NMED AIR QUALITY BUREAU
NSR SIGNIFICANT REVISION APPLICATION

Targa Northern Delaware, LLC
Plantview Compressor Station

Prepared By:
Robert Andries – Sr. Environmental Specialist

Targa Northern Delaware, LLC
811 Louisiana
Suite 2100
Houston, TX 77002-1400

Jaimy Karacaoglu - Consultant

TRINITY CONSULTANTS
9400 Holly Ave
Building 3, Suite B
Albuquerque, NM 87122
(505) 266-6611

May 2024

Project 233201.0160.0008

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

May 21, 2024

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

RE: Application for Significant Revision to NSR Permit No. 6036-M5
Targa Northern Delaware, LLC – Plantview Compressor Station

Permit Programs Manager:

On behalf of Targa Northern Delaware, LLC (Targa), Trinity Consultants is submitting this application for a Significant Revision for NSR Permit No. 6036-M5 for the Plantview Compressor Station, located in Lea County. Pursuant to 20.2.72.219.D.(1)(a) NMAC, this revision is for the addition of one (1) heater trailer (unit Trailer-1), one (1) air compressor generator (unit GEN-3), and one (1) enclosed combustion device (unit ECD-1); the removal of two (2) PSI 21.9L generators (units Gen-1 & Gen-2), and two (2) condensate/ oily wastewater storage tanks (units T-3 & T-4); the replacement of two (2) 1340 hp compressor engines (units 274 & 541) with two (2) 1380 hp compressor engines (units C-1 & C-6), and one (1) thermal oxidizer with one (1) flare (unit FL-1); and the modification of all other units based on a recent inlet gas analysis.

The format and content of this application are consistent with the Bureau's current policy regarding NSR applications; it is a complete application package using the most current application form. Enclosed is a hard copy of the application, including the original certification. Please feel free to contract me at (505) 266- 6611 or by email at jaimy.karacaoglu@trinityconsultants.com if you have any questions regarding this application. Alternatively, you may contact Robert Andries at (713) 584-1360 or by email at randries@targaresources.com.

Sincerely,

Jaimy Karacaoglu
Consultant

Trinity Project File 233201.0160.0008

WARNING – THIS CHECK IS PROTECTED BY SPECIAL SECURITY GUARD PROGRAM™ FEATURES

Targa Resources Partners LP
811 Louisiana Street
Suite 2100
Houston, TX 77002

JPMORGAN CHASE BANK NA
Chicago, IL

CHECK NO. 3500508964
CHECK DATE 05/16/2024

70-2322/719
709373500

3673 B1

* * * Five Hundred Dollars And Zero Cents*

CHECK AMOUNT
$500.00

Pay To The Order Of
STATE OF NEW MEXICO
GENERAL FUND AIR QUALITY BUREAU
SANTA FE NM 87505-1816

HEAT SENSITIVE RUB AREA TO VERIFY

PATENTS 5,197,765 5,340,159

THIS CHECK CONTAINS MULTIPLE SECURITY FEATURES – SEE BACK FOR DETAILS

⑈3500508964⑈ ⑆071923226⑆ 709373500⑈

PAY TO:
STATE OF NEW MEXICO
GENERAL FUND AIR QUALITY BUREAU
SANTA FE NM 87505-1816

Targa Resources Corp.

Page 1 of 1

VENDOR NO.	CHECK DATE	CHECK NO	CHECK TOTAL
1004108	05/16/2024	3500508964	$500.00

INVOICE NUMBER	INVOICE DATE			AMOUNT PAID
CKRQ051624	20240516	Robert Andries	$	500.00

Plantur... CS AI: 34824 [2024-008]

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**
Targa Northern Delaware, LLC		May 21, 2024
Permittee/Company Contact	**Phone**	**Email**
Robert Andries	(713) 584-1360	randries@targaresources.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.	

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.: 3500508964 in the amount of $500.

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

☒ 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: **20.2.72.219.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: 34824	Updating Permit/NOI #: 6036-M5
1	Facility Name: Plantview Compressor Station	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): From the intersection of Hwy 128 and S 3rd St. in Jal: Take Hwy 128 west for 20.4 miles. Turn right onto Delaware Basin Rd. and continue for 2.6 miles. Turn left onto Bell Lake Rd. and continue for 1.8 miles. Keep right to stay on Bell Lake Rd. and continue for 0.5 miles. The facility will be on your left.		

2	Plant Operator Company Name: Targa Northern Delaware, LLC	Phone/Fax: (575) 631-7093
a	Plant Operator Address: 811 Louisiana Suite 2100, Houston, TX 77002-1400	
b	Plant Operator's New Mexico Corporate ID or Tax ID: 1948249	
3	Plant Owner(s) name(s): Targa Northern Delaware, LLC	Phone/Fax: (575) 631-7093
a	Plant Owner(s) Mailing Address(s): 811 Louisiana Suite 2100, Houston, TX 77002-1400	
4	Bill To (Company): Targa Northern Delaware, LLC	Phone/Fax: (575) 631-7093
a	Mailing Address: 811 Louisiana Suite 2100, Houston, TX 77002-1400	E-mail: randries@targaresources.com
5	☐ Preparer: ☒ Consultant: Jaimy Karacaoglu, Trinity Consultants	Phone/Fax: (505) 266-6611
a	Mailing Address: 9400 Holly Ave, Bldg 3, Ste B, Albuquerque NM, 87113	E-mail: Jaimy.Karacaoglu@trinityconsultants.com
6	Plant Operator Contact: Jason Fuentes	Phone/Fax: 575-513-9934
a	Address: 201 South 4th St. Artesia NM 88210	E-mail: jason.fuentes@targaresources.com
7	Air Permit Contact: Robert Andries	Title: Sr. Environmental Specialist
a	E-mail: randries@targaresources.com	Phone/Fax: (713) 584-1360
b	Mailing Address: 811 Louisiana Suite 2100, Houston, TX 77002-1400	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☒ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY): N/A
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is: N/A
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is: N/A
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is: N/A
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 6036-M5
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is: N/A

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 2.92 MMSCFH	Daily: 70 MMSCFD	Annually: 25,550 MMSCFY
b	Proposed	Hourly: 3.125 MMSCFH	Daily: 75 MMSCFD	Annually: 27,375 MMSCFY
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 2.92 MMSCFH	Daily: 70 MMSCFD	Annually: 25,550 MMSCFY

b	Proposed	Hourly: 3.125 MMSCFH	Daily: 75 MMSCFD	Annually: 27,375 MMSCFY

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 32.244011	Longitude (decimal degrees): -103.549392	County: Lea	Elevation (ft): 3,624
2	UTM Zone: ☐ 12 or ☒ 13	Datum: ☐ NAD 83 ☒ WGS 84		
a	UTM E (in meters, to nearest 10 meters): 636,660 m E	UTM N (in meters, to nearest 10 meters): 3,568,410 m N		
3	Name and zip code of nearest New Mexico town: Jal, NM 88252			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From the intersection of Hwy 128 and S 3rd St. in Jal: Take Hwy 128 west for 20.4 miles. Turn right onto Delaware Basin Rd. and continue for 2.6 miles. Turn left onto Bell Lake Rd. and continue for 1.8 miles. Keep right to stay on Bell Lake Rd. and continue for 0.5 miles. The facility will be on your left.			
5	The facility is 22.9 miles west-northwest of Jal, NM.			
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: Lea County, Eddy County			
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☒ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: 27 km from Texas border			
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): 71.2 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: 4.1 km NW			
12	Method(s) used to delineate the Restricted Area: Continuous Fencing "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.			
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ 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 ($\frac{hours}{day}$): 24	($\frac{days}{week}$): 7	($\frac{weeks}{year}$): 52	($\frac{hours}{year}$): 8760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{hours}{day}$)?	Start: N/A	☐AM ☐PM	End: N/A	☐AM ☐PM	
3	Month and year of anticipated start of construction: Upon permit issuance.					
4	Month and year of anticipated construction completion: Upon permit issuance.					
5	Month and year of anticipated startup of new or modified facility: Upon permit issuance.					
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	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☒ **Minor** (☒ <10 tpy of any single HAP **AND** ☒ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☑ No		
a	If yes, include the name of company providing commercial electric power to the facility: N/A Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

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

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Jimmy Oxford	Phone: (940) 220-2493
a	R.O. Title: Vice President Operations	R.O. e-mail: JOxford@targaresources.com
b	R. O. Address: 4401 North I-35, Suite 303, Denton TX 76207, United States	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): N/A	Phone: N/A
a	A. R.O. Title: N/A	A. R.O. e-mail: N/A
b	A. R. O. Address: N/A	
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): Targa Resources, Inc.	
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.): Targa Resources, Inc.	
a	Address of Parent Company: 811 Louisiana Suite 2100, Houston, TX 77002-1400	
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.): Targa Northern Delaware, LLC, Targa Midstream Services, LLC, Versado Gas Processors, LLC	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: Jaylen Fuentes – (575) 810-6054	

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: Texas – 22 km

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☒ Secure electronic transfer. Air Permit Contact Name: Jaimy Karacaoglu, Email:

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

Table of Contents

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 #	Manufact-urer'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 Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
274	Compressor Engine	Caterpillar	3516 LE+	WPW00803	1340 hp	1340 hp	3/1/2007 10/22/2020	Catalyst-4 Catalyst-4	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	4SLB	N/A
C-1	Compressor Engine	Caterpillar	3516	JEF03400-N6W	1380 hp	1380 hp	3/1/2015 10/14/2022	Catalyst-1 Catalyst-1	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	**274**
C-2	Compressor Engine	Caterpillar	3606	JFE00152	1875 hp	1875 hp	9/1/2016 TBD	Catalyst-2 Catalyst-2	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
C-3	Compressor Engine	Caterpillar	3516	JFE01178-N6W	1380 hp	1380 hp	4/1/2011 TBD	Catalyst-3 Catalyst-3	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
C-4	Compressor Engine	Caterpillar	3520	TPC00122-N24	1725 hp	1725 hp	12/1/2008 TBD	Catalyst-4 Catalyst-4	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
C-5	Compressor Engine	Caterpillar	3516 LE+	8JZ00185	1340 hp	1340 hp	9/1/2006 TBD	Catalyst-5 Catalyst-5	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
541	Compressor Engine	Caterpillar	3516 LE+	WPW02284	1340 hp	1340 hp	6/24/2008 5/22/2015	Catalyst-3 Catalyst-3	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	4SLB	N/A
C-6	Compressor Engine	Caterpillar	3516	N6E00254-N6W	1380 hp	1380 hp	4/1/2015 11/4/2022	Catalyst-6 Catalyst-6	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	**541**
C-7	Compressor Engine	Caterpillar	3516 LE+	N6C00136	1340 hp	1340 hp	9/1/2017 10/22/2020	Catalyst-7 Catalyst-7	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
C-8	Compressor Engine	Caterpillar	3608 A4	XH700758	2500 hp	2500 hp	8/1/2017 TBD	Catalyst-8 Catalyst-8	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
C-9	Compressor Engine	Caterpillar	3516	N6W00705	1380 hp	1380 hp	7/1/2018 11/18/2022	Catalyst-9 Catalyst-9	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
C-10	Compressor Engine	Caterpillar	3608 A4	XH701279	2500 hp	2500 hp	6/1/2019 TBD	Catalyst-10 Catalyst-10	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
Gen-1	Generator	Power Solutions International, Inc.	21.9 L	TBD	650 hp	650 hp	TBD TBD	N/A N/A	20200253	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SRB	N/A
Gen-2	Generator	Power Solutions International, Inc.	21.9 L	TBD	650 hp	650 hp	TBD TBD	N/A N/A	20200253	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SRB	N/A
GEN-3	Air Compressor Generator	TBD	TBD	TBD	499 hp	499 hp	TBD TBD	N/A N/A	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
Trailer-1	Heater Trailer	TBD	TBD	TBD	13.8 hp	13.8 hp	TBD TBD	N/A N/A	31000205	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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.
Dehy-1	Glycol Dehydrator	N/A	N/A	N/A	40 MMSCFD	40 MMSCFD	N/A May 2015	N/A Dehy-1 & Condenser-1	31000304	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
Dehy-2	Glycol Dehydrator	N/A	N/A	N/A	35 MMSCFD	35 MMSCFD	N/A TBD	N/A Dehy-2 & Condenser-2	31000304	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
Amine-1	Amine Unit	N/A	N/A	N/A	75 MMSCFD	75 MMSCFD	TBD TBD	TO-1 TO-1	31000301	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
TO-1	Thermal Oxidizer	Hero Flare	T3048	TBD	3372 Mscfd	3372 Mscfd	TBD TBD	N/A TO-1	30205021	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	N/A	N/A
FL-1	Flare	Hero Flare	T3048	TBD	12359 scfd	12359 scfd	TBD TBD	N/A FL-1	30205021	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	**TO-1**
Reboil-1	Glycol Dehydrator Reboiler	KWI	T3048	N/A	1.0 MMBtu/hr	1.0 MMBtu/hr	2014 May 2015	N/A Reboil-1	31000228	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
Reboil-2	Glycol Dehydrator Reboiler	N/A	T3048	N/A	0.75 MMBtu/hr	0.75 MMBtu/hr	TBD TBD	N/A Reboil-2	31000228	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
Reboil-3	Amine Unit Reboiler	N/A	T3048	N/A	21 MMBtu/hr	21 MMBtu/hr	TBD TBD	N/A Reboil-3	31000228	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
T-1	Condensate/Oily Wastewater Tank	Permian Tank and Manufacturing Co.	T3048	F56236	500 bbl	500 bbl	Oct 2014 Oct 2014	N/A N/A	40400311	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
T-2	Condensate/Oily Wastewater Tank	Permian Tank and Manufacturing Co.	T3048	F55921	500 bbl	500 bbl	Aug 2014 Aug 2014	N/A N/A	40400311	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
T-3	Condensate/Oily Wastewater Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD TBD	N/A N/A	40400311	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
T-4	Condensate/Oily Wastewater Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD TBD	N/A N/A	40400311	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
LOAD-1	Condensate Loading	N/A	N/A	N/A	569,402 gal/yr	569,402 gal/yr	TBD TBD	N/A N/A	40400250	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
ECD-1	Enclosed Combustion Device	TBD	TBD	TBD	TBD	TBD	TBD TBD	N/A ECD-1	31000160	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
Fug-1	Facility-wide Fugitive Emissions	N/A	N/A	N	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
T-5	Methanol Tank	N/A	N/A	100	20.2.72.202.B.5	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	bbl	N/A	Unknown	
T-6	Ambitrol Tank	N/A	N/A	1,000	20.2.72.202.B.2(a)	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gal	N/A	Unknown	
T-7	Used Ambitrol Tank	N/A	N/A	1,500	20.2.72.202.B.2(a)	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gal	N/A	Unknown	
T-8	Lube Oil Tank	N/A	N/A	1,500	20.2.72.202.B.2(a)	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gal	N/A	Unknown	
T-9	Used Lube Oil Tank	N/A	N/A	1,500	20.2.72.202.B.2(a)	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gal	N/A	Unknown	
T-10	Glycol Tank	N/A	N/A	1,000	20.2.72.202.B.2(a)	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gal	N/A	Unknown	
T-11	Used Glycol Tank	N/A	N/A	1,500	20.2.72.202.B.2(a)	Unknown	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gal	N/A	Unknown	
Haul-1	Unpaved Haul Road Emissions	N/A	N/A	N/A	20.2.72.202.B.5	N/A	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced
			N/A	N/A	N/A	N/A	
TK-PW	Produced Water Tank	N/A	N/A	210	20.2.72.202.B.5	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	bbl	N/A	N/A	
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
Catalyst-1	Engine Catalyst	10/14/2022	CO, VOC, HCHO	C-1	CO: 79% VOC: 77% HCHO: 85%	Catalyst Data
Catalyst-2	Engine Catalyst	TBD	CO, VOC, HCHO	C-2	CO: 76% VOC: 51% HCHO: 75%	Catalyst Data
Catalyst-3	Engine Catalyst	TBD	CO, VOC, HCHO	C-3	CO: 79% VOC: 77% HCHO: 85%	Catalyst Data
Catalyst-4	Engine Catalyst	TBD	CO, VOC, HCHO	C-4	CO: 78% VOC: 77% HCHO: 85%	Catalyst Data
Catalyst-5	Engine Catalyst	TBD	CO, VOC, HCHO	C-5	CO: 84% VOC: 75% HCHO: 85%	Catalyst Data
Catalyst-6	Engine Catalyst	11/4/2022	CO, VOC, HCHO	C-6	CO: 79% VOC: 77% HCHO: 85%	Catalyst Data
Catalyst-7	Engine Catalyst	10/22/2020	CO, VOC, HCHO	C-7	CO: 84% VOC: 75% HCHO: 85%	Catalyst Data
Catalyst-8	Engine Catalyst	TBD	CO, VOC, HCHO	C-8	CO: 82% VOC: 59% HCHO: 80%	Catalyst Data
Catalyst-9	Engine Catalyst	44883	CO, VOC, HCHO	C-9	CO: 79% VOC: 77% HCHO: 85%	Catalyst Data
Catalyst-10	Engine Catalyst	TBD	CO, VOC, HCHO	C-10	CO: 82% VOC: 59% HCHO: 80%	Catalyst Data
Reboil-1 and Condenser-1	Reboiler and BTEX condenser associated with Dehy-1	May 2015	VOC, HAP, H_2S	Dehy-1	98%	Engineering Estimate, BR&E ProMax
Reboil-2 and Condenser-2	Reboiler and BTEX condenser associated with Dehy-2	TBD	VOC, HAP, H_2S	Dehy-2	98%	Engineering Estimate, BR&E ProMax
FL-1	Flare	TBD	VOC, HAP, H_2S	Amine-1	98%	Manufacturer Specifications
ECD-1	Enclosed Combustion Device	TBD	VOC, HAP, H_2S	T-1, T-2	98%	Manufacturer Specifications

