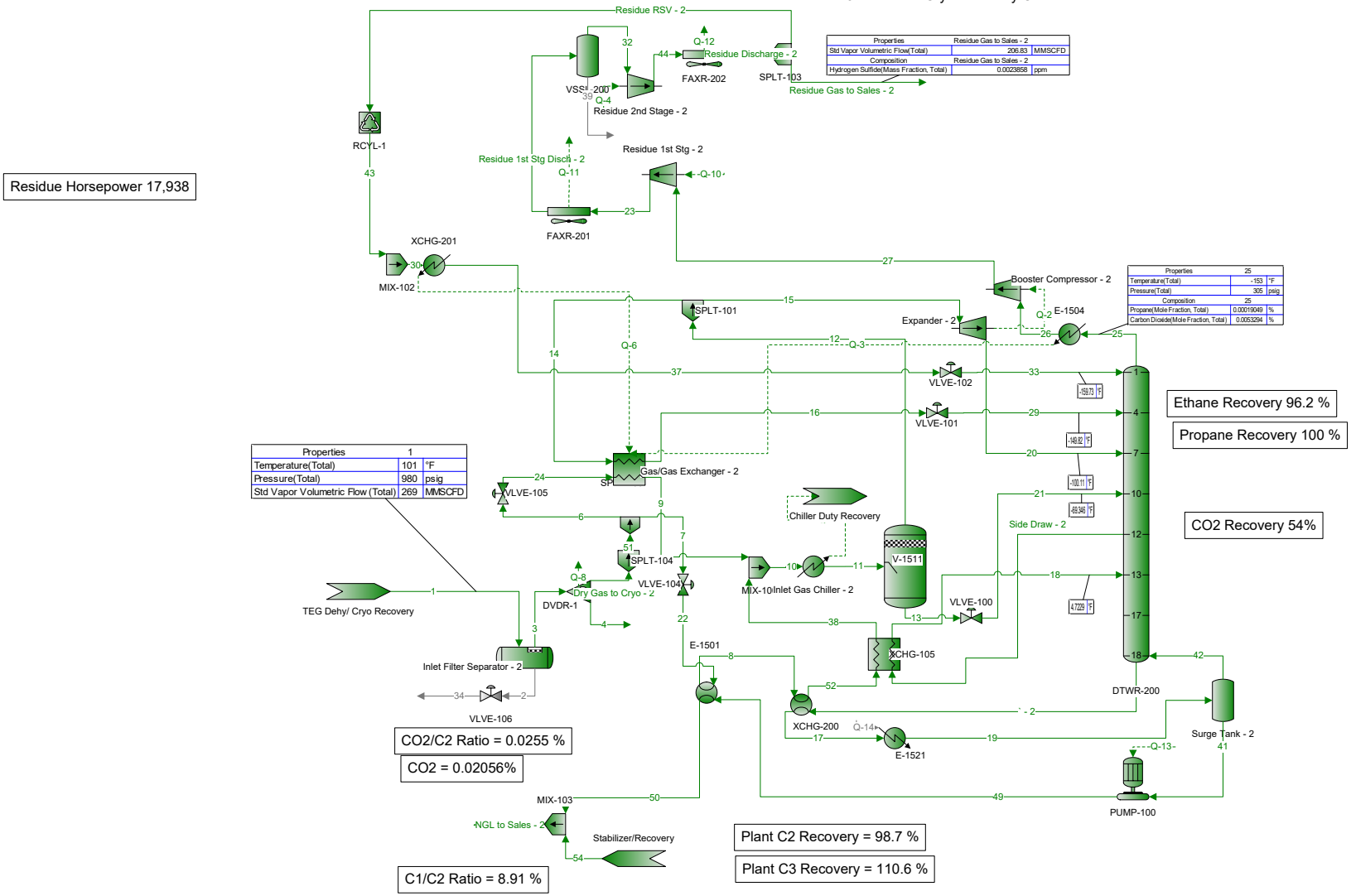
cv r ►%

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7As5R %ar %Avt v %
ar %dtyv rzt%
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Trace Midstream
275 MM Inlet - Cryo Recovery Case



* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Reid Vapor Pressure

Stream Results

Bubble Point Temperature	-11.2178	°F	? Reid Vapor Pressure		psi
Bubble Point Pressure	306.699	psig	ASTM D6377 VPCRx Temperature	100.04	°F
Dew Point Temperature	136.37	°F	ASTM D6377 VPCRx V/L Ratio	4	
Dew Point Pressure	-12.7962	psig	Component Subset	All Selected	
True Vapor Pressure	741.224	psig			

Component Selection

Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

Warnings

ProMax:ProMax!Project!Flowsheets!04b. Cryo Plant - Recovery!PStreams!` - 2!Analyses!Vapor Pressure 1!Properties!Reid Vapor Pressure
Warning: At presaturation conditions of 1 atm and 0.5°C there is no liquid present. Reid Vapor Pressure cannot be calculated. Refer to ProMax help for more information.

Notes

Solver Parameters

Solver Results

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

N r z %w %d vr C%Q %r % %R %4%%

S vv v%%

ayr vC%e r %			d r C%d vu%		
Solids Formation Temperature	-269.436	°F	High Temperature Hydrate Point		°F
Degrees above Solids Formation	370.726	°F	High Temperature Water Freeze Point		°F
Water Content		lbm/MMSCF	High Temperature CO2 Freeze Point	-269.436	°F
Water Dew Point		°F			

c v r ►

N r z %w %d vr C%v zu v%% %d x%Qz t y%4%%

P s z %N r z %%

ayr vC%e r %			d r C%d vu%	
Gas Combustion Temperature	60	°F	O2 to C Ratio	1
Gas Metering Temperature	60	°F	O2 to H Ratio	0.25
Volumetric Gross Ideal Gas Heating Value	991.796	Btu/ft^3	O2 to D Ratio	0.25
Energy Content	9580.4	MMBtu/h	O2 to S Ratio	1
Heat Release	8627.49	MMBtu/h	O2 to N Ratio	0
Sulfuric Acid Dew Point Temperature	163.003	°F	Component Subset	All Selected
Nitric Acid Dew Point Temperature		°F		

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			

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7As5R %ar %Avt v %
N r v %v %
%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

S vv v%%

ayr vG%e r %			d r G%d vu%		
Water Content		lbm/MMSCF	High Temperature Water Freeze Point		°F
Water Dew Point		°F	High Temperature CO2 Freeze Point	-274.17	°F

cv r ►

N r z %v %d vr G%B%

S vv v%%

ayr vG%e r %			d r G%d vu%		
Solids Formation Temperature	-274.205	°F	High Temperature Water Freeze Point		°F
Degrees above Solids Formation	120.806	°F	Mid Temperature Water Freeze Point		°F
Water Content		lbm/MMSCF	Low Temperature Water Freeze Point		°F
Water Dew Point		°F	High Temperature CO2 Freeze Point	-274.205	°F
High Temperature Hydrate Point		°F			

cv r ►

N r z %v %d vr G%: %

S vv v%%

ayr vG%e r %			d r G%d vu%		
Solids Formation Temperature	-274.05	°F	High Temperature Hydrate Point		°F
Degrees above Solids Formation	114.315	°F	High Temperature Water Freeze Point		°F
Water Content		lbm/MMSCF	High Temperature CO2 Freeze Point	-274.05	°F
Water Dew Point		°F			

ayr v%R v v%%

ayr vG%e r %			d r G%d vu%		
Minimum Pressure	0	psig	Cricondentherm Pressure	673.951	psig
Minimum Temperature		°F	Cricondentherm Temperature	-116.42	°F
Minimum Mole Fraction Vapor	100	%	Cricondenbar Pressure	673.951	psig
Maximum Mole Fraction	100	%	Cricondenbar Temperature	-116.42	°F

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

ayr v%R v v%&%

ayr v%e r %		d r %d vu%	
Vapor			
Number of Steps	1	Critical Pressure	673.951 psig
Maximum Solids Curve Pressure	psig	Critical Temperature	-116.42 °F
Approach to Critical Temperature	9 °F	Component Subset	Dry Basis
Approach to Critical Pressure	29.0075 psi		

dv vt vu%R v %

V uv %	dv vt vu%R v %	%	%	%
Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	False			
MDEA	False			
DEA	False			
Piperazine	False			
DGA	False			
TEG	False			
Water	False			

ayr v%R v v%Qr r%w C%ayr v%R v v%&5%%%ayr v%e r %

V uv %	Z v%rt z % gr % , %	ev v r v% S%	a v v% zx%	Z r %R yr % O 6s %	Z r %R % O 6s 1 S0%	Z r %Qv z % s 6wo: %
0	0	-272.545	0	-37829.3	18.3825	1.68831
1	0	-267.636	2.90075	-37765.1	18.7197	1.67295
2	0	-259.09	9.1892	-37652.2	19.2918	1.64573
3	0	-250.622	17.2397	-37538.7	19.8421	1.61809
4	0	-242.275	27.2702	-37424.9	20.3707	1.59011
5	0	-234.089	39.4498	-37311.3	20.878	1.56188
6	0	-225.19	55.7158	-37185.3	21.418	1.53018
7	0	-216.879	74.1509	-37064.9	21.9143	1.49948
8	0	-207.899	98.0267	-36930.9	22.445	1.46493
9	0	-199.558	124.293	-36802.4	22.9355	1.43134
10	0	-192.339	150.51	-36687.3	23.3598	1.40091

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7As5R %ar %Avt v %
N r v %v %
%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

ayr v%R v v%Qr r%w G%ayr v%R v v%5%%%ayr vG%s r %

Vuv %	Z v%S rt z % gr % , %	ev v r v% S%	a v v% zx%	Z r%R yr % O 6s %	Z r%R % O 6 s 1 S0%	Z r%Qv z % s 6wo: %
11	0	-185.459	178.748	-36573.8	23.766	1.37051
12	0	-179.595	205.486	-36473.7	24.115	1.34336
13	0	-174.081	232.994	-36376.3	24.4468	1.31661
14	0	-168.916	260.948	-36281.7	24.7621	1.29029
15	0	-164.093	289.034	-36190	25.0616	1.26443
16	0	-159.605	316.963	-36101.3	25.3461	1.23905
17	0	-155.438	344.475	-36015.6	25.6164	1.21415
18	0	-151.581	371.344	-35932.9	25.8733	1.18974
19	0	-148.019	397.382	-35853.2	26.1174	1.16581
20	0	-144.367	425.312	-35767.6	26.3763	1.13703
21	0	-140.786	453.938	-35679.1	26.6406	1.09955
22	0	-137.484	481.417	-35592.6	26.8959	1.05578
23	0	-134.444	507.631	-35507.8	27.1435	1.00686
24	0	-131.335	535.333	-35414.6	27.4129	0.947564
25	0	-128.29	563.309	-35315	27.6984	0.879739
26	0	-125.48	589.795	-35212.9	27.9889	0.808074
27	0	-122.587	617.582	-35092.4	28.3301	0.724743
28	0	-119.705	645.446	-34943.9	28.7494	0.631602
29	0	-116.42	673.951	-34622.1	29.6683	0.601107
30	100	-235.861	0	-33944.9	38.0271	0.00544806
31	100	-232.652	2.90075	-33924.4	37.722	0.00661602
32	100	-225.636	10.9971	-33882.3	37.1046	0.00983643
33	100	-217.008	24.8158	-33836.2	36.4294	0.0152655
34	100	-207.847	44.8974	-33795.2	35.8007	0.0231178
35	100	-199.117	69.767	-33764.4	35.2725	0.0328965
36	100	-190.935	98.4725	-33743.3	34.8282	0.0443576
37	100	-184.201	126.189	-33732.1	34.4909	0.0556714
38	100	-178.2	154.118	-33727	34.2062	0.0673753
39	100	-172.943	181.187	-33726.9	33.9653	0.0790582
40	100	-167.888	209.607	-33730.8	33.7383	0.0917354
41	100	-163.553	235.92	-33737.8	33.545	0.103897
42	100	-159.46	262.469	-33747.7	33.3621	0.116634
43	100	-155.616	288.973	-33760.4	33.1883	0.129873
44	100	-152.022	315.174	-33775.5	33.0227	0.143539
45	100	-148.301	343.82	-33795	32.8465	0.159225
46	100	-144.991	370.637	-33816	32.6841	0.174713
47	100	-141.583	399.618	-33842	32.5096	0.192462
48	100	-138.57	426.452	-33869.3	32.347	0.209988
49	100	-135.484	455.158	-33902.1	32.1702	0.230115
50	100	-132.77	481.485	-33936.1	32.0034	0.25008
51	100	-130.006	509.397	-33976.9	31.8191	0.27319
52	100	-127.318	537.677	-34024.2	31.621	0.299201
53	100	-124.867	564.531	-34076.3	31.4171	0.327124
54	100	-122.394	592.787	-34141.6	31.1774	0.361334
55	100	-120.027	621.2	-34224.2	30.8927	0.403718
56	100	-117.935	647.992	-34332.5	30.5408	0.458293
57	100	-116.42	673.951	-34622.1	29.6683	0.601107

cv r ►

N r z %v %d vr G%8%
gr %a v v%8%

ayr vG%e r %		d r G%d vu%	
Bubble Point Temperature	23.6112 °F	? Reid Vapor Pressure	psi

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Stream Report

Overall Properties

Property	Value	Property	Value
Bubble Point Pressure	306.7 psig	ASTM D6377 VPCRx Temperature	100.04 °F
Dew Point Temperature	147.493 °F	ASTM D6377 VPCRx V/L Ratio	4
Dew Point Pressure	-12.7271 psig	Component Subset	All Selected
True Vapor Pressure	592.517 psig		

Component Selection

Component	Selected
Hydrogen Sulfide	True
Nitrogen	True
Methane	True
Carbon Dioxide	True
Ethane	True
Propane	True
i-Butane	True
n-Butane	True
i-Pentane	True
n-Pentane	True
i-Hexane	True
Hexane	True
Benzene	True
Cyclohexane	True
i-Heptane	True
nC7	True
Toluene	True
i-Octane	True
nC8	True
Ethylbenzene	True
o-Xylene	True
Isononane	True
nC9	True
Decane	True
Ethylene Glycol	True
MDEA	True
DEA	True
Piperazine	True
DGA	True
TEG	True
Water	True

Notes

ProMax:ProMax!Project!Flowsheets!04b. Cryo Plant - Recovery!PStreams!41!Analyses!Vapor Pressure 1!Properties!Reid Vapor Pressure
Warning: At presaturation conditions of 1 atm and 0.5°C there is no liquid present. Reid Vapor Pressure cannot be calculated. Refer to ProMax help for more information.

Cover ►

Reid Vapor Pressure

Property	Value	Property	Value
? Bubble Point Temperature	°F	True Vapor Pressure	592.517 psig

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Phase Envelope

Bubble Point Pressure	558.342	psig	
? Dew Point Temperature		°F	
Dew Point Pressure	-3.11523	psig	
ASTM D6377 VPCRx Temperature	100.04	°F	
ASTM D6377 VPCRx V/L Ratio	4		
Component Subset	All Selected		

Component Selection

Hydrogen Sulfide	True			
Nitrogen	True			
Methane	True			
Carbon Dioxide	True			
Ethane	True			
Propane	True			
i-Butane	True			
n-Butane	True			
i-Pentane	True			
n-Pentane	True			
i-Hexane	True			
Hexane	True			
Benzene	True			
Cyclohexane	True			
i-Heptane	True			
nC7	True			
Toluene	True			
i-Octane	True			
nC8	True			
Ethylbenzene	True			
o-Xylene	True			
Isononane	True			
nC9	True			
Decane	True			
Ethylene Glycol	True			
MDEA	True			
DEA	True			
Piperazine	True			
DGA	True			
TEG	True			
Water	True			

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a tv %d vr %sv %
N %d vr %
ers r vu%s % r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	d%3%	Q %r % % P %3%	^TY% %dr v %2 9%	cv zu v% Qz tyr xv%3%	cv zu v%r % %dr v %3%
From Block	DTWR-200	DVDR-1	MIX-103	FAXR-202	SPLT-103
To Block	XCHG-200	SPLT-104	--	SPLT-103	--

d vr %R zz %

Z v%s rt z %	d%3% , %	Q %r % % P %3% , %	^TY% %dr v %2 9% , %	cv zu v% Qz tyr xv%3% , %	cv zu v%r % %dr v %3% , %
Hydrogen Sulfide	4.97492E-06	1.24279E-06	2.93875E-05	1.14697E-07	1.14697E-07
Nitrogen	6.9409E-06	1.69768	1.72045E-06	2.20487	2.20487
Methane	12.9047	76.5671	6.59169	97.2477	97.2477
Carbon Dioxide	0.0260022	0.0089051	0.0187656	0.00532944	0.00532944
Ethane	51.7654	12.3469	46.9221	0.541879	0.541879
Propane	22.8756	5.98503	25.7092	0.00019049	0.00019049
i-Butane	2.73828	0.742305	3.79201	1.74616E-08	1.74616E-08
n-Butane	6.16828	1.68022	9.35086	1.27374E-08	1.27374E-08
i-Pentane	1.23509	0.340081	2.3844	5.43285E-14	5.43285E-14
n-Pentane	1.20793	0.333111	2.50821	3.752E-13	3.752E-13
i-Hexane	0.345695	0.0956534	0.837268	0	0
Hexane	0.191173	0.0529356	0.493093	0	0
Benzene	0.0721201	0.0199535	0.182815	0	0
Cyclohexane	0.126887	0.0351427	0.326586	0	0
i-Heptane	0.177652	0.0492298	0.455229	0	0
nC7	0.0342023	0.00948047	0.0906718	0	0
Toluene	0.0288822	0.00800415	0.0773641	0	0
i-Octane	0.0843428	0.0233777	0.209645	0	0
nC8	0.00488364	0.00135422	0.0132784	0	0
Ethylbenzene	0.00234162	0.000649285	0.00645656	0	0
o-Xylene	0.00419299	0.00116269	0.0116779	0	0
Isononane	0.00311982	0.000865229	0.00924149	0	0
nC9	0	0	0	0	0
Decane	0.0030309	0.000840607	0.00915266	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.00018133	5.0291E-05	0.00019622	0	0
Water	0	0	6.61109E-07	0	0

Zr %s rt z %	d%3% , %	Q %r % % P %3% , %	^TY% %dr v %2 9% , %	cv zu v% Qz tyr xv%3% , %	cv zu v%r % %dr v %3% , %
Hydrogen Sulfide	4.7552E-06	1.99037E-06	2.49379E-05	2.38585E-07	2.38585E-07
Nitrogen	5.45324E-06	2.23484	1.20004E-06	3.7699	3.7699
Methane	5.80618	57.7216	2.63303	95.2208	95.2208
Carbon Dioxide	0.0320943	0.0184166	0.0205635	0.0143156	0.0143156
Ethane	43.6548	17.4463	35.1305	0.994496	0.994496
Propane	28.2905	12.4019	28.2275	0.000512684	0.000512684
i-Butane	4.46367	2.02745	5.48781	6.19451E-08	6.19451E-08
n-Butane	10.0549	4.58916	13.5326	4.5186E-08	4.5186E-08
i-Pentane	2.49919	1.15302	4.28347	2.39242E-13	2.39242E-13
n-Pentane	2.44423	1.12939	4.50588	1.65224E-12	1.65224E-12
i-Hexane	0.835504	0.387355	1.79653	0	0
Hexane	0.462043	0.214366	1.05803	0	0
Benzene	0.157996	0.0732421	0.355563	0	0
Cyclohexane	0.299496	0.138984	0.684365	0	0
i-Heptane	0.499251	0.231808	1.13578	0	0
nC7	0.0961178	0.0446407	0.226222	0	0
Toluene	0.0746351	0.0346562	0.177487	0	0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Zr %Srt z %	d%4%% , %	Q %r % % P %4%% , %	^TY% %dr v %4% 9% , %	cv zu v% Qz tyr xv%4% , %	cv zu v%r % %dr v %4% , %
i-Octane	0.270206	0.125488	0.596274	0	0
nC8	0.0156455	0.00726925	0.0377665	0	0
Ethylbenzene	0.0069722	0.00323923	0.0170675	0	0
o-Xylene	0.0124847	0.00580059	0.0308699	0	0
Isononane	0.0112222	0.00521472	0.0295124	0	0
nC9	0	0	0	0	0
Decane	0.0120946	0.0056204	0.0324253	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000763719	0.000354901	0.000733705	0	0
Water	0	0	2.96552E-07	0	0

Zr %S %	d%4%% s6y%	Q %r % % P %4%% s6y%	^TY% %dr v %4% 9% s6y%	cv zu v% Qz tyr xv%4% s6y%	cv zu v%r % %dr v %4% s6y%
Hydrogen Sulfide	0.0138696	0.0124924	0.0757113	0.000995014	0.000887715
Nitrogen	0.0159056	14026.8	0.0036433	15722.3	14026.8
Methane	16935.1	362287	7993.83	397116	354293
Carbon Dioxide	93.6105	115.591	62.4304	59.7029	53.2647
Ethane	127329	109501	106656	4147.53	3700.27
Propane	82515.7	77839.6	85698.3	2.13814	1.90757
i-Butane	13019.3	12725.2	16660.9	0.000258341	0.000230482
n-Butane	29327.4	28803.7	41084.8	0.000188448	0.000168126
i-Pentane	7289.46	7236.86	13004.6	9.97755E-10	8.9016E-10
n-Pentane	7129.15	7088.54	13679.8	6.89063E-09	6.14757E-09
i-Hexane	2436.94	2431.21	5454.25	0	0
Hexane	1347.65	1345.46	3212.18	0	0
Benzene	460.831	459.7	1079.48	0	0
Cyclohexane	873.549	872.324	2077.72	0	0
i-Heptane	1456.18	1454.93	3448.21	0	0
nC7	280.349	280.185	686.808	0	0
Toluene	217.69	217.518	538.85	0	0
i-Octane	788.118	787.617	1810.28	0	0
nC8	45.6338	45.6251	114.659	0	0
Ethylbenzene	20.336	20.3309	51.8167	0	0
o-Xylene	36.4145	36.4071	93.7206	0	0
Isononane	32.732	32.7299	89.5992	0	0
nC9	0	0	0	0	0
Decane	35.2768	35.2762	98.4427	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	2.22756	2.22752	2.22752	0	0
Water	0	0	0.000900329	0	0

d vr %a v zv %

a v %	f z %	d%4%%	Q %r % % P %4%%	^TY% %dr v %4% 9%	cv zu v% Qz tyr xv%4%	cv zu v%r % %dr v %4%
Temperature	°F	-11.2181	101.29	98.5671	120 *	120
Pressure	psig	306.7	979.4	1215	1100 *	1100
Molecular Weight	lb/lbmol	35.6556	21.2802	40.1617	16.384	16.384
Std Liquid Volumetric Flow	sgpm	1368.32	3583.83	1328.05	2709.82	2417.6
Std Vapor Volumetric Flow	MMSCFD	74.5029	268.624	68.8481	231.831	206.831
Net Ideal Gas Heating Value	Btu/ft^3	1892.67	1146.2	2115.87	893.148	893.148

* User Specified Values
? Extrapolated or Approximate Values

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

a v %	f z %	d%43%	Q %r % % P %43%	^TY% %dr v %4 9%	cv zu v% Qz tyr xv%43%	cv zu v%r % %dr v %43%
Gross Ideal Gas Heating Value	Btu/ft^3	2063.19	1263.03	2302.19	991.796	991.796
Mole Fraction Vapor	%	0	100	0	100	100
Mass Density	lb/ft^3	31.185	4.36311	28.8535	3.2319	3.2319
Mass Flow	lb/h	291673	627645	303599	417048	372075
Specific Gravity		0.50001	0.734749	0.462627	0.565695	0.565695
API Gravity		203.763		153.261		

h r z x %

ProMax:ProMax!Project!Flowsheets!04b. Cryo Plant - Recovery!PStreams!` - 2!Analyses!Vapor Pressure 1!Properties!Reid Vapor Pressure

Warning: At presaturation conditions of 1 atm and 0.5°C there is no liquid present. Reid Vapor Pressure cannot be calculated. Refer to ProMax help for more information.

cv r ►%

ProMax 7.0.26169.0
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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	cv zu v%dg%2 9%	cv zu v%s % d x%Qz t y%4s%	dzuv%Q r %4s%	8%	9%
From Block	SPLT-103	FAXR-201	DTWR-200	TEG Dehy/ Cryo Recovery	Inlet Filter Separator - 2
To Block	RCYL-1	VSSL-200	XCHG-105	Inlet Filter Separator - 2	VLVE-106

d vr %8 zz %

Z v%S rt z %	cv zu v%dg%2 9% , %	cv zu v%s % d x%Qz t y%4s% , %	dzuv%Q r %4s% , %	8% , %	9% , %
Hydrogen Sulfide	1.14697E-07	1.14697E-07	4.27705E-06	1.24261E-06	
Nitrogen	2.20487	2.20487	0.00277486	1.69743	
Methane	97.2477	97.2477	25.6487	76.5558	
Carbon Dioxide	0.00532944	0.00532944	0.0251073	0.00890379	
Ethane	0.541879	0.541879	44.4543	12.3451	
Propane	0.00019049	0.00019049	19.2924	5.98414	
i-Butane	1.74616E-08	1.74616E-08	2.32379	0.742196	
n-Butane	1.27374E-08	1.27374E-08	5.24345	1.67997	
i-Pentane	5.43285E-14	5.43285E-14	1.05417	0.340031	
n-Pentane	3.752E-13	3.752E-13	1.03178	0.333062	
i-Hexane	0	0	0.295821	0.0956393	
Hexane	0	0	0.163658	0.0529278	
Benzene	0	0	0.0617111	0.0199505	
Cyclohexane	0	0	0.108638	0.0351375	
i-Heptane	0	0	0.152161	0.0492225	
nC7	0	0	0.0292999	0.00947908	
Toluene	0	0	0.024739	0.00800297	
i-Octane	0	0	0.0722514	0.0233742	
nC8	0	0	0.00418485	0.00135402	
Ethylbenzene	0	0	0.00200647	0.00064919	
o-Xylene	0	0	0.003593	0.00116252	
Isononane	0	0	0.00267368	0.000865101	
nC9	0	0	0	0	
Decane	0	0	0.00259758	0.000840483	
Ethylene Glycol	0	0	0	0	
MDEA	0	0	0	3.87694E-08	
DEA	0	0	0	0	
Piperazine	0	0	0	3.48746E-06	
DGA	0	0	0	0	
TEG	0	0	0.000155405	5.02836E-05	
Water	0	0	0	0.0147358	

Zr %S rt z %	cv zu v%dg%2 9% , %	cv zu v%s % d x%Qz t y%4s% , %	dzuv%Q r %4s% , %	8% , %	9% , %
Hydrogen Sulfide	2.38585E-07	2.38585E-07	4.45158E-06	1.99012E-06	
Nitrogen	3.7699	3.7699	0.00237392	2.23456	
Methane	95.2208	95.2208	12.566	57.7144	
Carbon Dioxide	0.0143156	0.0143156	0.0337448	0.0184143	
Ethane	0.994496	0.994496	40.8219	17.4441	
Propane	0.000512684	0.000512684	25.9802	12.4003	
i-Butane	6.19451E-08	6.19451E-08	4.12475	2.02719	
n-Butane	4.5186E-08	4.5186E-08	9.30718	4.58859	
i-Pentane	2.39242E-13	2.39242E-13	2.32272	1.15287	
n-Pentane	1.65224E-12	1.65224E-12	2.2734	1.12925	
i-Hexane	0	0	0.778522	0.387306	
Hexane	0	0	0.430706	0.214339	
Benzene	0	0	0.147211	0.0732329	
Cyclohexane	0	0	0.27922	0.138966	
i-Heptane	0	0	0.465629	0.231779	

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Zr %Srt z %	cv zu v%dg%4 9% , %	cv zu v%s % d x%Qz t y%4s% , %	dzuv%Q r %4s% , %	8% , %	9% , %
nC7	0	0	0.0896607	0.0446352	
Toluene	0	0	0.0696118	0.0346519	
i-Octane	0	0	0.252046	0.125472	
nC8	0	0	0.0145987	0.00726835	
Ethylbenzene	0	0	0.00650539	0.00323883	
o-Xylene	0	0	0.0116492	0.00579986	
Isononane	0	0	0.0104723	0.00521406	
nC9	0	0	0	0	
Decane	0	0	0.0112869	0.0056197	
Ethylene Glycol	0	0	0	0	
MDEA	0	0	0	2.17101E-07	
DEA	0	0	0	0	
Piperazine	0	0	0	1.41165E-05	
DGA	0	0	0	0	
TEG	0	0	0.000712716	0.000354857	
Water	0	0	0	0.0124753	

Zr %S %	cv zu v%dg%4 9% s6y%	cv zu v%s % d x%Qz t y%4s% s6y%	dzuv%Q r %4s% s6y%	8% s6y%	9% s6y%
Hydrogen Sulfide	0.000107299	0.000995014	0.00695648	0.0124924	0
Nitrogen	1695.44	15722.3	3.70972	14026.8	0
Methane	42823.8	397116	19636.8	362287	0
Carbon Dioxide	6.43818	59.7029	52.733	115.591	0
Ethane	447.257	4147.53	63792.3	109501	0
Propane	0.23057	2.13814	40599.2	77839.6	0
i-Butane	2.78587E-05	0.000258341	6445.75	12725.2	0
n-Butane	2.03216E-05	0.000188448	14544.3	28803.7	0
i-Pentane	1.07595E-10	9.97755E-10	3629.72	7236.86	0
n-Pentane	7.43065E-10	6.89063E-09	3552.64	7088.54	0
i-Hexane	0	0	1216.6	2431.21	0
Hexane	0	0	673.064	1345.46	0
Benzene	0	0	230.046	459.7	0
Cyclohexane	0	0	436.337	872.324	0
i-Heptane	0	0	727.638	1454.93	0
nC7	0	0	140.113	280.185	0
Toluene	0	0	108.782	217.518	0
i-Octane	0	0	393.873	787.617	0
nC8	0	0	22.8134	45.6251	0
Ethylbenzene	0	0	10.166	20.3309	0
o-Xylene	0	0	18.2043	36.4071	0
Isononane	0	0	16.3651	32.7299	0
nC9	0	0	0	0	0
Decane	0	0	17.6381	35.2762	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0.0013628	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0.0886124	0
DGA	0	0	0	0	0
TEG	0	0	1.11376	2.22752	0
Water	0	0	0	78.3104	0

d vr %a v zv %

a v %	f z %	cv zu v%dg%4 9%	cv zu v%s % d x%Qz t y%4s%	dzuv%Q r %4s%	8%	9%
Temperature	°F	120	120 *	-66.1774	101.296	
Pressure	psig	1100	598	306.1	979.5	979.4
Molecular Weight	lb/lbmol	16.384	16.384	32.7447	21.2797	
Std Liquid Volumetric Flow	sgpm	292.219	2709.82	756.033	3583.99	0

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

a v %	f z %	cv zu v%sdg%8 9%	cv zu v%s % d x%Qz t y%4s%	dzuv%Q r %4s%	8%	9%
Std Vapor Volumetric Flow	MMSCFD	25 *	231.831	43.465	268.663	0
Net Ideal Gas Heating Value	Btu/ft^3	893.148	893.148	1746.65	1146.03	
Gross Ideal Gas Heating Value	Btu/ft^3	991.796	991.796	1906.77	1262.85	
Mole Fraction Vapor	%	100	100	0	100	
Mass Density	lb/ft^3	3.2319	1.70777	32.0784	4.36343	
Mass Flow	lb/h	44973.2	417048	156270	627724	0
Specific Gravity		0.565695	0.565695	0.514335	0.734732	
API Gravity				275.414 ?		