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
C-1	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73	-	-
C-2	2.07	9.05	10.38	45.44	5.79	25.38	0.058	0.25	0.13	0.56	0.13	0.56	-	-	1.07	4.70	-	-
C-3	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73	-	-
C-4	1.90	8.33	8.82	38.64	3.90	17.06	0.058	0.25	0.13	0.56	0.13	0.56	-	-	1.96	8.57	-	-
C-5	1.48	6.47	9.01	39.47	2.30	10.08	0.051	0.22	0.11	0.49	0.11	0.49	-	-	1.04	4.57	-	-
C-6	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73	-	-
C-7	1.48	6.47	9.01	39.47	2.30	10.08	0.051	0.22	0.11	0.49	0.11	0.49	-	-	1.04	4.57	-	-
C-8	2.76	12.07	12.29	53.83	2.87	12.59	0.077	0.34	0.17	0.74	0.17	0.74	-	-	1.59	6.98	-	-
C-9	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73	-	-
C-10	2.76	12.07	12.29	53.83	2.87	12.59	0.077	0.34	0.17	0.74	0.17	0.74	-	-	1.59	6.98	-	-
GEN-3	1.10	4.82	2.20	9.64	1.07	4.69	0.018	0.080	0.040	0.17	0.040	0.17	-	-	0.34	1.47	-	-
Trailer-1	0.30	1.33	0.18	0.81	0.011	0.048	0.59	2.60	0.023	0.10	0.023	0.023	-	-	0.043	0.19	-	-
Dehy-1	-	-	-	-	45.85	200.83	-	-	-	-	-	-	0.019	0.082	2.22	9.73	-	-
Dehy-2	-	-	-	-	47.94	209.97	-	-	-	-	-	-	0.018	0.079	2.57	11.27	-	-
Amine-1	-	-	-	-	58.51	256.27	-	-	-	-	-	-	3.89	17.03	5.19	22.72	-	-
FL-1	0.017	0.076	0.035	0.15	5.50E-04	2.41E-03	5.71E-04	2.50E-03	-	-	-	-	-	-	-	-	-	-
Reboil-1	0.098	0.43	0.082	0.36	5.39E-03	0.024	4.55E-03	0.020	7.45E-03	0.033	7.45E-03	0.033	-	-	-	-	-	-
Reboil-2	0.074	0.32	0.062	0.27	4.04E-03	0.018	3.41E-03	0.015	5.59E-03	0.024	5.59E-03	0.024	-	-	-	-	-	-
Reboil-3	0.37	1.63	1.73	7.57	0.11	0.50	0.096	0.42	0.16	0.69	0.16	0.69	-	-	0.039	0.17	-	-
T-1	-	-	-	-	250.63	4.39	-	-	-	-	-	-	0.062	1.48E-03	12.41	0.16	-	-
T-2	-	-	-	-	250.63	4.39	-	-	-	-	-	-	0.062	1.48E-03	12.41	0.16	-	-
LOAD-1	-	-	-	-	46.73	1.44	-	-	-	-	-	-	0.016	5.00E-04	1.69	0.052	-	-
ECD-1	3.08E-03	0.013	2.58E-03	0.011	1.69E-04	7.41E-04	1.43E-04	6.26E-04	2.34E-04	1.02E-03	2.34E-04	1.02E-03	-	-	-	-	-	-
Fug-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	13.48	59.03	61.68	270.18	717.65	753.35	1.07	4.67	1.00	4.38	1.00	4.30	4.06	17.19	45.25	82.49	-	-

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
C-1	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75	-	-
C-2	2.07	9.05	2.48	10.86	2.82	12.34	0.058	0.25	0.13	0.56	0.13	0.56	-	-	0.45	1.99	-	-
C-3	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75	-	-
C-4	1.90	8.33	1.90	8.33	0.90	3.95	0.058	0.25	0.13	0.56	0.13	0.56	-	-	0.50	2.20	-	-
C-5	1.48	6.47	1.48	6.47	0.58	2.54	0.051	0.22	0.11	0.49	0.11	0.49	-	-	0.34	1.49	-	-
C-6	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75	-	-
C-7	1.48	6.47	1.48	6.47	0.58	2.54	0.051	0.22	0.11	0.49	0.11	0.49	-	-	0.34	1.49	-	-
C-8	2.76	12.07	2.21	9.69	1.17	5.11	0.077	0.34	0.17	0.74	0.17	0.74	-	-	0.57	2.51	-	-
C-9	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75	-	-
C-10	2.76	12.07	2.21	9.69	1.17	5.11	0.077	0.34	0.17	0.74	0.17	0.74	-	-	0.57	2.51	-	-
GEN-3	1.10	4.82	2.20	9.64	1.07	4.69	0.018	0.080	0.040	0.17	0.040	0.17	-	-	0.34	1.47	-	-
Trailer-1	0.30	6.09E-03	0.18	3.70E-03	0.011	2.19E-04	0.59	0.012	0.023	4.68E-04	0.023	4.68E-04	-	-	0.043	8.68E-04	-	-
Dehy-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dehy-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amine-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-1	1.36	5.94	5.20	22.77	1.20	5.26	7.35	32.20	-	-	-	-	0.078	0.34	0.10	0.45	-	-
Reboil-1	0.15	0.65	0.12	0.54	0.43	1.87	0.030	0.13	0.011	0.049	0.011	0.049	2.66E-04	1.16E-03	0.031	0.14	-	-
Reboil-2	0.13	0.55	0.11	0.46	0.48	2.10	0.027	0.12	9.55E-03	0.042	9.55E-03	0.042	2.58E-04	1.13E-03	0.038	0.17	-	-
Reboil-3	0.37	1.63	1.73	7.57	0.11	0.50	0.096	0.42	0.16	0.69	0.16	0.69	-	-	0.039	0.17	-	-
T-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOAD-1	-	-	-	-	14.02	0.43	-	-	-	-	-	-	4.86E-03	1.50E-04	0.51	0.016	-	-
ECD-1	1.99	0.040	1.67	0.033	10.96	0.21	0.26	7.14E-03	0.15	3.02E-03	0.15	3.02E-03	2.79E-03	6.92E-05	0.53	7.64E-03	-	-
Fug-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	16.90	64.04	21.63	86.67	33.12	36.23	8.73	34.49	1.16	4.31	1.16	4.31	0.086	0.34	4.25	13.93	-	-

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM/M	-	-	-	-	2,566.52	10.50	-	-	3.43	0.020	0.34	2.03E-03	0.35	1.46E-03	76.56	0.29	-	-
Totals	-	-	-	-	2,566.52	10.50	-	-	3.43	0.020	0.34	2.03E-03	0.35	1.46E-03	76.56	0.29	-	-

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		TSP		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)			
C-1	C-1	V	No	21	952	155.35	N/A	N/A	197.80	1.00
C-2	C-2	V	No	23	813	197.28	N/A	N/A	142.00	1.33
C-3	C-3	V	No	21	982	151.03	N/A	N/A	192.30	1.00
C-4	C-4	V	No	23	981	192.42	N/A	N/A	138.50	1.33
C-5	C-5	V	No	40	952	107.88	N/A	N/A	197.80	0.83
C-6	C-6	V	No	21	952	155.35	N/A	N/A	197.80	1.00
C-7	C-7	V	No	21	952	155.35	N/A	N/A	197.80	1.00
C-8	C-8	V	No	23	851	265.99	N/A	N/A	150.52	1.50
C-9	C-9	V	No	21	982	151.03	N/A	N/A	192.30	1.00
C-10	C-10	V	No	23	851	265.99	N/A	N/A	150.52	1.50
GEN-3	GEN-3	V	No	15	1382	34.34	N/A	N/A	393.52	0.33
Trailer-1	Trailer-1	V	No	7	782	20.24	N/A	N/A	14.50	1.33
FL-1	Amine-1	V	No	20	1832	347.10	N/A	N/A	65.60	2.60
Reboil-1	Dehy-1	V	No	12	400	14.69	N/A	N/A	27.14	0.83
Reboil-2	Dehy-2	V	No	12	400	12.48	N/A	N/A	23.07	0.83
Reboil-3	Reboil-3	V	No	30	600	153.57	N/A	N/A	36.02	2.33
ECD-1	T-1, T-2, LOAD	V	No	30	1000	335.47	N/A	N/A	26.70	4.00
SSM/M	Compressor Blowdowns	V	No	10	Ambient	34.87	N/A	N/A	44.39	1.00

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		Acetaldehyde ☑ HAP or ☐ TAP		Acrolein ☑ HAP or ☐ TAP									
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr								
C-1	C-1	0.40	1.75	0.20	0.88	0.11	0.46	0.065	0.28								
C-2	C-2	0.45	1.99	0.21	0.91	0.13	0.58	0.081	0.35								
C-3	C-3	0.40	1.75	0.20	0.88	0.11	0.46	0.065	0.28								
C-4	C-4	0.50	2.20	0.26	1.12	0.13	0.57	0.081	0.35								
C-5	C-5	0.34	1.49	0.12	0.54	0.12	0.50	0.071	0.31								
C-6	C-6	0.40	1.75	0.20	0.88	0.11	0.46	0.065	0.28								
C-7	C-7	0.34	1.49	0.12	0.54	0.12	0.50	0.071	0.31								
C-8	C-8	0.57	2.51	0.25	1.09	0.17	0.76	0.107	0.47								
C-9	C-9	0.40	1.75	0.20	0.88	0.11	0.46	0.065	0.28								
C-10	C-10	0.57	2.51	0.25	1.09	0.17	0.76	0.107	0.47								
GEN-3	GEN-3	0.34	1.47	0.26	1.14	0.041	0.18	0.025	0.11								
Trailer-1	Trailer-1	0.043	8.68E-04	0.034	6.84E-04	7.67E-04	1.53E-05	9.25E-05	1.85E-06								
Reboil-1	Dehy-1	-	-	-	-	-	-	-	-								
Reboil-2	Dehy-2	-	-	-	-	-	-	-	-								
FL-1	Amine-1	-	-	-	-	-	-	-	-								
FL-1	FL-1	0.10	0.45	-	-	-	-	-	-								
Reboil-1	Reboil-1	0.031	0.14	-	-	-	-	-	-								
Reboil-2	Reboil-2	0.038	0.17	-	-	-	-	-	-								
Reboil-3	Reboil-3	0.039	0.17	-	-	-	-	-	-								
ECD-1	T-1	-	-	-	-	-	-	-	-								
ECD-1	T-2	-	-	-	-	-	-	-	-								
ECD-1	LOAD-1	0.51	0.016	-	-	-	-	-	-								
ECD-1	ECD-1	0.53	7.64E-03	-	-	-	-	-	-								
N/A	Fug-1	-	-	-	-	-	-	-	-								
N/A	SSM/M	76.56	0.29	-	-	-	-	-	-								
Totals:		82.57	21.90	2.30	9.94	1.30	5.71	0.80	3.51								