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	:%	A%	C%	D%	E%
From Block	Inlet Filter Separator - 2	DVDR-1	SPLT-100	SPLT-100	E-1501
To Block	DVDR-1	--	VLVE-105	VLVE-104	XCHG-200

d vr %R zz %

Z v%s rt z %	:% , %	A% , %	C% , %	D% , %	E% , %
Hydrogen Sulfide	1.24261E-06	0	1.24279E-06	1.24279E-06	1.24279E-06
Nitrogen	1.69743	0	1.69768	1.69768	1.69768
Methane	76.5558	0	76.5671	76.5671	76.5671
Carbon Dioxide	0.00890379	0	0.0089051	0.0089051	0.0089051
Ethane	12.3451	0	12.3469	12.3469	12.3469
Propane	5.98414	0	5.98503	5.98503	5.98503
i-Butane	0.742196	0	0.742305	0.742305	0.742305
n-Butane	1.67997	0	1.68022	1.68022	1.68022
i-Pentane	0.340031	0	0.340081	0.340081	0.340081
n-Pentane	0.333062	0	0.333111	0.333111	0.333111
i-Hexane	0.0956393	0	0.0956534	0.0956534	0.0956534
Hexane	0.0529278	0	0.0529356	0.0529356	0.0529356
Benzene	0.0199505	0	0.0199535	0.0199535	0.0199535
Cyclohexane	0.0351375	0	0.0351427	0.0351427	0.0351427
i-Heptane	0.0492225	0	0.0492298	0.0492298	0.0492298
nC7	0.00947908	0	0.00948047	0.00948047	0.00948047
Toluene	0.00800297	0	0.00800415	0.00800415	0.00800415
i-Octane	0.0233742	0	0.0233777	0.0233777	0.0233777
nC8	0.00135402	0	0.00135422	0.00135422	0.00135422
Ethylbenzene	0.00064919	0	0.000649285	0.000649285	0.000649285
o-Xylene	0.00116252	0	0.00116269	0.00116269	0.00116269
Isononane	0.000865101	0	0.000865229	0.000865229	0.000865229
nC9	0	0	0	0	0
Decane	0.000840483	0	0.000840607	0.000840607	0.000840607
Ethylene Glycol	0	0	0	0	0
MDEA	3.87694E-08	0.000263033	0	0	0
DEA	0	0	0	0	0
Piperazine	3.48746E-06	0.0236608	0	0	0
DGA	0	0	0	0	0
TEG	5.02836E-05	0	5.0291E-05	5.0291E-05	5.0291E-05
Water	0.0147358	99.9761	0	0	0

Zr %s rt z %	:% , %	A% , %	C% , %	D% , %	E% , %
Hydrogen Sulfide	1.99012E-06	0	1.99037E-06	1.99037E-06	1.99037E-06
Nitrogen	2.23456	0	2.23484	2.23484	2.23484
Methane	57.7144	0	57.7216	57.7216	57.7216
Carbon Dioxide	0.0184143	0	0.0184166	0.0184166	0.0184166
Ethane	17.4441	0	17.4463	17.4463	17.4463
Propane	12.4003	0	12.4019	12.4019	12.4019
i-Butane	2.02719	0	2.02745	2.02745	2.02745
n-Butane	4.58859	0	4.58916	4.58916	4.58916
i-Pentane	1.15287	0	1.15302	1.15302	1.15302
n-Pentane	1.12925	0	1.12939	1.12939	1.12939
i-Hexane	0.387306	0	0.387355	0.387355	0.387355
Hexane	0.214339	0	0.214366	0.214366	0.214366
Benzene	0.0732329	0	0.0732421	0.0732421	0.0732421
Cyclohexane	0.138966	0	0.138984	0.138984	0.138984
i-Heptane	0.231779	0	0.231808	0.231808	0.231808
nC7	0.0446352	0	0.0446407	0.0446407	0.0446407
Toluene	0.0346519	0	0.0346562	0.0346562	0.0346562
i-Octane	0.125472	0	0.125488	0.125488	0.125488
nC8	0.00726835	0	0.00726925	0.00726925	0.00726925

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a tv %d vr %sv % N %d vr %

ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	:% , %	A% , %	C% , %	D% , %	E% , %
Ethylbenzene	0.00323883	0	0.00323923	0.00323923	0.00323923
o-Xylene	0.00579986	0	0.00580059	0.00580059	0.00580059
Isononane	0.00521406	0	0.00521472	0.00521472	0.00521472
nC9	0	0	0	0	0
Decane	0.0056197	0	0.0056204	0.0056204	0.0056204
Ethylene Glycol	0	0	0	0	0
MDEA	2.17101E-07	0.00173825	0	0	0
DEA	0	0	0	0	0
Piperazine	1.41165E-05	0.113026	0	0	0
DGA	0	0	0	0	0
TEG	0.000354857	0	0.000354901	0.000354901	0.000354901
Water	0.0124753	99.8852	0	0	0

Zr %S %	:% s6y%	A% s6y%	C% s6y%	D% s6y%	E% s6y%
Hydrogen Sulfide	0.0124924	0	0.00437235	0.00812009	0.00812009
Nitrogen	14026.8	0	4909.39	9117.44	9117.44
Methane	362287	0	126800	235486	235486
Carbon Dioxide	115.591	0	40.4569	75.1342	75.1342
Ethane	109501	0	38325.2	71175.4	71175.4
Propane	77839.6	0	27243.9	50595.8	50595.8
i-Butane	12725.2	0	4453.81	8271.36	8271.36
n-Butane	28803.7	0	10081.3	18722.4	18722.4
i-Pentane	7236.86	0	2532.9	4703.96	4703.96
n-Pentane	7088.54	0	2480.99	4607.55	4607.55
i-Hexane	2431.21	0	850.924	1580.29	1580.29
Hexane	1345.46	0	470.911	874.548	874.548
Benzene	459.7	0	160.895	298.805	298.805
Cyclohexane	872.324	0	305.313	567.01	567.01
i-Heptane	1454.93	0	509.227	945.707	945.707
nC7	280.185	0	98.0649	182.12	182.12
Toluene	217.518	0	76.1314	141.387	141.387
i-Octane	787.617	0	275.666	511.951	511.951
nC8	45.6251	0	15.9688	29.6563	29.6563
Ethylbenzene	20.3309	0	7.11581	13.2151	13.2151
o-Xylene	36.4071	0	12.7425	23.6646	23.6646
Isononane	32.7299	0	11.4555	21.2744	21.2744
nC9	0	0	0	0	0
Decane	35.2762	0	12.3467	22.9295	22.9295
Ethylene Glycol	0	0	0	0	0
MDEA	0.0013628	0.0013628	0	0	0
DEA	0	0	0	0	0
Piperazine	0.0886124	0.0886124	0	0	0
DGA	0	0	0	0	0
TEG	2.22752	0	0.779632	1.44789	1.44789
Water	78.3104	78.3104	0	0	0

d vr %a v zv %

a v %	f z %	:%	A%	C%	D%	E%
Temperature	°F	101.29	101.29	101.29	101.29	66 *
Pressure	psig	979.4	979.4	979.4	979.4	969.4
Molecular Weight	lb/lbmol	21.2797	18.0317	21.2802	21.2802	21.2802
Std Liquid Volumetric Flow	sgpm	3583.99	0.156797	1254.34	2329.49	2329.49
Std Vapor Volumetric Flow	MMSCFD	268.663	0.0395993	94.0183	174.605	174.605
Net Ideal Gas Heating Value	Btu/ft^3	1146.03	0.762229	1146.2	1146.2	1146.2
Gross Ideal Gas Heating Value	Btu/ft^3	1262.85	51.1205	1263.03	1263.03	1263.03
Mole Fraction Vapor	%	100	0	100	100	99.4855
Mass Density	lb/ft^3	4.363	61.9961	4.36311	4.36311	4.95455
Mass Flow	lb/h	627724	78.4004	219676	407969	407969
Specific Gravity		0.734732	0.994025	0.734749	0.734749	

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %v %
N %d vr %
ers r vu%s %r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %v zv %

a v % f z %	: %	A%	C%	D%	E%
API Gravity		9.86825			

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	F%	87%	88%	89%	8: %
From Block	Gas/Gas Exchanger - 2	MIX-100	Inlet Gas Chiller - 2	V-1511	V-1511
To Block	MIX-100	Inlet Gas Chiller - 2	V-1511	SPLT-101	VLVE-100

d vr %R zz %

Z v%s rt z %	F% , %	87% , %	88% , %	89% , %	8: % , %
Hydrogen Sulfide	1.24279E-06	1.24279E-06	1.24279E-06	9.1153E-07	2.19598E-06
Nitrogen	1.69768	1.69768	1.69768	2.10342	0.530139
Methane	76.5671	76.5671	76.5671	85.2989	51.4414
Carbon Dioxide	0.0089051	0.0089051	0.0089051	0.00844256	0.0102361
Ethane	12.3469	12.3469	12.3469	9.29031	21.1421
Propane	5.98503	5.98503	5.98503	2.65896	15.5557
i-Butane	0.742305	0.742305	0.742305	0.191433	2.32743
n-Butane	1.68022	1.68022	1.68022	0.366857	5.4594
i-Pentane	0.340081	0.340081	0.340081	0.0374503	1.21089
n-Pentane	0.333111	0.333111	0.333111	0.0327869	1.19729
i-Hexane	0.0956534	0.0956534	0.0956534	0.00510073	0.356217
Hexane	0.0529356	0.0529356	0.0529356	0.00208316	0.199263
Benzene	0.0199535	0.0199535	0.0199535	0.00100278	0.0744838
Cyclohexane	0.0351427	0.0351427	0.0351427	0.00116333	0.132918
i-Heptane	0.0492298	0.0492298	0.0492298	0.00124519	0.187305
nC7	0.00948047	0.00948047	0.00948047	0.000175981	0.036254
Toluene	0.00800415	0.00800415	0.00800415	0.000175441	0.0305311
i-Octane	0.0233777	0.0233777	0.0233777	0.000463255	0.0893135
nC8	0.00135422	0.00135422	0.00135422	1.04582E-05	0.00522088
Ethylbenzene	0.000649285	0.000649285	0.000649285	6.06145E-06	0.00250015
o-Xylene	0.00116269	0.00116269	0.00116269	8.37992E-06	0.00448422
Isononane	0.000865229	0.000865229	0.000865229	3.11982E-06	0.00334593
nC9	0	0	0	0	0
Decane	0.000840607	0.000840607	0.000840607	1.13771E-06	0.00325617
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	5.0291E-05	5.0291E-05	5.0291E-05	5.77046E-08	0.000194837
Water	0	0	0	0	0

Zr %s rt z %	F% , %	87% , %	88% , %	89% , %	8: % , %
Hydrogen Sulfide	1.99037E-06	1.99037E-06	1.99037E-06	1.66767E-06	2.58867E-06
Nitrogen	2.23484	2.23484	2.23484	3.16316	0.51368
Methane	57.7216	57.7216	57.7216	73.4585	28.5444
Carbon Dioxide	0.0184166	0.0184166	0.0184166	0.0199456	0.0155818
Ethane	17.4463	17.4463	17.4463	14.9961	21.989
Propane	12.4019	12.4019	12.4019	6.29411	23.7259
i-Butane	2.02745	2.02745	2.02745	0.597291	4.67903
n-Butane	4.58916	4.58916	4.58916	1.14464	10.9755
i-Pentane	1.15302	1.15302	1.15302	0.145048	3.02185
n-Pentane	1.12939	1.12939	1.12939	0.126986	2.98789
i-Hexane	0.387355	0.387355	0.387355	0.0235963	1.06178
Hexane	0.214366	0.214366	0.214366	0.00963681	0.593945
Benzene	0.0732421	0.0732421	0.0732421	0.00420486	0.201241
Cyclohexane	0.138984	0.138984	0.138984	0.00525576	0.386922
i-Heptane	0.231808	0.231808	0.231808	0.00669794	0.649175
nC7	0.0446407	0.0446407	0.0446407	0.000946607	0.125652
Toluene	0.0346562	0.0346562	0.0346562	0.000867762	0.0973019
i-Octane	0.125488	0.125488	0.125488	0.00284068	0.352882

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	F% , %	87% , %	88% , %	89% , %	8: % , %
nC8	0.00726925	0.00726925	0.00726925	6.41299E-05	0.0206279
Ethylbenzene	0.00323923	0.00323923	0.00323923	3.4545E-05	0.0091809
o-Xylene	0.00580059	0.00580059	0.00580059	4.77583E-05	0.0164666
Isononane	0.00521472	0.00521472	0.00521472	2.14799E-05	0.0148433
nC9	0	0	0	0	0
Decane	0.0056204	0.0056204	0.0056204	8.68977E-06	0.0160248
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000354901	0.000354901	0.000354901	4.6519E-07	0.00101204
Water	0	0	0	0	0

Zr %S %	F% s6y%	87% s6y%	88% s6y%	89% s6y%	8: % s6y%
Hydrogen Sulfide	0.00437235	0.0124924	0.0124924	0.00679961	0.00569283
Nitrogen	4909.39	14026.8	14026.8	12897.2	1129.65
Methane	126800	362287	362287	299514	62773.1
Carbon Dioxide	40.4569	115.591	115.591	81.3247	34.2664
Ethane	38325.2	109501	109501	61143.7	48356.8
Propane	27243.9	77839.6	77839.6	25663.1	52176.5
i-Butane	4453.81	12725.2	12725.2	2435.35	10289.8
n-Butane	10081.3	28803.7	28803.7	4667.04	24136.6
i-Pentane	2532.9	7236.86	7236.86	591.407	6645.45
n-Pentane	2480.99	7088.54	7088.54	517.763	6570.78
i-Hexane	850.924	2431.21	2431.21	96.2094	2335
Hexane	470.911	1345.46	1345.46	39.2923	1306.17
Benzene	160.895	459.7	459.7	17.1445	442.556
Cyclohexane	305.313	872.324	872.324	21.4294	850.894
i-Heptane	509.227	1454.93	1454.93	27.3096	1427.62
nC7	98.0649	280.185	280.185	3.85962	276.326
Toluene	76.1314	217.518	217.518	3.53814	213.98
i-Octane	275.666	787.617	787.617	11.5823	776.035
nC8	15.9688	45.6251	45.6251	0.261478	45.3636
Ethylbenzene	7.11581	20.3309	20.3309	0.140851	20.19
o-Xylene	12.7425	36.4071	36.4071	0.194726	36.2124
Isononane	11.4555	32.7299	32.7299	0.0875804	32.6423
nC9	0	0	0	0	0
Decane	12.3467	35.2762	35.2762	0.0354309	35.2407
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.779632	2.22752	2.22752	0.00189673	2.22562
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	F%	87%	88%	89%	8: %
Temperature	°F	4 *	5.2984	-23 *	-23.2983	-23.2983
Pressure	psig	959.4	959.4	949.4	944.4	944.4
Molecular Weight	lb/lbmol	21.2802	21.2802	21.2802	18.6283	28.911
Std Liquid Volumetric Flow	sgpm	1254.34	3583.83	3583.83	2501.92	1081.91
Std Vapor Volumetric Flow	MMSCFD	94.0183	268.624	268.624	199.346	69.2778
Net Ideal Gas Heating Value	Btu/ft^3	1146.2	1146.2	1146.2	1007.57	1545.1
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03	1263.03	1263.03	1114.38	1690.75
Mole Fraction Vapor	%	85.8512	86.3024	74.1984	100	0
Mass Density	lb/ft^3	6.87088	6.80863	8.44692	6.12686	26.7701
Mass Flow	lb/h	219676	627645	627645	407732	219914

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %v %
N %d vr %
ers r vu%s %s r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

a v % f z %	F%	87%	88%	89%	8: %
Specific Gravity				0.643185	0.429223
API Gravity					411.807 ?

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	8A%	8B%	8C%	8D%	8E%
From Block	SPLT-101	SPLT-101	Gas/Gas Exchanger - 2	XCHG-200	XCHG-105
To Block	Gas/Gas Exchanger - 2	Expander - 2	VLVE-101	E-1521	DTWR-200

d vr %R zz %

Z v%s rt z %	8A% , %	8B% , %	8C% , %	8D% , %	8E% , %
Hydrogen Sulfide	9.1153E-07	9.1153E-07	9.1153E-07	4.97492E-06	4.27705E-06
Nitrogen	2.10342	2.10342	2.10342	6.9409E-06	0.00277486
Methane	85.2989	85.2989	85.2989	12.9047	25.6487
Carbon Dioxide	0.00844256	0.00844256	0.00844256	0.0260022	0.0251073
Ethane	9.29031	9.29031	9.29031	51.7654	44.4543
Propane	2.65896	2.65896	2.65896	22.8756	19.2924
i-Butane	0.191433	0.191433	0.191433	2.73828	2.32379
n-Butane	0.366857	0.366857	0.366857	6.16828	5.24345
i-Pentane	0.0374503	0.0374503	0.0374503	1.23509	1.05417
n-Pentane	0.0327869	0.0327869	0.0327869	1.20793	1.03178
i-Hexane	0.00510073	0.00510073	0.00510073	0.345695	0.295821
Hexane	0.00208316	0.00208316	0.00208316	0.191173	0.163658
Benzene	0.00100278	0.00100278	0.00100278	0.0721201	0.0617111
Cyclohexane	0.00116333	0.00116333	0.00116333	0.126887	0.108638
i-Heptane	0.00124519	0.00124519	0.00124519	0.177652	0.152161
nC7	0.000175981	0.000175981	0.000175981	0.0342023	0.0292999
Toluene	0.000175441	0.000175441	0.000175441	0.0288822	0.024739
i-Octane	0.000463255	0.000463255	0.000463255	0.0843428	0.0722514
nC8	1.04582E-05	1.04582E-05	1.04582E-05	0.00488364	0.00418485
Ethylbenzene	6.06145E-06	6.06145E-06	6.06145E-06	0.00234162	0.00200647
o-Xylene	8.37992E-06	8.37992E-06	8.37992E-06	0.00419299	0.003593
Isononane	3.11982E-06	3.11982E-06	3.11982E-06	0.00311982	0.00267368
nC9	0	0	0	0	0
Decane	1.13771E-06	1.13771E-06	1.13771E-06	0.0030309	0.00259758
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	5.77046E-08	5.77046E-08	5.77046E-08	0.00018133	0.000155405
Water	0	0	0	0	0

Zr %s rt z %	8A% , %	8B% , %	8C% , %	8D% , %	8E% , %
Hydrogen Sulfide	1.66767E-06	1.66767E-06	1.66767E-06	4.7552E-06	4.45158E-06
Nitrogen	3.16316	3.16316	3.16316	5.45324E-06	0.00237392
Methane	73.4585	73.4585	73.4585	5.80618	12.566
Carbon Dioxide	0.0199456	0.0199456	0.0199456	0.0320943	0.0337448
Ethane	14.9961	14.9961	14.9961	43.6548	40.8219
Propane	6.29411	6.29411	6.29411	28.2905	25.9802
i-Butane	0.597291	0.597291	0.597291	4.46367	4.12475
n-Butane	1.14464	1.14464	1.14464	10.0549	9.30718
i-Pentane	0.145048	0.145048	0.145048	2.49919	2.32272
n-Pentane	0.126986	0.126986	0.126986	2.44423	2.2734
i-Hexane	0.0235963	0.0235963	0.0235963	0.835504	0.778522
Hexane	0.00963681	0.00963681	0.00963681	0.462043	0.430706
Benzene	0.00420486	0.00420486	0.00420486	0.157996	0.147211
Cyclohexane	0.00525576	0.00525576	0.00525576	0.299496	0.27922
i-Heptane	0.00669794	0.00669794	0.00669794	0.499251	0.465629
nC7	0.000946607	0.000946607	0.000946607	0.0961178	0.0896607
Toluene	0.000867762	0.000867762	0.000867762	0.0746351	0.0696118
i-Octane	0.00284068	0.00284068	0.00284068	0.270206	0.252046

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Zr %Srt z %	8A% , %	8B% , %	8C% , %	8D% , %	8E% , %
nC8	6.41299E-05	6.41299E-05	6.41299E-05	0.0156455	0.0145987
Ethylbenzene	3.4545E-05	3.4545E-05	3.4545E-05	0.0069722	0.00650539
o-Xylene	4.77583E-05	4.77583E-05	4.77583E-05	0.0124847	0.0116492
Isononane	2.14799E-05	2.14799E-05	2.14799E-05	0.0112222	0.0104723
nC9	0	0	0	0	0
Decane	8.68977E-06	8.68977E-06	8.68977E-06	0.0120946	0.0112869
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	4.6519E-07	4.6519E-07	4.6519E-07	0.000763719	0.000712716
Water	0	0	0	0	0

Zr %S %	8A% s6y%	8B% s6y%	8C% s6y%	8D% s6y%	8E% s6y%
Hydrogen Sulfide	0.00271985	0.00407977	0.00271985	0.0138696	0.00695648
Nitrogen	5158.87	7738.31	5158.87	0.0159056	3.70972
Methane	119805	179708	119805	16935.1	19636.8
Carbon Dioxide	32.5299	48.7948	32.5299	93.6105	52.733
Ethane	24457.5	36686.2	24457.5	127329	63792.3
Propane	10265.2	15397.9	10265.2	82515.7	40599.2
i-Butane	974.138	1461.21	974.138	13019.3	6445.75
n-Butane	1866.82	2800.22	1866.82	29327.4	14544.3
i-Pentane	236.563	354.844	236.563	7289.46	3629.72
n-Pentane	207.105	310.658	207.105	7129.15	3552.64
i-Hexane	38.4838	57.7256	38.4838	2436.94	1216.6
Hexane	15.7169	23.5754	15.7169	1347.65	673.064
Benzene	6.85781	10.2867	6.85781	460.831	230.046
Cyclohexane	8.57175	12.8576	8.57175	873.549	436.337
i-Heptane	10.9238	16.3858	10.9238	1456.18	727.638
nC7	1.54385	2.31577	1.54385	280.349	140.113
Toluene	1.41526	2.12288	1.41526	217.69	108.782
i-Octane	4.63294	6.94941	4.63294	788.118	393.873
nC8	0.104591	0.156887	0.104591	45.6338	22.8134
Ethylbenzene	0.0563404	0.0845106	0.0563404	20.336	10.166
o-Xylene	0.0778903	0.116835	0.0778903	36.4145	18.2043
Isononane	0.0350322	0.0525483	0.0350322	32.732	16.3651
nC9	0	0	0	0	0
Decane	0.0141724	0.0212586	0.0141724	35.2768	17.6381
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.00075869	0.00113804	0.00075869	2.22756	1.11376
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	8A%	8B%	8C%	8D%	8E%
Temperature	°F	-23.2983	-23.2983	-120 *	23.6112	4.72291
Pressure	psig	944.4	944.4	937.4	306.7	306.1
Molecular Weight	lb/lbmol	18.6283	18.6283	18.6283	35.6556	32.7447
Std Liquid Volumetric Flow	sgpm	1000.77	1501.15	1000.77	1368.32	756.033
Std Vapor Volumetric Flow	MMSCFD	79.7383	119.607	79.7383	74.5029	43.465
Net Ideal Gas Heating Value	Btu/ft^3	1007.57	1007.57	1007.57	1892.67	1746.65
Gross Ideal Gas Heating Value	Btu/ft^3	1114.38	1114.38	1114.38	2063.19	1906.77
Mole Fraction Vapor	%	100	100	0	17.0606	33.8712
Mass Density	lb/ft^3	6.12686	6.12686	21.6735	10.9678	6.35055
Mass Flow	lb/h	163093	244639	163093	291673	156270

* User Specified Values
? Extrapolated or Approximate Values

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

a v % f z %	8A%	8B%	8C%	8D%	8E%
Specific Gravity	0.643185	0.643185	0.347507		
API Gravity			2138.92 ?		

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	8F%	97%	98%	99%	9: %
From Block	E-1521	Expander - 2	VLVE-100	VLVE-104	Residue 1st Stg - 2
To Block	Surge Tank - 2	DTWR-200	DTWR-200	E-1501	FAXR-201

d vr %R zz %

Z v%S rt z %	8F% , %	97% , %	98% , %	99% , %	9: % , %
Hydrogen Sulfide	4.97492E-06	9.1153E-07	2.19598E-06	1.24279E-06	1.14697E-07
Nitrogen	6.9409E-06	2.10342	0.530139	1.69768	2.20487
Methane	12.9047	85.2989	51.4414	76.5671	97.2477
Carbon Dioxide	0.0260022	0.00844256	0.0102361	0.0089051	0.00532944
Ethane	51.7654	9.29031	21.1421	12.3469	0.541879
Propane	22.8756	2.65896	15.5557	5.98503	0.00019049
i-Butane	2.73828	0.191433	2.32743	0.742305	1.74616E-08
n-Butane	6.16828	0.366857	5.4594	1.68022	1.27374E-08
i-Pentane	1.23509	0.0374503	1.21089	0.340081	5.43285E-14
n-Pentane	1.20793	0.0327869	1.19729	0.333111	3.752E-13
i-Hexane	0.345695	0.00510073	0.356217	0.0956534	0
Hexane	0.191173	0.00208316	0.199263	0.0529356	0
Benzene	0.0721201	0.00100278	0.0744838	0.0199535	0
Cyclohexane	0.126887	0.00116333	0.132918	0.0351427	0
i-Heptane	0.177652	0.00124519	0.187305	0.0492298	0
nC7	0.0342023	0.000175981	0.036254	0.00948047	0
Toluene	0.0288822	0.000175441	0.0305311	0.00800415	0
i-Octane	0.0843428	0.000463255	0.0893135	0.0233777	0
nC8	0.00488364	1.04582E-05	0.00522088	0.00135422	0
Ethylbenzene	0.00234162	6.06145E-06	0.00250015	0.000649285	0
o-Xylene	0.00419299	8.37992E-06	0.00448422	0.00116269	0
Isononane	0.00311982	3.11982E-06	0.00334593	0.000865229	0
nC9	0	0	0	0	0
Decane	0.0030309	1.13771E-06	0.00325617	0.000840607	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.00018133	5.77046E-08	0.000194837	5.0291E-05	0
Water	0	0	0	0	0

Zr %S rt z %	8F% , %	97% , %	98% , %	99% , %	9: % , %
Hydrogen Sulfide	4.7552E-06	1.66767E-06	2.58867E-06	1.99037E-06	2.38585E-07
Nitrogen	5.45324E-06	3.16316	0.51368	2.23484	3.7699
Methane	5.80618	73.4585	28.5444	57.7216	95.2208
Carbon Dioxide	0.0320943	0.0199456	0.0155818	0.0184166	0.0143156
Ethane	43.6548	14.9961	21.989	17.4463	0.994496
Propane	28.2905	6.29411	23.7259	12.4019	0.000512684
i-Butane	4.46367	0.597291	4.67903	2.02745	6.19451E-08
n-Butane	10.0549	1.14464	10.9755	4.58916	4.5186E-08
i-Pentane	2.49919	0.145048	3.02185	1.15302	2.39242E-13
n-Pentane	2.44423	0.126986	2.98789	1.12939	1.65224E-12
i-Hexane	0.835504	0.0235963	1.06178	0.387355	0
Hexane	0.462043	0.00963681	0.593945	0.214366	0
Benzene	0.157996	0.00420486	0.201241	0.0732421	0
Cyclohexane	0.299496	0.00525576	0.386922	0.138984	0
i-Heptane	0.499251	0.00669794	0.649175	0.231808	0
nC7	0.0961178	0.000946607	0.125652	0.0446407	0
Toluene	0.0746351	0.000867762	0.0973019	0.0346562	0
i-Octane	0.270206	0.00284068	0.352882	0.125488	0
nC8	0.0156455	6.41299E-05	0.0206279	0.00726925	0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	8F% , %	97% , %	98% , %	99% , %	9: % , %
Ethylbenzene	0.0069722	3.4545E-05	0.0091809	0.00323923	0
o-Xylene	0.0124847	4.77583E-05	0.0164666	0.00580059	0
Isononane	0.0112222	2.14799E-05	0.0148433	0.00521472	0
nC9	0	0	0	0	0
Decane	0.0120946	8.68977E-06	0.0160248	0.0056204	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000763719	4.6519E-07	0.00101204	0.000354901	0
Water	0	0	0	0	0

Zr %S %	8F% s6y%	97% s6y%	98% s6y%	99% s6y%	9: % s6y%
Hydrogen Sulfide	0.0138696	0.00407977	0.00569283	0.00812009	0.000995014
Nitrogen	0.0159056	7738.31	1129.65	9117.44	15722.3
Methane	16935.1	179708	62773.1	235486	397116
Carbon Dioxide	93.6105	48.7948	34.2664	75.1342	59.7029
Ethane	127329	36686.2	48356.8	71175.4	4147.53
Propane	82515.7	15397.9	52176.5	50595.8	2.13814
i-Butane	13019.3	1461.21	10289.8	8271.36	0.000258341
n-Butane	29327.4	2800.22	24136.6	18722.4	0.000188448
i-Pentane	7289.46	354.844	6645.45	4703.96	9.97755E-10
n-Pentane	7129.15	310.658	6570.78	4607.55	6.89063E-09
i-Hexane	2436.94	57.7256	2335	1580.29	0
Hexane	1347.65	23.5754	1306.17	874.548	0
Benzene	460.831	10.2867	442.556	298.805	0
Cyclohexane	873.549	12.8576	850.894	567.01	0
i-Heptane	1456.18	16.3858	1427.62	945.707	0
nC7	280.349	2.31577	276.326	182.12	0
Toluene	217.69	2.12288	213.98	141.387	0
i-Octane	788.118	6.94941	776.035	511.951	0
nC8	45.6338	0.156887	45.3636	29.6563	0
Ethylbenzene	20.336	0.0845106	20.19	13.2151	0
o-Xylene	36.4145	0.116835	36.2124	23.6646	0
Isononane	32.732	0.0525483	32.6423	21.2744	0
nC9	0	0	0	0	0
Decane	35.2768	0.0212586	35.2407	22.9295	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	2.22756	0.00113804	2.22562	1.44789	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	8F%	97%	98%	99%	9: %
Temperature	°F	23.6112	-100.11	-69.3463	100.968	192.074
Pressure	psig	306.7	306 *	306 *	974.4	600 *
Molecular Weight	lb/lbmol	35.6556	18.6283	28.911	21.2802	16.384
Std Liquid Volumetric Flow	sgpm	1368.32	1501.15	1081.91	2329.49	2709.82
Std Vapor Volumetric Flow	MMSCFD	74.5029	119.607	69.2778	174.605	231.831
Net Ideal Gas Heating Value	Btu/ft^3	1892.67	1007.57	1545.1	1146.2	893.148
Gross Ideal Gas Heating Value	Btu/ft^3	2063.19	1114.38	1690.75	1263.03	991.796
Mole Fraction Vapor	%	17.0606	88.7629	40.1118	100	100
Mass Density	lb/ft^3	10.9678	2.12337	5.71296	4.3417	1.48529
Mass Flow	lb/h	291673	244639	219914	407969	417048
Specific Gravity					0.734749	0.565695