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 (Btu/Scf)	Hourly Usage	Annual Usage	% Sulfur	% Ash
C-1	Natural Gas	Residue Gas	1255.06 Btu/scf	8.18 Mscf/hr	71.69 MMscf/yr	N/A	N/A
C-2	Natural Gas	Residue Gas	1255.06 Btu/scf	10.18 Mscf/hr	89.19 MMscf/yr	N/A	N/A
C-3	Natural Gas	Residue Gas	1255.06 Btu/scf	8.18 Mscf/hr	71.69 MMscf/yr	N/A	N/A
C-4	Natural Gas	Residue Gas	1255.06 Btu/scf	10.14 Mscf/hr	88.87 MMscf/yr	N/A	N/A
C-5	Natural Gas	Residue Gas	1255.06 Btu/scf	8.92 Mscf/hr	78.14 MMscf/yr	N/A	N/A
C-6	Natural Gas	Residue Gas	1255.06 Btu/scf	8.18 Mscf/hr	71.69 MMscf/yr	N/A	N/A
C-7	Natural Gas	Residue Gas	1255.06 Btu/scf	8.92 Mscf/hr	78.14 MMscf/yr	N/A	N/A
C-8	Natural Gas	Residue Gas	1255.06 Btu/scf	13.46 Mscf/hr	117.87 MMscf/yr	N/A	N/A
C-9	Natural Gas	Residue Gas	1255.06 Btu/scf	8.18 Mscf/hr	71.69 MMscf/yr	N/A	N/A
C-10	Natural Gas	Residue Gas	1255.06 Btu/scf	13.46 Mscf/hr	117.87 MMscf/yr	N/A	N/A
GEN-3	Natural Gas	Residue Gas	1255.06 Btu/scf	3.18 Mscf/hr	27.86 MMscf/yr	N/A	N/A
Trailer-1	Diesel	Diesel	137,000 Btu/gal	3.20 gal/hr	128.00 gal/yr	N/A	N/A
FL-1	Natural Gas	Residue Gas	1255.06 Btu/scf	0.10 Mscf/hr	0.88 MMscf/yr	N/A	N/A
Reboil-1	Natural Gas	Residue Gas	1255.06 Btu/scf	0.80 Mscf/hr	6.98 MMscf/yr	N/A	N/A
Reboil-2	Natural Gas	Residue Gas	1255.06 Btu/scf	0.60 Mscf/hr	5.23 MMscf/yr	N/A	N/A
Reboil-3	Natural Gas	Residue Gas	1255.06 Btu/scf	16.73 Mscf/hr	146.57 MMscf/yr	N/A	N/A
ECD-1	Natural Gas	Residue Gas	1255.06 Btu/scf	0.025 Mscf/hr	0.22 MMscf/yr	N/A	N/A

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)
T-1	40400311	Condensate/ Oil Wastewater	Condensate/ Oil Wastewater	6.83	101.54	67.93	14.70	67.93	14.70
T-2	40400311	Condensate/ Oil Wastewater	Condensate/ Oil Wastewater	6.83	101.54	67.93	14.70	67.93	14.70

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			
T-1	Unknown	Condensate/ Oily Wastewater	FX	N/A	500	48	79.5	2.44	LG	LG	Good	569,402	27.11
T-2	Unknown	Condensate/ Oily Wastewater	FX	N/A	500	48	79.5	2.44	LG	LG	Good	569,402	27.11

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 Processing	Natural Gas	Gas	75 MMscf/day	Natural Gas Production	Natural Gas	Gas	75 MMscf/day
				Condensate	Condensate	Liquid	37 bbl/day

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 - There is no CEM Equipment at this facility									

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 - There are no parametric measurement equipment at this facility.								

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]						**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**							
C-1	**mass GHG**	5,262.63	0.11	9.918E-03								5,262.75	
	CO_2e	5,736.24	35.44	0.27									5,771.95
C-2	**mass GHG**	6,547.01	0.14	0.012								6,547.16	
	CO_2e	6,547.01	40.45	0.31									6,587.77
C-3	**mass GHG**	5,262.63	0.11	9.92E-03								5,262.75	
	CO_2e	5,262.63	32.51	0.25									5,295.39
C-4	**mass GHG**	6,523.49	0.14	0.012								6,523.64	
	CO_2e	6,523.49	40.30	0.31									6,564.10
C-5	**mass GHG**	5,736.24	0.12	0.011								5,736.37	
	CO_2e	5,736.24	35.44	0.27									5,771.95
C-6	**mass GHG**	5,262.63	0.11	9.918E-03								5,262.75	
	CO_2e	5,262.63	32.51	0.25									5,295.39
C-7	**mass GHG**	5,736.24	0.12	0.011								5,736.37	
	CO_2e	5,736.24	35.44	0.27									5,771.95
C-8	**mass GHG**	8,652.49	0.18	0.016								8,652.69	
	CO_2e	8,652.49	53.45	0.41									8,706.36
C-9	**mass GHG**	5,262.63	0.11	9.92E-03								5,262.75	
	CO_2e	5,262.63	32.51	0.25									5,295.39
C-10	**mass GHG**	8,652.49	0.18	0.016								8,652.69	
	CO_2e	8,652.49	53.45	0.41									8,706.36
GEN-3	**mass GHG**	2,045.34	0.042	3.85E-03								2,045.39	
	CO_2e	2,045.34	12.64	0.096									2,058.08
Trailer-1	**mass GHG**	4.69	1.90E-04	3.81E-05								4.69	
	CO_2e	4.69	0.057	9.51E-04									4.75
Dehy-1	**mass GHG**	-	-	-								-	
	CO_2e	-	-	-									-
Dehy-2	**mass GHG**	-	-	-								-	
	CO_2e	-	-	-									-
Amine-1	**mass GHG**	-	-	-								-	
	CO2e	-	-	-									-
FL-1	**mass GHG**	723,881.20	1,844.45	7.37								725,733.01	
	CO2e	723,881.20	549,645.55	184.22									1,273,710.97
Reboil-1	**mass GHG**	772.35	0.016	1.46E-03								772.37	
	CO2e	772.35	4.77	0.036									777.16
Reboil-2	**mass GHG**	656.43	0.014	1.24E-03								656.45	
	CO2e	656.43	4.06	0.031									660.52
Reboil-3	**mass GHG**	10,759.57	0.22	0.020								10,759.81	
	CO2e	10,759.57	66.47	0.51									10,826.55
T-1	**mass GHG**	-	-	-								-	
	CO2e	-	-	-									-

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]							Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**								
T-2	**mass GHG**	-	-	-									-	
	CO2e	-	-	-										-
LOAD-1	**mass GHG**	0.052	0.026	-									0.078	
	CO2e	0.052	7.81	-										7.86
ECD-1	**mass GHG**	10,391.41	0.22	0.020									10,391.65	
	CO2e	10,391.41	64.20	0.49										10,456.10
Fug-1	**mass GHG**	-	-	-									-	
	CO2e	-	-	-										-
SSM/M	**mass GHG**	2.44	17.18	-									19.62	
	CO2e	2.44	5,119.69	-										5,122.13
Total	**mass GHG**	811,412.00	1,863.47	7.53									813,283.00	
	CO_2e	811,885.60	555,316.75	188.37										1,367,390.72

[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.

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.

Targa Northern Delaware, LLC (Targa) is submitting an NSR significant revision application for its Plantview Compressor Station (Plantview), which is currently permitted under NSR Permit No. 6036M5. The facility is located 22.9 miles west-northwest of Jal, New Mexico in Lea County. Plantview is an extension of a local gas transportation system that gathers wellhead gas from multiple wells in the area. The facility compresses the gas for delivery. This application is an NSR significant revision being submitted under 20.2.72.219.D.(1)(a) NMAC.

With this application, Targa requests the following:

The following units will be added to the facility:

- One (1) 499 hp air compressor generator (Unit GEN-3);
- One (1) 13.8 hp heater trailer (Unit Trailer-1); and
- One (1) enclosed combustion device (Unit ECD-1)

The following units will be removed from the facility:

- Two (2) PSI 21.9L 650 hp generators (Gen-1 & Gen-2); and
- Two (2) 500 bbl condensate/oily wastewater storage tanks (Units T-3 & T-4)

The following units will be replaced at the facility:

- One (1) CAT 3516 LE+ 1340 hp compressor engine (Unit 274) with one (1) CAT 3516 1380 hp compressor engine (Unit C-1);
- One (1) CAT 3516 LE+ 1340 hp compressor engine (Unit 541) with one (1) CAT 3516 1380 hp compressor engine (Unit C-6);
- One (1) Hero Flare 3372 Mscfd thermal oxidizer (Unit TO-1) with one (1) Hero Flare 12359 scfd flare (Unit FL-1);

And the modification of all other units at this facility based on a recent inlet gas analysis. Targa would also like to update the unit ID of the compressor engines. The following table contains the information of the compressor engines along with the old and new unit IDs:

Unit ID on Permit	Make	Model #	Capacity	New Unit ID
497	Caterpillar	3606	1875 hp	**C-2**
505	Caterpillar	3516	1380 hp	**C-3**
523	Caterpillar	3520	1725 hp	**C-4**
538	Caterpillar	3516 LE+	1340 hp	**C-5**
539	Caterpillar	3516 LE+	1340 hp	**C-7**
8	Caterpillar	3608 A4	2500 hp	**C-8**
9	Caterpillar	3516	1380 hp	**C-9**
10	Caterpillar	3608 A4	2500 hp	**C-10**

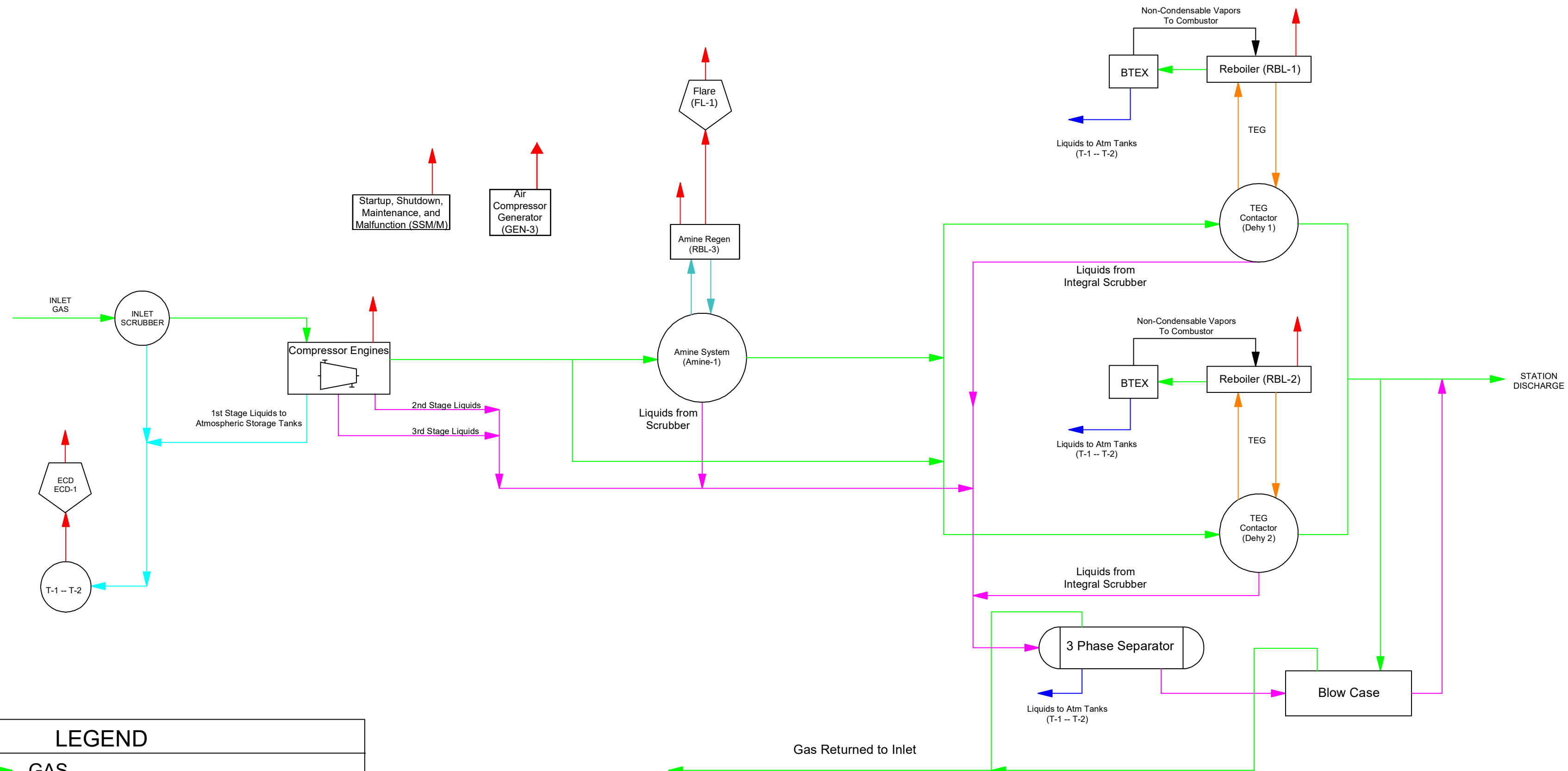
After the proposed changes, the facility will remain a minor source with respect to PSD, but will be a major source with respect to Title V permitting if/when all equipment is installed and operating.

Section 4

Process Flow Sheet

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

A process flow diagram is attached.



LEGEND

- GAS
- LOW PRESSURE LIQUIDS
- HIGH PRESSURE LIQUIDS
- WASTE WATER
- TRI-ETHYLENE GLYCOL (TEG)
- AMINE
- EMISSIONS SOURCES

REFERENCE DRAWINGS

SPECIAL NOTES

1. INSTRUMENT LETTER DESIGNATIONS PER ANSI/ISA-S5.1 (LATEST EDITION)
2. FOR BLOCK VALVES - USE BALL OR GATE VALVES UP TO 275°F DESIGN TEMPERATURES AND GATE VALVES FOR HIGHER DESIGN TEMPERATURES.
3. ALL DRAIN PIPING TO BE FREE DRAINING.
4. ALL PIPING TO PSV's TO BE FREE DRAINING.
5. PROVIDE VENTS WITH 0.5" VALVES ON ALL HIGH POINTS, AND DRAINS WITH 0.75" VALVES ON ALL LOW POINTS.

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'D.
	1/10/2018	KE	PLANTVIEW NSR APPLICATION DRAWING	
	5/15/2024		PLANTVIEW NSR APPLICATION UPDATE DRAWING	

DRAWN BY:
CHECKED BY:
APPROVAL:
APPROVAL: N/A
DATE: 5/15/2024
SCALE: N.T.S.

TARGA

TARGA NORTHERN DELAWARE, LLC

PLANTVIEW COMPRESSOR STATION BLOCK FLOW DIAGRAM

LEA COUNTY

JOB #	DWG #	REV 1

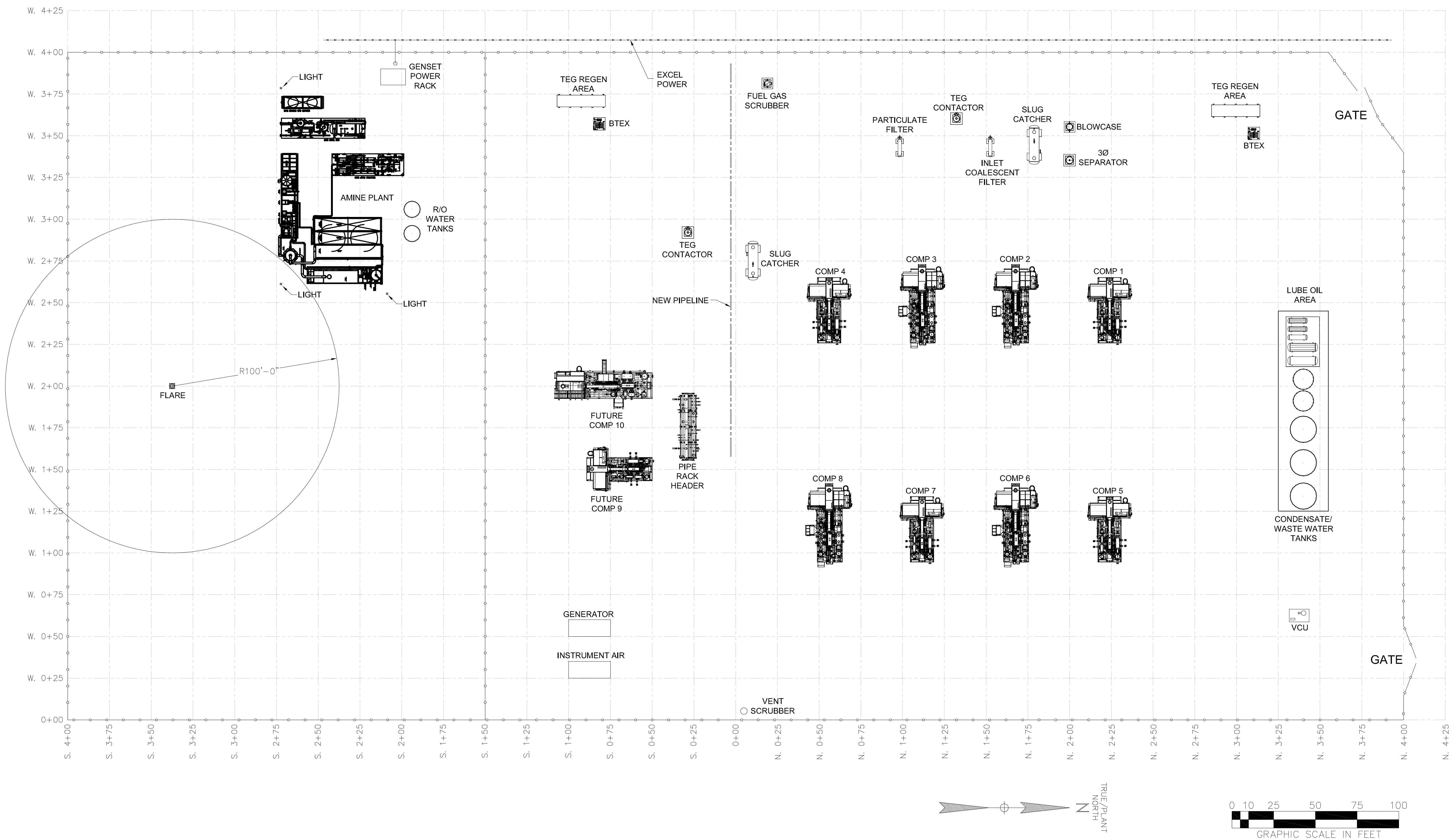
Section 5

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 facility plot plan is attached.

PVW100E1.DWG



REFERENCE DWGS.	REV	DESCRIPTION	DWN	CHKD	DATE	REV	DESCRIPTION	DWN	CHKD	DATE
						0	AS BUILD/REVISION	SSH	NJG	04/04/24

SCALE: NONE	DATE
DWN BY: SSH	12/2018
CHKD BY: CK	12/2018
FINAL CK:	
ENGR.:	
APPRV:	
APPRV:	

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PREPARED BY: –

PROJECT NUMBER: –

FACILITY NAME
PLANTVIEW COMPRESSOR STATION
LEA COUNTY, NEW MEXICO

TARGA

PLOT PLAN

DRAWING NUMBER 1520-100-E1

CAD FILE NAME PVW100E1

REVISION 0

PLOT DATE: 4/4/2024

SHU505 – 4/4/2024

T:\NORTHERN DELAWARE S\BD-ENGR\CAD STANDARD DWGS\PROJECTS\1815 - PLANTVIEW\PLOT PLAN\PVW100E1.DWG

Section 6

All Calculations

<u>Show all calculations</u> 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.

Compressor Engines (Units C-1 through C-10)
NO_X, CO, VOC, and formaldehyde emissions are calculated using manufacturer specifications. SO_2 emissions are based on a conservative fuel sulfur content estimated of 2 gr S/100 scf and 100% conversion of elemental sulfur to SO_2. Particulate (PM, $PM_{2.5}$, and PM_{10}) and HAP emissions were calculated using AP-42 Table 3.2-2. Greenhouse gas emissions are estimated using emission factors from 40 CFR 98 Subpart C Tables C-1 and C-2.

Air Compressor Generator (Unit GEN-3)
NO_X, CO, and VOC emissions are calculated using a Certification of Conformity with the Clean Air Act dated 2021. SO_2 emissions are based on a conservative fuel sulfur content estimated of 2 gr S/100 scf and 100% conversion of elemental sulfur to SO_2. Particulate (PM, $PM_{2.5}$, and PM_{10}) and HAP emissions were calculated using AP-42 Table 3.2-2. Greenhouse gas emissions are estimated using emission factors from 40 CFR 98 Subpart C Tables C-1 and C-2.

Glycol Dehydrators (Units Dehy-1 and Dehy-2)
The regenerator and flash tank emissions for Dehy-1 and Dehy-2 are calculated using a BR&E ProMax simulation. The dehydrator configurations include a flash tank that uses recycle and recompression as a control option with an associated 100% efficiency. The regenerator uses a BTEX condenser and condenser overhead VOC, HAP and H_2S emissions are routed to the dehydrator reboilers with a with a 98% reduction efficiency. Controlled emissions are represented under the reboilers associated with the glycol dehydrators (Units Reboil-1 and Reboil-2).

Glycol Dehydrator Reboilers (Units Reboil-1 and Reboil-2)
NO_x, CO, VOC, PM, and HAPs emissions are calculated using AP-42 Table 1.4-1 through 1.4-3 emission factors. Greenhouse gas emissions are estimated using emission factors from 40 CFR 98 Subpart C Tables C-1 and C-2.

Amine Unit (Unit Amine-1)
Acid gas emissions from the amine unit (Unit Amine-1) are calculated using a BR&E ProMax simulation. Flash tank and regenerator overheads VOC, H_2S, and HAP emissions from this unit are routed to the flare with a 100% capture efficiency and a 98% destruction efficiency. Controlled emissions are represented under the flare (Unit FL-1).

Amine Unit Reboiler (Unit Reboil-3)
NO_x, CO, VOC, PM, and HAPs emissions are calculated using AP-42 Table 1.4-1 through 1.4-3 and 20.2.50 NMAC emission factors. Greenhouse gas emissions are estimated using emission factors from 40 CFR 98 Subpart C Tables C-1 and C-2.

Enclosed Combustion Unit (Unit ECD-1)
Emissions for NO_x, CO, and PM are calculated using AP-42 Tables 1.4-1 & 2 emission factors. Pilot SO_2 emissions are based on a conservative fuel sulfur content of 2 gr S/100 scf and a 100% conversion of elemental sulfur to SO_2. SO_2 emissions were calculated based on a 98% DRE, based on the manufacturer specification sheet, and conversion to SO_2. VOC, H_2S, and HAPs are calculated based on BR&E ProMax for the flash, working, and breathing emissions from the atmospheric storage tanks. For the H_2S, it was assumed 98% was combusted and 100% of the combusted H_2S was converted to SO_2. Greenhouse gas emissions are estimated using emission factors from 40 CFR 98 Subpart C Tables C-1 and C-2.

Condensate / Oily Waste Water Tanks (Units T-1, T-2)
Flashing, working, and breathing emissions from the tanks are calculated using a BR&E ProMax simulation representing liquids removed from various processes at the facility. Emissions are routed to the enclosed combustion device (Unit ECD-1) with a 100% capture efficiency and a 98% DRE. Controlled emissions are represented at ECD-1.

Condensate / Oily Waste Water Loading (Unit LOAD)
Loading emissions are calculated using AP-42 Section 5.2 methodology. The maximum hourly throughput is based on the assumption that two trucks with a 180 bbl capacity can be loaded in an hour. Emissions are routed to the enclosed combustion device (Unit ECD-1) with a 70% capture efficiency and a 98% DRE. Controlled emissions are represented at ECD-1.

Haul Road Emissions (Unit HAUL) (Exempt pursuant to 20.2.72.202.B(5) NMAC.
PM_{10} and $PM_{2.5}$ emissions are calculated using Equation 2 of AP-42 Section 13.2.2. Haul road emissions at this facility are exempt pursuant to 20.2.2.72.202.B.(5) NMAC. Emissions calculations are included in the application reference.

Fugitive Emissions (Unit FUG)
Fugitive emission calculations were completed using emission factors from Table 2-4 of EPA Protocol for Equipment Leak Emissions Estimates, 1995. Subcomponent counts for each subcomponent are based on estimated average component counts for each piece of equipment.

Startup, Shutdown, Maintenance/Malfunction (Unit SSM/M)
Emissions are based on various activities including, but not limited to, compressor blowdowns, dehydrator blowdowns, filter coalescer blowdowns, scrubber blowdowns, pump blowdowns, reboiler maintenance, pigging, pipeline downs, tank maintenance, surface coating, and abrasive blasting. All blowdowns are conservatively based on the inlet gas. Blowdown volumes were provided by Targa.

Targa Northern Delaware: Plantview Compressor Station

Emissions Summary

Uncontrolled Emissions																	
		NOx		CO		VOC		SO_2		PM-10		PM-2.5		H_2S		Total HAP	
Unit No.	Description/Source	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
C-1	CAT 3516	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73
C-2	CAT 3606	2.07	9.05	10.38	45.44	5.79	25.38	0.058	0.25	0.13	0.56	0.13	0.56	-	-	1.07	4.70
C-3	CAT 3516	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73
C-4	CAT 3520	1.90	8.33	8.82	38.64	3.90	17.06	0.058	0.25	0.13	0.56	0.13	0.56	-	-	1.96	8.57
C-5	CAT 3516 LE +	1.48	6.47	9.01	39.47	2.30	10.08	0.051	0.22	0.11	0.49	0.11	0.49	-	-	1.04	4.57
C-6	CAT 3516	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73
C-7	CAT 3516 LE +	1.48	6.47	9.01	39.47	2.30	10.08	0.051	0.22	0.11	0.49	0.11	0.49	-	-	1.04	4.57
C-8	CAT 3608	2.76	12.07	12.29	53.83	2.87	12.59	0.077	0.34	0.17	0.74	0.17	0.74	-	-	1.59	6.98
C-9	CAT 3516	1.52	6.66	7.39	32.38	2.90	12.72	0.047	0.20	0.10	0.45	0.10	0.45	-	-	1.54	6.73
C-10	CAT 3608	2.76	12.07	12.29	53.83	2.87	12.59	0.077	0.34	0.17	0.74	0.17	0.74	-	-	1.59	6.98
GEN-3	499 hp Generator	1.10	4.82	2.20	9.64	1.07	4.69	0.018	0.080	0.040	0.17	0.040	0.17	-	-	0.34	1.47
Trailer-1	Trailer-1	0.30	1.33	0.18	0.81	0.011	0.048	0.59	2.60	0.023	0.10	0.023	0.023	-	-	0.043	0.19
Dehy-1	Glycol Dehydrator	-	-	-	-	45.85	200.83	-	-	-	-	-	-	0.019	0.082	2.22	9.73
Dehy-2	Glycol Dehydrator	-	-	-	-	47.94	209.97	-	-	-	-	-	-	0.018	0.079	2.57	11.27
Amine-1	Amine Unit	-	-	-	-	58.51	256.27	-	-	-	-	-	-	3.89	17.03	5.19	22.72
FL-1	Flare	0.017	0.076	0.035	0.15	5.50E-04	2.41E-03	5.71E-04	2.50E-03	-	-	-	-	-	-	-	-
Reboil-1	Reboiler	0.098	0.43	0.082	0.36	5.39E-03	0.024	4.55E-03	0.020	7.45E-03	0.033	7.45E-03	0.033	-	-	-	-
Reboil-2	Reboiler	0.074	0.32	0.062	0.27	4.04E-03	0.018	3.41E-03	0.015	5.59E-03	0.024	5.59E-03	0.024	-	-	-	-
Reboil-3	Amine Unit Reboiler	0.37	1.63	1.73	7.57	0.11	0.50	0.096	0.42	0.16	0.69	0.16	0.69	-	-	0.039	0.17
T-1	Condensate/Slop Oil Tank	-	-	-	-	250.63	4.39	-	-	-	-	-	-	0.062	1.48E-03	12.41	0.16
T-2	Condensate/Slop Oil Tank	-	-	-	-	250.63	4.39	-	-	-	-	-	-	0.062	1.48E-03	12.41	0.16
LOAD-1	Condensate Loading	-	-	-	-	46.73	1.44	-	-	-	-	-	-	0.016	5.00E-04	1.69	0.052
ECD-1	Enclosed Combustion Device	3.08E-03	0.013	2.58E-03	0.011	1.69E-04	7.41E-04	1.43E-04	6.26E-04	2.34E-04	1.02E-03	2.34E-04	1.02E-03	-	-	-	-
Fug-1	Facility-wide Fugitive Emissions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	-	-	-	-	2,566.52	10.50	-	-	3.43	0.020	0.34	2.03E-03	0.35	1.46E-03	76.56	0.29
	Total	**20.49**	**89.74**	**95.67**	**419.03**	**3,299.67**	**831.75**	**1.28**	**5.59**	**4.89**	**6.41**	**1.80**	**6.31**	**4.42**	**17.20**	**127.91**	**109.51**

Targa Northern Delaware: Plantview Compressor Station

Emissions Summary

Controlled Emissions																	
		NOx		CO		VOC		SO_2		PM-10		PM-2.5		H_2S		Total HAP	
Unit No.	Description/Source	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
C-1	CAT 3516	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75
C-2	CAT 3606	2.07	9.05	2.48	10.86	2.82	12.34	0.058	0.25	0.13	0.56	0.13	0.56	-	-	0.45	1.99
C-3	CAT 3516	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75
C-4	CAT 3520	1.90	8.33	1.90	8.33	0.90	3.95	0.058	0.25	0.13	0.56	0.13	0.56	-	-	0.50	2.20
C-5	CAT 3516 LE +	1.48	6.47	1.48	6.47	0.58	2.54	0.051	0.22	0.11	0.49	0.11	0.49	-	-	0.34	1.49
C-6	CAT 3516	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75
C-7	CAT 3516 LE +	1.48	6.47	1.48	6.47	0.58	2.54	0.051	0.22	0.11	0.49	0.11	0.49	-	-	0.34	1.49
C-8	CAT 3608	2.76	12.07	2.21	9.69	1.17	5.11	0.077	0.34	0.17	0.74	0.17	0.74	-	-	0.57	2.51
C-9	CAT 3516	1.52	6.66	1.52	6.66	0.67	2.94	0.047	0.20	0.10	0.45	0.10	0.45	-	-	0.40	1.75
C-10	CAT 3608	2.76	12.07	2.21	9.69	1.17	5.11	0.077	0.34	0.17	0.74	0.17	0.74	-	-	0.57	2.51
GEN-3	499 hp Generator	1.10	4.82	2.20	9.64	1.07	4.69	0.018	0.080	0.040	0.17	0.040	0.17	-	-	0.34	1.47
Trailer-1	Trailer-1	0.30	6.09E-03	0.18	3.70E-03	0.011	2.19E-04	0.59	0.012	0.023	4.68E-04	0.023	4.68E-04	-	-	0.043	8.68E-04
Dehy-1	Glycol Dehydrator[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dehy-2	Glycol Dehydrator[1]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amine-1	Amine Unit[2]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-1	Flare	1.36	5.94	5.20	22.77	1.20	5.26	7.35	32.20	-	-	-	-	0.078	0.34	0.10	0.45
Reboil-1	Reboiler	0.15	0.65	0.12	0.54	0.43	1.87	0.030	0.13	0.011	0.049	0.011	0.049	2.66E-04	1.16E-03	0.031	0.14
Reboil-2	Reboiler	0.13	0.55	0.11	0.46	0.48	2.10	0.027	0.12	9.55E-03	0.042	9.55E-03	0.042	2.58E-04	1.13E-03	0.038	0.17
Reboil-3	Amine Unit Reboiler	0.37	1.63	1.73	7.57	0.11	0.50	0.096	0.42	0.16	0.69	0.16	0.69	-	-	0.039	0.17
T-1	Condensate/Slop Oil Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-2	Condensate/Slop Oil Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOAD-1	Condensate Loading	-	-	-	-	14.02	0.43	-	-	-	-	-	-	4.86E-03	1.50E-04	0.51	0.016
ECD-1	Enclosed Combustion Device	1.99	0.040	1.67	0.033	10.96	0.21	0.26	7.14E-03	0.15	3.02E-03	0.15	3.02E-03	2.79E-03	6.92E-05	0.53	7.64E-03
Fug-1	Facility-wide Fugitive Emissions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	-	-	-	-	2,566.52	10.50	-	-	3.43	0.020	0.34	2.03E-03	0.35	1.46E-03	76.56	0.29
Total		**23.91**	**94.75**	**29.06**	**119.18**	**2,604.70**	**68.91**	**8.94**	**35.41**	**5.05**	**6.34**	**1.96**	**6.33**	**0.44**	**0.34**	**82.57**	**21.90**

"-" Indicates emissions of this pollutant are not expected

[1]Glycol dehydrator emissions are controlled by a condenser and reboiler and are represented under the reboiler units.