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a t v %d vr %v %
N %d vr %
ers r vu%s %r %yr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %v zv %

a v % f z %	8F%	97%	98%	99%	9: %
API Gravity					

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	9A%	9B%	9C%	9D%	9F%
From Block	VLVE-105	DTWR-200	E-1504	Booster Compressor - 2	VLVE-101
To Block	Gas/Gas Exchanger - 2	E-1504	Booster Compressor - 2	Residue 1st Stg - 2	DTWR-200

d vr %R zz %

Z v%S rt z %	9A% , %	9B% , %	9C% , %	9D% , %	9F% , %
Hydrogen Sulfide	1.24279E-06	1.14697E-07	1.14697E-07	1.14697E-07	9.1153E-07
Nitrogen	1.69768	2.20487	2.20487	2.20487	2.10342
Methane	76.5671	97.2477	97.2477	97.2477	85.2989
Carbon Dioxide	0.0089051	0.00532944	0.00532944	0.00532944	0.00844256
Ethane	12.3469	0.541879	0.541879	0.541879	9.29031
Propane	5.98503	0.00019049	0.00019049	0.00019049	2.65896
i-Butane	0.742305	1.74616E-08	1.74616E-08	1.74616E-08	0.191433
n-Butane	1.68022	1.27374E-08	1.27374E-08	1.27374E-08	0.366857
i-Pentane	0.340081	5.43285E-14	5.43285E-14	5.43285E-14	0.0374503
n-Pentane	0.333111	3.752E-13	3.752E-13	3.752E-13	0.0327869
i-Hexane	0.0956534	0	0	0	0.00510073
Hexane	0.0529356	0	0	0	0.00208316
Benzene	0.0199535	0	0	0	0.00100278
Cyclohexane	0.0351427	0	0	0	0.00116333
i-Heptane	0.0492298	0	0	0	0.00124519
nC7	0.00948047	0	0	0	0.000175981
Toluene	0.00800415	0	0	0	0.000175441
i-Octane	0.0233777	0	0	0	0.000463255
nC8	0.00135422	0	0	0	1.04582E-05
Ethylbenzene	0.000649285	0	0	0	6.06145E-06
o-Xylene	0.00116269	0	0	0	8.37992E-06
Isononane	0.000865229	0	0	0	3.11982E-06
nC9	0	0	0	0	0
Decane	0.000840607	0	0	0	1.13771E-06
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	5.0291E-05	0	0	0	5.77046E-08
Water	0	0	0	0	0

Zr %S rt z %	9A% , %	9B% , %	9C% , %	9D% , %	9F% , %
Hydrogen Sulfide	1.99037E-06	2.38585E-07	2.38585E-07	2.38585E-07	1.66767E-06
Nitrogen	2.23484	3.7699	3.7699	3.7699	3.16316
Methane	57.7216	95.2208	95.2208	95.2208	73.4585
Carbon Dioxide	0.0184166	0.0143156	0.0143156	0.0143156	0.0199456
Ethane	17.4463	0.994496	0.994496	0.994496	14.9961
Propane	12.4019	0.000512684	0.000512684	0.000512684	6.29411
i-Butane	2.02745	6.19451E-08	6.19451E-08	6.19451E-08	0.597291
n-Butane	4.58916	4.5186E-08	4.5186E-08	4.5186E-08	1.14464
i-Pentane	1.15302	2.39242E-13	2.39242E-13	2.39242E-13	0.145048
n-Pentane	1.12939	1.65224E-12	1.65224E-12	1.65224E-12	0.126986
i-Hexane	0.387355	0	0	0	0.0235963
Hexane	0.214366	0	0	0	0.00963681
Benzene	0.0732421	0	0	0	0.00420486
Cyclohexane	0.138984	0	0	0	0.00525576
i-Heptane	0.231808	0	0	0	0.00669794
nC7	0.0446407	0	0	0	0.000946607

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Zr %Srt z %	9A% , %	9B% , %	9C% , %	9D% , %	9F% , %
Toluene	0.0346562	0	0	0	0.000867762
i-Octane	0.125488	0	0	0	0.00284068
nC8	0.00726925	0	0	0	6.41299E-05
Ethylbenzene	0.00323923	0	0	0	3.4545E-05
o-Xylene	0.00580059	0	0	0	4.77583E-05
Isononane	0.00521472	0	0	0	2.14799E-05
nC9	0	0	0	0	0
Decane	0.0056204	0	0	0	8.68977E-06
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.000354901	0	0	0	4.6519E-07
Water	0	0	0	0	0

Zr %S %	9A% s6y%	9B% s6y%	9C% s6y%	9D% s6y%	9F% s6y%
Hydrogen Sulfide	0.00437235	0.000995014	0.000995014	0.000995014	0.00271985
Nitrogen	4909.39	15722.3	15722.3	15722.3	5158.87
Methane	126800	397116	397116	397116	119805
Carbon Dioxide	40.4569	59.7029	59.7029	59.7029	32.5299
Ethane	38325.2	4147.53	4147.53	4147.53	24457.5
Propane	27243.9	2.13814	2.13814	2.13814	10265.2
i-Butane	4453.81	0.000258341	0.000258341	0.000258341	974.138
n-Butane	10081.3	0.000188448	0.000188448	0.000188448	1866.82
i-Pentane	2532.9	9.97755E-10	9.97755E-10	9.97755E-10	236.563
n-Pentane	2480.99	6.89063E-09	6.89063E-09	6.89063E-09	207.105
i-Hexane	850.924	0	0	0	38.4838
Hexane	470.911	0	0	0	15.7169
Benzene	160.895	0	0	0	6.85781
Cyclohexane	305.313	0	0	0	8.57175
i-Heptane	509.227	0	0	0	10.9238
nC7	98.0649	0	0	0	1.54385
Toluene	76.1314	0	0	0	1.41526
i-Octane	275.666	0	0	0	4.63294
nC8	15.9688	0	0	0	0.104591
Ethylbenzene	7.11581	0	0	0	0.0563404
o-Xylene	12.7425	0	0	0	0.0778903
Isononane	11.4555	0	0	0	0.0350322
nC9	0	0	0	0	0
Decane	12.3467	0	0	0	0.0141724
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0.779632	0	0	0	0.00075869
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	9A%	9B%	9C%	9D%	9F%
Temperature	°F	100.968	-153.4	67.9606	97.8619	-149.817
Pressure	psig	974.4	305	297	356.317	306 *
Molecular Weight	lb/lbmol	21.2802	16.384	16.384	16.384	18.6283
Std Liquid Volumetric Flow	sgpm	1254.34	2709.82	2709.82	2709.82	1000.77
Std Vapor Volumetric Flow	MMSCFD	94.0183	231.831	231.831	231.831	79.7383
Net Ideal Gas Heating Value	Btu/ft^3	1146.2	893.148	893.148	893.148	1007.57
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03	991.796	991.796	991.796	1114.38
Mole Fraction Vapor	%	100	100	100	100	22.784

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %s v zv %

a v %	f z %	9A%	9B%	9C%	9D%	9F%
Mass Density	lb/ft^3	4.3417	2.26369	0.93894	1.05643	8.00065
Mass Flow	lb/h	219676	417048	417048	417048	163093
Specific Gravity		0.734749	0.565695	0.565695	0.565695	
API Gravity						

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

P vt z %

	: 7%	: 9%	: : %	: A%	: D%
From Block	MIX-102	VSSL-200	VLVE-102	VLVE-106	XCHG-201
To Block	XCHG-201	Residue 2nd Stage - 2	DTWR-200	--	VLVE-102

d vr %R zz %

Z v%S rt z %	: 7% , %	: 9% , %	: : % , %	: A% , %	: D% , %
Hydrogen Sulfide	1.1883E-07	1.14697E-07	1.1883E-07		1.1883E-07
Nitrogen	2.20487	2.20487	2.20487		2.20487
Methane	97.2471	97.2477	97.2471		97.2471
Carbon Dioxide	0.00540841	0.00532944	0.00540841		0.00540841
Ethane	0.542414	0.541879	0.542414		0.542414
Propane	0.000189984	0.00019049	0.000189984		0.000189984
i-Butane	1.73896E-08	1.74616E-08	1.73896E-08		1.73896E-08
n-Butane	1.26841E-08	1.27374E-08	1.26841E-08		1.26841E-08
i-Pentane	5.40718E-14	5.43285E-14	5.40718E-14		5.40718E-14
n-Pentane	3.73566E-13	3.752E-13	3.73566E-13		3.73566E-13
i-Hexane	0	0	0		0
Hexane	0	0	0		0
Benzene	0	0	0		0
Cyclohexane	0	0	0		0
i-Heptane	0	0	0		0
nC7	0	0	0		0
Toluene	0	0	0		0
i-Octane	0	0	0		0
nC8	0	0	0		0
Ethylbenzene	0	0	0		0
o-Xylene	0	0	0		0
Isononane	0	0	0		0
nC9	0	0	0		0
Decane	0	0	0		0
Ethylene Glycol	0	0	0		0
MDEA	0	0	0		0
DEA	0	0	0		0
Piperazine	0	0	0		0
DGA	0	0	0		0
TEG	0	0	0		0
Water	0	0	0		0

Zr %S rt z %	: 7% , %	: 9% , %	: : % , %	: A% , %	: D% , %
Hydrogen Sulfide	2.47182E-07	2.38585E-07	2.47182E-07		2.47182E-07
Nitrogen	3.76989	3.7699	3.76989		3.76989
Methane	95.2196	95.2208	95.2196		95.2196
Carbon Dioxide	0.0145276	0.0143156	0.0145276		0.0145276
Ethane	0.995472	0.994496	0.995472		0.995472
Propane	0.000511317	0.000512684	0.000511317		0.000511317
i-Butane	6.16893E-08	6.19451E-08	6.16893E-08		6.16893E-08
n-Butane	4.49966E-08	4.5186E-08	4.49966E-08		4.49966E-08
i-Pentane	2.3811E-13	2.39242E-13	2.3811E-13		2.3811E-13
n-Pentane	1.64504E-12	1.65224E-12	1.64504E-12		1.64504E-12
i-Hexane	0	0	0		0
Hexane	0	0	0		0
Benzene	0	0	0		0
Cyclohexane	0	0	0		0
i-Heptane	0	0	0		0
nC7	0	0	0		0
Toluene	0	0	0		0
i-Octane	0	0	0		0
nC8	0	0	0		0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	:7% , %	:9% , %	:: % , %	:A% , %	:D% , %
Ethylbenzene	0	0	0		0
o-Xylene	0	0	0		0
Isononane	0	0	0		0
nC9	0	0	0		0
Decane	0	0	0		0
Ethylene Glycol	0	0	0		0
MDEA	0	0	0		0
DEA	0	0	0		0
Piperazine	0	0	0		0
DGA	0	0	0		0
TEG	0	0	0		0
Water	0	0	0		0

Zr %S %	:7% s6y%	:9% s6y%	:: % s6y%	:A% s6y%	:D% s6y%
Hydrogen Sulfide	0.000111166	0.000995014	0.000111166	0	0.000111166
Nitrogen	1695.45	15722.3	1695.45	0	1695.45
Methane	42823.6	397116	42823.6	0	42823.6
Carbon Dioxide	6.53358	59.7029	6.53358	0	6.53358
Ethane	447.699	4147.53	447.699	0	447.699
Propane	0.229957	2.13814	0.229957	0	0.229957
i-Butane	2.77438E-05	0.000258341	2.77438E-05	0	2.77438E-05
n-Butane	2.02365E-05	0.000188448	2.02365E-05	0	2.02365E-05
i-Pentane	1.07087E-10	9.97755E-10	1.07087E-10	0	1.07087E-10
n-Pentane	7.3983E-10	6.89063E-09	7.3983E-10	0	7.3983E-10
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	:7%	:9%	:: %	:A%	:D%
Temperature	°F	120	119.903	-159.735		-135 *
Pressure	psig	1100	596	306 *	75 *	1098
Molecular Weight	lb/lbmol	16.3841	16.384	16.3841		16.3841
Std Liquid Volumetric Flow	sgpm	292.22	2709.82	292.22	0	292.22
Std Vapor Volumetric Flow	MMSCFD	25	231.831	25	0	25
Net Ideal Gas Heating Value	Btu/ft^3	893.151	893.148	893.151		893.151
Gross Ideal Gas Heating Value	Btu/ft^3	991.799	991.796	991.799		991.799
Mole Fraction Vapor	%	100	100	16.5554		0
Mass Density	lb/ft^3	3.23192	1.70224	8.98471		19.4431 ?
Mass Flow	lb/h	44973.5	417048	44973.5	0	44973.5
Specific Gravity		0.565699	0.565695			0.311745 ?

* User Specified Values
? Extrapolated or Approximate Values

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	a t v %d vr %v % N %d vr % ers r vu% % r %yr v% %	
Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

a v %	f z %	: 7%	: 9%	: : %	: A%	: D%
API Gravity						2171.36 ?

cv r ►%

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	: E%	: F%	A8%	A9%	A: %
From Block	XCHG-105	VSSL-200	Surge Tank - 2	Surge Tank - 2	RCYL-1
To Block	MIX-100	--	PUMP-100	DTWR-200	MIX-102

d vr %8 zz %

Z v%s rt z %	: E% , %	: F% , %	A8% , %	A9% , %	A: % , %
Hydrogen Sulfide	1.24279E-06		5.02042E-06	4.7537E-06	1.1883E-07
Nitrogen	1.69768		1.91691E-06	3.13648E-05	2.20487
Methane	76.5671		7.34438	39.9358	97.2471
Carbon Dioxide	0.0089051		0.0209056	0.0507791	0.00540841
Ethane	12.3469		51.861	51.3008	0.542414
Propane	5.98503		26.0175	7.60154	0.000189984
i-Butane	0.742305		3.22695	0.362609	1.73896E-08
n-Butane	1.68022		7.30427	0.64571	1.26841E-08
i-Pentane	0.340081		1.4784	0.0522364	5.40718E-14
n-Pentane	0.333111		1.4481	0.0403319	3.73566E-13
i-Hexane	0.0956534		0.415825	0.00476057	0
Hexane	0.0529356		0.230122	0.00182391	0
Benzene	0.0199535		0.0867419	0.00103687	0
Cyclohexane	0.0351427		0.152773	0.0010438	0
i-Heptane	0.0492298		0.214012	0.000891229	0
nC7	0.00948047		0.0412136	0.000117339	0
Toluene	0.00800415		0.0347957	0.000133912	0
i-Octane	0.0233777		0.101628	0.00031394	0
nC8	0.00135422		0.00588709	5.4397E-06	0
Ethylbenzene	0.000649285		0.00282258	3.46054E-06	0
o-Xylene	0.00116269		0.00505447	4.96155E-06	0
Isononane	0.000865229		0.00376133	1.14274E-06	0
nC9	0		0	0	0
Decane	0.000840607		0.00365429	3.17751E-07	0
Ethylene Glycol	0		0	0	0
MDEA	0		0	0	0
DEA	0		0	0	0
Piperazine	0		0	0	0
DGA	0		0	0	0
TEG	5.0291E-05		0.000218625	2.01261E-08	0
Water	0		0	0	0

Zr %s rt z %	: E% , %	: F% , %	A8% , %	A9% , %	A: % , %
Hydrogen Sulfide	1.99037E-06		4.54223E-06	6.26287E-06	2.47182E-07
Nitrogen	2.23484		1.42556E-06	3.39656E-05	3.76989
Methane	57.7216		3.12784	24.7665	95.2196
Carbon Dioxide	0.0184166		0.0244245	0.0863898	0.0145276
Ethane	17.4463		41.3979	59.6314	0.995472
Propane	12.4019		30.4565	12.9577	0.000511317
i-Butane	2.02745		4.97912	0.814726	6.16893E-08
n-Butane	4.58916		11.2703	1.45081	4.49966E-08
i-Pentane	1.15302		2.83165	0.145691	2.3811E-13
n-Pentane	1.12939		2.77361	0.112489	1.64504E-12
i-Hexane	0.387355		0.951288	0.0158589	0
Hexane	0.214366		0.526453	0.00607599	0
Benzene	0.0732421		0.179872	0.00313093	0
Cyclohexane	0.138984		0.341324	0.00339588	0
i-Heptane	0.231808		0.569288	0.00345221	0
nC7	0.0446407		0.109631	0.000454516	0
Toluene	0.0346562		0.0851108	0.000476971	0
i-Octane	0.125488		0.30818	0.00138628	0
nC8	0.00726925		0.0178523	2.40204E-05	0
Ethylbenzene	0.00323923		0.0079551	1.42022E-05	0

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %syr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Zr %Srt z %	: E% , %	: F% , %	A8% , %	A9% , %	A: % , %
o-Xylene	0.00580059		0.0142454	2.03624E-05	0
Isononane	0.00521472		0.0128066	5.66567E-06	0
nC9	0		0	0	0
Decane	0.0056204		0.0138029	1.7477E-06	0
Ethylene Glycol	0		0	0	0
MDEA	0		0	0	0
DEA	0		0	0	0
Piperazine	0		0	0	0
DGA	0		0	0	0
TEG	0.000354901		0.000871587	1.16837E-07	0
Water	0		0	0	0

Zr %S %	: E% s6y%	: F% s6y%	A8% s6y%	A9% s6y%	A: % s6y%
Hydrogen Sulfide	0.00812009	0	0.0116086	0.00226103	0.000111166
Nitrogen	9117.44	0	0.0036433	0.0122623	1695.45
Methane	235486	0	7993.83	8941.23	42823.6
Carbon Dioxide	75.1342	0	62.4219	31.1885	6.53358
Ethane	71175.4	0	105801	21528.2	447.699
Propane	50595.8	0	77837.7	4678.01	0.229957
i-Butane	8271.36	0	12725.2	294.133	2.77438E-05
n-Butane	18722.4	0	28803.7	523.774	2.02365E-05
i-Pentane	4703.96	0	7236.86	52.5977	1.07087E-10
n-Pentane	4607.55	0	7088.54	40.6108	7.3983E-10
i-Hexane	1580.29	0	2431.21	5.7254	0
Hexane	874.548	0	1345.46	2.19356	0
Benzene	298.805	0	459.7	1.13033	0
Cyclohexane	567.01	0	872.324	1.22598	0
i-Heptane	945.707	0	1454.93	1.24632	0
nC7	182.12	0	280.185	0.16409	0
Toluene	141.387	0	217.518	0.172197	0
i-Octane	511.951	0	787.617	0.500478	0
nC8	29.6563	0	45.6251	0.00867188	0
Ethylbenzene	13.2151	0	20.3309	0.00512731	0
o-Xylene	23.6646	0	36.4071	0.00735127	0
Isononane	21.2744	0	32.7299	0.00204543	0
nC9	0	0	0	0	0
Decane	22.9295	0	35.2762	0.000630957	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	1.44789	0	2.22752	4.21808E-05	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	: E%	: F%	A8%	A9%	A: %
Temperature	°F	6 *		23.6112	23.6112	120
Pressure	psig	959.4	596	306.7	306.7	1100
Molecular Weight	lb/lbmol	21.2802		37.6688	25.8684	16.3841
Std Liquid Volumetric Flow	sgpm	2329.49	0	1166.23	202.085	292.22
Std Vapor Volumetric Flow	MMSCFD	174.605	0	61.7922	12.7107	25
Net Ideal Gas Heating Value	Btu/ft^3	1146.2		1993.21	1403.91	893.151
Gross Ideal Gas Heating Value	Btu/ft^3	1263.03		2170.9	1539.53	991.799
Mole Fraction Vapor	%	86.5426		0	100	100
Mass Density	lb/ft^3	6.77556		30.5022	1.98202	3.23192
Mass Flow	lb/h	407969	0	255571	36102.1	44973.5
Specific Gravity				0.489062	0.893168	0.565699
API Gravity				182.311		

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

h r z x %

ProMax:ProMax!Project!Flowsheets!04b. Cryo Plant - Recovery!PStreams!41!Analyses!Vapor Pressure 1!Properties!Reid Vapor Pressure
Warning: At presaturation conditions of 1 atm and 0.5°C there is no liquid present. Reid Vapor Pressure cannot be calculated. Refer to ProMax help for more information.

c v r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	AA%	AF%	B7%	B8%	B9%
From Block	Residue 2nd Stage - 2	PUMP-100	E-1501	SPLT-104	XCHG-200
To Block	FAXR-202	E-1501	MIX-103	SPLT-100	XCHG-105

d vr %R zz %

Z v%S rt z %	AA% , %	AF% , %	B7% , %	B8% , %	B9% , %
Hydrogen Sulfide	1.14697E-07	5.02042E-06	5.02042E-06	1.24279E-06	1.24279E-06
Nitrogen	2.20487	1.91691E-06	1.91691E-06	1.69768	1.69768
Methane	97.2477	7.34438	7.34438	76.5671	76.5671
Carbon Dioxide	0.00532944	0.0209056	0.0209056	0.0089051	0.0089051
Ethane	0.541879	51.861	51.861	12.3469	12.3469
Propane	0.00019049	26.0175	26.0175	5.98503	5.98503
i-Butane	1.74616E-08	3.22695	3.22695	0.742305	0.742305
n-Butane	1.27374E-08	7.30427	7.30427	1.68022	1.68022
i-Pentane	5.43285E-14	1.4784	1.4784	0.340081	0.340081
n-Pentane	3.752E-13	1.4481	1.4481	0.333111	0.333111
i-Hexane	0	0.415825	0.415825	0.0956534	0.0956534
Hexane	0	0.230122	0.230122	0.0529356	0.0529356
Benzene	0	0.0867419	0.0867419	0.0199535	0.0199535
Cyclohexane	0	0.152773	0.152773	0.0351427	0.0351427
i-Heptane	0	0.214012	0.214012	0.0492298	0.0492298
nC7	0	0.0412136	0.0412136	0.00948047	0.00948047
Toluene	0	0.0347957	0.0347957	0.00800415	0.00800415
i-Octane	0	0.101628	0.101628	0.0233777	0.0233777
nC8	0	0.00588709	0.00588709	0.00135422	0.00135422
Ethylbenzene	0	0.00282258	0.00282258	0.000649285	0.000649285
o-Xylene	0	0.00505447	0.00505447	0.00116269	0.00116269
Isononane	0	0.00376133	0.00376133	0.000865229	0.000865229
nC9	0	0	0	0	0
Decane	0	0.00365429	0.00365429	0.000840607	0.000840607
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0.000218625	0.000218625	5.0291E-05	5.0291E-05
Water	0	0	0	0	0

Zr %S rt z %	AA% , %	AF% , %	B7% , %	B8% , %	B9% , %
Hydrogen Sulfide	2.38585E-07	4.54223E-06	4.54223E-06	1.99037E-06	1.99037E-06
Nitrogen	3.7699	1.42556E-06	1.42556E-06	2.23484	2.23484
Methane	95.2208	3.12784	3.12784	57.7216	57.7216
Carbon Dioxide	0.0143156	0.0244245	0.0244245	0.0184166	0.0184166
Ethane	0.994496	41.3979	41.3979	17.4463	17.4463
Propane	0.000512684	30.4565	30.4565	12.4019	12.4019
i-Butane	6.19451E-08	4.97912	4.97912	2.02745	2.02745
n-Butane	4.5186E-08	11.2703	11.2703	4.58916	4.58916
i-Pentane	2.39242E-13	2.83165	2.83165	1.15302	1.15302
n-Pentane	1.65224E-12	2.77361	2.77361	1.12939	1.12939
i-Hexane	0	0.951288	0.951288	0.387355	0.387355
Hexane	0	0.526453	0.526453	0.214366	0.214366
Benzene	0	0.179872	0.179872	0.0732421	0.0732421
Cyclohexane	0	0.341324	0.341324	0.138984	0.138984
i-Heptane	0	0.569288	0.569288	0.231808	0.231808
nC7	0	0.109631	0.109631	0.0446407	0.0446407
Toluene	0	0.0851108	0.0851108	0.0346562	0.0346562
i-Octane	0	0.30818	0.30818	0.125488	0.125488
nC8	0	0.0178523	0.0178523	0.00726925	0.00726925

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	04b. Cryo Plant - Recovery

Job: 275 MMSCFD Apollo GP

Zr %Srt z %	AA% , %	AF% , %	B7% , %	B8% , %	B9% , %
Ethylbenzene	0	0.0079551	0.0079551	0.00323923	0.00323923
o-Xylene	0	0.0142454	0.0142454	0.00580059	0.00580059
Isononane	0	0.0128066	0.0128066	0.00521472	0.00521472
nC9	0	0	0	0	0
Decane	0	0.0138029	0.0138029	0.0056204	0.0056204
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0.000871587	0.000871587	0.000354901	0.000354901
Water	0	0	0	0	0

Zr %S %	AA% s6y%	AF% s6y%	B7% s6y%	B8% s6y%	B9% s6y%
Hydrogen Sulfide	0.000995014	0.0116086	0.0116086	0.0124924	0.00812009
Nitrogen	15722.3	0.0036433	0.0036433	14026.8	9117.44
Methane	397116	7993.83	7993.83	362287	235486
Carbon Dioxide	59.7029	62.4219	62.4219	115.591	75.1342
Ethane	4147.53	105801	105801	109501	71175.4
Propane	2.13814	77837.7	77837.7	77839.6	50595.8
i-Butane	0.000258341	12725.2	12725.2	12725.2	8271.36
n-Butane	0.000188448	28803.7	28803.7	28803.7	18722.4
i-Pentane	9.97755E-10	7236.86	7236.86	7236.86	4703.96
n-Pentane	6.89063E-09	7088.54	7088.54	7088.54	4607.55
i-Hexane	0	2431.21	2431.21	2431.21	1580.29
Hexane	0	1345.46	1345.46	1345.46	874.548
Benzene	0	459.7	459.7	459.7	298.805
Cyclohexane	0	872.324	872.324	872.324	567.01
i-Heptane	0	1454.93	1454.93	1454.93	945.707
nC7	0	280.185	280.185	280.185	182.12
Toluene	0	217.518	217.518	217.518	141.387
i-Octane	0	787.617	787.617	787.617	511.951
nC8	0	45.6251	45.6251	45.6251	29.6563
Ethylbenzene	0	20.3309	20.3309	20.3309	13.2151
o-Xylene	0	36.4071	36.4071	36.4071	23.6646
Isononane	0	32.7299	32.7299	32.7299	21.2744
nC9	0	0	0	0	0
Decane	0	35.2762	35.2762	35.2762	22.9295
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	2.22752	2.22752	2.22752	1.44789
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	AA%	AF%	B7%	B8%	B9%
Temperature	°F	237.114	36.787	92.0296	101.29	35 *
Pressure	psig	1110	1220 *	1218	979.4	964.4
Molecular Weight	lb/lbmol	16.384	37.6688	37.6688	21.2802	21.2802
Std Liquid Volumetric Flow	sgpm	2709.82	1166.23	1166.23	3583.83	2329.49
Std Vapor Volumetric Flow	MMSCFD	231.831	61.7922	61.7922	268.624	174.605
Net Ideal Gas Heating Value	Btu/ft^3	893.148	1993.21	1993.21	1146.2	1146.2
Gross Ideal Gas Heating Value	Btu/ft^3	991.796	2170.9	2170.9	1263.03	1263.03
Mole Fraction Vapor	%	100	0	0	100	94.562
Mass Density	lb/ft^3	2.54812	30.8511	27.6874	4.36311	5.71951
Mass Flow	lb/h	417048	255571	255571	627645	407969
Specific Gravity		0.565695	0.494657	0.44393	0.734749	

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

a v % f z %	AA%	AF%	B7%	B8%	B9%
API Gravity		166.48	166.507		

cv r ►%

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

P vt z %

	BA%				
From Block	Stabilizer/Recovery				
To Block	MIX-103				

d vr %R zz %

Z v%S rt z %	BA% , %				
Hydrogen Sulfide	0.000242782				
Nitrogen	0				
Methane	3.3019E-09				
Carbon Dioxide	2.50325E-05				
Ethane	3.67022				
Propane	23.0095				
i-Butane	8.74048				
n-Butane	27.2739				
i-Pentane	10.3187				
n-Pentane	11.7921				
i-Hexane	4.52805				
Hexane	2.79606				
Benzene	1.02418				
Cyclohexane	1.84875				
i-Heptane	2.56769				
nC7	0.523802				
Toluene	0.450157				
i-Octane	1.1556				
nC8	0.0780075				
Ethylbenzene	0.0382812				
o-Xylene	0.0696829				
Isononane	0.057234				
nC9	0				
Decane	0.0573046				
Ethylene Glycol	0				
MDEA	0				
DEA	0				
Piperazine	0				
DGA	0				
TEG	0				
Water	6.45077E-06				

Zr %S rt z %	BA% , %				
Hydrogen Sulfide	0.000133469				
Nitrogen	0				
Methane	8.54453E-10				
Carbon Dioxide	1.77707E-05				
Ethane	1.78018				
Propane	16.3665				
i-Butane	8.19466				
n-Butane	25.5707				
i-Pentane	12.009				
n-Pentane	13.7237				
i-Hexane	6.2943				
Hexane	3.88672				
Benzene	1.29046				
Cyclohexane	2.50978				
i-Heptane	4.15023				
nC7	0.846635				
Toluene	0.669049				
i-Octane	2.1293				
nC8	0.143735				

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

Zr %Srt z %	BA% , %				
Ethylbenzene	0.0655571				
o-Xylene	0.119333				
Isononane	0.118408				
nC9	0				
Decane	0.13152				
Ethylene Glycol	0				
MDEA	0				
DEA	0				
Piperazine	0				
DGA	0				
TEG	0				
Water	1.87459E-06				

Zr %S %	BA% s6y%				
Hydrogen Sulfide	0.0641027				
Nitrogen	0				
Methane	4.10377E-07				
Carbon Dioxide	0.00853492				
Ethane	854.988				
Propane	7860.54				
i-Butane	3935.74				
n-Butane	12281.1				
i-Pentane	5767.69				
n-Pentane	6591.25				
i-Hexane	3023.03				
Hexane	1866.72				
Benzene	619.785				
Cyclohexane	1205.4				
i-Heptane	1993.28				
nC7	406.623				
Toluene	321.331				
i-Octane	1022.66				
nC8	69.0334				
Ethylbenzene	31.4859				
o-Xylene	57.3135				
Isononane	56.8692				
nC9	0				
Decane	63.1666				
Ethylene Glycol	0				
MDEA	0				
DEA	0				
Piperazine	0				
DGA	0				
TEG	0				
Water	0.000900329				

d vr %a v zv %

a v %	f z %	BA%				
Temperature	°F	132.123				
Pressure	psig	1215				
Molecular Weight	lb/lbmol	61.9936				
Std Liquid Volumetric Flow	sgpm	161.813				
Std Vapor Volumetric Flow	MMSCFD	7.05592				
Net Ideal Gas Heating Value	Btu/ft^3	3190.11				
Gross Ideal Gas Heating Value	Btu/ft^3	3451.93				
Mole Fraction Vapor	%	0				
Mass Density	lb/ft^3	35.7566				
Mass Flow	lb/h	48028.1				
Specific Gravity		0.57331				