[2]Amine Unit Vent Gas is combusted by the thermal oxidizer; emissions are represented under unit TO-1.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Emissions Summary

Controlled HAP and GHG Emissions															
		Formaldehyde		Acetaldehyde		Acrolein		Toluene		Benzene		CO_2	CH_4	N_2O	CO_2e
Unit No.	Description/Source	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	tpy	tpy	tpy	tpy
C-1	CAT 3516	0.20	0.88	0.11	0.46	0.065	0.28	5.16E-03	0.023	5.56E-03	0.024	5,262.63	0.11	9.92E-03	5,268.32
C-2	CAT 3606	0.21	0.91	0.13	0.58	0.081	0.35	6.41E-03	0.028	6.92E-03	0.030	6,547.01	0.14	0.012	6,554.08
C-3	CAT 3516	0.20	0.88	0.11	0.46	0.065	0.28	5.16E-03	0.023	5.56E-03	0.024	5,262.63	0.11	9.92E-03	5,268.32
C-4	CAT 3520	0.26	1.12	0.13	0.57	0.081	0.35	6.39E-03	0.028	6.89E-03	0.030	6,523.49	0.14	0.012	6,530.54
C-5	CAT 3516 LE +	0.12	0.54	0.12	0.50	0.071	0.31	5.62E-03	0.025	6.06E-03	0.027	5,736.24	0.12	0.011	5,742.43
C-6	CAT 3516	0.20	0.88	0.11	0.46	0.065	0.28	5.16E-03	0.023	5.56E-03	0.024	5,262.63	0.11	9.92E-03	5,268.32
C-7	CAT 3516 LE +	0.12	0.54	0.12	0.50	0.071	0.31	5.62E-03	0.025	6.06E-03	0.027	5,736.24	0.12	0.011	5,742.43
C-8	CAT 3608	0.25	1.09	0.17	0.76	0.11	0.47	8.48E-03	0.037	9.14E-03	0.040	8,652.49	0.18	0.016	8,661.84
C-9	CAT 3516	0.20	0.88	0.11	0.46	0.065	0.28	5.16E-03	0.023	5.56E-03	0.024	5,262.63	0.11	9.92E-03	5,268.32
C-10	CAT 3608	0.25	1.09	0.17	0.76	0.11	0.47	8.48E-03	0.037	9.14E-03	0.040	8,652.49	0.18	0.016	8,661.84
GEN-3	499 hp Generator	0.26	1.14	0.041	0.18	0.025	0.11	2.00E-03	8.78E-03	2.16E-03	9.47E-03	2,045.34	0.042	3.85E-03	2,047.55
Trailer-1	Trailer-1	0.034	6.84E-04	7.67E-04	1.53E-05	9.25E-05	1.85E-06	6.61E-03	1.32E-04	1.15E-03	2.29E-05	4.69	1.90E-04	3.81E-05	4.71
Dehy-1	Glycol Dehydrator1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dehy-2	Glycol Dehydrator1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amine-1	Amine Unit2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-1	Flare	-	-	-	-	-	-	-	-	-	-	723,881.20	1,844.45	7.37	772,188.32
Reboil-1	Reboiler	-	-	-	-	-	-	-	-	-	-	772.35	0.016	1.46E-03	773.19
Reboil-2	Reboiler	-	-	-	-	-	-	-	-	-	-	656.43	0.014	1.24E-03	657.14
Reboil-3	Amine Unit Reboiler	-	-	-	-	-	-	-	-	-	-	10,759.57	0.22	0.020	10,771.19
T-1	Condensate/Slop Oil Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T-2	Condensate/Slop Oil Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOAD-1	Condensate Loading	-	-	-	-	-	-	-	-	-	-	0.052	0.026	-	0.71
ECD-1	Enclosed Combustion Device	-	-	-	-	-	-	-	-	-	-	10,391.41	0.22	0.020	10,402.64
Fug-1	Facility-wide Fugitive Emissions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	-	-	-	-	-	-	-	-	-	-	2.44	17.18	-	431.95
Total		**2.30**	**9.94**	**1.30**	**5.71**	**0.80**	**3.51**	**0.07**	**0.28**	**0.07**	**0.30**	**811,412.00**	**1,863.47**	**7.53**	**860,243.82**

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Emissions Summary

Site-Wide		
Description	**Value**	**Unit**
Gas Throughput	75	MMSCFD
Annual Operating Hours	8,760	hr
Daily Operating Hours	24	hr
Site Location	636,660 m E, 3,568,410 m N	
Site Elevation	3,624	ft MSL

Fuel Gas			
Parameter	**Value**	**Unit**	**Notes**
Fuel Heat Value	1,255.06	Btu/scf	Inlet Gas Analysis
Fuel Sulfur Content	2.0	gr S / 100 scf	Engineering Estimate

Engine Input Information			
Parameter	**Value**	**Unit**	**Notes**
Unit:	C-5, C-7		
Description:	Caterpillar 3516 LE+ Compressor Engines		
Rating:	1340	hp	
Fuel Usage:	8355.0	Btu/hp-hr	
Unit:	C-1, C-3, C-6, C-9		
Description:	Caterpillar 3516 Compressor Engines		
Rating:	1380	hp	
Fuel Usage:	7443.0	Btu/hp-hr	
Unit:	C-4		
Description:	Caterpillar 3520 Compressor Engines		
Rating:	1725	hp	
Fuel Usage:	7381.0	Btu/hp-hr	
Unit:	C-2		
Description:	Caterpillar 3606 Compressor Engines		
Rating:	1875	hp	
Fuel Usage:	6815.0	Btu/hp-hr	
Unit:	C-8, C-10		
Description:	Caterpillar 3608 Compressor Engines		
Rating:	2500	hp	
Fuel Usage:	6755.0	Btu/hp-hr	

Atmospheric Storage Tanks			
Parameter	**Value**	**Unit**	**Notes**
Unit ID	TK-1 and TK-2		
Number of Tanks	2	units	Facility Design
Volume	500	bbl	Facility Design
Tank Diameter	15.5	ft	
Tank Height	16	ft	
Hourly Throughput	318.85	bbl/hr	
Annual Throughput	13557.18	bbl/yr	

Enclosed Combustion Device			
Parameter	**Value**	**Unit**	**Notes**
Unit ID	ECD-1		
Controlled Units	TK-1 and TK-2, LOAD		
Pilot Flow Rate	25	scf/hr	Mfg. spec sheet
DRE	98%		Mfg. spec sheet

Targa Northern Delaware, LLC - Plantview Compressor Station

Caterpillar 3516 LE+ Compressor Engines

Emission Unit:	C-5, C-7
Source Description:	Caterpillar 3516 LE+ Compressor Engines
Manufacturer:	Caterpillar
Model:	3516 LE+
Type:	4SLB

Fuel Consumption

Site horsepower	1340	hp	Manufacturer Rating
Fuel heat value	1255.06	Btu/scf	Inlet Gas Analysis
Heat input	11.20	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	8.92	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	78.14	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	8355	Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	NO_x	CO	VOC	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	3.05	0.46		0.28				g/hp-hr	Catalyst Data
Emission Factors						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
				0.02					gr/scf	Engineering Estimate
	1.48	**9.01**	**2.30**	**0.051**	**0.83**	**0.11**	**0.11**	**1.04**	lb/hr	
	6.47	**39.47**	**10.08**	**0.22**	**3.62**	**0.49**	**0.49**	**4.57**	tpy	

Controlled	NO_x	CO	VOC[1]	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	0.50	0.12		0.042				g/hp-hr	Catalyst Guarantee
Emission Factors	0%	84%	75%		85%					% Reduction
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
	1.48	**1.48**	**0.58**	**0.051**	**0.12**	**0.11**	**0.11**	**0.34**	lb/hr	
	6.47	**6.47**	**2.54**	**0.22**	**0.54**	**0.49**	**0.49**	**1.49**	tpy	

Acetaldehyde[5]	Acrolein[5]	n-Hexane[5]	Benzene[5]	Toluene[5]	E-Benzene[5]	Xylene[5]	Units	Notes
8.36E-03	5.14E-03	1.11E-03	4.40E-04	4.08E-04	3.97E-05	1.84E-04	lb/MMBtu	AP-42 Table 3.2-2
1.03E-02	6.32E-03	1.37E-03	5.41E-04	5.02E-04	4.88E-05	2.26E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.12	**0.071**	**0.015**	**6.06E-03**	**5.62E-03**	**5.47E-04**	**2.53E-03**	lb/hr	
0.50	**0.31**	**0.067**	**0.027**	**0.025**	**2.40E-03**	**0.011**	tpy	

NOTES

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

[2] SO_2 emissions are based on fuel consumption and fuel sulfur content of 2 grains of sulfur per 100 scf

2 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb-mol SO_2/ 32 lb-mol S = lb/hr SO_2

[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 1255.06 Btu/scf

Green House Gas Emissions	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	5736.24	**0.12**	**0.011**	**-**	**tpy**	
	5736.24	**2.97**	**3.22**	**5742.43**	**tpy CO_2e**	

[6] N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Caterpillar 3516 Compressor Engines

Emission Unit:	C-1, C-3, C-6, C-9
Source Description:	Caterpillar 3516 Compressor Engines
Manufacturer:	Caterpillar
Model:	3516
Type:	4SLB

Fuel Consumption

Site horsepower	1380	hp	Manufacturer Rating
Fuel heat value	1255.06	Btu/scf	Inlet Gas Analysis
Heat input	10.27	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	8.18	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	71.69	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	7443	Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	NO_x	CO	VOC	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	2.43	0.48		0.44				g/hp-hr	Catalyst Data
Emission Factors						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
				0.02					gr/scf	Engineering Estimate
	1.52	**7.39**	**2.90**	**0.047**	**1.34**	**0.10**	**0.10**	**1.54**	lb/hr	
	6.66	**32.38**	**12.72**	**0.20**	**5.86**	**0.45**	**0.45**	**6.73**	tpy	

Controlled	NO_x	CO	VOC[1]	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	0.50	0.12		0.066				g/hp-hr	Catalyst Guarantee
Emission Factors	0%	79%	77%		85%					% Reduction
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
	1.52	**1.52**	**0.67**	**0.047**	**0.20**	**0.10**	**0.10**	**0.40**	lb/hr	
	6.66	**6.66**	**2.94**	**0.20**	**0.88**	**0.45**	**0.45**	**1.75**	tpy	

Acetaldehyde[5]	Acrolein[5]	n-Hexane[5]	Benzene[5]	Toluene[5]	E-Benzene[5]	Xylene[5]	Units	Notes
8.36E-03	5.14E-03	1.11E-03	4.40E-04	4.08E-04	3.97E-05	1.84E-04	lb/MMBtu	AP-42 Table 3.2-2
1.03E-02	6.32E-03	1.37E-03	5.41E-04	5.02E-04	4.88E-05	2.26E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.11	**0.065**	**0.014**	**5.56E-03**	**5.16E-03**	**5.02E-04**	**2.33E-03**	lb/hr	
0.46	**0.28**	**0.061**	**0.024**	**0.023**	**2.20E-03**	**0.010**	tpy	

NOTES

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

[2] SO_2 emissions are based on fuel consumption and fuel sulfur content of 2 grains of sulfur per 100 scf

2 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb-mol SO_2/ 32 lb-mol S = lb/hr SO_2

[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 1255.06 Btu/scf

Green House Gas Emissions	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	5262.63	**0.11**	**9.92E-03**	**-**	**tpy**	
	5262.63	**2.73**	**2.96**	**5268.32**	**tpy CO_2e**	

[6] N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

Targa Northern Delaware, LLC - Plantview Compressor Station

Caterpillar 3520 Compressor Engines

Emission Unit:	C-4
Source Description:	Caterpillar 3520 Compressor Engines
Manufacturer:	Caterpillar
Model:	3520
Type:	4SLB

Fuel Consumption

Site horsepower	1725	hp	Manufacturer Rating
Fuel heat value	1255.06	Btu/scf	Inlet Gas Analysis
Heat input	12.73	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	10.14	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	88.87	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	7381	Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	NO_x	CO	VOC	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	2.32	0.54		0.45				g/hp-hr	Catalyst Data
Emission Factors						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
				0.02					gr/scf	Engineering Estimate
	1.90	**8.82**	**3.90**	**0.058**	**1.71**	**0.13**	**0.13**	**1.96**	lb/hr	
	8.33	**38.64**	**17.06**	**0.25**	**7.50**	**0.56**	**0.56**	**8.57**	tpy	

Controlled	NO_x	CO	VOC[1]	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	0.50	0.14		0.068				g/hp-hr	Catalyst Guarantee
Emission Factors	0%	78%	77%		85%					% Reduction
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
	1.90	**1.90**	**0.90**	**0.058**	**0.26**	**0.13**	**0.13**	**0.50**	lb/hr	
	8.33	**8.33**	**3.95**	**0.25**	**1.12**	**0.56**	**0.56**	**2.20**	tpy	

Acetaldehyde[5]	Acrolein[5]	n-Hexane[5]	Benzene[5]	Toluene[5]	E-Benzene[5]	Xylene[5]	Units	Notes
8.36E-03	5.14E-03	1.11E-03	4.40E-04	4.08E-04	3.97E-05	1.84E-04	lb/MMBtu	AP-42 Table 3.2-2
1.03E-02	6.32E-03	1.37E-03	5.41E-04	5.02E-04	4.88E-05	2.26E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.13	**0.081**	**0.017**	**6.89E-03**	**6.39E-03**	**6.22E-04**	**2.88E-03**	lb/hr	
0.57	**0.35**	**0.076**	**0.030**	**0.028**	**2.72E-03**	**0.013**	tpy	

NOTES

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

[2] SO_2 emissions are based on fuel consumption and fuel sulfur content of 2 grains of sulfur per 100 scf

2 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb-mol SO_2/ 32 lb-mol S = lb/hr SO_2

[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 1255.06 Btu/scf

Green House Gas Emissions	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	6523.49	**0.14**	**0.01**	**-**	**tpy**	
	6523.49	**3.38**	**3.66**	**6530.54**	**tpy CO_2e**	

[6] N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Caterpillar 3606 Compressor Engines

Emission Unit:	C-2
Source Description:	Caterpillar 3606 Compressor Engines
Manufacturer:	Caterpillar
Model:	3606
Type:	4SLB

Fuel Consumption

Site horsepower	1875	hp	Manufacturer Rating
Fuel heat value	1255.06	Btu/scf	Inlet Gas Analysis
Heat input	12.78	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	10.18	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	89.19	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	6815	Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	NO_x	CO	VOC	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	2.51	1.17		0.20				g/hp-hr	Catalyst Data
Emission Factors						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
				0.02					gr/scf	Engineering Estimate
	2.07	**10.38**	**5.79**	**0.058**	**0.83**	**0.13**	**0.13**	**1.07**	lb/hr	
	9.05	**45.44**	**25.38**	**0.25**	**3.62**	**0.56**	**0.56**	**4.70**	tpy	

Controlled	NO_x	CO	VOC[1]	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]	Units	Notes
	0.50	0.60	0.60		0.050				g/hp-hr	Catalyst Guarantee
Emission Factors	0%	76%	51%		75%					% Reduction
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
	2.07	**2.48**	**2.82**	**0.058**	**0.21**	**0.13**	**0.13**	**0.45**	lb/hr	
	9.05	**10.86**	**12.34**	**0.25**	**0.91**	**0.56**	**0.56**	**1.99**	tpy	

Acetaldehyde[5]	Acrolein[5]	n-Hexane[5]	Benzene[5]	Toluene[5]	E-Benzene[5]	Xylene[5]	Units	Notes
8.36E-03	5.14E-03	1.11E-03	4.40E-04	4.08E-04	3.97E-05	1.84E-04	lb/MMBtu	AP-42 Table 3.2-2
1.03E-02	6.32E-03	1.37E-03	5.41E-04	5.02E-04	4.88E-05	2.26E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.13	**0.081**	**0.017**	**6.92E-03**	**6.41E-03**	**6.24E-04**	**2.89E-03**	lb/hr	
0.58	**0.35**	**0.076**	**0.030**	**0.028**	**2.73E-03**	**0.013**	tpy	

NOTES

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

[2] SO_2 emissions are based on fuel consumption and fuel sulfur content of 2 grains of sulfur per 100 scf

2 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb-mol SO_2/ 32 lb-mol S = lb/hr SO_2

[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 1255.06 Btu/scf

Green House Gas Emissions	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	6547.01	**0.14**	**0.01**	**-**	**tpy**	
	6547.01	**3.39**	**3.68**	**6554.08**	**tpy CO_2e**	

[6] N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Caterpillar 3608 Compressor Engines

Emission Unit:	C-8, C-10
Source Description:	Caterpillar 3608 Compressor Engines
Manufacturer:	Caterpillar
Model:	3608
Type:	4SLB

Fuel Consumption

Site horsepower	2500	hp	Manufacturer Rating
Fuel heat value	1255.06	Btu/scf	Inlet Gas Analysis
Heat input	16.89	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	13.46	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	117.87	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	6755	Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	NO_x	CO	VOC	SO_2 [2]	HCHO	PM_{10} [4]	$PM_{2.5}$ [4]	Total HAPs[3]	Units	Notes
	0.50	2.23	0.26		0.23				g/hp-hr	Catalyst Data
Emission Factors						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
				0.02					gr/scf	Engineering Estimate
	2.76	**12.29**	**2.87**	**0.077**	**1.27**	**0.17**	**0.17**	**1.59**	lb/hr	
	12.07	**53.83**	**12.59**	**0.34**	**5.55**	**0.74**	**0.74**	**6.98**	tpy	

Controlled	NO_x	CO	VOC[1]	SO_2 [2]	HCHO	PM_{10} [4]	$PM_{2.5}$ [4]	Total HAPs[3]	Units	Notes
	0.50	0.40	0.14		0.045				g/hp-hr	Catalyst Guarantee
Emission Factors	0%	82%	59%		80%					% Reduction
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
	2.76	**2.21**	**1.17**	**0.077**	**0.25**	**0.17**	**0.17**	**0.57**	lb/hr	
	12.07	**9.69**	**5.11**	**0.34**	**1.09**	**0.74**	**0.74**	**2.51**	tpy	

Acetaldehyde[5]	Acrolein[5]	n-Hexane[5]	Benzene[5]	Toluene[5]	E-Benzene[5]	Xylene[5]	Units	Notes
8.36E-03	5.14E-03	1.11E-03	4.40E-04	4.08E-04	3.97E-05	1.84E-04	lb/MMBtu	AP-42 Table 3.2-2
1.03E-02	6.32E-03	1.37E-03	5.41E-04	5.02E-04	4.88E-05	2.26E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.17	**0.11**	**0.023**	**9.14E-03**	**8.48E-03**	**8.25E-04**	**3.82E-03**	lb/hr	
0.76	**0.47**	**0.101**	**0.040**	**0.037**	**3.61E-03**	**0.017**	tpy	

NOTES

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

[2] SO_2 emissions are based on fuel consumption and fuel sulfur content of 2 grains of sulfur per 100 scf

2 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb-mol SO_2/ 32 lb-mol S = lb/hr SO_2

[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 1255.06 Btu/scf

Green House Gas Emissions	CO_2 [6]	CH_4 [6]	N_2O [6]	CO_2e [6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	8652.49	**0.18**	**0.02**	**-**	**tpy**	
	8652.49	**4.48**	**4.86**	**8661.84**	**tpy CO_2e**	

[6] N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Air Compressor Generator

Emission Unit: GEN-3
Source Description: Natural Gas Fired Generator
Manufacturer: TBD
Model: TBD
Type: 4 Stroke Lean Burn

Fuel Consumption

Site horsepower	499	hp	Maximum horsepower of generator
	372	kW	
Fuel heat value	1255.06	Btu/scf	Inlet Gas Analysis
Heat input	3.99	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	3.18	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760	hrs/yr	
Annual fuel usage	27.86	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	8000	Btu/hp-hr	Engineering Estimate

Emission Calculations

Uncontrolled

NO_x[1]	CO[1]	VOC[1]	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]		
1.00	2.00	0.70						g/hp-hr	Table 1 to Subpart JJJJ of Part 60, Title 40
				6.50E-02	9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
1.10	**2.20**	**1.07**	**0.018**	**0.26**	**0.040**	**0.040**	**0.34**	lb/hr	
4.82	**9.64**	**4.69**	**0.080**	**1.14**	**0.17**	**0.17**	**1.47**	tpy	

Acetaldehyde[5]	Acrolein[5]	Benzene[5]	E-Benzene[5]	n-Hexane[5]	Toluene[5]	Xylene[5]	
0.0103	0.0063	0.00054	0.000049	0.0014	0.00050	0.00023	lb/MMBtu
0.041	**0.025**	**2.16E-03**	**1.95E-04**	**5.40E-03**	**2.00E-03**	**9.04E-04**	lb/hr
0.18	**0.11**	**9.47E-03**	**8.54E-04**	**2.37E-02**	**8.78E-03**	**3.96E-03**	tpy

Controlled

NO_x[1]	CO[1]	VOC[1]	SO_2[2]	HCHO	PM_{10}[4]	$PM_{2.5}$[4]	Total HAPs[3]		
1.00	2.00	0.70						g/hp-hr	Table 1 to Subpart JJJJ of Part 60, Title 40
0.0%	0%	0%							% Reduction
				6.50E-02	9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
1.10	**2.20**	**1.07**	**0.018**	**0.26**	**0.040**	**0.040**	**0.34**	lb/hr	
4.82	**9.64**	**4.69**	**0.080**	**1.14**	**0.17**	**0.17**	**1.47**	tpy	

NOTES

1 NO_x, CO, and VOC emission factors are referenced from Table 1 to Subpart JJJJ of Part 60, Title 40.
2 SO_2 emissions are based on fuel consumption and fuel sulfur content of 2 grains of sulfur per 100 scf
2 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb-mol SO_2/ 32 lb-mol S = lb/hr SO_2
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 1255.1 Btu/scf

Green House Gas	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	2045.34	**0.04**	**3.85E-03**	**-**	**tpy**	
	2045.34	**1.06**	**1.15**	**2047.55**	**tpy CO_2e**	

6 N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)
CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

Targa Northern Delaware, LLC - Plantview Compressor Station

Heater Trailer Emissions

Unit:	Trailer-1		
Description:	Diesel-fired Heater Trailer		
Rating:	10.29	kW	
Horsepower:	13.8	hp	Manufacturer Specs
Engine Heat Rating:	13.8		
Operating hours:	40	hrs/year	
Fuel consumption:	3.2	gal/hr	
Fuel consumption:	0.43	scf/hr	
Heating rate:	1.00	MMBtu/hr	Manufacturer Specs

Uncontrolled	NO_x	CO	VOC	SO_2	PM	HAP	Unit	Notes
Engine Emission Factors [1,2]	5.32	4.9	0.28		0.3		g/bhp-hr	NSPS IIII Tier IV Final Emission Factors
				0.29			lb/MMBtu	AP-42 Table 3.3-1
						3.79E-03	lb/MMBtu	AP-42 Table 3.3-2
Heater Emission Factors [3,4,5]	20.00	5.0	0.34	42.6	2.0		lb/1000 gal	AP-42 Table 1.3-1
	0.14	0.036	2.43E-03	0.30	0.014		lb/MMBtu[6]	AP-42 Table 1.3-2(d)
							lb/MMBtu	AP-42 Table 1.3-9
Engine Emissions	0.16	0.15	8.52E-03	0.29	9.13E-03	3.79E-03	lb/hr	
	0.71	0.65	0.037	1.27	0.040	0.017	tpy	Emissions based on 8760 hr/yr
Heater Emissions	0.14	0.036	2.43E-03	0.30	0.014	0.040	lb/hr	
	0.63	0.16	0.011	1.33	0.063	0.17	tpy	Emissions based on 8760 hr/yr
Total Emissions	**0.30**	**0.18**	**0.011**	**0.59**	**0.023**	**0.043**	**lb/hr**	
	1.33	**0.81**	**0.048**	**2.60**	**0.10**	**0.19**	**tpy**	Emissions based on 8760 hr/yr

Controlled	NO_x	CO	VOC	SO_2	PM	HAP	Unit	Notes
Engine Emission Factors [1,2]	5.32	4.9	0.28		0.3		g/bhp-hr	NSPS IIII Tier IV Final Emission Factors
				0.29			lb/MMBtu	AP-42 Table 3.3-1
						3.79E-03	lb/MMBtu	AP-42 Table 3.3-2
Heater Emission Factors [3,4,5]	20.00	5.0	0.34	42.6	2.0		lb/1000 gal	AP-42 Table 1.3-1
	0.14	0.036	2.43E-03	0.30	0.014		lb/MMBtu[6]	AP-42 Table 1.3-2(d)
							lb/MMBtu	AP-42 Table 1.3-9
Engine Emissions	0.16	0.15	8.52E-03	0.29	9.13E-03	3.79E-03	lb/hr	
	3.24E-03	2.98E-03	1.70E-04	5.80E-03	1.83E-04	7.58E-05	tpy	Emissions based on 40 hr/yr
Heater Emissions	0.14	0.036	2.43E-03	0.30	0.014	0.040	lb/hr	
	2.86E-03	7.14E-04	4.86E-05	6.09E-03	2.86E-04	7.92E-04	tpy	Emissions based on 40 hr/yr
Total Emissions	**0.30**	**0.18**	**0.011**	**0.59**	**0.023**	**0.043**	**lb/hr**	
	6.09E-03	**3.70E-03**	**2.19E-04**	**0.012**	**4.68E-04**	**8.68E-04**	**tpy**	Emissions based on 40 hr/yr

Engine HAPS	Formaldehyde	Acetaldehyde	Acrolein	Benzene	Toluene	Unit	Notes
	1.18E-03	7.67E-04	9.25E-05	9.33E-04	4.09E-04	lb/MMBtu	AP-42 Table 3.3-2
	1.18E-03	**7.67E-04**	**9.25E-05**	**9.33E-04**	**4.09E-04**	**lb/hr**	
	2.36E-05	**1.53E-05**	**1.85E-06**	**1.87E-05**	**8.18E-06**	**tpy**	
Heater HAPs	**Formaldehyde**	**Ethylbenzene**	**Xylene**	**Benzene**	**Toluene**	**Unit**	**Notes**
	3.30E-02	6.36E-05	1.09E-04	2.14E-04	6.20E-03	lb/MMBtu	AP-42 Table 1.3-9
	3.30E-02	**6.36E-05**	**1.09E-04**	**2.14E-04**	**6.20E-03**	**lb/hr**	
	6.60E-04	**1.27E-06**	**2.18E-06**	**4.28E-06**	**1.24E-04**	**tpy**	

Notes

[1] NSPS IIII Tier IV has a combined NO_x and VOC emission factor of 5.6 g/hp-hr. Per CARB Emission Factors for CI Diesel Engines, when the non-methane hydrocarbon (NMHC) and nitrogen oxide (NO_x) emission factor is combined, assume a breakdown of 5% and 95%, respectivley.

[2] SO_2 and total HAPs were calculated using AP-42 emissions factors for Diesel Industrial Engines (Table 3.3-1 & 3.3-2).

[3] NO_x, CO, PM Emission factors are from US EPA, AP-42, Section 1.3, Table 1.3, Firing cofiguration *Distillate oil fired.*

[4] VOC Emission factor is from US EPA, AP-42, Section 1.3, Table 1.3-3 Nonmethane Total Organic Compounds, Firing cofiguration Distillate oil fired.

[5] SO_2 Emission Factor is 142S from AP-42 Table 1.3-1 EF where S indicates that the weight % of sulfur in the oil should be multiplied by the value given. AP 42 Ch 1.3.1 states Distillate oils contain less that 0.3 percent sulfur by weight.