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	04b. Cryo Plant - Recovery	

d vr %a v zv %

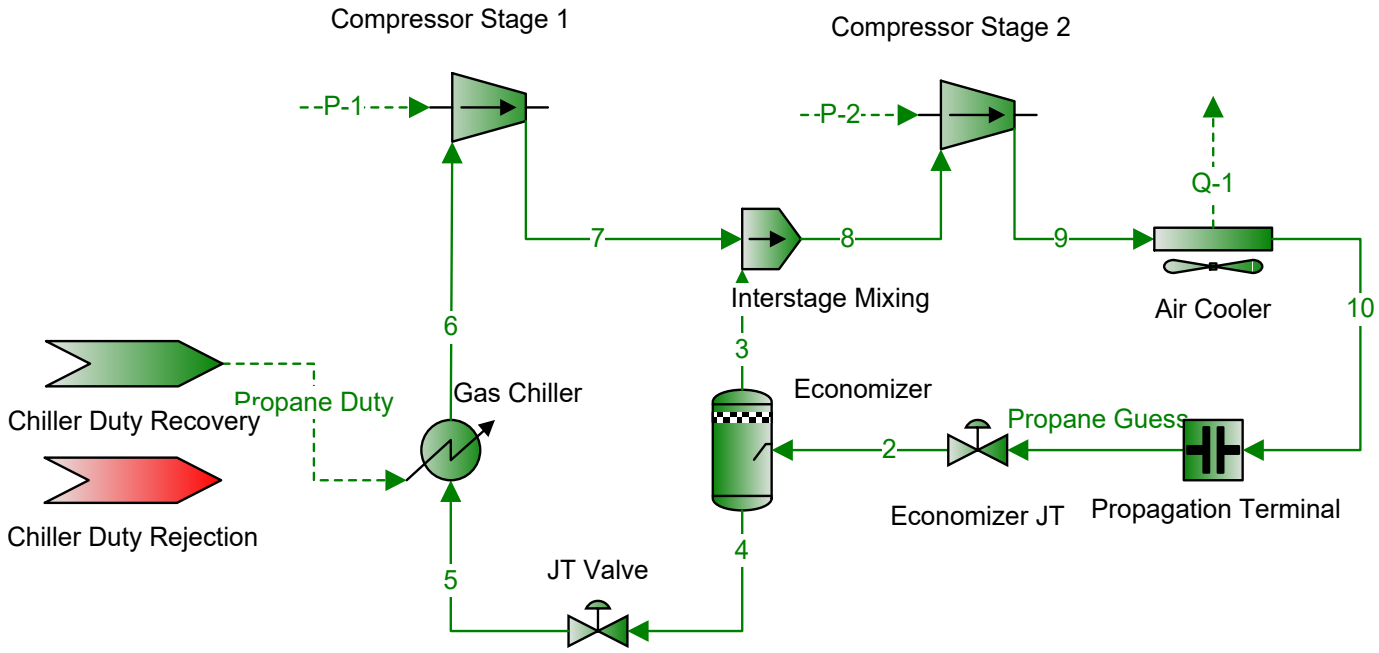
a v % f z %	BA%				
API Gravity	98.0798				

cv r ►%

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	05. Refrigeration	

Trace Midstream
275 MM Inlet - Refrigeration



Refrigeration Horsepower =5,128 BHP

* User Specified Values
? Extrapolated or Approximate Values

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a tv %d vr %sv %
N %d vr %
ers r vu%s % r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	05. Refrigeration	

P vt z %

	a r v% T v %	9%	: %	A%	B%
From Block	Propagation Terminal	Economizer JT	Economizer	Economizer	JT Valve
To Block	Economizer JT	Economizer	Interstage Mixing	JT Valve	Gas Chiller

d vr %R zz %

Z v%s rt z %	a r v% T v % , %	9% , %	: % , %	A% , %	B% , %
Hydrogen Sulfide	0 *	0	0	0	0
Nitrogen	0 *	0	0	0	0
Methane	0 *	0	0	0	0
Carbon Dioxide	0 *	0	0	0	0
Ethane	1.5 *	1.5	2.89582	0.797509	0.797509
Propane	97.5 *	97.5	96.6675	97.919	97.919
i-Butane	0.5 *	0.5	0.246206	0.62773	0.62773
n-Butane	0.5 *	0.5	0.190445	0.655794	0.655794
i-Pentane	0 *	0	0	0	0
n-Pentane	0 *	0	0	0	0
i-Hexane	0 *	0	0	0	0
Hexane	0 *	0	0	0	0
Benzene	0 *	0	0	0	0
Cyclohexane	0 *	0	0	0	0
i-Heptane	0 *	0	0	0	0
nC7	0 *	0	0	0	0
Toluene	0 *	0	0	0	0
i-Octane	0 *	0	0	0	0
nC8	0 *	0	0	0	0
Ethylbenzene	0 *	0	0	0	0
o-Xylene	0 *	0	0	0	0
Isononane	0 *	0	0	0	0
nC9	0 *	0	0	0	0
Decane	0 *	0	0	0	0
Ethylene Glycol	0 *	0	0	0	0
MDEA	0 *	0	0	0	0
DEA	0 *	0	0	0	0
Piperazine	0 *	0	0	0	0
DGA	0 *	0	0	0	0
TEG	0 *	0	0	0	0
Water	0 *	0	0	0	0

Zr %s rt z %	a r v% T v % , %	9% , %	: % , %	A% , %	B% , %
Hydrogen Sulfide	0 *	0	0	0	0
Nitrogen	0 *	0	0	0	0
Methane	0 *	0	0	0	0
Carbon Dioxide	0 *	0	0	0	0
Ethane	1.02449 *	1.02449	1.99024	0.542986	0.542986
Propane	97.6553 *	97.6553	97.4297	97.7678	97.7678
i-Butane	0.660097 *	0.660097	0.327082	0.82613	0.82613
n-Butane	0.660097 *	0.660097	0.253004	0.863064	0.863064
i-Pentane	0 *	0	0	0	0
n-Pentane	0 *	0	0	0	0
i-Hexane	0 *	0	0	0	0
Hexane	0 *	0	0	0	0
Benzene	0 *	0	0	0	0
Cyclohexane	0 *	0	0	0	0
i-Heptane	0 *	0	0	0	0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	05. Refrigeration	

Zr %Srtz %	ar v% Tv % , %	9% , %	:% , %	A% , %	B% , %
nC7	0 *	0	0	0	0
Toluene	0 *	0	0	0	0
i-Octane	0 *	0	0	0	0
nC8	0 *	0	0	0	0
Ethylbenzene	0 *	0	0	0	0
o-Xylene	0 *	0	0	0	0
Isononane	0 *	0	0	0	0
nC9	0 *	0	0	0	0
Decane	0 *	0	0	0	0
Ethylene Glycol	0 *	0	0	0	0
MDEA	0 *	0	0	0	0
DEA	0 *	0	0	0	0
Piperazine	0 *	0	0	0	0
DGA	0 *	0	0	0	0
TEG	0 *	0	0	0	0
Water	0 *	0	0	0	0

Zr %S %	ar v% Tv % s6y%	9% s6y%	:% s6y%	A% s6y%	B% s6y%
Hydrogen Sulfide	0 *	0	0	0	0
Nitrogen	0 *	0	0	0	0
Methane	0 *	0	0	0	0
Carbon Dioxide	0 *	0	0	0	0
Ethane	2287.18 *	2287.18	1478.26	808.917	808.917
Propane	218016 *	218016	72366.3	145650	145650
i-Butane	1473.67 *	1473.67	242.941	1230.73	1230.73
n-Butane	1473.67 *	1473.67	187.92	1285.75	1285.75
i-Pentane	0 *	0	0	0	0
n-Pentane	0 *	0	0	0	0
i-Hexane	0 *	0	0	0	0
Hexane	0 *	0	0	0	0
Benzene	0 *	0	0	0	0
Cyclohexane	0 *	0	0	0	0
i-Heptane	0 *	0	0	0	0
nC7	0 *	0	0	0	0
Toluene	0 *	0	0	0	0
i-Octane	0 *	0	0	0	0
nC8	0 *	0	0	0	0
Ethylbenzene	0 *	0	0	0	0
o-Xylene	0 *	0	0	0	0
Isononane	0 *	0	0	0	0
nC9	0 *	0	0	0	0
Decane	0 *	0	0	0	0
Ethylene Glycol	0 *	0	0	0	0
MDEA	0 *	0	0	0	0
DEA	0 *	0	0	0	0
Piperazine	0 *	0	0	0	0
DGA	0 *	0	0	0	0
TEG	0 *	0	0	0	0
Water	0 *	0	0	0	0

d vr %a v zv %

av %	fz %	ar v% Tv %	9%	:%	A%	B%
Temperature	°F	120 *	45.5392	45.5392	45.5392	-37.4486
Pressure	psig	250 *	75 *	75	75	4.3 *
Molecular Weight	lb/lbmol	44.0255	44.0255	43.7507	44.1638	44.1638
Std Liquid Volumetric Flow	sgpm	882.424	882.424	295.033	587.391	587.391

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	05. Refrigeration	

d vr %a v zv %

a v %	f z %	a r v% T v %	9%	: %	A%	B%
Std Vapor Volumetric Flow	MMSCFD	46.1843	46.1843	15.462	30.7223	30.7223
Net Ideal Gas Heating Value	Btu/ft^3	2311.46	2311.46	2297.86	2318.31	2318.31
Gross Ideal Gas Heating Value	Btu/ft^3	2512.31	2512.31	2497.72	2519.66	2519.66
Mole Fraction Vapor	%	0	33.4789	100	0	26.8601
Mass Density	lb/ft^3	28.1513	2.32157	0.811168	32.4014	0.636137
Mass Flow	lb/h	223251	223251	74275.5	148976	148976
Specific Gravity		0.451369		1.5106	0.519514	
API Gravity		146.054			147.335	

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	05. Refrigeration	

P vt z %

	C%	D%	E%	F%	87%
From Block	Gas Chiller	Compressor Stage 1	Interstage Mixing	Compressor Stage 2	Air Cooler
To Block	Compressor Stage 1	Interstage Mixing	Compressor Stage 2	Air Cooler	Propagation Terminal

d vr % zz %

Z v%s rt z %	C% , %	D% , %	E% , %	F% , %	87% , %
Hydrogen Sulfide	0	0	0	0	0
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	0	0	0	0	0
Ethane	0.797509	0.797509	1.5	1.5	1.5
Propane	97.919	97.919	97.5	97.5	97.5
i-Butane	0.62773	0.62773	0.5	0.5	0.5
n-Butane	0.655794	0.655794	0.5	0.5	0.5
i-Pentane	0	0	0	0	0
n-Pentane	0	0	0	0	0
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0	0	0	0	0

Zr %s rt z %	C% , %	D% , %	E% , %	F% , %	87% , %
Hydrogen Sulfide	0	0	0	0	0
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	0	0	0	0	0
Ethane	0.542986	0.542986	1.02449	1.02449	1.02449
Propane	97.7678	97.7678	97.6553	97.6553	97.6553
i-Butane	0.82613	0.82613	0.660097	0.660097	0.660097
n-Butane	0.863064	0.863064	0.660097	0.660097	0.660097
i-Pentane	0	0	0	0	0
n-Pentane	0	0	0	0	0
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0

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a tv %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream
Location:	Eddy County, NM
Flowsheet:	05. Refrigeration

Job: 275 MMSCFD Apollo GP

Zr %Srtz %	C% , %	D% , %	E% , %	F% , %	87% , %
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0	0	0	0	0

Zr %S %	C% s6y%	D% s6y%	E% s6y%	F% s6y%	87% s6y%
Hydrogen Sulfide	0	0	0	0	0
Nitrogen	0	0	0	0	0
Methane	0	0	0	0	0
Carbon Dioxide	0	0	0	0	0
Ethane	808.917	808.917	2287.18	2287.18	2287.18
Propane	145650	145650	218016	218016	218016
i-Butane	1230.73	1230.73	1473.67	1473.67	1473.67
n-Butane	1285.75	1285.75	1473.67	1473.67	1473.67
i-Pentane	0	0	0	0	0
n-Pentane	0	0	0	0	0
i-Hexane	0	0	0	0	0
Hexane	0	0	0	0	0
Benzene	0	0	0	0	0
Cyclohexane	0	0	0	0	0
i-Heptane	0	0	0	0	0
nC7	0	0	0	0	0
Toluene	0	0	0	0	0
i-Octane	0	0	0	0	0
nC8	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
o-Xylene	0	0	0	0	0
Isononane	0	0	0	0	0
nC9	0	0	0	0	0
Decane	0	0	0	0	0
Ethylene Glycol	0	0	0	0	0
MDEA	0	0	0	0	0
DEA	0	0	0	0	0
Piperazine	0	0	0	0	0
DGA	0	0	0	0	0
TEG	0	0	0	0	0
Water	0	0	0	0	0

d vr %a v zv %

a v %	f z %	C%	D%	E%	F%	87%
Temperature	°F	-38.0213	89.9429	75.3969	172.918	120 *
Pressure	psig	3.3	75 *	75	255 *	250
Molecular Weight	lb/lbmol	44.1638	44.1638	44.0255	44.0255	44.0255
Std Liquid Volumetric Flow	sgpm	587.391	587.391	882.424	882.424	882.424
Std Vapor Volumetric Flow	MMSCFD	30.7223	30.7223	46.1843	46.1843	46.1843
Net Ideal Gas Heating Value	Btu/ft^3	2318.31	2318.31	2311.46	2311.46	2311.46
Gross Ideal Gas Heating Value	Btu/ft^3	2519.66	2519.66	2512.31	2512.31	2512.31
Mole Fraction Vapor	%	100 *	100	100	100	0
Mass Density	lb/ft^3	0.162918	0.73014	0.754195	2.21938	28.1513
Mass Flow	lb/h	148976	148976	223251	223251	223251

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a t v %d vr %sv %
N %d vr %
ers r vu%s %s r %ayr v%
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	05. Refrigeration	

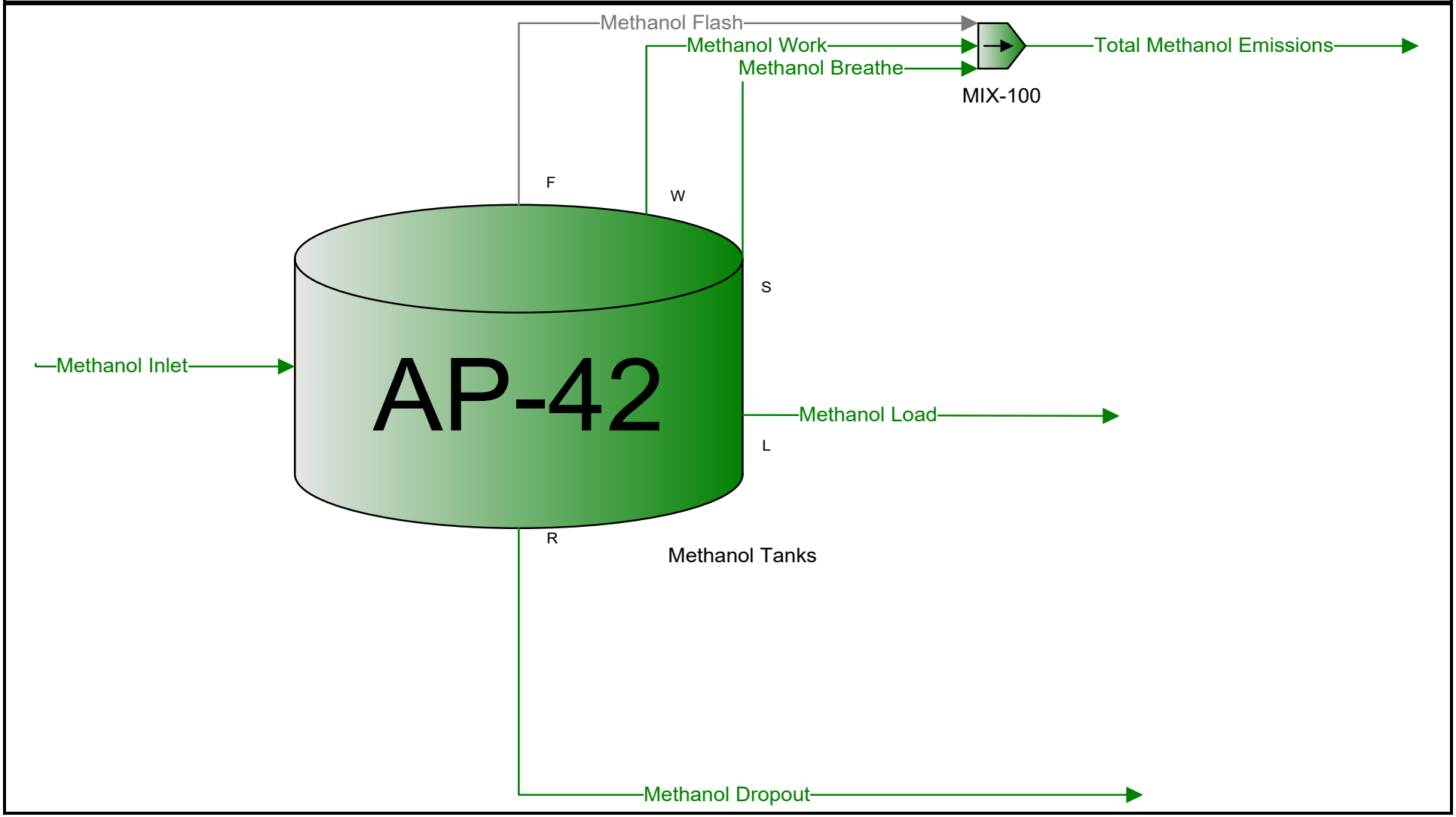
d vr %a v zv %

a v % f z %	C%	D%	E%	F%	87%
Specific Gravity	1.52486	1.52486	1.52009	1.52009	0.451369
API Gravity					146.054

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	06. Methanol Tanks	



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a tv %d vr %sv % N %d vr %

ers r vu%s % r %ayr v% %

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	06. Methanol Tanks	

P vt z %

	Zv yr % Ovr yv%	Zv yr % Q %	Zv yr % Sr y%	Zv yr %Wv %	Zv yr % Y ru%
From Block	Methanol Tanks	Methanol Tanks	Methanol Tanks	--	Methanol Tanks
To Block	MIX-100	--	MIX-100	Methanol Tanks	--

d vr %R zz %

Z v%s rt z %	Zv yr % Ovr yv% , %	Zv yr % Q % , %	Zv yr % Sr y% , %	Zv yr %Wv % , %	Zv yr % Y ru% , %
Methanol	100	100	100	100 *	100

Zr %s rt z %	Zv yr % Ovr yv% , %	Zv yr % Q % , %	Zv yr % Sr y% , %	Zv yr %Wv % , %	Zv yr % Y ru% , %
Methanol	100	100	100	100 *	100

Zr %s %	Zv yr % Ovr yv% s6y%	Zv yr % Q % s6y%	Zv yr % Sr y% s6y%	Zv yr %Wv % s6y%	Zv yr % Y ru% s6y%
Methanol	0.00412084	7.56638	0	7.57168 *	0.000517363

d vr %a v zv %

a v %	f z %	Zv yr % Ovr yv%	Zv yr % Q %	Zv yr % Sr y%	Zv yr %Wv %	Zv yr % Y ru%
Temperature	°F	71.0188	71.0188	71.0188	75 *	71.0188
Pressure	psig	-1.17	-1.17	-1.17	1.9 *	-1.17
Molecular Weight	lb/lbmol	32.0419	32.0419	32.0419	32.0419	32.0419
Std Liquid Volumetric Flow	sgpm	1.03497E-05	0.0190034	0	0.0190167 *	1.29939E-06
Std Vapor Volumetric Flow	MMSCFD	1.17131E-06	0.00215068	0	0.00215218	1.47056E-07
Net Ideal Gas Heating Value	Btu/ft^3	766.1	766.1	766.1	766.1	766.1
Gross Ideal Gas Heating Value	Btu/ft^3	866.7	866.7	866.7	866.7	866.7
Mole Fraction Vapor	%	0	0	0	0	0
Mass Density	lb/ft^3	50.4068	50.4068	50.4068	50.2444	50.4068
Mass Flow	lb/h	0.00412084	7.56638	0	7.57168	0.000517363
Specific Gravity		0.808205	0.808205		0.805602	0.808205
API Gravity		42.0377	42.0377		42.0364	42.0377

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Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP
Location:	Eddy County, NM	
Flowsheet:	06. Methanol Tanks	

Process Data

From Block	Methanol Tanks	MIX-100			
To Block	MIX-100	--			

Overall Properties

Methanol	100	100			

Methanol	100	100			

Methanol	0.0011788	0.00529964			

Overall Properties

Temperature	°F	71.0188	71.0188			
Pressure	psig	-1.17	-1.17			
Molecular Weight	lb/lbmol	32.0419	32.0419			
Std Liquid Volumetric Flow	sgpm	2.96061E-06	1.33103E-05			
Std Vapor Volumetric Flow	MMSCFD	3.35063E-07	1.50638E-06			
Net Ideal Gas Heating Value	Btu/ft^3	766.1	766.1			
Gross Ideal Gas Heating Value	Btu/ft^3	866.7	866.7			
Mole Fraction Vapor	%	0	0			
Mass Density	lb/ft^3	50.4068	50.4068			
Mass Flow	lb/h	0.0011788	0.00529964			
Specific Gravity		0.808205	0.808205			
API Gravity		42.0377	42.0377			

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Z v yr %er ► %
er ► % v %
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 5:39 PM, 7/1/2026	
Flowsheet:	06. Methanol Tanks	Status: Solved 10:32 AM, 7/8/2026	

P vt z %

d vr %	P vt z % v% ` yv %O t ►%		d vr %	P vt z % v% ` yv %O t ►%	
Methanol Inlet	Inlet		Methanol Flash	Flashing Losses Stream	MIX-100
Methanol Work	Working Losses Stream	MIX-100	Methanol Breathe	Standing Losses Stream	MIX-100
Methanol Load	Loading Losses Stream		Methanol Dropout	Residual Liquid Stream	

h ►z x% u%d r uz x% v zv %

	Tank Geometry	Vertical Cylinder		Roof Type	Cone	
*	Shell Length	3.75	ft	Slope of Coned Roof	0.0625	
*	Shell Diameter	4.77	ft	Breather Vent Pressure	0.03	psi
*	Number of Storage Tanks	2		Breather Vacuum Pressure	-0.03	psi
	Maximum Fraction Fill of Tank	90	%	* Location	Gallup, NM	
	Average Fraction Fill of Tank	50	%	Time Frame	Year	
	Minimum Fraction Fill of Tank	10	%	Known Liquid Bulk Temperature?	False	
*	Material Category	Light Organics		Liquid Bulk Temperature	53.3063	°F
	Insulation	Uninsulated		* Use AP 42 Raoult's Vapor Pressure?	True	
	Bolted or Riveted Construction?	False		Flashing Temperature	71.0188	°F
	Vapor Balanced Tank?	False		Average Daily Maximum Ambient Temperature	65.6	°F
	Known Sum of Increases in Liquid Level?	False		Average Daily Minimum Ambient Temperature	32	°F
	Sum of Increases in Liquid Level	36.4316	ft/yr	Atmospheric Pressure at Tank Location	11.63	psia
*	Shell Color	Dark Green		Daily Solar Insolation	1669	Btu/(day*ft^2)
	Shell Paint Condition	Average		Average Wind Speed	6.7	mph
*	Roof Color	Dark Green		Include Short Term Emissions	False	
	Roof Paint Condition	Average		* Shell Height	3.75	ft

P zz %d s v% v zv %

Component Subset	VOCs	Species in Results	Selected Species
Atomic Basis	False	Fraction Denominator	Selected Species

ers r vu%R zz %d s v% v zv %

V uv %	dv vt vu%R v %	%	%	%
Methanol	True			

Qv r z % v zv %

	Vapor Space Volume	34.3943	ft^3	Tank Roof Height	0.149062	ft
	Vapor Density	0.00793064	lb/ft^3	Tank Shell Radius	2.385	ft
	Vapor Space Expansion Factor	0.206949	1/day	Vapor Molecular Weight	32.0419	lb/lbmol
	Vented Vapor Saturation Factor	0.876009		Average Vapor Temperature	522.384	°R
	Vapor Space Outage	1.92469	ft	Average Daily Ambient Temperature	508.47	°R
	Average Daily Vapor Temperature Range	52.0352	°R	Net Working Loss Throughput	651.036	ft^3/yr
	Average Daily Vapor Pressure Range	1.15013	psi	Working Loss Turnover (Saturation) Factor	1	
	Breather Vent Pressure Setting Range	0.06	psi	Number of Turnovers per Year	12.1439	
	Vapor Pressure at Average Daily Liquid Surface	1.38753	psia	Annual Net Throughput	231.933	bbl/yr

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Z v yr %&r ► %
er ►% v %
%

Client Name:	Trace Midstream	Job: 275 MMSCFD Apollo GP	
Location:	Eddy County, NM	Modified: 5:39 PM, 7/1/2026	
Flowsheet:	06. Methanol Tanks	Status: Solved 10:32 AM, 7/8/2026	

Qv r z %& v z v %

Temperature					
Average Daily Liquid Surface Temperature	517.68	°R	Maximum Liquid Height	3.375	ft
Average Daily Ambient Temperature Range	33.6	°R	Minimum Liquid Height	0.375	ft
Tank Roof Surface Solar Absorptance	0.9		Working Loss Product Factor	1	
Tank Shell Surface Solar Absorptance	0.9		Vent Setting Correction Factor	1	
Vapor Pressure at Maximum Liquid Surface Temperature	2.06228	psia	Saturation Factor	0.5	
Vapor Pressure at Minimum Liquid Surface Temperature	0.912145	psia	Vapor Pressure of Liquid Loaded	1.19558	psia
Maximum Liquid Surface Temperature	530.689	°R	Collection Efficiency	70	%
Minimum Liquid Surface Temperature	504.671	°R	Annual Net Throughput Per Tank	115.966	bbl/yr
Liquid Height	1.875	ft	Loading Vapor Molecular Weight	32.0419	lb/lbmol
Roof Outage	0.0496875	ft			

Y r uz x%& v z v %

Cargo Carrier	Tank Truck or Rail Tank Car		Truck Annual Leak Test Passed	None	
Land Based Mode of Operation	Submerged Loading of a Clean Cargo Tank		Overall Reduction Efficiency	0	%
* Control Efficiency	0	%			

c v %& v z v %

Flashing Losses	0	ton/yr	Standing Losses per Tank	0.00902464	ton/yr
Working Losses	0.00516313	ton/yr	Flashing Losses per Tank	0	ton/yr
Standing Losses	0.0180493	ton/yr	Working and Standing Losses	0.0232124	ton/yr
Loading Losses	0.00226605	ton/yr	Working and Standing Losses per Tank	0.0116062	ton/yr
Working Losses per Tank	0.00258157	ton/yr	Loading Losses per Tank	0.00113303	ton/yr

ers r vu%v %& v z v %

Vuv %	Sr yz x% v %&r % S % 6 %	h ►z x% v %&r % S % 6 %	d r uz x% v %&r % S % 6 %	Y ruz x% v %&r % S % 6 %
Methanol	0	0.00516313	0.0180493	0.00226605

Vuv %	h ►z x% u%d r uz x% Y v %&r %S % 6 %	% %	% %	% %
Methanol	0.0232124			

dy %&v %& v z v %

Vapor Pressure of Liquid Loaded (STE)		psia	Loading Vapor Molecular Weight (STE)		lb/lbmol

cv r ►

* User Specified Values
? Extrapolated or Approximate Values

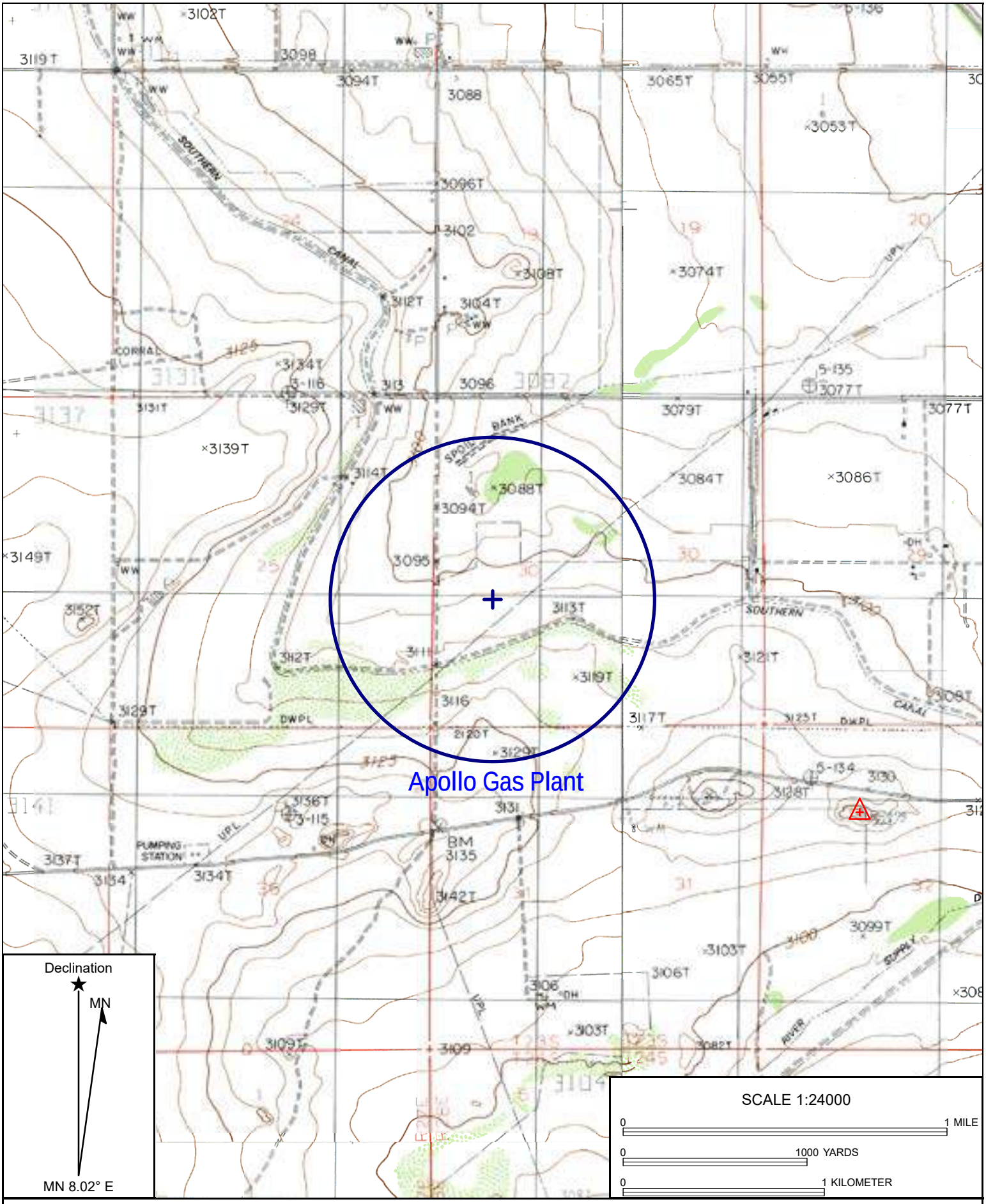
ProMax 7.0.26169.0
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Section 8

Map(s)

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

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



Name: Apollo Gas Plant
Date: 6/25/2026
Scale: 1 inch = 2,000 ft.

Location: 13 0581713 E 3571168 N

Copyright (C) 2009 MyTopo

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")

þ 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. þ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. þ 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. þ A copy of the property tax record (20.2.72.203.B NMAC).
4. þ A sample of the letters sent to the owners of record.
5. þ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. þ A sample of the public notice posted and a verification of the local postings.
7. þ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. þ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. þ 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. þ 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. þ 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.

9.1 Certified Letter Receipts

9589 0710 5270 3302 0559 28

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE

Certified Mail Fee
$

Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

$0.00¹
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
000037747

Sent To: Colwell, William Daniel
Street and Apt. No., or PO Box No.: 241 Colwell Ranch Road
City, State, ZIP+4®: Carlsbad, NM 88220

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 3302 0559 35

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Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

$0.00¹
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
000037748

Sent To: Cocksey, Matthew Alan & Brandy R
Street and Apt. No., or PO Box No.: PO Box 248
City, State, ZIP+4®: LOVING, NM 88256-0248

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 3302 0559 11

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Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

$0.00¹
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
000037749

Sent To: WPX Energy Permian LLC
Street and Apt. No., or PO Box No.: 3500 One Williams Center MD
City, State, ZIP+4®: Tulsa, OK 74172

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 3302 0559 42

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Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

$0.00¹
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
000037746

Sent To: McDonald, Henry E
Street and Apt. No., or PO Box No.: PO Box 597
City, State, ZIP+4®: Loving, NM 88256

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 3302 0559 80

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Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

$0.00¹
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
000037746

Sent To: Longwood Midstream Delaware LLC
Street and Apt. No., or PO Box No.: ne Lincoln Center 5400 LBJ Freeway SUITE
City, State, ZIP+4®: Dallas, TX 75240

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 3302 0559 97

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Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $
- Return Receipt (electronic) $
- Certified Mail Restricted Delivery $
- Adult Signature Required $
- Adult Signature Restricted Delivery $

Postage
$

Total Postage and Fees
$

$0.00¹
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
000037745

Sent To: Juniper Tanks LLC
Street and Apt. No., or PO Box No.: 603 Elora Drive
City, State, ZIP+4®: Carlsbad, NM 88220

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions


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Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
$
$0.001
US POSTAGE
7/14/2026 IMI
9035123954S4
87113
000037744
9589 0710 5270 3302 0560 24
Sent To
Krueger, Jack K & Kali J (SI)
Street and Apt. No., or PO Box No.
Po Box 601
City, State, ZIP+4®
Loving, NM 88256-0601
PS Form 3800, January 2023 See Reverse for Instructions


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Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.001
US POSTAGE
7/14/2026 IMI
9035123954S4
87113
000037762
9589 0710 5270 3302 0586 39
Sent To
City of Carlsbad - City Manage
Street and Apt. No., or PO Box No.
101 N Halagueno
City, State, ZIP+4®
Carlsbad, NM 88220
PS Form 3800, January 2023 See Reverse for Instructions


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Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.001
US POSTAGE
7/14/2026 IMI
9035123954S4
87113
000037759
9589 0710 5270 3302 0586 53
Sent To
Scott, Ronald E
Street and Apt. No., or PO Box No.
PO Box 55
City, State, ZIP+4®
Orla, TX 79770-0055
PS Form 3800, January 2023 See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
$
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.001
US POSTAGE
7/14/2026 IMI
9035123954S4
87113
000037760
9589 0710 5270 3302 0586 46
Sent To
Eddy County - County Manager
Street and Apt. No., or PO Box No.
101 W Greene ST
City, State, ZIP+4®
Carlsbad, NM 88220
PS Form 3800, January 2023 See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.001
US POSTAGE
7/14/2026 IMI
9035123954S4
87113
000037764
9589 0710 5270 3302 0586 51
Sent To
Village of Loving - Village Manager
Street and Apt. No., or PO Box No.
415 W Cedar ST
City, State, ZIP+4®
Loving, NM 88256
PS Form 3800, January 2023 See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.001
US POSTAGE
7/14/2026 IMI
9035123954S4
87113
000037763
9589 0710 5270 3302 0586 44
Sent To
Lucid Energy Delaware LLC
Street and Apt. No., or PO Box No.
3100 McKinnon ST STE 800
City, State, ZIP+4®
Dallas, TX 75201-7014
PS Form 3800, January 2023 See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.00
US POSTAGE
7/14/2026 IMI
9589 0710 5270 3302 0559 73
0635123954S4
87113
000037750
Sent To
2D Vaccaro Orchard LLC
Street and Apt. No., or PO Box No.
301 E Pope St
City, State, ZIP+4®
Carlsbad, NM 88220
PS Form 3800, January 2023
See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.00
US POSTAGE
7/14/2026 IMI
9589 0710 5270 3302 0559 66
0635123954S4
87113
000037739
Sent To
Sibley, W C Ranch LTD LLC
Street and Apt. No., or PO Box No.
319 S Roberson Rd
City, State, ZIP+4®
Loving, NM 88256-9742
PS Form 3800, January 2023
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Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.00
US POSTAGE
7/14/2026 IMI
9589 0710 5270 3302 0560 48
0635123954S4
87113
000037761
Sent To
Rennie, Steven Gage
PO Box 597
Loving, NM 88256-0597
PS Form 3800, January 2023
See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
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$0.00
US POSTAGE
7/14/2026 IMI
9589 0710 5270 3302 0560 00
0635123954S4
87113
000037741
Sent To
Summit Permian Transmission LLC
Street and Apt. No., or PO Box No.
910 Louisiana St
City, State, ZIP+4®
Houston, TX 77002
PS Form 3800, January 2023
See Reverse for Instructions


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OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
$
$0.00
US POSTAGE
7/14/2026 IMI
9589 0710 5270 3302 0560 17
0635123954S4
87113
000037743
Sent To
Scott, Eulane Hightower Estate
Street and Apt. No., or PO Box No.
Po Box 385
City, State, ZIP+4®
Carlsbad, NM 88221-0385
PS Form 3800, January 2023
See Reverse for Instructions


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For delivery information, visit our website at www.usps.com®.
OFFICIAL USE
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
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Total Postage and Fees
$
$0.00
US POSTAGE
7/14/2026 IMI
9589 0710 5270 3302 0560 31
0635123954S4
87113
000037743
Sent To
Reed, Ronald Glenn & Reed, Christine Diane GST
Street and Apt. No., or PO Box No.
Po Box 463
City, State, ZIP+4®
Loving, NM 88256-0463
PS Form 3800, January 2023
See Reverse for Instructions


9589 0710 5270 3302 0589 50
U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®
OFFICIAL
Certified Mail Fee
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Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
$
Total Postage and Fees
$
Sent To
Bryan, Billy D & Cynthia M (U-31)
Street and Apt. No., or PO Box No.
319 S. Roberson Rd
City, State, ZIP+4®
Loving, NM 88256-9742
PS Form 3800, January 2023
See Reverse for Instructions
$0.001
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
600037738


9589 0710 5270 3302 0589 67
U.S. Postal Service™
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OFFICIAL
Certified Mail Fee
$
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $
Return Receipt (electronic) $
Certified Mail Restricted Delivery $
Adult Signature Required $
Adult Signature Restricted Delivery $
Postage
$
Total Postage and Fees
$
Sent To
State of New Mexico
Street and Apt. No., or PO Box No.
310 Old Santa Fe Trail
City, State, ZIP+4®
Santa Fe, NM 87504
PS Form 3800, January 2023
See Reverse for Instructions
$0.001
US POSTAGE
7/14/2026 IMI
0635123954S4
87113
600037737

9.2 List of Places Notice is Posted

9.2 Locations of Posted Notice					
Location	Address	City	State	Zip Code	Date
FACILITY ENTRANCE	32.274436, -104.132247	LOVING	NM	88256	7/14/2026
CARLSBAD PUBLIC LIBRARY	101 S. HALAGUENO ST	CARLSBAD	NM	88220	7/14/2026
CARLSBAD POST OFFICE	311 W. FOX STREET	CARLSBAD	NM	88220	7/14/2026
EDDY COUNTY ADMINISTRATIVE BUILDING	101 S. GREENE STREET	CARLSBAD	NM	88220	7/14/2026

9.3 Property Tax Record

Account: R099236 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R099236

Situs Address E OF 323 S ROBERSON ROAD

Tax Area 10O_NR - LOVING-OUT (Nonresidential)

Parcel Number 4-163-137-156-313

Legal Summary Subd: MCDONALD LAND DIVISION #13 Tract: 1 Quarter: NW S: 30 T: 23S R: 28E Quarter: SW S: 30 T: 23S R: 28E Quarter: SE S: 30 T: 23S R: 28E

Map Number 319-MLD13-1, CAB 5-492

Parcel Size ODD SHAPE, 106.03 AC

Owner Information

Owner Name TRACE TOUCHDOWN GAS LLC

Owner Address 840 GESSNER STE 530
HOUSTON, TX 77024

Assessment History

Actual Value (2026) $10,649

Primary Taxable $3,550

Tax Area: 10O_NR **Mill Levy**: 14.695000

Type	Actual	Assessed	Acres
Non-Residential Land	$10,649	$3,550	106.500

Tax History

Tax Year	Taxes
*2026	$54.66
2025	$54.66

* Estimated

Images

9.4 Letters to Neighbors

July 15, 2026

CERTIFIED MAIL 9589 0710 5270 3302 0559 73
RETURN RECEIPT REQUESTED

Dear **Neighbor,**

Trace Delaware Gathering, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17, 2026.**

The exact location for the proposed facility known as, **Apollo Gas Plant**, is at latitude **32.274436** dec deg North and longitude **-104.132247** dec deg West. The approximate location of this facility is **2.2** miles **southwest** of **Loving, NM** in **Eddy** County.

The proposed **modification** consists of the addition of one cryogenic unit, one dehydration and amine sweeting process, along with additional tanks, engines, generators, combustors, and flares throughout the facility.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	4	16
PM_{10}	4	16
$PM_{2.5}$	4	16
Sulfur Dioxide (SO_2)	10	44
Nitrogen Oxides (NO_x)	87	137
Carbon Monoxide (CO)	168	246
Volatile Organic Compounds (VOC)	7,499	232
Total sum of all Hazardous Air Pollutants (HAPs)	268	62
Hydrogen Sulfide (H_2S)	5	2
Green House Gas Emissions as Total CO_2e	N/A	318,324

The standard and maximum operating schedules of the facility will be 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

Owners and operators of the facility include:
Trace Delaware Gathering, LLC
840 Gessner, Suite 530
Houston, TX 77024

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return

mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Sincerely,

Trace Delaware Gathering, LLC
840 Gessner, Suite 530,
Houston, TX 77024

Notice of Non-Discrimination
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July 15, 2026

CERTIFIED MAIL 9589 0710 5270 3302 0589 50
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Green House Gas Emissions as Total CO_2e	N/A	318,324

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The exact location for the proposed facility known as, **Apollo Gas Plant**, is at latitude **32.274436** dec deg North and longitude **-104.132247** dec deg West. The approximate location of this facility is **2.2** miles **southwest** of **Loving, NM** in **Eddy** County.

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Nitrogen Oxides (NO_x)	87	137
Carbon Monoxide (CO)	168	246
Volatile Organic Compounds (VOC)	7,499	232
Total sum of all Hazardous Air Pollutants (HAPs)	268	62
Hydrogen Sulfide (H_2S)	5	2
Green House Gas Emissions as Total CO_2e	N/A	318,324

The standard and maximum operating schedules of the facility will be 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

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The standard and maximum operating schedules of the facility will be 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

Owners and operators of the facility include:
Trace Delaware Gathering, LLC
840 Gessner, Suite 530
Houston, TX 77024

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return

mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Sincerely,

Trace Delaware Gathering, LLC
840 Gessner, Suite 530,
Houston, TX 77024

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

July 15, 2026

CERTIFIED MAIL 9589 0710 5270 3302 0559 11
RETURN RECEIPT REQUESTED

Dear **Neighbor,**

Trace Delaware Gathering, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17, 2026.**

The exact location for the proposed facility known as, **Apollo Gas Plant**, is at latitude **32.274436** dec deg North and longitude **-104.132247** dec deg West. The approximate location of this facility is **2.2** miles **southwest** of **Loving, NM** in **Eddy** County.

The proposed **modification** consists of the addition of one cryogenic unit, one dehydration and amine sweeting process, along with additional tanks, engines, generators, combustors, and flares throughout the facility.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	4	16
PM_{10}	4	16
$PM_{2.5}$	4	16
Sulfur Dioxide (SO_2)	10	44
Nitrogen Oxides (NO_x)	87	137
Carbon Monoxide (CO)	168	246
Volatile Organic Compounds (VOC)	7,499	232
Total sum of all Hazardous Air Pollutants (HAPs)	268	62
Hydrogen Sulfide (H_2S)	5	2
Green House Gas Emissions as Total CO_2e	N/A	318,324

The standard and maximum operating schedules of the facility will be 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

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Houston, TX 77024

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9.5 Letters to Counties, Tribes & Municipalities

July 15, 2026

CERTIFIED MAIL 9589 0710 5270 3302 0586 39
RETURN RECEIPT REQUESTED

Dear **City Official,**

Trace Delaware Gathering, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17, 2026.**

The exact location for the proposed facility known as, **Apollo Gas Plant**, is at latitude **32.274436** dec deg North and longitude **-104.132247** dec deg West. The approximate location of this facility is **2.2** miles **southwest** of **Loving, NM** in **Eddy** County.

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July 15, 2026

CERTIFIED MAIL 9589 0710 5270 3302 0586 46
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Dear **County Official,**

Trace Delaware Gathering, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17, 2026.**

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Houston, TX 77024

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Houston, TX 77024

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July 15, 2026

CERTIFIED MAIL 9589 0710 5270 3302 0588 51
RETURN RECEIPT REQUESTED

Dear **Village Official,**

Trace Delaware Gathering, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17, 2026.**

The exact location for the proposed facility known as, **Apollo Gas Plant**, is at latitude **32.274436** dec deg North and longitude **-104.132247** dec deg West. The approximate location of this facility is **2.2** miles **southwest** of **Loving, NM** in **Eddy** County.

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Houston, TX 77024

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9.6 Posted Notice and Certification

NOTICE

Trace Delaware Gathering, LLC announces its application to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17th, 2026.**

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Green House Gas Emissions as Total CO_2e	N/A	318,324

The standard and maximum operating schedules of the facility will be from 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is: **Trace Delaware Gathering, LLC; 840 Gessner, Suite 530, Houston, TX 77024.**

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

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General Posting of Notices – Certification

I, Kenton Bulson, the undersigned, certify that on **{DATE}**, posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **{CITY\TOWN\VILLAGE}** of **Eddy** County, State of New Mexico on the following dates:

1. Facility entrance 7/14/26
2. Public Library 7/14/26

101 S. Halagueno Street

Carlsbad, NM 88220

3. Eddy County Admin 7/14/26

101 S. Greene Street

Carlsbad, NM 88220

4. Post Office 7/14/26

311 W. Fox Street

Carlsbad, NM 88220

Signed this 14 day of July, 2026

Kenton Bulson
Signature

7/14/26
Date

Kenton Bulson
Printed Name

VP - Facilities Engineering Trace Delaware Gathering, LLC
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}


NOTICE


NOTICE

NOTICE

Trace Delaware Gathering, LLC announces its application to the New Mexico Environment Department for an air quality permit for the **modification of its natural gas plant**. The expected date of application submittal to the Air Quality Bureau is **July 17th, 2026.**

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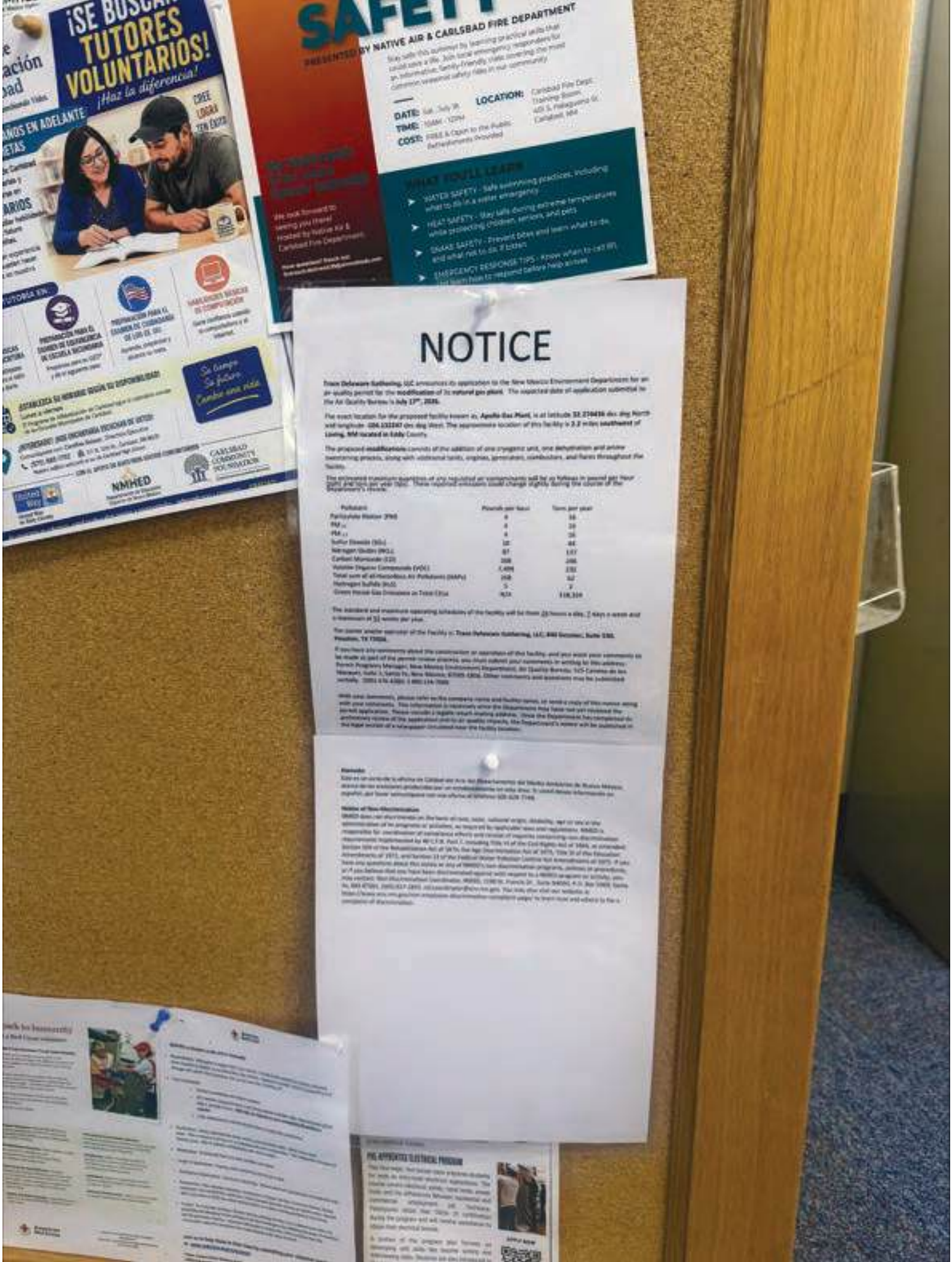
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Notice of Non-Discrimination

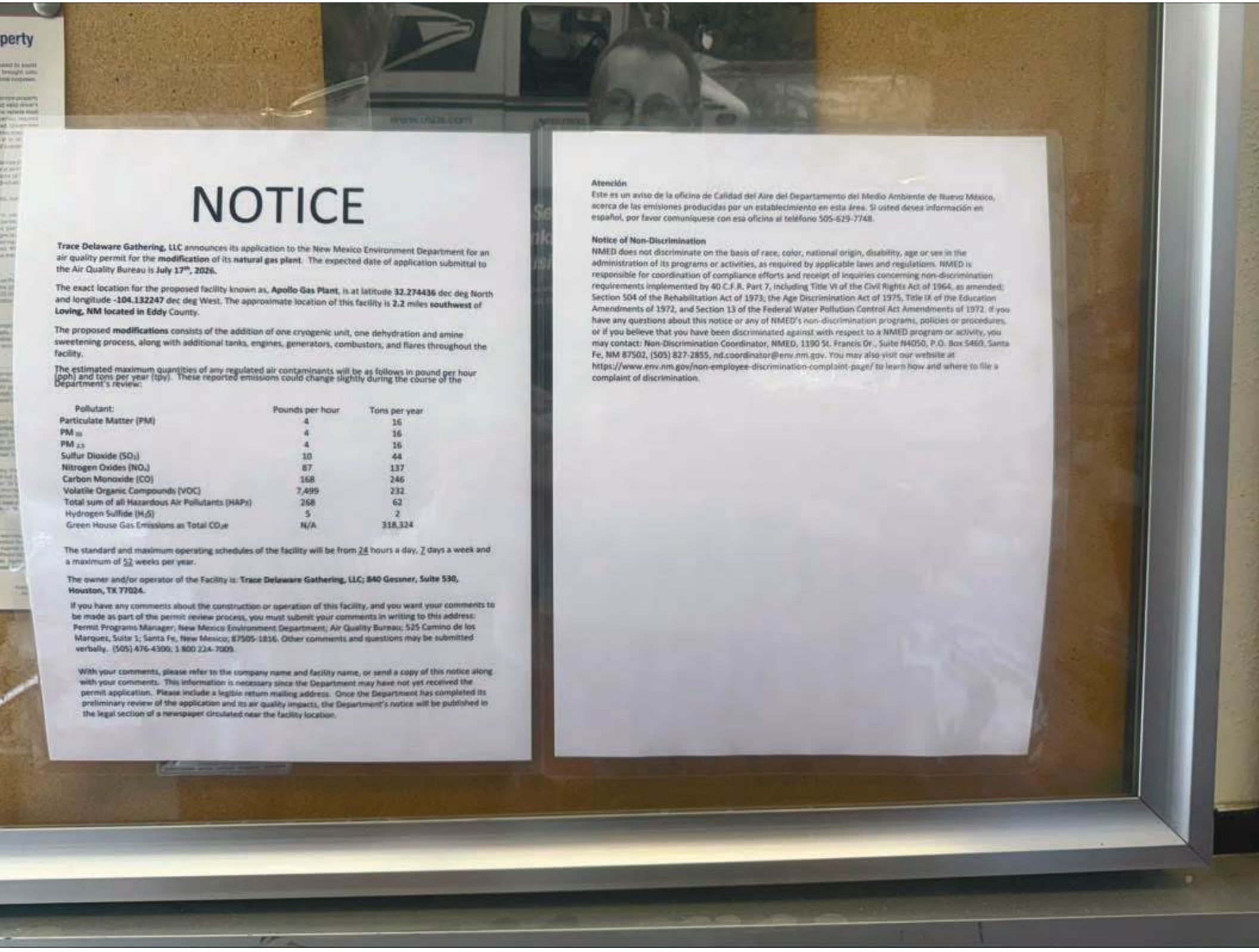
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Clay County
Administration
6:17:26


¡SE BUSCAN
TUTORES
VOLUNTARIOS!
¡Haz la diferencia!
SAFETY
PRESENTED BY NATIVE AIR & CARLSBAD FIRE DEPARTMENT
DATE:
TIME:
COST:
LOCATION:
NOTICE


hoopla
WRITING IS EASY AS PIE!
SUMMER WRITING
BACK TO SCHOOL
GIVEAWAY
SATURDAY
JULY 18TH
9AM-1PM
605 N. 6TH ST
CARLSBAD, NM
VOLUNTEER TUTORS
Summer SAFETY
NOTICE


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The proposed **modifications** consists of the addition of one cryogenic unit, one dehydration and amine sweetening process, along with additional tanks, engines, generators, combustors, and flares throughout the facility.

The estimated maximum quantities of any regulated air contaminants will be as follows in pound per hour (pph) and tons per year (tpy). These reported emissions could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	4	16
PM_{10}	4	16
$PM_{2.5}$	4	16
Sulfur Dioxide (SO_2)	10	44
Nitrogen Oxides (NO_x)	87	137
Carbon Monoxide (CO)	168	246
Volatile Organic Compounds (VOC)	7,499	232
Total sum of all Hazardous Air Pollutants (HAPs)	268	62
Hydrogen Sulfide (H_2S)	5	2
Green House Gas Emissions as Total CO_2e	N/A	318,324

The standard and maximum operating schedules of the facility will be from 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is: **Trace Delaware Gathering, LLC; 840 Gessner, Suite 530, Houston, TX 77024.**

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

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Notice of Non-Discrimination
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9.7 Table Property Owners

9.7.1 Table of Notified Citizens

Name	Address	City	State	Zip Code
WPX ENERGY PERMIAN LLC	3500 ONE WILLIAMS CENTER MD	TULSA	OK	71472
COLWELL, WILLIAM DANIEL	241 COLWELL RANCH ROAD	CARLSBAD	NM	88220
COOKSEY, MATTHEW ALAN & BRANDY R	(N-JT) PO BOX 248	LOVING	NM	88256-0248
MCDONALD, HENRY E	PO BOX 597	LOVING	NM	88256
SIBLEY, W C RANCH LTD LLC	319 S ROBERSON RD	LOVING	NM	88256-9742
2B HACIENDA ORCHARD LLC	301 E ROSE ST	CARLSBAD	NM	88220
LONGWOOD MIDSTREAM DELAWARE LLC	ONE LINCOLN CENTER 5400 LBJ FREEWAY STE 1500	DALLAS	TX	75240
JUNIPER TANKS LLC	603 ELORA DRIVE	CARLSBAD	NM	88220
SUMMIT PERMIAN TRANSMISSION LLC	910 LOUISIANA ST	HOUSTON	TX	77002
SCOTT, EULANE HIGHTOWER ESTATE	PO BOX 385	CARLSBAD	NM	88221-0385
KRUEGEL, JACK K & KALI J (JT)	PO BOX 601	LOVING	NM	88256-0601
REED, RONALD GLENN & REED, CHRISTIE DIANE (JT)	PO BOX 463	LOVING	NM	88256-0463
RENNIE, STEVEN GAGE	PO BOX 597	LOVING	NM	88256-0597
LUCID ENERGY DELAWARE LLC	3100 MCKINNON ST STE 800	DALLAS	TX	75201-7014
STATE OF NEW MEXICO	310 OLD SANTA FE TRAIL	SANTA FE	NM	87504
BRYAN, BILLY D & CYNTHIA M (N-JT)	319 S ROBERSON RD	LOVING	NM	88256-9742
SCOTT, RONALD E	PO BOX 55	ORLA	TX	79770-0055

9.7.2 Table of Notified Counties

Name	Address	City	State	Zip Code
EDDY COUNTY - COUNTY MANAGER	101 W GREENE ST	CARLSBAD	NM	88220

9.7.3 Table of Notified Municipalities

Name	Address	City	State	Zip Code
CITY OF CARLSBAD - CITY MANAGER	101 N HALAGUENO	CARLSBAD	NM	88220
VILLAGE OF LOVING - VILLAGE MANAGER	415 W CEDAR ST	LOVING	NM	88256

9.7.4 Table of Notified Tribes

Name	Address	City	State	Zip Code
N/A - There are no tribes located within 10 miles of the facility fenceline				

9.8 Public Service Announcement

Submittal of Public Service Announcement – Certification

I, Fernando Colunga, the undersigned, certify that on **7/15/2026**, submitted a public service announcement to **Carlsbad Radio – Radio 92.1 KATK-FM** that serves the City of **Carlsbad**, **Eddy** County, New Mexico, in which the source is or is proposed to be located and that **Carlsbad Radio RESPONDED.**

Signed this 15 day of July, 2026,

Fernando Colunga
Signature

07/15/2026
Date

Fernando Colunga
Printed Name

Environmental Engineer Intern
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

From:	Fernando Colunga
To:	don@carlsbadradio.com
Cc:	Adam Erenstein; Kaelin Gagnon
Subject:	Apollo Gas Plant Public Service Announcement
Date:	Wednesday, July 15, 2026 1:20:39 PM
Attachments:	image.png

Dear Carlsbad Radio — Radio 92.1 KATK-FM,

Per New Mexico Administrative Code 20.2.72.203.D NMAC and according to the Guidance for Public Notice for Air Quality Permit Applications – (5) Notifications: Submittal of Public Service Announcement (PSA): A public service announcement required for permits and significant permit revisions must be submitted to at least one radio or television station, which services the municipality, or county, which the facility is or will be located. Therefore, based on the above, we respectfully ask you to air the information shown below as a Public Service Announcement.

The public service announcement must contain the following information about the facility or proposed facility (20.2.72.203.D NMAC):

a. The name of the facility: Apollo Gas Plant, Location: 32.274436 , -104.132247 , and type of business: Natural Gas Plant
b. The name and principal owner or operator: Trace Delaware Gathering, LLC – owner and operator
c. The type of process or change for which the permit is sought: Initial NSR – the addition of one cryogenic unit, one dehydration and amine sweetening process, along with additional tanks, engines, generators, combustors, and flares throughout the facility.
d. Locations where the notices have been posted in Eddy County:
   1) Apollo Gas Plant Entrance — 32.274436 , -104132247 , Loving, NM 88256
   2) Carlsbad Public Library — 101 S. Halagueno Street, Carlsbad, NM 88220
   3) Carlsbad Post Office — 311 W. Fox Street, Carlsbad, NM 88220
   4) Eddy County Administrative Building — 101 S. Greene Street, Carlsbad, NM, 88220
e. The department's address or telephone number to which comments may be directed: Permit Programs manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1, Santa Fe New Mexico; 87505-1816; (505) 476-4300; 1 (800) 224-7009.

Fernando Colunga
Environmental Engineer Intern

P 505.266.6611
Email: fernando.colunga@trinityconsultants.com
9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122



Connect with us: LinkedIn / YouTube / trinityconsultants.com
View our capabilities in the Environmental Consulting, Built Environment, Life Sciences, and Water & Ecology markets.

9.9 & 9.10 Newspaper Ads

Affidavit of Publication

No. 116990

State of New Mexico

County of Eddy:

Adrian Hedden

being duly sworn, sayes that he is the **Publisher**

of the Artesia Daily Press, a weekly newspaper of General circulation, published in English at Artesia,

said county and state, and that the hereto attached

Legal Ad

was published in a regular and entire issue of the said Artesia Daily Press, a weekly newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for

1 Consecutive weeks/day on the same day as follows:

First Publication July 15, 2026

Second Publication

Third Publication

Fourth Publication

Fifth Publication

Sixth Publication

Seventh Publication

Eighth Publication

Subscribed and sworn before me this

15th day of July 2026

LATISHA ROMINE
Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

Copy of Publication:

NOTICE OF AIR QUALITY PERMIT APPLICATION

Trace Delaware Gathering, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its liquid handling facility to a **natural gas plant.** The expected date of application submittal to the Air Quality Bureau is **July 17th, 2026.**

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Green House Gas Emissions as Total CO_2e	N/A	318,324

The standard and maximum operating schedules of the facility will be 24 hours a day, 7 days a week and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is:
Trace Delaware Gathering, LLC; 840 Gessner, Suite 530, Houston, TX 77024.

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

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General information about air quality and the permitting

Eighth Publication

Subscribed and sworn before me this

15th day of July 2026

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Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

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General information about air quality and the permitting process, and links to the regulations can be found at the Air Quality Bureau's website: www.env.nm.gov/air-quality/permitting-section-home-page/. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC.

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116990-Published in Artesia Daily Press July 15, 2026.

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9.11 Parcel Map

ArcGIS Web Map



7/14/2026, 2:25:10 PM

Cartography
- Dim Tic
- Leader Line
- Misc Carto
- Owner Hook

Sub Corner
Other
Railroads
Coincident Boundaries
Govt Lot Line

Parcel Line
Sub Line
Other
Geographic
Section

Subdivision
Parcel

World Imagery
Low Resolution 15m Imagery
High Resolution 60cm Imagery
High Resolution 30cm Imagery
Citations
9.6m Resolution Metadata

1:33,312

0 0.23 0.45 0.9 mi

0 0.38 0.75 1.5 km

Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community

Section 10

Written Description of the Routine Operations of the Facility

---

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

Apollo Gas Plant currently operates as a liquid handling facility (Apollo Liquid Handling Facility) located in Eddy County. With this application, the primary function of the plant will be to remove CO_2, water, and natural gas liquids (NGLs) from field gas so the gas can meet pipeline specifications. Fugitive emissions from this process (FUG) are vented to the atmosphere.