[6] Per AP-42 Section 1.3, page 1.3-13, in order to convert the emission factors from lb/1000 gal to lb/MMBtu of Fuel Oil No. 2, divide the emission factor by a heating value of 140 MMBtu/ 1000 gal.

Targa Northern Delaware, LLC - Plantview Compressor Station

Dehydrator 1

Emission Unit:	DEHY-1
Source Description:	Dehy contactor with BTEX condenser
Operating Hours:	8,760 hrs/yr
Throughput:	38.55 MMSCFD

Uncontrolled [1]	VOC		H_2S		Total HAP		Hexane		Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Uncontrolled Flash Tank Overheads	24.73	108.30	5.55E-03	0.024	0.67	2.95	0.63	2.76	-	-	0.013	0.058	7.33E-03	0.03	0.021	0.093
Uncontrolled Condenser Overheads	21.13	92.53	0.013	0.058	1.55	6.78	0.98	4.29	-	-	0.22	0.98	0.085	0.37	0.27	1.19
Uncontrolled Emissions Per Unit	**45.85**	**200.83**	**0.019**	**0.082**	**2.22**	**9.73**	**1.61**	**7.05**	**-**	**-**	**0.24**	**1.04**	**0.092**	**0.40**	**0.29**	**1.28**

Controlled [2]	VOC		H_2S		Total HAP		Hexane		Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Controlled Flash Tank Overheads	Flash Tank Overheads are routed back to the inlet of the facility.															
Controlled Condenser Overheads	Regenerator Overheads are routed to the reboilers.															
Controlled Emissions Per Unit	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

[1] Emissions estimated using BR&E ProMax.

[2] Flash tank emissions and BTEX non-condensable overheads are sent to the reboilers (Rbl-1). Emissions are represented at Rbl-1.

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Dehydrator 2

Emission Unit:	DEHY-2
Source Description:	Dehy contactor with BTEX condenser
Operating Hours:	8,760 hrs/yr
Throughput:	35.00 MMSCFD

Uncontrolled [1]	VOC		H_2S		Total HAP		Hexane		Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Uncontrolled Flash Tank Overheads	24.17	105.88	5.208E-03	0.023	0.65	2.85	0.61	2.69	-	-	0.012	0.05	6.51E-03	0.029	0.019	0.082
Uncontrolled Condenser Overheads	23.76	104.09	0.013	0.057	1.92	8.42	1.22	5.32	-	-	0.28	1.23	0.11	0.47	0.32	1.39
Uncontrolled Emissions Per Unit	**47.94**	**209.97**	**0.018**	**0.079**	**2.57**	**11.27**	**1.83**	**8.01**	**-**	**-**	**0.29**	**1.28**	**0.11**	**0.50**	**0.34**	**1.47**

Controlled [2]	VOC		H_2S		Total HAP		Hexane		Benzene		Toluene		Ethylbenzene		Xylene	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Controlled Flash Tank Overheads	Flash Tank Overheads are routed back to the inlet of the facility.															
Controlled Condenser Overheads	Regenerator Overheads are routed to the reboilers.															
Controlled Emissions Per Unit	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

[1] Emissions estimated using BR&E ProMax.

[2] Flash tank emissions and BTEX non-condensable overheads are sent to the reboilers (Rbl-2). Emissions are represented at Rbl-2.

Targa Northern Delaware, LLC - Plantview Compressor Station

Amine Sweetening Unit

Emission Unit:	Amine-1
Source Description:	75 MMSCFD Amine Unit Emissions
Flare Destruction Efficiency:	98.0%
Operating Hours:	8760 hrs/yr
Throughout:	74.95 MMscfd

Uncontrolled [1]	VOC		H_2S		Total HAP		Benzene		Toluene		Ethylbenzene		Xylene		Methane		Hexane	
	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
Uncontrolled Acid Gas Overheads	12.33	54.00	3.88	16.97	4.46	19.53	--	--	1.28	5.62	0.61	2.66	2.51	10.98	10.91	47.77	0.060	0.26
Uncontrolled Flash Tank Overheads	46.18	202.27	0.013	0.055	0.73	3.19	--	--	0.070	0.31	0.037	0.16	0.11	0.49	125.21	548.44	0.51	2.23
Uncontrolled Emissions Per Unit	58.51	256.27	3.89	17.03	5.19	22.72	--	--	1.35	5.93	0.64	2.82	2.62	11.47	136.12	596.21	0.57	2.49

Controlled [2]	VOC		H_2S		Total HAP		Benzene		Toluene		Ethylbenzene		Xylene		Methane		Hexane	
	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
Controlled Acid Gas Overheads	Vent stream emissions are controlled by the flare (Flare-1).																	
Controlled Flash Tank Overheads	Flash Tank stream emissions are controlled by the flare (Flare-1).																	
Controlled Emissions Per Unit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Note:

[1]Emissions estimated using BR&E ProMax.

[2] Emissions include the uncontrolled condenser emissions (acid gas) and the flash tank emissions (flash gas). These streams are combined to output the vent gas stream, which is controlled by the flare. Controlled emissions will be represented at that unit.

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Process Flare

Emission Unit: FL-1
Source Description: Process Flare
Destruction Efficiency: 98%

Flare Information	
Unit(s):	FL-1
Unit Count:	1
Annual Operating Hours:	8,760
Combustion Efficiency (%):	98%

Input Information				
Activity	**Parameters**	**Value**	**Unit**	**Notes:**
Pilot Gas	Hourly Volume Flow Rate	100	scf/hr	Engineering Estimate
	Natural Gas Heat Value	1255.06	Btu/scf	Inlet Gas Analysis
	Annual Volume Flow Rate	0.88	MMscf/yr	scf/hr * 8760 hr/yr / 10^6
	Hourly Heat Rate	0.13	MMBtu/hr	scf/hr * Btu/scf / 10^6
	Annual Heat Rate	1,099.43	MMBtu/yr	MMBtu/hr * 8760 hr/yr
Assist Gas	Hourly Volume Flow Rate	5546.88	scf/hr	Estimated for combined gas stream heat content of 200 Btu/scf
	Natural Gas Heat Value	1255.06	Btu/scf	Inlet Gas Analysis
	Annual Volume Flow Rate	48.59	MMscf/yr	scf/hr * 8760 hr/yr / 10^6
	Hourly Heat Rate	6.96	MMBtu/hr	scf/hr * Btu/scf / 10^6
	Annual Heat Rate	60,984.07	MMBtu/yr	MMBtu/hr * 8760 hr/yr
Process Emission Stream	Hourly Amine Flow Rate	58,786.86	scf/hr	Flash Gas + Acid Gas Flow to Flare from Promax
	Hourly Amine Heat Value	100.45	Btu/scf	Net heating value of Flash Gas + Acid Gas
	Hourly Weighted Heat Value	200	Btu/scf	Net heating value to flare from Promax (Process Gas and Assist Gas)
	Annual Amine Flow Rate	514.97	MMscf/yr	Flash Gas + Acid Gas Flow to Flare from Promax
	Hourly Heat Rate	5.91	MMBtu/hr	scf/hr * Btu/scf / 10^6
	Annual Heat Rate	51728.63	MMBtu/yr	MMscf/yr * Btu/scf
	Hourly VOC	58.51	lb/hr VOC	Amine Promax
	Annual VOC	256.27	tpy VOC	Amine Promax
	Hourly HAP	5.19	lb/hr HAP	Amine Promax
	Annual HAP	22.72	tpy HAP	Amine Promax
	Hourly H_2S	3.89	lb/hr H_2S	Amine Promax
	Annual H_2S	17.03	tpy H_2S	Amine Promax

Assist Gas Emission Calculation

Description	NO_X[1]	CO[1]	VOC	SO_2[1]	H_2S[1]	HAPs	Units	Notes
Emission Factors	0.138	0.2755					lb/MMBTU	TNRCC RG-109 (high Btu; other)
	0.064	0.5496					lb/MMBTU	TNRCC RG-109 (low Btu; other)
			5.5				lb/MMscf	AP-42 Chapter 1.4 Table 1.4-2
Fuel Sulfur Content				2.0			gr S/100scf	Fuel sulfur content (gr/100scf)
				0.0029			lb S/ Mscf	Gr S/100 scf * (1 lb/7000 gr) * (1000scf/Mscf)
Pilot Gas Emissions	0.017	0.035	5.50E-04	5.71E-04	-	-	lb/hr	Pilot gas based on engineering estimate.
	0.076	0.15	2.41E-03	2.50E-03	-	-	tpy	Pilot gas based on engineering estimate.
Assist Gas Emissions	0.961	1.92	0.031	0.032	-	-	lb/hr	Assist gas required by flare.
	4.208	8.40	0.13	0.14	-	-	tpy	Assist gas required by flare.
Process Emissions	0.38	3.25	1.17	7.32	0.078	0.10	lb/hr	Amine unit emissions sent to flare.
	1.66	14.22	5.13	32.05	0.34	0.45	tpy	Amine unit emissions sent to flare.
Total Emissions	**1.36**	**5.20**	**1.20**	**7.35**	**0.078**	**0.10**	**lb/hr**	Sum of pilot, assist, and process gas sent to flare.
	5.94	**22.77**	**5.26**	**32.20**	**0.34**	**0.45**	**tpy**	Sum of pilot, assist, and process gas sent to flare.

Notes:

(1) Flare NO_X and CO emission factors: TNRCC RG-109 (high Btu; other). SO_2: Mass balance assuming 98% combustion of H_2S and 100% conversion of combusted H_2S to SO_2:
Pilot Gas SO_2 Emissions (lb/hr) = [(Pilot Gas Flow (Mscf/hr) * Fuel Gas Sulfur Content (lb S/Mscf)*(64 lb/lbmol SO_2 / 32 lb/lbmol S))
Process SO_2 Emissions (lb/hr) = [H_2S Mass Flow Rate (lb/hr) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)]
Process SO_2 Emissions (tpy) = [H_2S Mass Flow Rate (tpy) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)]

(2) VOC, HAP and H_2S emissions estimated based on event stream routed to flare and 98% efficiency.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Process Flare Greenhouse Gas Emissions

Emission Unit: FL-1

Source Description: Combustion Pilot Gas, Assist Gas, Amine Gas

Notes: The flare will combust amine unit vent gas, pilot gas, and assist gas. A weighted averaged of the fuel gas and vent gas analyses are used to determine the greenhouse gas emissions from this unit.

§98.233(n) Flare stack GHG emissions.

Step 1. Calculate contribution of un-combusted CH_4 emissions from the flare combustion gas vent (actual conditions).

$E_{a,CH4}$ (un-combusted) = $V_a * (1- \eta) * X_{CH4}$ *(Equation W-39B)*

where:

$E_{a,CH4}$ = contribution of annual un-combusted CH_4 emissions from flare in cubic feet under actual conditions.

V_a = volume of gas sent to combustion unit during the year (cf)

η = Fraction of gas combusted by a burning flare (or regenerator), default value from Subpart W = 0.98

For gas sent to an unlit flare, η is zero.

X_{CH4} = Mole fraction of CH_4 in gas to the flare = 0.068 (Gas analysis)

Step 2. Calculate contribution of un-combusted CO_2 emissions from the flare combustion gas vent (actual conditions).

$E_{a,CO2} = V_a * X_{CO2}$ *(Equation W-20)*

where:

$E_{a,CO2}$ = contribution of annual un-combusted CO_2 emissions from flare in cubic feet under actual conditions.

V_a = volume of gas sent to combustion unit during the year (cf)

X_{CO2} = Mole fraction of CO_2 in gas to the flare = 0.849

Step 3. Calculate contribution of combusted CO_2 emissions from the flare combustion gas vent (actual conditions).

$E_{a,CO2}$ (combusted) = $\sum (\eta * V_a * Y_j * R_j)$ *(Equation W-21)*

where:

η = Fraction of gas combusted by a burning flare (or regenerator) = 0.98

For gas sent to an unlit flare, η is zero.

V_a = volume of gas sent to combustion unit during the year (cf)

Y_j = mole fraction of gas hydrocarbon constituents j:

Constituent j, Methane =	0.068
Constituent j, Ethane =	0.0112
Constituent j, Propane =	0.0058
Constituent j, Butane =	0.00281
Constituent j, Pentanes =	0.00103
Constituent j, Hexane Plus =	0.00084

R_j = number of carbon atoms in the gas hydrocarbon constituent j:

Constituent j, Methane =	1
Constituent j, Ethane =	2
Constituent j, Propane =	3
Constituent j, Butane =	4
Constituent j, Pentanes =	5
Constituent j, Hexane Plus =	6

Targa Northern Delaware: Plantview Compressor Station

Process Flare Greenhouse Gas Emissions

Step 4. Calculate GHG volumetric emissions at standard conditions (scf).

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

where:

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

$E_{a,n}$ = GHG i volumetric emissions at actual conditions (cf)

T_s = Temperature at standard conditions (F) = 60 F

T_a = Temperature at actual conditions (F) = 76 F (Annual Avg Max Temperature for Midland, TX from Western Regional Climate Center)

P_s = Absolute pressure at standard conditions (psia) = 12.73 psia

P_a = Absolute pressure at actual conditions (psia) = 13.28 psia Pressure in Midland, TX from TANKS 4.0.9d

Constant = 459.67 (temperature conversion from F to R)

Step 5. Calculate annual CH_4 and CO_2 mass emissions (ton).

$Mass_{s,i} = E_{s,i} * \rho_i * 0.0011023$ *(Equation W-36)*

where:

$Mass_{s,i}$ = GHG i (CO_2, CH_4, or N_2O) mass emissions at standard conditions in tons (tpy)

$E_{s,i}$ = GHG i (CO_2, CH_4, or N_2O) volumetric emissions at standard conditions (cf)

ρ_i = Density of GHG i. Use:

CH_4: 0.0192 kg/ft^3 (at 60F and 14.7 psia)

CO_2: 0.0526 kg/ft^3 (at 60F and 14.7 psia)

Step 6. Calculate annual N_2O emissions from portable or stationary fuel combustion sources under actual conditions (cf) using Equation W-40.

$Mass_{N2O} = 0.0011023 * Fuel * HHV * EF$ *(Equation W-40)*

where:

$Mass_{N2O}$ = annual N_2O emissions from combustion of a particular type of fuel (tons).

Fuel = mass or volume of the fuel combusted

HHV = high heat value of the fuel

Field gas HHV = 1.038E-03 MMBtu/scf (Default provided in Subpart W Final Amendment;)

EF = 1.00E-04 kg N_2O/MMBtu

10^{-3} = conversion factor from kg to metric tons.

Step 7. Calculate total annual emission from flare (regenerator) by summing Equations W-40, W-19, W-20, and W-21.