Inlet Slug Catcher and Separation

Inlet gas goes to the facility's 350 MMSCFD inlet slug catcher and separates the inlet stream into gas and condensate/hydrocarbon liquids. The facility will be designed to process only 275 MMSCFD of natural gas. The facility will be designed to process only 275 MMSCFD of natural gas. The gas that enters the slug catcher can divert up to 350 MMSCFD to third party processors or process 275 MMSCFD at the Apollo Gas Plant. The gas is routed to amine treating and the liquids are heated by heater HT-1 before being separated by a three-phase separator. Gas from the separator is routed to the flash gas compressors (ENG-1, ENG-2). Low-pressure condensate from flash gas compression is routed to the condensate tanks (TK-1, TK-2). High-pressure condensate from flash gas compression is routed back to the separator. Produced water from the separator is routed to the produced water tank (PWTK-1) Condensate from the separator is routed to the stabilizer. Emissions from HT-1, HT-2, ENG-1, and ENG-2 exhaust to the atmosphere.

Stabilizer

The stabilizer system is a distillation process to lower the Reid Vapor Pressure (RVP) of field condensate/pipeline hydrocarbon liquids that are swept into the plant slug catchers from the gas pipeline. This process uses heat from a hot oil system (HT-5) to drive off volatile components and reduce the RVP to less than 9. The liquid is then stable and thus does not give off significant vapors. The stabilizer is equipped with a fuel gas blanket for further protection. Stabilized condensate is routed to the stabilized condensate tanks (TK-3 through TK-8). Overheads from the stabilizer are compressed by the electric overhead compressors (EC-1 and EC-2) and routed back to the inlet slug catcher. Emissions from HT-5 exhaust are routed to the atmosphere.

Amine Treating

The amine unit is designed to remove CO_2 and H_2S from the natural gas stream to meet pipeline specifications. In addition, carbon dioxide can freeze in the cryogenic unit, forming dry ice and forcing the shutdown of the facility. Amine treating is an exothermic chemical reaction process. This aqueous mixture is regenerated and reused. Lean amine solution is pumped to the top of the contactor and allowed to flow downward. Wet gas is fed into the bottom of the contactor and flows upward. As the lean amine solution flows down through the contactor, it comes in contact with the wet gas. The CO_2 and H_2S react with the lean amine to form an amine carbonate. The reacted amine, known as "sour" or "rich" amine is returned to a regeneration unit, and the processed (amine treated) gas is sent to the cryogenic system. The regeneration unit is heated by the amine reboiler hot oil heater (HT-2).

Acid gas from the amine unit's (AM-1) regenerator is primarily controlled by the thermal oxidizer (TO-1). During TO-1 downtime, conservatively up to 5% annually, acid gas is vented to atmosphere via the amine still vent. Flash gas from AM-1's flash tank is captured and routed to the large facility flare (FL-2). Emissions from HT-2 exhaust to the atmosphere.

Glycol Dehydration

Triethylene glycol (TEG) dehydration removes water from the natural gas stream. This is accomplished by reducing the inlet water dew point (temperature at which vapor begins to condense into a liquid) to the outlet dew point temperature which will contain a specified amount of water. The wet gas is brought into contact with dry "lean" glycol in a countercurrent contactor tower. Water vapor is absorbed in the TEG solution and consequently, its dew point reduced. Wet gas passing through the contactor tower is

dehydrated and then passed to the mole sieve beds. The wet (or "rich") glycol then flows from the absorber to a regeneration system in which it is partially decompressed, and then heated to remove water vapor, resulting in "lean" glycol that is reintroduced to the contactor tower. The glycol regenerator system is heated by the Glycol reboiler heater (HT-3). Overheads from the regeneration system are condensed in a BTEX condenser, with un-condensable overheads controlled by the BTEX combustor.
Condenser overheads from the glycol dehydrator unit (DEHY-1) are controlled by the BTEX combustor (ECD-2). Flash gas from DEHY-1's flash tank is captured and routed to the large facility flare (FL-2). Emissions from HT-3 exhaust to the atmosphere.

Molecular Sieve Dehydration
Molecular sieve dehydration is used upstream of the cryogenic units to achieve a gas stream dew point of -150°F. The process uses three molecular sieve vessels with one vessel in service absorbing moisture from the gas stream, one vessel in regeneration mode, and one vessel in standby. During the regeneration mode, hot, dry gas (regen gas) is passed up through the vessel to drive off the absorbed moisture from the molecular sieve. The gas comes from the discharge of the regen compressor, and it is passed through a direct fired heater to achieve a temperature of approximately 500°F. After the gas passes through the bed, it is cooled in an air-cooled exchanger. The water in the gas condenses and is separated from the gas stream in a separator. The regen gas is routed back to the mol sieve bed for further processing. The regeneration heater (HT- 4) operates as part of this process and emissions from HT-4 exhaust to atmosphere.

Cryogenic Unit
The cryogenic unit is designed to liquefy natural gas components from the amine treated, dehydrated inlet gas by removing work (heat) from the gas by means of the turbo expander. The cryogenic unit recovers natural gas liquids (NGL) by cooling the gas stream to extremely cold temperatures (-150°F and lower) and condensing components such as ethane, propane, butanes and heavier. The gas is cooled by a series of heat exchangers and by rapidly lowering the pressure of the gas from around 1000 PSIG to approximately 300 PSIG. Once the gas has passed through the system of heat exchangers and expansion, it is recompressed using the energy obtained from expanding the gas. The gas is sent to residue compressors (ENG-3 through ENG-6) and pipelined out of the facility. Emissions from ENG-3 through ENG-6 exhaust to the atmosphere.

Compression (Engines)
Compressor engines (ENG-1 through ENG-6) run their associated compressors to compress gas. Compressed flash gas from ENG-1 and ENG-2 is routed to the amine unit. Compressed residue gas from ENG-3 through ENG-6 is routed to sales. Combustion emissions from the engines are controlled by oxidation catalysts.

Storage and Loading Operations
NGL from the cryogenic unit are pipelined out of the facility. Off-spec NGLs are routed to two(2) pressurized bullet tanks and recycled to the process. Condensate tanks TK-1 and TK-2 store low-pressure condensate from compressor engines. Stabilized condensate is routed to and stored at the stabilized condensate tanks TK-3 through TK-8. Produced water from the process is stored in produced water tank PWTK-1. For TK-1, TK-2 and PWTK-1, tank emissions are currently routed to the tank/loading combustor (ECD-1) with a 100% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, tank emissions will be routed to and controlled by the tank/loading flare (FL-3). Controlled annual emissions are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility during plant construction. For TK-3 through TK-8, tank emissions will be routed to and controlled by FL-3.

Condensate (TL-1, TL-3) and produced water (TL-2) is transferred out of the facility via truck loading. Emissions from Loading emissions for TL-1 and TL-2 are routed to ECD-1 with 98.7% capture efficiency and 98% DRE. Once the full Apollo Gas Plant facility is constructed and operational, these loading emissions will be routed to and controlled by FL-3 with a 98.7% capture efficiency and 98% DRE. Controlled annual emissions are represented as the maximum total emissions between ECD-1 and FL-3 to allow for operational flexibility. Loading emissions for TL-3 will be routed to the tank/loading flare (FL-3) with a 98.7% capture efficiency and 98% DRE. Uncaptured emissions from loading operations are vented to atmosphere. The haul road (ROAD) is uncontrolled.

Control Devices
The plant flares are used for flaring during normal operations as well as startup, shutdown, and maintenance conditions. FL-1 controls flash gas compressor downtime. FL-2 controls AM-1 and DEHY-1 flash gas along with SSM activities. FL-3 controls the facility tanks and loading as well as Tank SSM activities. TO-1 controls the AM-1 still vent during normal operations as well as startup, shutdown, and maintenance conditions. ECD-1 controls existing facility tanks and loading operations. ECD-2 controls BTEX Overheads from the dehydrator.

Generators

Generator engines (GEN-1A, GEN-1B, and GEN-2) are used for on-site power until permanent power can be obtained at the facility.

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)**:** Emission sources evaluated include all facilities within ¼ mile of the Apollo Gas Plant. There are no other related Trace facilities within ¼ mile of the Apollo Gas Plant.

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.

þ Yes ÿ No

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

þ Yes ÿ No

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

þ Yes ÿ No

C. Make a determination:

þ 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.

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

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

This facility is for an initial NSR application.

Section 13

Determination of State & Federal Air Quality Regulations

<u>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.</u>

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the C B BQ B B B B B B B B B B B

Required Information for Specific Equipment:
m B B B B B B B B B B; B B**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:
> B B B B; B B B B B B B B B B B Bc Bm B B f 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 B B B B B9 c B B B B B9>X B B B B

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO
° BmCRtt >B(° tRcB mB(c(B B9c —t

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

Table for State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide, and Nitrogen Dioxide. The facility meets maximum allowable concentrations of the TSP, SO_2, H_2S, NOx, and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emissions per 20.2.7.110 NMAC.
20.2.23 NMAC	Fugitive Dust Control	No	N/A	This application is not for a Notice of Intent (NOI) and is not located in an area subject to a mitigation plan pursuant to 40 CFR 51.930; therefore, this regulation does not apply to this facility.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This facility does not have any gas burning equipment larger than 1,000,000 MM Btu/yr.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This facility does not have any oil burning equipment larger than 1,000,000 MMBtu/yr.
20.2.35 NMAC	Natural Gas Processing Plant Sulfur	Yes	Facility	This regulation establishes sulfur emission standards for natural gas processing plants. The proposed facility meets the definition of a new natural gas processing plant under this regulation and is subject to the requirements of this regulation [20.2.35.7 (B) NMAC]. The facility will comply with all requirements under 20.2.35.110 NMAC as applicable.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	**These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.**
20.2.38 NMAC	Hydrocarbon Storage Facility	Yes	TK-3 through TK-8	This facility has a capacity greater than 20,000 gallons with a throughput greater than 30,000 gallons per week and is subject to this regulation. This facility will comply with applicable requirements under 20.2.38.109.B NMAC.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	The site is a natural gas processing facility. As such, this regulation does not apply (20.2.39.6 NMAC).
20.2.50 NMAC	Oil and Gas Sector Ozone Precursor Pollutants	Yes	ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3, HT-2, TL-1, TL-2, TL-3, C-1 through C-6, EC-1, EC-2, FUG	This regulation establishes emission standards for volatile organic compounds (VOC) and oxides of nitrogen (NOx) for oil and gas production, processing, compression, and transmission sources. 20.2.50 NMAC subparts below: tı B B B B B B B B(Bc B ₃ B Bc B B₃ B B B B B B B B justification: Check the box for the subparts that are applicable: ☒113 Engines and Turbines This facility has natural gas compressor engines (ENG-1 through ENG-6) and generator engines (GEN-1A, GEN-1B, GEN-2) greater than 500 hp constructed after August 5, 2022. Trace will comply with applicable requirements pursuant to 20.2.50.113.B(3), 20.2.50.113.C, and 20.2.50.113.D. ☒114 Compressor Seals The reciprocating compressors associated with the compressor engines (C-1 through C-6) and the electric overhead compressors (EC-1, EC-2) are subject to this subpart. Trace will comply with applicable requirements pursuant to 20.2.50.114.B and 20.2.50.114.C.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
				☐115 Control Devices and Closed Vent Systems N/A This facility does not use control devices and/or closed vent systems to comply with this subpart. Thus, this subpart does not apply pursuant to 20.2.50.115.A. ☒116 Equipment Leaks and Fugitive Emissions - This facility will have equipment leaks and fugitive emissions (FUG). Thus, Trace will comply with this regulation pursuant to 20.2.50.116.A and 20.2.50.116.C. ☐ 117 Natural Gas Well Liquid Unloading N/A There are no natural gas well liquid unloading activities at this facility; therefore, this subpart does not apply pursuant to 20.2.50.117.A. ☐ 118 Glycol Dehydrators N/A The glycol dehydrator (DEHY-1) at this facility has a potential to emit less than 2 tpy of VOC. Thus, this subpart does not apply pursuant to 20.2.50.118.A. ☒ 119 Heaters This facility has a heater with a heat duty greater than 20 MMBtu/hr (HT-2). Trace will comply with this subpart pursuant to 20.2.50.119.B and 20.2.50.119.C. ☒ 120 Hydrocarbon Liquid Transfers B B B B B B hydrocarbon liquid transfer is via truck loading (TL-1, TL-2, TL-3). Trace will comply with this subpart pursuant to 20.2.50.120.B through 20.2.50.120.E. ☒121 Pig Launching and Receiving This facility has pig receiving activities with B B B B B B B ° R B B B B B B subpart pursuant to 20.2.50.121.B through 20.2.50.121.E. ☐122 Pneumatic Controllers and Pumps N/A There are no gas-driven pneumatic controllers or pumps at this facility. Thus, this subpart does not apply pursuant to 20.2.50.122.A. ☐ 123 Storage Vessels - N/A The storage vessels at this facility have a PTE less than two tpy of VOC. Thus, this subpart does not apply pursuant to 20.2.50.123.A. ☐124 Well Workovers N/A This facility does not have any well workovers; therefore, this subpart does not apply pursuant to 20.2.50.124.A. ☐ 125 Small Business Facilities N/A This facility does not qualify as a small business facility; therefore, this subpart does not apply pursuant to 20.2.50.125.A. ☐126 Produced Water Management Unit N/A This facility does not have any produced water management units; therefore, this subpart does not apply pursuant to 20.2.50.126.A. ☐127 Flowback Vessels and Preproduction Operations N/A This facility is not a wellhead site; therefore, this subpart does not apply pursuant to 20.2.50.127.A.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	HT-1 through HT-5, ENG-1 through ENG-6, GEN-1A,	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as engines, boilers, heaters, thermal oxidizers, and flares unless your equipment is subject to another state regulation that limits particulate matter such as 20.2.19 NMAC (see 20.2.61.109 NMAC).

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
			GEN-1B, GEN-2, GEN-3, FL-1, FL-2, FL-3, ECD-1, ECD-2	
20.2.70 NMAC	Operating Permits	Yes	Facility	This facility is considered a major source due to emitting 100 or more tons per year of any air pollutant pursuant to 20.2.70.7.R(2). This facility will be a first-time applicant and will apply for an operating (Title V) permit within twelve months after the source commences operation pursuant to 20.2.70.300.B(1).
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This facility is subject to 20.2.70 NMAC and is subject to the requirements of this regulation.
20.2.72 NMAC	Construction Permits	Yes	Facility	This facility is a stationary source that has a potential emission rate greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Air Quality Standard. This application is for a construction permit in order to meet the requirements of this regulation.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	This facility is considered a major source pursuant to 20.2.70.7.R(2) due to emitting greater than or equal to 100 tpy of a regulated air pollutant. Thus, this facility is subject to emission inventory reporting per 20.2.73.300 NMAC.
20.2.74 NMAC	Permits Prevention of Significant Deterioration (PSD)	No	N/A	This facility does not meet the definition of a major stationary source pursuant to 20.2.74.7.AG(2). Thus, this regulation does not apply.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation applies since this submittal is an application pursuant to 20.2.72.
20.2.77 NMAC	New Source Performance	Yes	ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3, HT-2, HT-4, HT-5, TK-1, through TK-8, PWTK-1, AM-1, DEHY-1, C-1, through C-6, EC-1, EC-2, FUG	The following units at this facility are subject to the requirements of 40 CFR Part 60: 40 CFR 60, Subpart JJJJ: Spark Ignited Engines and Generators (ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3) 40 CFR 60, Subpart Kc: Condensate tanks (TK-1 through TK-8), produced water tank (PWTK-1) 40 CFR 60, Subpart OOOOb: Compressors (C-1 through C-6, EC-1, EC-2), amine treating unit (AM-1), fugitive emissions (FUG) 40 CFR 60.40c, Subpart Dc: Heaters (HT-2, HT-4, HT-5)
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This facility emits hazardous air pollutants but none of which are subject to the requirements of 40 CFR Part 61.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.79 NMAC	Permits Nonattainment Areas	No	Facility	This facility is not located in a non-attainment area and therefore it is not subject to this regulation.
20.2.80 NMAC	Stack Heights	No	N/A	This regulation does not apply, as all stacks at the facility will follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3, HT-1 through HT-5, DEHY-1, FUG	The following units at this facility are subject to the requirements of 40 CFR Part 63: 40 CFR 63, Subpart ZZZZ: Engines (ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3) 40 CFR 63, Subpart HH: Glycol dehydrator (DEHY-1), fugitive emissions (FUG) 40 CFR 63, Subpart DDDDD: Heaters (HT-1, HT-1, HT-2, HT-3, HT-4, HT-5)

Table for Applicable Federal Regulations

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	The modeling and conditions developed from the modeling are the applicable requirements to demonstration compliance with the NAAQs.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3, TK-1, through TK-8, PWTK-1, AM-1, DEHY-1, C-1 through C-6, EC-1, EC-2, FUG	The natural gas fired engines and generators (ENG-1 through ENG-6, GEN-2), and propane fired generators (GEN-1A , GEN-1B, GEN-3) are subject to 40 CFR 60 Subpart JJJJ. The condensate tanks (TK-1, TK-2), stabilized condensate tanks (TK-3 through TK-8), and produced water tank (PWTK-1) are subject to 40 CFR 60 Subpart Kc. The amine treating unit (AM-1), the compressors associated with the engines (C-1 through C-6), fugitive emissions (FUG), and the electric overhead compressors (EC-1, EC-2) are subject to 40 CFR 60 subpart OOOOb. The heaters (HT-2, HT-4, HT-5) are subject to 40 CFR 60.40c, Subpart Dc.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No	N/A	This facility does not have electric utility steam generating units capable of combusting more than 73 MW (250 MMBtu/hr). Thus, this regulation does not apply.
NSPS 40 CFR60.40b Subpart Db	**Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units**	No	N/A	This facility does not have steam generating units with a heat input capacity greater than 29 MW (100 MMBtu/hr). Thus, this regulation does not apply.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Yes	HT-2, HT-4, HT-5	This facility has stream generating units for which construction, modification or reconstruction commenced after June 9, 1989 and that have a maximum design heat input capacity of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). Only recordkeeping and notification requirements apply as the units burn only natural gas per 60.48c(g)(3).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No	N/A	The storage tanks at this facility will be constructed after July 23, 1984, thus, this regulation does not apply.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No	N/A	The storage tanks at this facility will be constructed after October 4, 2023, thus, this regulation does not apply.
NSPS 40 CFR 60, Subpart Kc	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for	Yes	TK-1 through TK-8, PWTK-1	This facility has storage vessels (TK-1 through TK-8, PWTK-1) with a capacity greater than or equal to 20,000 gallons (gal) that are used to store volatile organic liquids (VOL) that will be constructed, reconstructed, or modified after October 4, 2023. Thus, this regulation applies, and Trace will comply with applicable emission standards in § 60.112c(a)(1) through (4) for general storage vessel control requirements, § 60.112c(d)(1) through (7) for and § 60.112c(e)(1) through (3). Trace will also comply with the testing requirements in § 60.113c(c)(1) through (3)

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Which Construction, Reconstruction, or Modification Commenced After October 4, 2023			and § 60.113c(d). Additional recordkeeping requirements in § 60.115c(a), (b), (c), and (e), and reporting requirements in § 60.116c(a) through (h) also apply.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No	N/A	This facility does not have any stationary gas turbines; therefore, this regulation does not apply.
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011	No	Facility	This facility is an onshore natural gas processing plant modified after August 23, 2011; thus, this regulation does not apply.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No	N/A	This facility is a natural gas processing plant constructed, reconstructed, and/or modified after August 23, 2011. Thus, this facility does not meet the applicability requirements of 40 CFR 60.640.
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No	N/A	This facility will be constructed after September 18, 2015; therefore, this regulation does not apply.
NSPS 40 CFR Part 60 Subpart OOOOa	Subpart OOOOa Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18,	No	N/A	This facility will be constructed after December 6, 2022; therefore, this regulation does not apply.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	2015 and On or Before December 6, 2022			
NSPS 40 CFR Part 60 Subpart OOOOb	Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced **After** December 6, 2022	Yes	AM-1, C-1, through C-6, EC-1, EC-2, FUG	The condensate tanks (TK-1 and TK-2) will be constructed after December 6, 2022. TK-1 and TK-2 are subject to federally enforceable limitations that limit emissions to less than 6 tpy of VOCs and the potential for methane emissions for these units is less than 20 tpy. Thus, TK-1 and TK-2 are not subject to §60.5395b, §60.5410b, §60.5417b, and/or §60.5420b. The stabilized condensate tanks (TK-3 through TK-8) will be constructed after December 6, 2022 and will have the potential for emissions less than 6 tpy of VOCs and less than 20 tpy methane. Thus, TK-3 through TK-8 are not subject to §60.5395b, §60.5410b, §60.5417b, and/or §60.5420b. The produced water tank (PWTK-1) will be constructed after December 6, 2022 and has the potential for emissions less than 6 tpy of VOCs and less than 20 tpy methane. Thus, PWTK-1 is not subject to §60.5395b, §60.5410b, §60.5417b, and/or §60.5420b. The amine unit (AM-1) is a treating unit as defined in this subpart and will be constructed after December 6, 2022. AM-1 has a design capacity less than 2 long tons per day of H2S in the acid gas. Therefore, per 40 CFR §60.5365b(g)(3), AM-1 is not required to comply with the SO2 standards, test methods, and monitoring requirements of §60.5405b §60.5407b or the compliance demonstration provisions of §60.5410b(i) and §60.5415b(k), and will comply with the recordkeeping and reporting requirements of §60.5423b(e), including retention of records supporting the design capacity determination. The reciprocating compressors associated with the engines at this facility (C-1 through C-6), and the electric overhead compressors (EC-1, and EC-2) will be constructed after December 6, 2022 and are affected facilities pursuant to §60.5365b(c). Reciprocating compressors are subject to the standards defined in §60.5385b (a)(1)- §60.5385b(a)(2) and §60.5385b(d)(1)- §60.5385b(d)(3). This facility will be constructed after December 6, 2022. Thus, fugitive emissions (FUG) are subject to this subpart pursuant to §60.5365b(i).
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This facility does not have any compression ignition internal combustion engines; thus, this regulation does not apply.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	ENG-1, through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3	This regulation establishes standards of performance for stationary spark ignition (SI) internal combustion engines (ICE). Units ENG-1 and ENG-2 are natural gas fired lean-burn non-emergency engines with a power rating greater than 500 hp and less than 1,350 hp, with commencement of construction after June 12, 2006, manufactured after July 1, 2008. Thus, this regulation applies pursuant to § 60.4230(a)(4)(ii), and will comply with emission standards in 40 CFR 60, Subpart JJJJ, Table 1 per §60.4233(e). The Table 1 applicable emission standards are 2 g/hp-hr NOx, 4 g/hp-hr CO, and 1 g/hp-hr VOC.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
				Units ENG-3 through ENG-6 are natural gas fired lean-burn non-emergency engines with a power rating greater than 500 hp, with commencement of construction after June 12, 2006, manufactured after July 1, 2008. Thus, this regulation applies pursuant to § 60.4230(a)(4)(ii), and will comply with emission standards in 40 CFR 60, Subpart JJJJ, Table 1 per §60.4233(e). The Table 1 applicable emission standards are 2 g/hp-hr NOx, 4 g/hp-hr CO, and 1 g/hp-hr VOC. Units GEN-1A and GEN-1B are rich burn LPG non-emergency engines with a power rating less than 500 hp manufactured after July 1, 2008. Thus, this regulation applies and will comply with the emission standards outlined in §60.4231(c) per §60.4233(c). These emission standards require GEN-1A and GEN-1B to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Unit GEN-2 is a natural gas fired non-emergency engine with a power rating greater than 25 hp but less than 500 hp manufactured after July 1, 2008. Thus, this regulation applies and will comply with the emission standards in 40 CFR 60, Subpart JJJJ, Table 1 per §60.4233(e). The Table 1 applicable emission standards are 2 g/hp-hr NOx, 4 g/hp-hr CO, and 1 g/hp-hr VOC. Unit GEN-3 is a propane fired emergency generator engine with a power rating greater than 25 hp manufactured after July 1, 2006. Thus, this regulation applies pursuant to §60.4230(a)(4)(iv). GEN-3 will comply with emission standards in §60.4231(c) per §60.4233(c). These emission standards require GEN-1A and GEN-1B to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	N/A	This facility does not have any electric generating units or stationary combustion turbines. Thus, this regulation does not apply.
NSPS 40 CFR 60 Subpart UUUUb	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	N/A	This facility does not have any electric generating units or stationary combustion turbines. Thus, this regulation does not apply.
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No	N/A	This facility does not meet the definition of a municipal solid waste landfill pursuant to §60.31c or §60.751, or a disposal facility pursuant to §60.41f. Therefore, this regulation does not apply.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	This facility does not have any sources subject to 40 CFR Part 61; thus this regulation does not apply.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No	N/A	This facility does not have stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge [40 CFR Part 61.50]; thus, this regulation does not apply.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No	N/A	This facility does not have equipment that operates in volatile hazardous air pollutant (VHAP) service [40 CFR Part 61.240] and regulated activities subject to this regulation do not take place at this facility; thus, this regulation does not apply.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3, DEHY-1, FUG, HT-1 through HT-5	This facility is a major source of HAPs. Thus, the combustion engines and generators (ENG-1 through ENG-6; GEN-1A, GEN-1B, GEN-2, GEN-3) are subject to MACT 40 CFR 63 subpart ZZZZ, fugitive emissions (FUG), and the glycol dehydrator (DEHY-1), are subject to MACT 40 CFR 63.760 Subpart HH, and the heaters (HT-1 through HT-5) are subject to MACT 40 CFR 63 Subpart DDDDD.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	Yes	DEHY-1, FUG	This regulation establishes national emission standards for hazardous air pollutants from oil and natural gas production facilities. The facility is a major source of HAPs and meets the definition of a natural gas processing plant. The dehydrator will have a natural gas flow rate equal to or greater than 85 thousand standard cubic feet. The dehydrator that complies with the 1 tpy control option under 63.765(b)(1)(ii) is considered a large dehydrator under MACT HH. The units will comply with applicable closed vent and control requirements, along with monitoring, recordkeeping, and reporting requirements, as applicable. Fugitive emissions components (FUG) at this facility are considered ancillary equipment and will comply with §63.769 (c)(1) through (c)(6). Condensate storage tanks (TK-1 and TK-2) have an annual average hydrocarbon liquid throughput of 397.5 liters per day which is less than the §63.761 threshold of 79,500 liters per day and thus do not meet the definition of a storage vessel with the potential for flash emissions as defined in §63.761; therefore TK-1 and TK-2 are not subject to HH. [40 CFR 63.766(d)]. Stabilized condensate storage tanks (TK-3 to TK-8) have a gas-oil-ratio (GOR) 0.00015 m^3/L, which is substantially below the §63.761 threshold of 0.31 m^3/L for a storage vessel with the potential for flash emissions; therefore TK-3 to TK-8 do not meet the definition of a storage vessel with the potential for flash emissions pursuant to §63.761and are not subject to HH. [40 CFR 63.766(d)]. The produced water storage tank (PWTK-1) has an API gravity less than 40 degrees and thus does not meet the definition of a storage vessel with the potential for flash emissions as defined in §63.761 and is therefore not subject to HH. [40 CFR 63.766(d)]. Compressors (C-1 to C-6, EC-1, and EC-2) at this facility have less than 10% by weight VHAP, therefore, these units do not operate in VHAP service and are not an affected source per §63.760(b)(1)(iv).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This facility is not a natural gas transmission or storage facility. Thus, this subpart does not apply.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	Yes	HT-1, HT-2, HT-3, HT-4, HT-5	This facility is a major source of HAPs pursuant to 40 CFR §63.2 and operates process heaters as defined in §63.7575. Thus, this regulation applies, and Trace will comply with emission limitations as outlined in §63.7500, and general compliance requirements in §63.7505.
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	N/A	This facility does not own or operate any coal-fired or oil-fired electric utility steam generating units (EGUs) as defined in §63.10042. Thus, this regulation does not apply.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	ENG-1 through ENG-6, GEN-1A, GEN-1B, GEN-2, GEN-3	This facility is a major source of HAPs pursuant to §63.6585(b). ENG-1 through ENG-6 are considered new stationary reciprocating internal combustion engines (RICEs) pursuant to §63.6590(a)(2)(i) and thus are subject to this regulation. ENG-1 through ENG-6 are 4SLB with a site rating of more than 500 hp and will comply with the emission specified in §63.6600(b), Table 2a, by reducing CO emissions by at least 93% or limiting the concentration of formaldehyde in the stationary rice exhaust to 40 ppmv or less at 15% O2. GEN-1A and GEN-1B are considered new stationary RICEs pursuant to §63.6590(a)(2)(ii) and thus are subject to this regulation. GEN-1A, and GEN-1B are new 4SRB generators with a site rating of less than 500 hp and will comply with this Subpart by complying with 40 CFR 60 Subpart JJJJ per §63.6590(c)(4). GEN-2 is a RICE pursuant to §63.6590(a)(2)(i) and thus is subject to this regulation. GEN-2 is a new 4SRB stationary RICE with a site rating less than 500 hp and will comply with this Subpart by complying with 40 CFR 60 Subpart JJJJ per §63.6590(c)(4). GEN-3 is an emergency generator and is considered a new stationary RICE pursuant to §63.6590(a)(2)(ii) and is therefore subject to this regulation. GEN-3 will comply with this Subpart by complying with 40 CFR 60 Subpart JJJJ per §63.6590(c)(6).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 64	**Compliance Assurance Monitoring**	Yes	AM-1, DEHY-1	The amine treating unit (AM-1), and the glycol dehydrator (DEHY-1) have potential pre-control device emissions that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. Thus, this regulation applies to the AM-1 and DEHY-1 per §64.2(a).
40 CFR 68	**Chemical Accident Prevention**	No	N/A	This facility handles naturally occurring hydrocarbon mixtures and is exempt from this regulation pursuant to §68.115(b)(2)(iii).
Title IV Acid Rain 40 CFR 72	**Acid Rain**	No	N/A	This facility does not generate commercial electric power or electric power for sale. Thus, this regulation does not apply.
Title IV Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No	N/A	This facility does not generate commercial electric power or electric power for sale. Thus, this regulation does not apply.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No	N/A	This facility does not generate commercial electric power or electric power for sale. Thus, this regulation does not apply.
Title IV Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No	N/A	This facility does not generate commercial electric power or electric power for sale. Thus, this regulation does not apply.
Title VI 40 CFR 82	Protection of **Stratospheric Ozone**	No	N/A	B B B B B B B B BtB B BttB B B B B B B[40 CFR Part 82.1(a)]. Thus, this regulation does not apply.

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.

Startup and shutdown procedures are either based on manufacturer's recommendation or based on Trace's experience with specific equipment. These procedures are designed to proactively address the potential for malfunction to the greatest extent possible. These procedures dictate a sequence of operations that are designed to minimize emissions from the facility during events that result in shutdown and subsequent startup.

Equipment located at this facility is equipped with various safety devices and features that aid in the prevention of excess emissions in the event of an operational emergency. If an operational emergency does occur and excess emissions occur, Trace will submit the required Excess Emissions Report as per 20.2.7 NMAC. Corrective action to eliminate excess emissions and prevent recurrence in the future will be undertaken as quickly as safety allows.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

The Apollo Gas Plant will separate natural gas liquids (NGLs) from inlet gas. Inlet gas enters the facility and is directed to a 350 MMSCFD slug catcher to separate free liquids from the inlet natural gas. The facility will be designed to process only 275 MMSCFD of natural gas. The gas that enters the slug catcher can divert up to 350 MMSCFD to third party processors or process 275 MMSCFD at the Apollo Gas Plant.

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.	X
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

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.

Outlook

Trace Midstream - Apollo Gas Plant - Modeling Protocol

From Adam Erenstein </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=332E1666C35E478095B7CBEB9BFC1570-ADAM ERENST>

Date Fri 7/10/2026 6:10 PM

To Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>

Cc Brenda Paull <Brenda.Paull@trinityconsultants.com>; Kenton Bulson <kbulson@tracemidstream.com>; David Dell'Osso <ddellosso@tracemidstream.com>

1 attachment (1 MB)

Apollo Gas Plant Protocol (2026-0710).pdf;

Hi Sufi,

Attached is the modeling protocol for the Apollo Gas Plant for your review and approval. Please contact me if you have any questions.

Regards,

Adam Erenstein

Principal Consultant, Manager of Consulting Services

P 505.266.6611 M 480.760.3860

Email: aerenstein@trinityconsultants.com

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AIR DISPERSION MODELING PROTOCOL

Initial NSR Modeling Protocol

Trace Delaware Gathering, LLC/
Apollo Gas Plant

Prepared By:
Brenda Paull – Consultant

TRINITY CONSULTANTS
9400 Holly Avenue NE
Building 3, Suite B
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505.266.6611

July 2026

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1.% PROJECT OVERVIEW

1.1% Purpose of Modeling

Trace Delaware Gathering LLC (Trace) is proposing to construct a cryogenic gas plant known as the Apollo Gas Plant (Gas Plant) at the existing Apollo Liquid Handling Facility (Existing Facility) located about 10 miles south of Carlsbad and 2.2 miles west of Loving in Eddy County, NM. Eddy County is designated by the EPA as "unclassifiable" and/or "attainment" for the National Ambient Air Quality Standards (NAAQS) for ozone, CO, SO_2, PM_{10}, $PM_{2.5}$ and NO_2.[1]

The project will be converting the Existing Facility's liquid handling capabilities to a gas plant with cryogenic functions. As such, equipment to support gas plant operations will be added. Since the Existing Facility has never been modeled and will be functional until the Gas Plant achieves full operational status, units that will be uninstalled after construction will be assessed as part of the modeling analysis. If needed, two modeling scenarios will be assessed; one for the Existing Facility with the Gas Plant in a transitional operating phase and a second scenario for the Gas Plant in full operation on its own.

The Existing Facility is identified by AIRS Number 350152980 and is currently operating under a General Construction Permit - Oil & Gas (O&G) (Permit Number 10335). Trace is submitting the initial NSR application pursuant to New Mexico Administrative Code (NMAC) 20.2.72.A. The Gas Plant will be subject to the Title V program and will submit a Title V permit application within twelve months of operation of the Gas Plant. The cryogenic gas plant is expected to process 250 million cubic feet per day (MMcfd). In addition to constructing gas plant infrastructure that will not contribute to criteria or toxic air pollutant (TAP) pollutant emissions, Trace will also be installing flares, tanks, an amine dehydrator and a regeneration unit, a thermal oxidizer, benzene, toluene, ethylbenzene, and xylene (BTEX) combustors, compressor and generator engines, and heaters. The Existing Facility also contains fugitive emissions that represent roads, truck loadout, startup, shutdown, and maintenance (SSM) activities, and other miscellaneous sources.

Trace seeks to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS), the New Mexico Ambient Air Quality Standards (NMAAQS), and PSD Increment standards for the following pollutants and averaging periods as applicable: NO_2 (1-hour, 24-hour, and annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), H_2S (1/2-hour), $PM_{2.5}$ (24-hour and annual), and PM_{10} (24-hour and annual). No toxics are expected to be above toxics modeling thresholds as outlined per NMED Guidance.

With this application, the following units and activities at the Gas Plant will be included in the modeling:

- %Three (3) Flares of various functions and sizes;
- %Five (5) Heaters of various functions and sizes;
- %Nine (9) Compressor or Generator Engines of various functions and sizes;
- %Two (2) BTEX Combustors;
- %Truck Loadout;
- %Fugitive and SSM Emissions;
- %One (1) Amine Dehydrator (H_2S source only; see Section 3 consideration); and
- %One (1) Amine Regeneration unit,
- %One (1) Thermal Oxidizer.

[1] 40 CFR §81.351

The above units vary in size and function within equipment class. If the fugitive road sources are large enough to warrant inclusion in the modeling, Trace will include the road sources as a series of adjacent volume sources in the modeling demonstration.

Trace has retained Trinity Consultants (Trinity) to perform the modeling analyses that will serve as the basis for the impact assessments. This modeling protocol defines the regulatory framework and technical methods that will be used for the following analyses:

- An air quality impact analysis (AQIA) that demonstrates that the Gas Plant's emissions, in conjunction with background concentrations and neighboring sources as applicable,[2] will not cause or contribute to a violation of applicable New Mexico and National Ambient Air Quality Standards (NMAAQS and NAAQS) or Class II PSD increments.[3]
- A Class I impact assessment in accordance with guidance and additional consultation from the applicable Federal Land Managers of Class I areas. This assessment will include an initial screening significant impact analysis (SIL). For pollutants that exceed the applicable SIL thresholds, refined Class I increment analyses will be performed.

The AQIA will be conducted in accordance with guidance provided by the United States Environmental Protection Agency (EPA) and New Mexico Environmental Department (NMED) as prescribed in the following:

- Guideline on Air Quality Models (published as 40 CFR 51, Appendix W; hereafter referred to as the Modeling Guideline);[4]
- NMED Air Dispersion Modeling Guidelines;[5]

Trinity will use the current dispersion models and methods described in the above-mentioned documents to perform the modeling analyses. Details regarding these methods are in this modeling protocol.

1.2 Gas Plant Description and Location

The Gas Plant is located approximately about 10 miles south of Carlsbad and 2.2 miles west of Loving in UTM Zone 13N coordinates 581,720 meters east and 3,571,186 meters north with WGS84 datum at an elevation of approximately 3,106 feet above mean sea level. The nearest Class I Area, Carlsbad Caverns National Park, is located 24.5 km away, within the 50 km inclusion zone for PSD minor sources. Figure 1-1 and Figure 1-2 show the location of the Gas Plant with respect to nearby areas and terrain and Class I protected areas, respectively.

[2] Code of Federal Regulations, Title 40 – Protection of Environment, Part 51, Appendix W, Section 8.3. March 21, 2025.

[3] If facility-only impacts from the Gas Plant do not exceed the SIL for a pollutant and averaging period, the facility will not cause or contribute to a NMAAQS, NAAQS, or PSD increment violation, as applicable to that pollutant and averaging period.

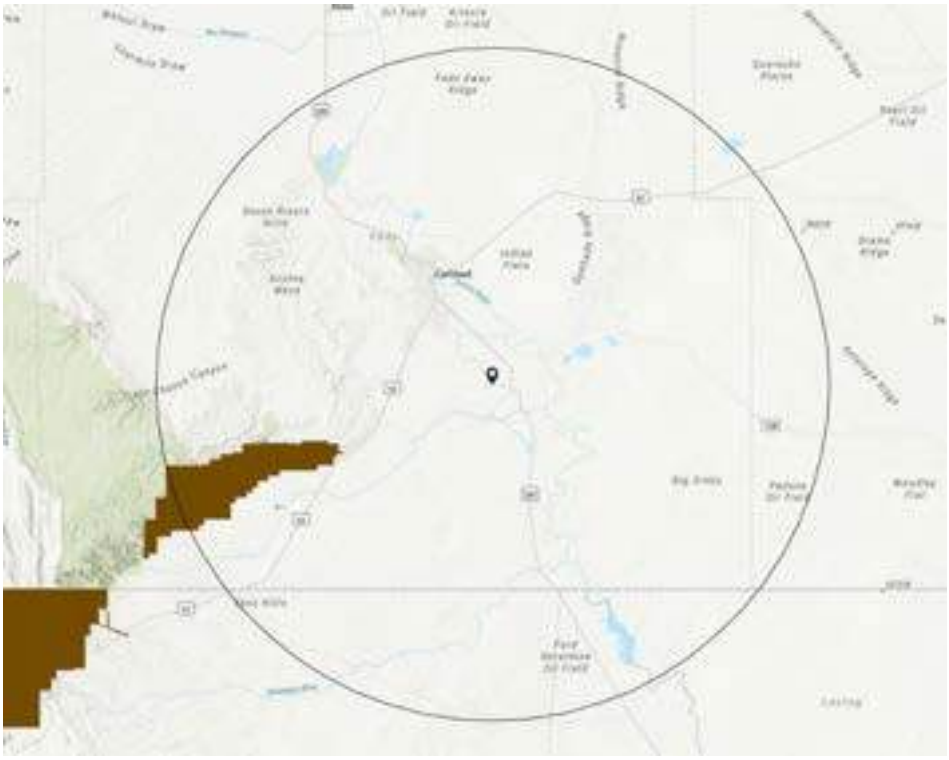
[4] Code of Federal Regulations, Title 40 – Protection of Environment, Part 51, Appendix W, March 21, 2025.

[5] NMED Air Dispersion Modeling Guidelines (Revised July 2026) at https://www.env.nm.gov/air-quality/modeling-publications/

Figure 1-1. Gas Plant Location



Figure 1-2. Class I Areas within 50 km of the Gas Plant



2. PROPOSED MODELING

2.1% Model Input Options

The latest version of the AERMOD dispersion model (version 24142) will be used for this analysis. The model will be run in regulatory mode with all default options.

2.2% Modeled Sources

The emission rates for all sources at the Gas Plant are provided in the sections below. Since all sources at the Gas Plant are expected to operate for 8,760 hours per year, only short-term emission rates are provided. The modeled source parameters for all onsite sources are provided in the sections below. Please note that emissions and stack parameters may vary throughout the development of the permit application. Table 2-1 indicates whether the unit is part of the Gas Plant expansion or if it is part of the Existing Facility.

Table 2-1. Units on Site and Installation Status

Unit Types	Unit Function	Existing/New Unit?
ENG1	Caterpillar G3508B Compressor Engine	Existing
ENG2	Caterpillar G3508B Compressor Engine	Existing
ENG3	Caterpillar G3616A4 Compressor Engines	New
ENG4	Caterpillar G3616A4 Compressor Engines	New
ENG5	Caterpillar G3616A4 Compressor Engines	New
ENG6	Caterpillar G3616A4 Compressor Engines	New
GEN1A	PSI 11.1L LPG Generator Engines	Existing
GEN1B	PSI 11.1L LPG Generator Engines	Existing
GEN2	Engine - TBD	New
HT1	Condensate Heater	Existing
HT2	Amine Reboiler Hot Oil Heater	New
HT3	Glycol Reboiler Heater	New
HT4	Regen Heater	New
HT5	Stabilizer Hot Oil Heater	New
AM1	Amine Regeneration	New
FL1	20 MMSCFD Flare	Existing
FL2	275 MMSCFD Flare	New
FL3	Tank/Loading Flare	New
ECD1	Existing Tank/Loading Combustor	Existing
ECD2	Spiral X BTEX Combustor	New
TO1	Thermal Oxidizer	New
TL1	Combined Truck Loading	Existing
COMB	Combined Fugitives and SSM	New
TL2	Truck Loading/Unloading	Existing

2.2.1% Point Sources

Point source parameters were obtained from vendor specifications, client data, and engineering estimates. Table 2-2 and Table 2-3 present the modeled emission rates and stack parameters for all point sources at the Gas Plant.

Table 2-2. Point Source Emission Rates

Unit Types	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	H_2S
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
ENG1	0.69	2.65	0.03	0.05	0.05	2.25E-07
ENG2	0.69	2.65	0.03	0.05	0.05	2.25E-07
ENG3	3.64	7.28	0.22	0.42	0.42	1.77E-06
ENG4	3.64	7.28	0.22	0.42	0.42	1.77E-06
ENG5	3.64	7.28	0.22	0.42	0.42	1.77E-06
ENG6	3.64	7.28	0.22	0.42	0.42	1.77E-06
GEN1A	0.59	1.18	2.83E-03	0.09	0.09	-
GEN1B	0.59	1.18	2.83E-03	0.09	0.09	-
GEN2	0.59	1.18	0.01	0.04	0.04	8.61E-08
HT1	0.25	0.21	0.01	0.02	0.02	4.35E-08
HT2	2.31	2.34	0.31	0.76	0.76	1.00E-06
HT3	0.29	0.25	0.02	0.02	0.02	5.23E-08
HT4	0.46	0.61	0.08	0.20	0.20	2.65E-07
HT5	0.43	0.44	0.06	0.14	0.14	1.88E-07
AM1	-	-	-	-	-	4.14
ECD1	0.07	0.06	3.30E-04	5.42E-03	5.42E-03	2.11E-06
ECD2	0.04	0.04	3.08E-05	3.37E-03	3.37E-03	3.14E-07
TO1	1.96	1.65	8.19	0.15	0.15	0.04

Table 2-3. Point Source Stack Parameters

Unit Number	Height	Temp	Velocity	Diam.
	ft	F	ft/s	Ft
ENG1	20.00	998.00	87.94	1.00
ENG2	20.00	998.00	87.94	1.00
ENG3	22.00	791.00	23.73	5.50
ENG4	22.00	791.00	23.73	5.50
ENG5	22.00	791.00	23.73	5.50
ENG6	22.00	791.00	23.73	5.50
GEN1A	8.00	1,215.00	35.30	0.83
GEN1B	8.00	1,215.00	35.30	0.83
GEN2	8.25	1,350.00	274.00	0.29
HT1	25.00	600.00	5.62	2.00
HT2	30.80	493.00	32.49	3.50
HT3	17.5	600.00	6.74	2.00
HT4	24.30	385.00	19.90	2.17
HT5	21.50	468.00	32.26	1.50
AM1	40.00	120.00	81.70	1.0
ECD1	33.00	1,900.00	0.49	5.33

Unit Number	Height	Temp	Velocity	Diam.
	ft	F	ft/s	Ft
ECD2	25.00	1,000.00	2.38	1.50
TO1	58.00	1,500.00	13.57	4.83

2.2.2 Flare Sources

Flares will be represented as point sources after adjusting the stack height and diameter to account for the effective height and diameter for flaring operations. The effective stack height will be calculated following the AERSCREEN User's Guide for flares.[6] For the exit velocity and exit temperature, default values of 20 m/s and 1,273 K will be used and the heat release (BTU/hr) will be conservatively estimated as the minimum required 300 BTU/scf.[7]

The effective stack diameter and effective stack height used will be calculated from the inputs as:

$$D = 9.88\ x\ 10^{-4} x \sqrt{H_R\ x\ (1 - H_L)}$$

$$h_{eff} = H_s + 4.56\ x\ 10^{-3} x\ {H_R}^{0.478}$$

Where,

- D is effective stack diameter,
- H_R is the heat release rate,
- H_L is the heat loss fraction,
- H_{eff} is effective stack height, and
- H_s is the stack height.

A default heat loss fraction of 0.55 will be used. The heat release rate in units of calories per second will be calculated from the heat input to the flares in MMBtu/hr.

Table 2-4 and Table 2-5 present the modeled emission rates and stack parameters for all point sources at the Gas Plant.

Table 2-4. Flare Sources Emission Rates

Unit Types	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	H_2S
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
FL1	33.06	65.99	0.20	-	-	2.05E-03
FL2	19.86	39.64	0.04	-	-	3.89E-04
FL3	19.92	39.42	0.01	-	-	5.57E-05

[6] U.S. EPA, AERSCREEN User's Guide. April 2021.
https://gaftp.epa.gov/Air/aqmg/SCRAM/models/screening/aerscreen/aerscreen_userguide.pdf

[7] U.S. EPA, Air Pollution Control Technology Fact Sheet: Flare. EPA-452/F-03-019.
https://www.epa.gov/sites/default/files/2020-08/documents/fflare.pdf

Table 2-5. Flare Sources Stack Parameters

Unit Number	Height	Temp	Velocity	Diam.
	ft	F	ft/s	Ft
FL1	92.50	1,832.00	65.62	11.48
FL2	184.39	1,832.00	65.62	9.47
FL3	72.52	1,832.00	65.62	6.16

2.2.3% Volume Sources

Unless the roads at the Existing Site require modeling, the sole volume sources on site will be truck loading and unloading. Volume source parameters for the truck loadout source was determined according to NMED Air Dispersion Modeling Guidelines, Section 5.3. The combined fugitive and SSM emissions source was determined using the average height of the processing equipment and the size of the processing area. Table 2-6 provides the modeled source parameters and emission rates for modeled volume sources.

Table 2-6. Volume Source Parameters and Emission Rates

Unit Types	Release Height	Initial Lateral Dimension	Initial Vertical Dimension	H_2S
	(m)	(m)	(m)	lb/hr
TL1	3.96	0.47	0.92	7.22E-07
COMB	5.10	43.96	2.37	8.99E-02

2.3% Receptor Grid Description and Elevation Data

The center point of the Gas Plant will be designated at 581,630 meters east and 3,571,221 meters north, UTM Zone 13N. This center point will serve as the center point for a variable-density square receptor grid. The Gas Plant will be modeled with the following receptor grid design, as shown in Figure 2-1:

- %Fenceline: 50-m grid spacing;
- %Very Fine Grid Resolution: 50-m grid spacing from 0 m to 800 m of the center point, excluding onsite receptors;
- %Fine Grid Resolution: 100-m grid spacing from 800 m to 3,000 m of the center point;
- %Fine Grid Resolution: 250-m grid spacing from 3,000 m to 6,000 m of the center point;
- %Coarse Grid Resolution: 500-m grid spacing from 6,000 m to 10,000 m of the center point; and
- %Very Coarse Grid Resolution: 1,000-m grid spacing from 10,000 m to 50,000 m of the center point.

It is expected that the highest impacts from the proposed source will be at or near the Gas Plant property. The elevations of receptors and Gas Plant sources will be determined using the most recent NED data currently available (1/3 arc-second) from the USGS website.

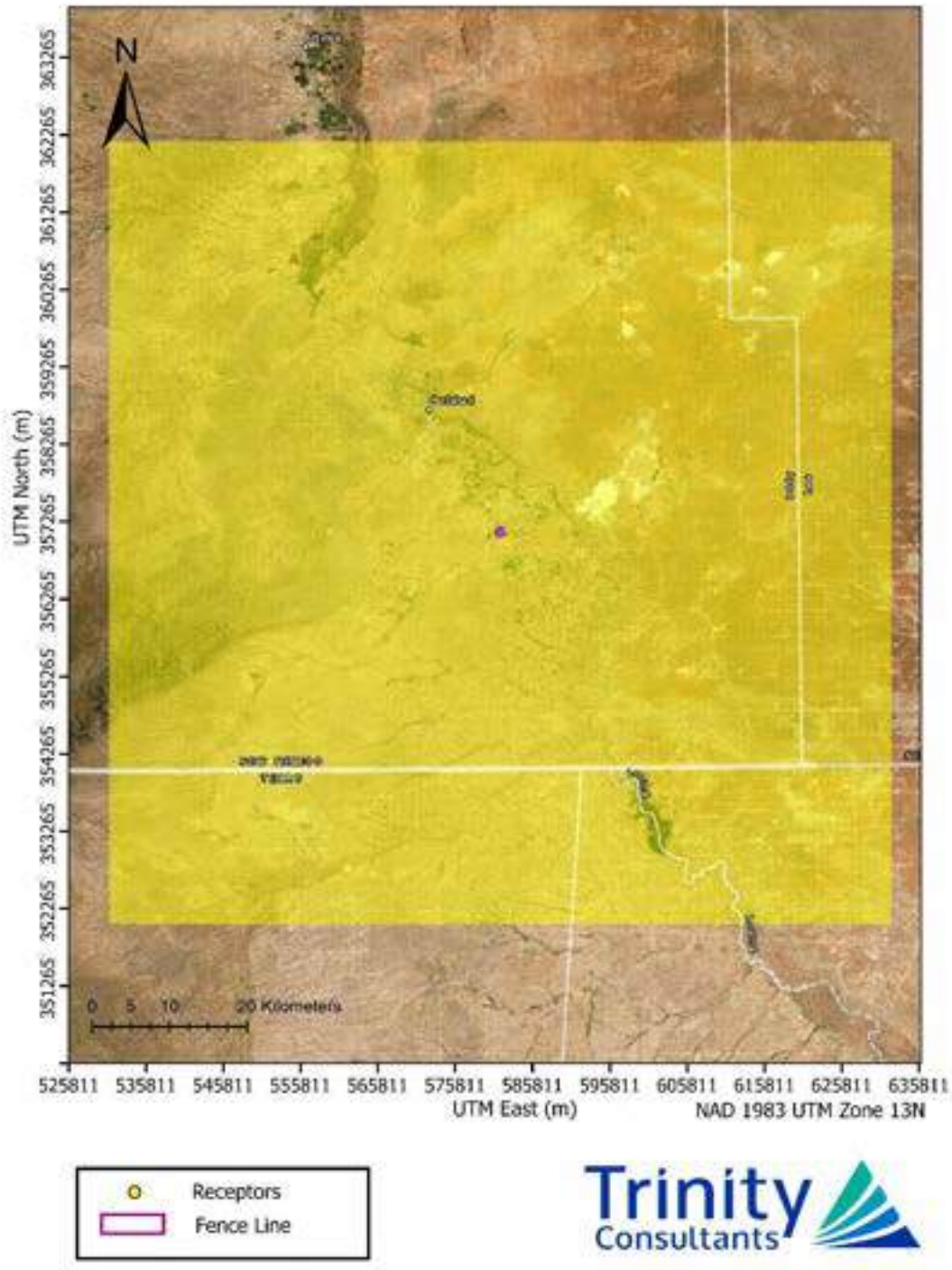
Receptor elevations will be obtained using the EPA's AERMAP terrain processor. The digital elevation dataset provided as input to AERMAP will be USGS National Elevation Data (NED) at 1/3 arc second resolution, which is equivalent to approximately 10 m.

In addition to receptor elevations, AERMAP will provide the hill height scale required for each receptor. The hill height scale supplies the computational algorithms with an indication of the relative relief within the

modeling domain for the determination of the critical dividing streamline height for each hour of meteorological data. AERMOD computes the impact at a receptor as a weighted interpolation between horizontal and terrain-following conditions using a critical dividing streamline approach. This scheme assumes that part of the plume mass would have enough energy to ascend and traverse over a terrain feature and the remainder would impinge and traverse around a terrain feature under certain meteorological conditions. The hill height scale is computed by the AERMAP terrain preprocessor for each receptor as a measure of the one terrain feature in the modeling domain that would have the greatest effect on plume behavior at that receptor.

According to EPA guidance, the elevation array and domain boundary for AERMAP must include all terrain features that exceed a 10 percent elevation slope from any given receptor in order to properly calculate the hill height scale at each receptor. The domain for the hill height analysis will be set to at least the minimum required for proper handling of elevation slope.

Figure 2-1. Proposed Receptor Grid Domain

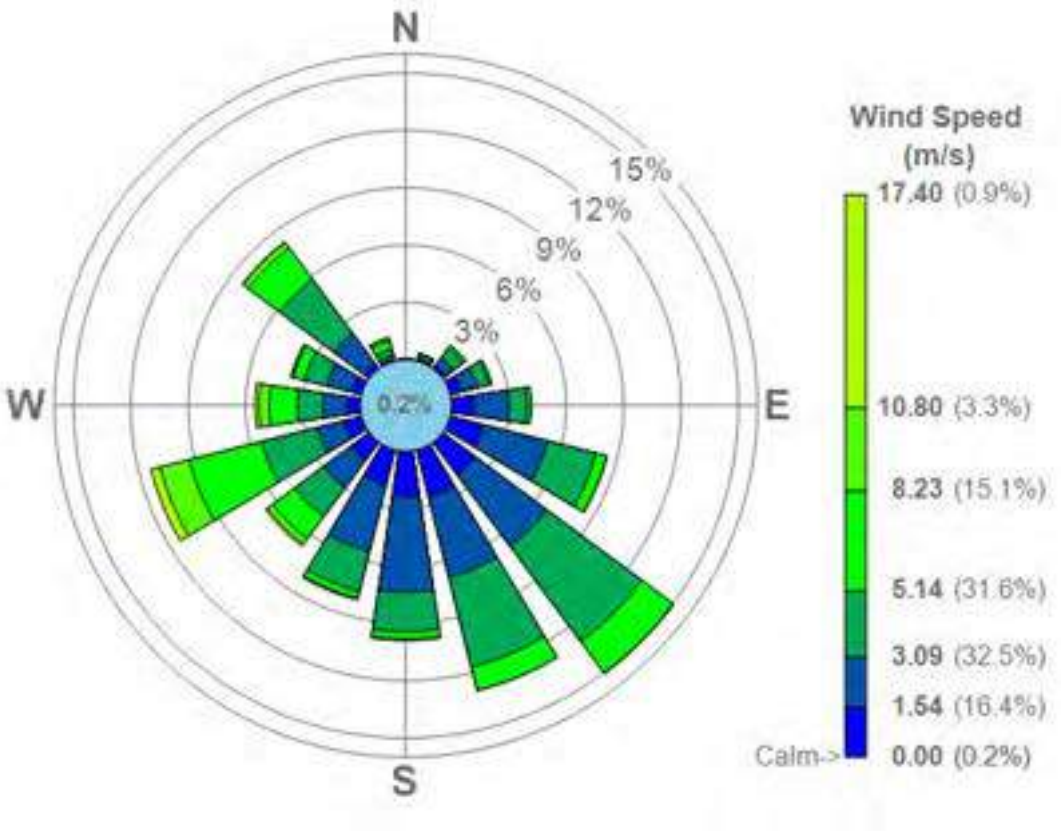


2.4% Meteorological Data

Hourly meteorological data used for air quality modeling must be spatially and climatologically representative of the area of interest. The Modeling Guideline requires at least one year of site-specific meteorological data or five years from the most recent, readily available data collected at a representative National Weather Service (NWS) station.

The NMED provides processed meteorological data suitable for direct input to AERMOD.[8] Five years of AERMOD-ready meteorological data collected at Carlsbad, New Mexico for the period 2020 through 2024 is proposed for this application. As the Carlsbad meteorological station is located approximately 8.5 miles from the Gas Plant, the station is representative. A composite 5-year wind rose is shown in Figure 2-2.

Figure 2-2. Carlsbad, New Mexico Wind Rose (2020-2024)



2.5% Plume Downwash

The Gas Plant point emission sources will be evaluated for proximity to nearby structures to determine if the stack discharge might become caught in the structures' turbulent wakes. Wind blowing around a building creates zones of turbulence that are greater than if the building was absent. AERMOD incorporates the Plume Rise Model Enhancements (PRIME) algorithms for estimating enhanced plume growth and restricted plume rise for plumes affected by building wakes.

[8] Meteorological data available for download from cloud.env.nm.gov/resources/collection/411

EPA has promulgated stack height regulations that restrict the use of stack heights in excess of good engineering practices (GEP) in air dispersion modeling analyses. Under these regulations, that portion of a stack in excess of the GEP height is generally not creditable when modeling to determine source impacts. This essentially prevents the use of excessively tall stacks to reduce the ground-level pollutant concentrations. Trinity will ensure that no stacks are represented as exceeding the GEP height with methodology described in EPA's GEP Technical Support document.[9]

Direction-specific building dimensions and the dominant downwash structure parameters used as inputs to AERMOD will be determined using the *BREEZE®* BPIP software, developed by Trinity, which incorporates the current version (04274) of EPA's Building Profile Input Program for PRIME (BPIPPRM) building downwash processor. The BPIPPRM processor is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document and other related documents. The site elevation was determined from digital elevation data.

The output from the BPIPPRM downwash analysis lists the names and dimensions of the structures generating wake effects and the locations and heights of the affected point sources. In addition, the output contains a summary of the dominant structure for each emission unit (considering all wind directions) and the actual building height and projected widths for all wind directions. This information will be input to the AERMOD air dispersion model for each point source.

A simplified plot plan of the Gas Plant showing the locations of all proposed structures and emission units used in the plume downwash calculations, including structure dimensions and heights, will be provided in the modeling report. Structures with greater than 50% permeability will be excluded from the downwash analysis.

2.6 Ambient Air Boundary

According to the NMED modeling guidelines, "ambient air" is defined as that portion of the atmosphere, external to buildings, to which the general public has access. The atmosphere over land owned or controlled by a facility may be excluded from ambient air where the facility employs measures, which may include physical barriers, which are effective in precluding access to the land by the general public. The Apollo Gas Plant will continue to restrict public access through use of a fence around the property.

2.7 NO_x-to-NO_2 Chemistry Processing Options

Some forms of emitted NO_x [i.e., nitrogen oxides (NO)] react with other atmospheric constituents (ozone) to form NO_2. These reactions are complex and depend on factors such as mixing of ambient air into the plume, individual reaction rates, and the concentration of specific reactants in the atmosphere. Regulatory dispersion models such as AERMOD are designed to model impacts of non-reactive pollutants, but there are various modeling techniques that can be used to estimate ambient NO_2 impacts using these models.

NMED has approved a tiered screening approach for estimating annual NO_2 impacts from point sources in PSD modeling analyses. The approach used in each of the three tiers is described briefly below.

[9] Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations). EPA-450/4-80-023R.

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2. For the Tier 2 screening level, the Tier 1 results are multiplied by the Ambient Ratio Method 2 (ARM2), which provides estimates of representative equilibrium ratios of NO_2/NO_X based on ambient levels of NO_2 and NO_X.
3. Since the impact of an individual NO_X source on ambient NO_2 depends on the chemical environment into which the source's plume is emitted, modeling techniques that account for the atmospheric chemistry such as the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM) can be considered under the most accurate and refined Tier 3 approach identified by the EPA. Additional model inputs required for the use of OLM and PVMRM include source-specific in-stack NO_2/NO_X ratios, ambient equilibrium NO_2/NO_X ratios, and background ozone concentrations.

For NO_2, the Tier II ARM2 method will be applied using the national default minimum ambient NO_2/NO_X ratio of 0.5 and a maximum ambient ratio of 0.9, as listed in 40 CFR Part 51 Appendix W 4.2.3.4d. If further refinement is required, the Tier III OLM or PVMRM methodology will be used, keeping the maximum ambient ratio of 0.9 and a nearby source in stack ratio of 0.3. If OLM or PVMRM processing options are used in the modeling demonstration, supporting documentation will be provided for any non-default modeled in-stack ratios (0.5) for Gas Plant sources.

2.8% Modeled Emission Rates for Precursors

Based on EPA's Guidance for $PM_{2.5}$ Permit Modeling and NMED'S Modeling Guidelines, sources that emit at least 40 tons per year of NO_x or SO_2 are considered to emit significant amounts of precursors. Sources with significant increases of $PM_{2.5}$ precursors must qualitatively and/or quantitatively account for the secondary formation of $PM_{2.5}$. Since the Gas Plant is expected to emit more than 40 tons a year of NO_x, a secondary formation analysis is required.

Secondary $PM_{2.5}$ formation resulting from project emissions of NO_X and VOC, and NO_X and SO_2, respectively, will be evaluated using the methodology provided in NMED's Modeling Guidelines. Secondary formation of $PM_{2.5}$ resulting from the project will be calculated using the following equations:

$$[PM2.5]_{annual} = \left(\frac{NO_X \ emission \ rate(\frac{ton}{yr})}{MERP_{NOXannual}} + \frac{SO_2 \ emission \ rate(\frac{ton}{yr})}{MERP_{SO2annual}} \right) \times 0.2 \ \mu g/m^3$$

$$[PM2.5]_{24-hour} = \left(\frac{NO_X \ emission \ rate(\frac{ton}{yr})}{MERP_{NOX\_24}} + \frac{SO_2 \ emission \ rate(\frac{ton}{yr})}{MERP_{SO2\_24}} \right) \times 1.2 \ \mu g/m^3$$

The equations will be used to calculate secondary impacts resulting from each precursor and then summed for the total secondary contribution to ozone and $PM_{2.5}$ impacts. The MERPs from a hypothetical source will be obtained from the NMED's Modeling Guidelines.

3.% MODELING ANALYSIS

3.1% Significant Impact Analysis (SIA) and Cumulative Impact Analysis (CIA)

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than the SIL (i.e., "significant" receptors). If the significant impact analysis (SIA) reveals that modeled
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SIL, a Cumulative Impact Analysis (CIA) will be performed at the significant receptors. The CIA will include impacts from the Gas Plant sources and background concentrations/surrounding sources if applicable. The total estimated air quality concentrations will be compared with the standards shown in Table 3-1.

As discussed in Section 1.1, if two scenarios are modeled, per Section 4.1.6 in the NMED modeling guidance, both scenarios will be modeled for applicable short-term standards and compared to the SILs. Whichever scenario produces the greatest modeled impact will be used in the CIA.

The inclusion of background concentrations will follow the guidance shown in Table 20: "Modeling the Design Value Summary (Default Modeling)" from the Modeling Guidelines.

As applicable, the following monitors will be used for background concentrations:

- Bloomfield Monitor (350450009) for SO_2;
- Del Norte High School Monitor (350010023) for CO;
- Outside Carlsbad Monitor (5ZR, 350151005) for NO_2 and ozone (if required for Tier III Chemistry Processing);
- Hobbs-Jefferson Monitor (5ZS, 350250008) for PM_{10} and $PM_{2.5}$.

For all pollutants and averaging periods that are above significance thresholds, the Gas Plant will be modeled with surrounding sources, and a background concentration will be added to the modeling results. As discussed in Section 2.8, a secondary formation analysis is required thus calculated secondary formation of fine particulate matter will be added to $PM_{2.5}$ modeled results. For modeling surrounding sources, all sources within 10 km of the Gas Plant will be included in the model. An inventory of surrounding sources will be obtained from NMED using the MergeMaster database.

According to Table 1 in the Modeling Guidelines, a modeling waiver is eligible for very small emissions. If H_2S emissions at the Gas Plant are less than the threshold of 0.015 lb/hr for shorter stacks in the Pecos-Permian Basin region, a modeling waiver will be applicable and H_2S will not be modeled at the Gas Plant.

3.2% PSD Increment Analysis

If the results of the SIA for NO_X, SO_2, $PM_{2.5}$, or PM_{10} indicate concentrations greater than significance levels, PSD increment analysis will be conducted for the appropriate averaging periods. If required, the PSD increment analysis will be conducted including all PSD increment consuming and expanding sources within 25 km of the Gas Plant, plus sources emitting over 1,000 pounds per hour within 50 km of the Gas Plant. PSD Increment consuming and expanding sources are defined as any new emissions or increase in emissions after the PSD minor source baseline date for AQCR 155 and any new emissions or increase in

emissions at a PSD major source after the major source baseline date. The surrounding source information will be obtained from NMED MergeMaster. The predicted maximum concentrations will be compared to the appropriate Class II PSD Standard in Table 3-1.

3.3% Culpability Analysis

If predicted concentrations for the modeled pollutants and averaging periods exceed any applicable NAAQS, NMAAQS, or PSD Increment standards, a culpability analysis will be conducted for each receptor that shows a modeled exceedance. Source contributions from the Gas Plant will be paired in time and space with contributions from surrounding sources to show that the contribution from the Gas Plant is less than the significance levels for the specific pollutant and averaging period. A table or a similar demonstration technique will be provided along with an explanation in the final report.

Table 3-1. Air Quality Standards and Class II PSD Increments

Pollutant	Averaging Period	NAAQS (g/m^3)	NMAAQS (g/m^3)	Class II PSD Increment (g/m^3)	Design Value/Notes
SO_2	1-hour	196.4	--	--	3-year average of the 99th-percentile of the annual distribution of daily maximum 1-hour concentrations (H4H). Compliance with 1-hr average demonstrates compliance with all other NAAQS and NMAAQS averaging periods.
	3-hour	1,309.3	--	512	Increment: H2H average
	24-hour	--	261.9	91	Increment: H2H average
	Annual	26	52.4	20	Annual average, averaged over 3 years
$PM_{2.5}$ [b]	24-hour	35	--	9	98th percentile of the combined concentrations from all sources (H8H)
	Annual	9	--	4	Annual average
PM_{10}	24-hour	150	--	30	H2H and single year of representative met data or H4H with multi-year analysis.
	Annual	--	--	17	Annual average
NO_x	1-hour	188.03 *(100 ppb)*	188.03 *(100 ppb)*	--	3-year average of the 98th-percentile of the annual distribution of daily maximum 1-hour concentrations (H8H)
	Annual	99.66	94.02	25	Model entire facility and add annual background concentration or model entire facility and nearby sources.
CO	1-hour	40,069.6	14,997.5	--	NAAQS is not to be exceeded more than once per year. NMAAQS not to be exceeded. Compliance with NMAAQS demonstrates compliance with NAAQS.
	8-hour	10,303.6	9,960.1	--	

3.4% Class I Areas Analysis

Permit applicants located within 50 km of a Class I are required to demonstrate, through air quality modeling, that the emissions from the project will not cause or contribute to violations of allowable increment within affected Class I areas. A significant contribution to Class I PSD Increment consumption is defined as a modeled concentration in excess of the significant impact levels summarized in Table 3-2.

Table 3-2. Class I PSD Modeling SILs and Increments

Pollutant	Averaging Period	SIL (g/m^3)	Increment (g/m^3)
NO_2	Annual	0.10	2.5

Pollutant	Averaging Period	SIL ($\mu g/m^3$)	Increment ($\mu g/m^3$)
SO_2	3-hour	1.00	25
	24-hour	0.20	5
	Annual	0.10	2
PM_{10}	24-hour	0.30	8
	Annual	0.20	4
$PM_{2.5}$	24-hour	0.27	2
	Annual	0.05	1

To determine whether a Class I PSD Increment analysis is needed, Trace will conduct a screening analysis within AERMOD. The screening analysis will compare modeled concentrations at the nearest Class I area receptors obtained from MergeMaster with the appropriate SIL thresholds provided in Table 3-2. As the nearest Class I area is Carlsbad Caverns National Park, 24.5 km from the Gas Plant, this analysis should be sufficient in estimating modeled impacts at Class I areas.

If impacts from the Gas Plant are over Class I SIL thresholds, a Class I PSD Increment analysis will be conducted. The PSD Increment analysis will compare Gas Plant and nearby source emissions against the applicable thresholds in Table 3-2. Included sources will be determined using the same methodology outlined in Section 3.2.

3.5% Toxic Air Pollutant (TAP) Analysis

In determining if toxic air pollutant modeling is required at a site, facilities may choose to use a correction factor (CF) for the release height of emissions per Table C of 20.2.72.502 NMAC. If the TAP is released from multiple heights, then the facility may choose to use a weighted average CF, weighted by the emission rate at each stack.

No modeling of TAPs is expected to be required for the Gas Plant; however, if modeling is required, the methodology below will be followed in the modeling demonstration. Per 20.2.72.403.A.(1) NMAC, if any TAP exceeds the screening level in 20.2.72.502 NMAC, the TAP will be modeled using an 8-hour averaging period, complex terrain, and building downwash. No surrounding sources or background concentrations exist for TAPs, so only sources at the Gas Plant would be modeled.

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-A: Identification

1	Name of facility:	Apollo Gas Plant
2	Name of company:	Trace Delaware Gathering, LLC
3	Current Permit number:	General Construction Permit - Oil & Gas (O&G), Permit Number 10335-M1
4	Name of applicant's modeler:	Adam Erenstein
5	Phone number of modeler:	480-760-3860
6	E-mail of modeler:	AErenstein@trinityconsultants.com

16-B: Brief

1	Was a modeling protocol submitted and approved?	Yes	No
2	Why is the modeling being done?	Expansion/Repurposing of Facility	
3	Describe the permit changes relevant to the modeling.		
	Facility will be converted from a liquid handling facility to a gas plant. Currently permitted under a General Construction Permit for Oil and Gas (GCP-O&G), the Facility is currently submitting an initial New Source Review (NSR) application.		
4	What geodetic datum was used in the modeling?	WGS84 Zone 13N	
5	How long will the facility be at this location?	Permanent	

6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes	No
7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	3/16/1988	
	SO2	7/28/1978	
	PM10	2/20/1979	
	PM2.5	11/13/2013	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	Carlsbad Caverns, 24.5 km away from Facility		
10	Is the facility located in a non-attainment area? If so, describe below.	Yes	No
11	Describe any special modeling requirements, such as streamline permit requirements.		
	The facility is not subject to special modeling requirements.		

16-C: Modeling History of Facility

Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

1	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
	CO	This is the first time modeling has been performed for this facility.		
	NO_2			
	SO_2			
	H_2S			
	PM2.5			
	PM10			
	Lead			
	Ozone (PSD only)			
	NM Toxic Air Pollutants (20.2.72.402 NMAC)			

16-D: Modeling performed for this application

For each pollutant, indicate the modeling performed and submitted with this application.
Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

1	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
	CO					
	NO_2					
	SO_2					

	H_2S					
	PM2.5					
	PM10					
	Lead					
	Ozone					
	State air toxic(s) (20.2.72.402 NMAC)					

16-E: New Mexico toxic air pollutants modeling

1	List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application. No NMTAPs were modeled for this application.

2 List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes	No
	AERMOD Version 24142 was used for the modeling. At the time of the application, AERMOD version 26135 had just been released less than a week before the end of the modeling efforts and NMED has not provided updated meteorological data processed with AERMET version 26135. Therefore, in the interest of timing, Trinity is submitting this application with models run with AERMOD version 24142.		

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	July 1, 2026

2 If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.

AQB Source ID	Description of Corrections
Most Nearby Sources	AERMAP version 24142 was run for all sources without elevations listed in the MergeMaster file.
Facility 11632	This is the Apollo Liquid Handling facility that is being converted to a gas plant. Therefore, these sources are already being included in the modeling. Pollutants: PM2.5, PM10, SO2
1867E1/ 1867E6	Original coordinates in MergeMaster are far from the facility location specified. Original Coordinates (UTM 13N): 1867E1 - 544925.333, 3705807.581

		1867E6 - 656668.989, 3643193.959 Facility Coordinates: 32.362472, -104.260194 (UTM 13N 569603.16, 3580854.67) Source coordinates both updated to 569603.16, 3580854.67 Pollutants: PM2.5, PM10, SO2 (1867E6 only)
	1767E1	Original coordinates in MergeMaster are far from the facility location specified. Original Coordinates (UTM 13N): 1767E1 - 460004.659, 3917189.141 Facility Coordinates: 32.301035, -104.310116 (UTM 13N 564950.11 3574012.90) Source coordinates updated to 564950.11, 3574012.90 Pollutants: PM2.5, PM10
	40574A2	Haul road emissions are below the exemption threshold of 20.2.72.202.B(5) NMAC and would not be included in modeling as a surrounding source if it had been listed as an exempt unit on its application. Therefore, it was removed. Pollutants: PM2.5, PM10
	40574E12 40574E13 40574E14 40574E15 40574E22 40574E23	Units are listed as volume sources. Heaters have been converted to point sources per parameters indicated in application for AI#40574. New parameters: Stack height (ft): 15 Stack Temperature (F): 500 Stack Velocity (ft/s): 12.9 Diameter (ft): 1.5 Pollutants: PM2.5, PM10
	38339E17/ 38339E18	Original coordinates in MergeMaster are far from the facility location specified. Original Coordinates (UTM 13N): 38339E17 - 568241.173, 3595198.763 38339E18 - 568241.173, 3595198.763 Facility Coordinates: 32.284111, -104.131028 (UTM 13N 581826.30, 3572259.40) Source coordinates both updated to 581826.30, 3572259.40 Pollutants: PM2.5, PM10
	37920A1	Haul road emissions are below the exemption threshold of 20.2.72.202.B(5) NMAC and would not be included in modeling as a surrounding source if it had been listed as an exempt unit on its application. Therefore, it was removed. Pollutants: PM2.5, PM10
	37724E23	MergeMaster uses the short-term emission rate from the publicly available revised permit application under Table 2-E: Requested Allowable Emissions. For PM2.5 Annual, the rate was revised to the annual rate from the application. Unit 2: Flare MergeMaster listed emission rate: 7.84 tons/year Updated maximum allowable emission rate from revised permit application: 0.25 tons/year Pollutants: PM2.5
	37724E38	MergeMaster uses the short-term emission rate from the publicly available revised permit application under Table 2-E: Requested Allowable Emissions. For PM2.5 Annual, the rate was revised to the annual rate from the application. Unit 39: Process Flare MergeMaster listed emission rate: 7.88 tons/year

		Updated maximum allowable emission rate from revised permit application: 0.10 tons/year Pollutants: PM2.5
	37724E39	MergeMaster uses the short-term emission rate from the publicly available revised permit application under Table 2-E: Requested Allowable Emissions. For PM2.5 Annual, the rate was revised to the long-term rate from the application. Unit 40: Acid Gas Flare MergeMaster listed emission rate: 5.69 tons/year Updated maximum allowable emission rate from revised permit application: 2.45 tons/year Allowable from permit Pollutants: PM2.5
	37724R5	Source listed as Malfunction emissions. From the publicly available revised permit application under Table 2-E: Requested Allowable Emissions, no particulate emissions are listed for malfunctions and malfunctions is not listed in Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks. Therefore, fugitive source was removed for PM2.5 cumulative models. Pollutants: PM2.5
	38926R1	In MergeMaster and from data obtained from the NMED Air Quality Permit Map, the facility's permitted emission for particulate matter (PM) is listed as 0.27 tons/year. However, this source is listed in MergeMaster with almost 0.75 tons/year of PM2.5 emissions. For the annual averaging period, source emissions cannot be larger than 0.27 tons/year, the maximum possible for the facility. Since emission rates cannot be larger than 0.5 tons/year, the haul road emissions are below the exemption threshold of 20.2.72.202.B(5) NMAC and would not be included in modeling as a surrounding source if it had been listed as an exempt unit on its application. Therefore, it was removed from both the PM2.5 annual and 24hr averaging periods. Pollutants: PM2.5, PM10
	1119E2/ 1119E3	Sources are removed from SO2 surrounding sources as the sources are associated with construction activities.
	38289R2	Per Table 2-E of the permit application for this facility provided by NMED's Celina Rivera on July 16, 2026, the maximum allowable emission from this source is listed as 0 lb/hr and 0 tons/year for H2S. As a result, the emission rate has been updated to zero. Pollutant: H2S
	37965R4	From the publicly available revised permit application under Table 2-E: Requested Allowable Emissions, the maximum allowable emission from this source is listed as 0 lb/hr and 0 tons/year for H2S. As a result, the emission rate has been updated to zero. Pollutant: H2S

16-H: Building and structure downwash

1	How many buildings are present at the facility?	1		
2	How many above ground storage tanks are present at the facility?	16		
3	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes	No

4	Building comments	N/A

16-I: Receptors and modeled property boundary

1	"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 a 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. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.				
	Physical Fence				
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?			Yes	No
3	Are restricted area boundary coordinates included in the modeling files?			Yes	No
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.				

Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
Discrete Receptors	Cartesian	50 m spacing from 0-800m 100 m spacing from 800-3,000 m 250 m spacing from 3,000-6,000 m 500 m spacing from 6,000-10,000 m 1,000 m from 10,000-50,000 m	0-m from center of facility	50 km	

5	Describe receptor spacing along the fence line.	
	50-meter spacing	
	Describe the PSD Class I area receptors.	

6	PSD Class I area receptors cover the Carlsbad Caverns National Park Class I area and were obtained from MergeMaster on July 10, 2026. AERMAP version 24142 was run for all receptors. Receptor spacing is 1,000 m within the park and 500 m or less at the park boundary.

16-J: Sensitive areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes	No
3	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes	No

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).		
	No modeling scenarios were considered in this modeling analysis.		
2	Which scenario produces the highest concentrations? Why?		
	N/A		
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes	No
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources:		

5

Hour of Day	Factor	Hour of Day	Factor
1		13	
2		14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	

	12		24									

If hourly, variable emission rates were used that were not described above, describe them below.

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes	No
	Different emission rates were used for the flares, the combustors and the oxidizer for NO2, SO2, PM10 and PM2.5 to incorporate SSM emissions (where short-term models used the maximum emissions between normal operation and SSM, where the annual models used the total emissions).		

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.			
		ARM2		
		100% NO_X to NO_2 conversion		
		PVMRM		
		OLM		
		Other:		
2	Describe the NO_2 modeling.			
	Tier two chemistry processing was used in the modeling analysis. No changes were made to ARM2 default options.			
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.		Yes	No
4	Describe the design value used for each averaging period modeled.			
	1-hour: High first high for ROI modeling, High eighth high for cumulative modeling. Annual: One Year Annual Average			

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.			
		PM2.5		
		PM10		
		None		
2	Describe the particle size distributions used. Include the source of information.			
	Particle size distribution was not used in this modeling analysis.			
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are		Yes	No

	considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.		Yes	No
4	Was secondary PM modeled for PM2.5?		Yes	No
5	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.			
	NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-}hour}$
	124.34	40.16	0.0015	0.045

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	N/A. No portable sources or sources that need flexibility in their site configuration.
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A. No portable sources or sources that need flexibility in their site configuration.

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.		Yes	No
	Unit Number in UA-2	Unit Number in Modeling Files		
	ENG-1	ENG1		
	ENG-2	ENG2		
	ENG-3	ENG3		
	ENG-4	ENG4		
	ENG-5	ENG5		
	ENG-6	ENG6		
	GEN-1A	GEN1A		
	GEN-1B	GEN1B		
	GEN-2	GEN2		
	HT-1	HT1		
	HT-2	HT2		
	HT-3	HT3		
	HT-4	HT4		
	HT-5	HT5		

	AM-1	AM1
	DEHY-1	FL2/ECD2
	FL-1	FL1
	FL-2	FL2
	FL-3	FL3
	ECD-1	ECD1
	ECD-2	ECD2
	TO-1	TO1
	TK-1	FL3/ECD1
	TK-2	FL3/ECD1
	TK-3	FL3
	TK-4	FL3
	TK-5	FL3
	TK-6	FL3
	TK-7	FL3
	TK-8	FL3
	PWTK-1	FL3/ECD1
	TL-1	TL
	TL-3	TL
	FUG	COMB
	SITE-SSM	COMB

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes	No
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes	No

4 Which units consume increment for which pollutants?

Unit ID	NO_2	SO_2	PM10	PM2.5
All	X	X	X	X

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	

6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	Yes	No

16-P: Flare Modeling

1 For each flare or flaring scenario, complete the following

	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)

	FL-1	31.57 g/mol	16,777,542	3.50
	FL-2	70.35 g/mol	1,032,894	0.79
	FL-3	65.47 g/mol	9,943,450	2.47

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes	No
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	Site-SSM and facility fugitives were combined into a single volume source (COMB). Sigma-Y is the equivalent square of the facility's processing area divided by 4.3 (single volume source) and Sigma-Z is the averaging height of all processing equipment divided by 4.3 (An Elevated Source Not On or Adjacent to a Building). Both truck loading (TL1 and TL3) were also combined into one source. Sigma-Y is approximately the length of the loading area divided by 4.3 (single volume source), and the Sigma-Z is height of the truck divided by 4.3 (An Elevated Source Not On or Adjacent to a Building).		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	COMB is SITE-SSM and FUG. TL is TL-1 and TL-3.		
4	Describe any open pits.		
	N/A		
5	Describe emission units included in each open pit.		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes	No
	CO: N/A		
	NO_2: Outside Carlsbad (350151005)		
	PM2.5: Hobbs-Jefferson (350450019)		
	PM10: Hobbs-Jefferson (350250008)		
	SO_2: N/A		
	Other:		

	Comments:		
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes	No

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so select the station used. Carlsbad Meteorological Station, Met Years 2020-2024.	Yes	No
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes	No
	From a qualitative analysis, the closest terrain is located roughly 30-km to the northwest and west of the facility, beyond the ROI for all pollutants and averaging periods.		
2	What was the source of the terrain data?		
	National elevation database (NED) data, downloaded from the USDS National Map Viewer TNM Downloader - The National Map.		

16-U: Modeling Files

Describe the modeling files:
File name nomenclature:

Class I: Apollo GP [Pollutant] [Averaging Period] [Class I] [Purpose] [Modeling Year (if run for individual year)]
Class II: Apollo GP [Pollutant] [Averaging Period] [Purpose] [Modeling Year (if run for individual year)]

	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
	Apollo GP NO2 Annual Class I SIL_MY2020	NO2	SIA
	Apollo GP NO2 Annual Class I SIL_MY2021	NO2	SIA
	Apollo GP NO2 Annual Class I SIL_MY2022	NO2	SIA

	Apollo GP NO2 Annual Class I SIL_MY2023	NO2	SIA
	Apollo GP NO2 Annual Class I SIL_MY2024	NO2	SIA
	Apollo GP PM2.5 24hr Class I SIL	PM2.5	SIA
	Apollo GP PM2.5 Annual Class I SIL	PM2.5	SIA
	Apollo GP PM10 24hr Class I SIL	PM10	SIA
	Apollo GP PM10 Annual Class I SIL_MY2020	PM10	SIA
	Apollo GP PM10 Annual Class I SIL_MY2021	PM10	SIA
	Apollo GP PM10 Annual Class I SIL_MY2022	PM10	SIA
	Apollo GP PM10 Annual Class I SIL_MY2023	PM10	SIA
	Apollo GP PM10 Annual Class I SIL_MY2024	PM10	SIA
	Apollo GP SO2 3hr 24hr Class I SIL	SO2	SIA
	Apollo GP SO2 Annual Class I SIL_MY2020	SO2	SIA
	Apollo GP SO2 Annual Class I SIL_MY2021	SO2	SIA
	Apollo GP SO2 Annual Class I SIL_MY2022	SO2	SIA
	Apollo GP SO2 Annual Class I SIL_MY2023	SO2	SIA
	Apollo GP SO2 Annual Class I SIL_MY2024	SO2	SIA
	Apollo GP CO 1hr 8hr SIL	CO	SIA
	Apollo GP H2S 1hr SIL	H2S	SIA
	Apollo GP NO2 1hr SIL	NO2	SIA
	Apollo GP NO2 Annual SIL_MY2020	NO2	SIA
	Apollo GP NO2 Annual SIL_MY2021	NO2	SIA
	Apollo GP NO2 Annual SIL_MY2022	NO2	SIA
	Apollo GP NO2 Annual SIL_MY2023	NO2	SIA
	Apollo GP NO2 Annual SIL_MY2024	NO2	SIA
	Apollo GP PM2.5 24hr SIL	PM2.5	SIA
	Apollo GP PM2.5 Annual SIL	PM2.5	SIA
	Apollo GP PM10 24hr SIL	PM10	SIA

	Apollo GP PM10 Annual SIL_MY2020	PM10	SIA
	Apollo GP PM10 Annual SIL_MY2021	PM10	SIA
	Apollo GP PM10 Annual SIL_MY2022	PM10	SIA
	Apollo GP PM10 Annual SIL_MY2023	PM10	SIA
	Apollo GP PM10 Annual SIL_MY2024	PM10	SIA
	Apollo GP SO2 1hr SIL	SO2	SIA
	Apollo GP SO2 3hr 24hr SIL	SO2	SIA
	Apollo GP SO2 Annual SIL_MY2020	SO2	SIA
	Apollo GP SO2 Annual SIL_MY2021	SO2	SIA
	Apollo GP SO2 Annual SIL_MY2022	SO2	SIA
	Apollo GP SO2 Annual SIL_MY2023	SO2	SIA
	Apollo GP SO2 Annual SIL_MY2024	SO2	SIA
	Apollo GP NO2 1hr NAAQS	NO2	Cumulative
	Apollo GP NO2 Annual NAAQS_MY2020	NO2	Cumulative
	Apollo GP NO2 Annual NAAQS_MY2021	NO2	Cumulative
	Apollo GP NO2 Annual NAAQS_MY2022	NO2	Cumulative
	Apollo GP NO2 Annual NAAQS_MY2023	NO2	Cumulative
	Apollo GP NO2 Annual NAAQS_MY2024	NO2	Cumulative
	Apollo GP PM2.5 24hr NAAQS PSD Inc	PM2.5	Cumulative
	Apollo GP PM2.5 Annual NAAQS PSD Inc	PM2.5	Cumulative
	Apollo GP PM10 24hr NAAQS-Increment	PM10	Cumulative
	Apollo GP SO2 1hr NAAQS	SO2	Cumulative
	Apollo GP H2S 1hr NMAAQS	H2S	Cumulative
	Apollo GP H2S 1hr NMAAQS_Culp	H2S	Culpability
	Apollo GP PM10 Annual Increment_MY2020	PM10	Cumulative
	Apollo GP PM10 Annual Increment_MY2021	PM10	Cumulative
	Apollo GP PM10 Annual Increment_MY2023	PM10	Cumulative

	Apollo GP PM10 Annual Increment_MY2024	PM10	Cumulative
	Apollo GP SO2 3hr Increment	SO2	Cumulative
	Apollo GP SO2 24hr Increment	SO2	Cumulative
	Apollo GP SO2 Annual Increment_MY2020	SO2	Cumulative
	Apollo GP SO2 Annual Increment_MY2021	SO2	Cumulative
	Apollo GP SO2 Annual Increment_MY2022	SO2	Cumulative
	Apollo GP SO2 Annual Increment_MY2023	SO2	Cumulative
	Apollo GP SO2 Annual Increment_MY2024	SO2	Cumulative

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)? N/A, Not a PSD major source or a major modification to an existing PSD major source	Yes	No
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes	No
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes	No

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes	No
	Culpability analysis was conducted for H2S ½-hr (run as 1-hr) modeling to show the contribution from Trace is less than the significance level (5 µg/m^3) at the time/place of the exceedances.		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
CO 1hr SIA	273.53	-	-	-	273.53	2,000	14%	581716.4	3571115	946.47
CO 8hr SIA	249.29	-	-	-	249.29	500	50%	581677.9	3571083	946.69
NO2 1hr SIA	108.76	-	-	-	108.76	7.52	1446%	581824.4	3571214	945.71
NO2 Annual SIA (worst year)	6.55	-	-	-	6.55	1	655%	581823.8	3571264	945.3
NO2 Annual Class I SIA (worst year)	0.0042	-	-	-	0.0042	0.1	4%	559359	3560480	1103.61
NO2 1hr and 24hr NAAQS and NMAAQS	99.79	-	-	58.60	158.39	188.03	84%	581824.4	3571214	945.71
NO2 Annual NAAQS	6.55		-	9.70	16.25	94.02	17%	581823.8	3571264	945.3

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
(worst year)										
NO2 Annual Class II PSD Increment (worst year)	6.55		-	9.70	16.25	25	65%	581823.8	3571264	945.3
PM2.5 24hr SIA	6.36	-	-	-	6.36	1.2	530%	581677.9	3571083	946.69
PM2.5 24hr Class I SIA	0.011	-	-	-	0.011	0.27	4%	559359	3560480	1103.61
PM2.5 Annual SIA	0.97	-	-	-	0.97	0.13	747%	581628.2	3571320	944.99
PM2.5 Annual Class I SIA	0.00046	-	-	-	0.00046	0.05	1%	557365	3558860	1093.88
PM2.5 24hr NAAQS	-	3.97	0.0447	16.70	20.72	35	59%	581679.3	3571320	944.87
PM2.5 Annual NAAQS	-	1.71	0.0015	6.6	8.31	9	92%	581449	3571360	943.76
PM2.5 24hr Class II PSD Increment	-	4.89	0.0447	-	4.93	9	55%	581749	3571060	946.92
PM2.5 Annual	-	1.68	0.0015	-	1.68	4	42%	581449	3571360	943.76

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
Class II PSD Increment										
PM10 24hr SIA	9.69	-	-	-	9.69	5	194%	581677.9	3571083	946.69
PM10 24hr Class I SIA	0.01672	-	-	-	0.01672	0.3	6%	558179	3558860	1096.68
PM10 Annual SIA	1.04	-	-	-	1.04	1	104%	581628.2	3571320	944.99
PM10 Annual Class I SIA (worst year)	0.00053	-	-	-	0.00053	0.2	0.27%	559359	3560480	1103.61
PM10 24hr NAAQS	-	7.02	-	37.30	44.32	150	30%	581449	3571360	943.76
PM10 24hr Class II PSD Increment	-	8.11	-	-	8.11	30	27%	581749	3571060	946.92
PM10 Annual Class II PSD Increment	-	3.06	-	-	3.06	17	18%	581628.2	3571320	944.99
SO2 1hr SIA	28.17	-	-	-	28.17	7.8	361%	581677.9	3571083	946.69
SO2 3hr SIA	27.80	-	-	-	27.80	25	111%	581677.9	3571083	946.69
SO2 3hr Class I SIA	0.22097	-	-	-	0.22097	1	22%	555731.9	3558350	1098.67
SO2 24hr SIA	19.00	-	-	-	19.00	5	380%	581677.9	3571083	946.69

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
SO2 24hr Class I SIA	0.04591	-	-	-	0.04591	0.2	23%	557365	3558860	1093.88
SO2 Annual SIA (worst year)	1.59	-	-	-	1.59	1	159%	581449	3571410	943.09
SO2 Annual Class I SIA (worst year)	0.0014	-	-	-	0.00139	0.1	1%	559359	3560480	1103.61
SO2 1hr NAAQS	-	64.45	-	-	64.45	196.4	33%	582399	3571060	946.86
SO2 24hr Class II PSD Increment	-	13.64	-	-	13.64	91	15%	581749	3571060	946.92
SO2 Annual Class II Increment (worst year)	-	2.98	-	-	2.98	20	15%	581449	3571410	943.09
H2S 1/2hr (run as 1hr) SIA	68.94	-	-	-	68.94	5	1379%	581679.3	3571320	944.87
H2S 1/2hr (run as 1hr) NAAQS	-	397.10	-		397.10	139.3	285%	582449	3573560	936.14

16-X: Summary/conclusions

1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	All modeling requirements have been completed in this modeling analysis and have demonstrated that the facility is in compliance with NMED and Federal air quality standards.

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
ENG-1	Stack test for 40 CFR Part 60 Subpart JJJJ compliance.	03/20/2026
ENG-2	Stack test for 40 CFR Part 60 Subpart JJJJ compliance.	03/20/2026

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.

N/A – No other relevant information is being included in this application.

Section 22: Certification

Company Name: Trace Delaware Gathering, LLC

I, David A. Dell'Osso, 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 13th day of July, 2026 upon my oath or affirmation, before a notary of the State of Texas.

D. Dell'Osso
*Signature

7/13/2026
Date

David A. Dell'Osso
Printed Name

Chief Operating Officer
Title

Scribed and sworn before me on this 13th day of July, 2026.

My authorization as a notary of the State of Texas expires on the 12th day of March, 2028.

Autumn Henderson
Notary's Signature

7/13/2026
Date

Autumn Henderson
Notary's Printed Name

AUTUMN DINESE HENDERSON
Notary Public, State of Texas
Comm. Expires 03-12-2028
Notary ID 130551972

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