Gas Sent to Flare (scf/yr)	CH_4 Un-Combusted, $E_{a,CH4}$ (scf)	CO_2 Un-Combusted, $E_{a,CO2}$ (scf)	CO_2 Combusted, $E_{a,CO2}$ (scf)	CH_4 Un-Combusted, $E_{a,CH4}$ (tpy)	CO_2 Un-Combusted, $E_{a,CO2}$ (tpy)	CO_2 Combusted, $E_{a,CO2}$ (tpy)	N_2O Mass Emissions (tpy)
64,433,735,952	87149604	4,357,480,180	8,127,324,244	1,844.45	252,650.971	471,230.22	7.4E+00

Step 8. Calculate CO_2 equivalent[1]

$CO_2e = CO_2 + \{CH_4 \text{ X GWP}\} + \{N_2O \text{ X GWP}\}$

CO_2e = 723,881.20 + 46,111.20 + 2,195.92

TARGA

Targa Northern Delaware: Plantview Compressor Station

Process Flare Greenhouse Gas Emissions

CO_2e =	772,188.32	tons/year

[1] Global Warming Potentials (GWP) are from Table A-1 of the EPA GHG MRR under 40 CFR Part 98.

CH_4 GWP =	25
N_2O GWP =	298

Targa Northern Delaware, LLC - Plantview Compressor Station

Reboiler 1

Emission Unit:	RBL-1
Source Description:	Reboiler
Destruction Efficiency:	98%

Reboiler Information	
Unit(s):	RBL-1
Unit Count:	1
Annual Operating Hours:	8,760
Combustion Efficiency (%):	98%

Input Information				
Activity	**Parameters**	**Value**	**Unit**	**Notes:**
Fuel	Hourly Volume Flow Rate	796.78	scf/hr	MMBtu/hr*Btu/scf * 10^6
	Natural Gas Heat Value	1255.06	Btu/scf	Inlet Gas Analysis
	Annual Volume Flow Rate	6.98	MMscf/yr	scf/hr * 8760 hr/yr / 10^6
	Hourly Heat Rate	1.00	MMBtu/hr	Facility design
	Annual Heat Rate	8,760.00	MMBtu/yr	MMBtu/hr * 8760 hr/yr
Process Emission Stream	Noncondensable Flow Rate	227.73	scf/hr	Dehy-1 maximum flow rate
	Hourly Weighted Heat Value	2228.28	BTU/scf	Dehy-1 maximum heating value promax
	Annual Flow Rate	1.99	MMscf/yr	Dehy-1 annual flow rate
	Hourly Heat Rate	0.51	MMBtu/hr	scf/hr * Btu/scf / 10^6
	Annual Heat Rate	4445.19	MMBtu/yr	MMscf/yr * Btu/scf
	Hourly VOC	21.13	lb/hr VOC	Dehy-1 non-condensable overheads
	Annual VOC	92.53	tpy VOC	Dehy-1 non-condensable overheads
	Hourly HAP	1.55	lb/hr HAP	Dehy-1 non-condensable overheads
	Annual HAP	6.78	tpy HAP	Dehy-1 non-condensable overheads
	Hourly H_2S	1.33E-02	lb/hr H_2S	Dehy-1 non-condensable overheads
	Annual H_2S	5.82E-02	tpy H_2S	Dehy-1 non-condensable overheads

Emission Calculation

Description	NO_X[1]	CO[1]	VOC	SO_2[1]	PM[1]	H_2S[1]	HAPs	Units	Notes
Emission Factors	100	84	5.5		7.6			lb/MMscf	AP-42 Table 1.4-1 & 2
	123	103	6.77		9.35			lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2 for fuel gas
	218	184	12.02		16.60			lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2 for process gas
Fuel Sulfur Content				2.0				gr S/100scf	Fuel sulfur content (gr/100scf)
				0.0029				lb S/ Mscf	Gr S/100 scf * (1 lb/7000 gr) * (1000scf/Mscf)
Fuel Emissions	0.098	0.082	0.0054	0.0046	0.0075	-	-	lb/hr	RBL-1 or RBL-2 Fuel Emissions
	0.43	0.361	0.024	0.020	0.033	-	-	tpy	RBL-1 or RBL-2 Fuel Emissions
Process Emissions	0.050	0.042	0.42	0.025	3.78E-03	2.66E-04	0.031	lb/hr	Dehy-1 & Dehy-2 non-condensable overheads
	0.22	0.183	1.85	0.11	1.66E-02	1.16E-03	0.14	tpy	Dehy-1 & Dehy-2 non-condensable overheads
Total Emissions	**0.15**	**0.12**	**0.43**	**0.030**	**0.011**	**2.66E-04**	**0.031**	**lb/hr**	
	0.65	**0.54**	**1.87**	**0.13**	**0.049**	**1.16E-03**	**0.14**	**tpy**	

Notes:

(1) NO_X, CO, VOC, and PM emission factors: AP-42 Table 1.4-1 & 2. SO_2: Mass balance assuming 98% combustion of H_2S and 100% conversion of combusted H_2S to SO_2:
Fuel Gas SO_2 Emissions (lb/hr) = [(Fuel Gas Flow (Mscf/hr) * Fuel Gas Sulfur Content (lb S/Mscf)*(64 lb/lbmol SO_2 / 32 lb/lbmol S)) + (Fuel Gas Flow (Mscf/yr) * Fuel Gas H_2S Content (lb H_2S/Mscf)*(64 lb/lbmol SO_2 /34 lb/lbmol H_2S)*(DRE))]
Process SO_2 Emissions (lb/hr) = [H_2S Mass Flow Rate (lb/hr) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)]
Process SO_2 Emissions (tpy) = [H_2S Mass Flow Rate (tpy) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)]

(2) VOC, HAP and H_2S emissions estimated based on event stream routed to reboiler and 98% efficiency using a glowplug.

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Reboiler 2

Emission Unit:	RBL-2
Source Description:	Reboiler
Destruction Efficiency:	98%

Reboiler Information	
Unit(s):	RBL-2
Unit Count:	1
Annual Operating Hours:	8,760
Combustion Efficiency (%):	98%

Input Information

Activity	Parameters	Value	Unit	Notes:
Fuel	Hourly Volume Flow Rate	597.58	scf/hr	MMBtu/hr*Btu/scf * 10^6
	Natural Gas Heat Value	1255.06	Btu/scf	Inlet Gas Analysis
	Annual Volume Flow Rate	5.23	MMscf/yr	scf/hr * 8760 hr/yr / 10^6
	Hourly Heat Rate	0.75	MMBtu/hr	Facility Design
	Annual Heat Rate	6,570.00	MMBtu/yr	MMBtu/hr * 8760 hr/yr
Process Emission Stream	Noncondensable Flow Rate	237.12	scf/hr	Dehy-1 maximum flow rate
	Hourly Weighted Heat Value	2240.19	BTU/scf	Dehy-1 maximum heating value promax
	Annual Flow Rate	2.08	MMscf/yr	Dehy-1 annual flow rate
	Hourly Heat Rate	0.53	MMBtu/hr	scf/hr * Btu/scf / 10^6
	Annual Heat Rate	4653.25	MMBtu/yr	MMscf/yr * Btu/scf
	Hourly VOC	23.76	lb/hr VOC	Dehy-1 non-condensable overheads
	Annual VOC	104.09	tpy VOC	Dehy-1 non-condensable overheads
	Hourly HAP	1.92	lb/hr HAP	Dehy-1 non-condensable overheads
	Annual HAP	8.42	tpy HAP	Dehy-1 non-condensable overheads
	Hourly H_2S	1.29E-02	lb/hr H_2S	Dehy-1 non-condensable overheads
	Annual H_2S	5.66E-02	tpy H_2S	Dehy-1 non-condensable overheads

Emission Calculation

Description	NO_X[1]	CO[1]	VOC	SO_2[1]	PM[1]	H_2S[1]	HAPs	Units	Notes
Emission Factors	100	84	5.5		7.6			lb/MMscf	AP-42 Table 1.4-1 & 2
	123	103	6.77		9.35			lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2 for fuel gas
	220	184	12.08		16.69			lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2 for process gas
Fuel Sulfur Content				2.0				gr S/100scf	Fuel sulfur content (gr/100scf)
				0.0029				lb S/ Mscf	Gr S/100 scf * (1 lb/7000 gr) * (1000scf/Mscf)
Fuel Emissions	0.074	0.062	0.0040	0.0034	0.0056	-	-	lb/hr	RBL-1 or RBL-2 Fuel Emissions
	0.32	0.271	0.018	0.015	0.024	-	-	tpy	RBL-1 or RBL-2 Fuel Emissions
Process Emissions	0.052	0.044	0.48	0.024	3.96E-03	2.58E-04	0.038	lb/hr	Dehy-1 & Dehy-2 non-condensable overheads
	0.23	0.192	2.08	0.10	1.73E-02	1.13E-03	0.17	tpy	Dehy-1 & Dehy-2 non-condensable overheads
Total Emissions	**0.13**	**0.11**	**0.48**	**0.027**	**0.0095**	**2.58E-04**	**0.038**	**lb/hr**	
	0.55	**0.46**	**2.10**	**0.12**	**0.042**	**1.13E-03**	**0.17**	**tpy**	

Notes:

(1) NO_X, CO, VOC, and PM emission factors: AP-42 Table 1.4-1 & 2. SO_2: Mass balance assuming 98% combustion of H_2S and 100% conversion of combusted H_2S to SO_2:
Fuel Gas SO_2 Emissions (lb/hr) = [(Fuel Gas Flow (Mscf/hr) * Fuel Gas Sulfur Content (lb S/Mscf)*(64 lb/lbmol SO_2 / 32 lb/lbmol S)) + (Fuel Gas Flow (Mscf/yr) * Fuel Gas H_2S Content (lb H_2S/Mscf)*(64 lb/lbmol SO_2 /34 lb/lbmol H_2S)*(DRE))]
Process SO_2 Emissions (lb/hr) = [H_2S Mass Flow Rate (lb/hr) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)]
Process SO_2 Emissions (tpy) = [H_2S Mass Flow Rate (tpy) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)]

(2) VOC, HAP and H_2S emissions estimated based on event stream routed to reboiler and 98% efficiency.

Green House Gas Emission	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	656.43	**1.36E-02**	**1.24E-03**	**-**	**tpy**	
	656.43	**0.34**	**0.37**	**657.14**	**tpy CO_2e**	

(3) N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)
CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

Targa Northern Delaware, LLC - Plantview Compressor Station

Amine Unit Reboiler

Unit:	Reboil-3
Heat Input:	21 MMBTU/hr
Fuel Heat Value:	1255.06 BTU/scf
Fuel Sulfur Content:	2 gr/100 scf
Operating Hours:	8,760 hours/yr
Fuel Usage:	16732.29 scf/hr

Criteria Pollutant Emission Rates per Unit

	NO_x	CO	VOC	SO_2[1]	PM[2]	Units	Notes
	30						
	46						
Emission Factors		84	5.5	-	7.6	lb/MMscf	AP-42 Table 1.4-1 & 2
		103.36	6.77	-	9.35	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	2	-	gr / 100 scf	
Emissions	**0.37**	**1.73**	**0.11**	**0.10**	**0.16**	**lb/hr[3]**	
	1.63	**7.57**	**0.50**	**0.42**	**0.69**	**tons/year[4]**	

HAP Emission Rates per Unit

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.8E+00	2.1E-03	3.4E-03	7.5E-02	-	lb/MMscf	AP-42 Table 1.4-3
	2.21E+00	2.58E-03	4.18E-03	9.23E-02	-	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	**0.037**	**4.32E-05**	**7.00E-05**	**1.54E-03**	**0.039**	**lb/hr[3]**	
	0.16	**1.89E-04**	**3.07E-04**	**6.76E-03**	**0.17**	**tons/year[4]**	

Notes:

[1] SO_2 emissions based on fuel sulfur (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)

[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.

Targa Northern Delaware, LLC - Plantview Compressor Station

Condensate Storage Tanks

Emission unit number(s):	T-1 and T-2
Source description:	500 bbl Atmospheric Tanks

Annual Operating Hours:	8,760
Number of Tanks:	2
Capacity of Tanks:	500 bbl
Hourly Throughout:	318.85 bbl/hr
Daily Throughput:	37.14 bbl/d
Annual Throughput:	13,557.18 bbl/yr

Condensate Storage Tank Emissions[1,2]

Component	Uncontrolled Emissions (hourly basis)			Uncontrolled Emissions (annual basis)		
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total per Tank (lb/hr)	Flash (lb/hr)	Working and Breathing (lb/hr)	Total Emissions Per Tank (tpy)
H2S	9.25E-02	3.08E-02	6.16E-02	3.24E-04	3.53E-04	1.48E-03
Nitrogen	5.15E-01	9.22E-03	2.62E-01	2.50E-03	6.68E-05	5.61E-03
CO2	2.49E+01	5.21E+00	1.50E+01	1.02E-01	3.67E-02	3.04E-01
Methane	3.82E+01	2.48E+00	2.03E+01	1.80E-01	1.85E-02	4.35E-01
Ethane	5.40E+01	1.80E+01	3.60E+01	2.18E-01	1.49E-01	8.03E-01
Propane	9.90E+01	3.29E+01	6.59E+01	3.25E-01	3.50E-01	1.48E+00
i-Butane	2.70E+01	8.98E+00	1.80E+01	7.65E-02	8.03E-02	3.43E-01
n-Butane	7.93E+01	2.64E+01	5.28E+01	2.12E-01	2.20E-01	9.47E-01
i-Pentane	3.22E+01	1.07E+01	2.15E+01	7.77E-02	7.86E-02	3.42E-01
n-Pentane	3.73E+01	1.24E+01	2.49E+01	8.74E-02	8.73E-02	3.83E-01
Neohexane	4.92E-01	1.64E-01	3.28E-01	1.12E-03	1.11E-03	4.87E-03
Cyclopentane	9.00E+00	2.99E+00	6.00E+00	2.05E-02	2.02E-02	8.91E-02
2-Methylpentane	1.20E+01	4.00E+00	8.02E+00	2.66E-02	2.60E-02	1.15E-01
3-Methylpentane	7.18E+00	2.39E+00	4.79E+00	1.57E-02	1.53E-02	6.78E-02
n-Hexane	1.45E+01	4.82E+00	9.65E+00	3.08E-02	2.96E-02	1.32E-01
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,3-Trimethylbutane	6.12E+00	2.04E+00	4.08E+00	1.30E-02	1.26E-02	5.62E-02
Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	1.06E+01	3.52E+00	7.05E+00	2.23E-02	2.14E-02	9.57E-02
2-Methylhexane	1.21E-01	4.02E-02	8.06E-02	2.48E-04	2.35E-04	1.06E-03
3-Methylhexane	9.37E+00	3.12E+00	6.24E+00	1.90E-02	1.78E-02	8.06E-02
1,1-Dimethylcyclopentane	4.70E+00	1.56E+00	3.13E+00	9.73E-03	9.26E-03	4.16E-02
n-Heptane	1.07E+00	3.57E-01	7.15E-01	2.13E-03	1.99E-03	9.02E-03
Methylcyclohexane	7.44E+00	2.47E+00	4.96E+00	1.49E-02	1.40E-02	6.32E-02
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	1.61E+00	5.36E-01	1.07E+00	3.19E-03	2.97E-03	1.35E-02
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
n-Octane	6.90E+00	2.30E+00	4.60E+00	1.28E-02	1.16E-02	5.34E-02
Ethylcyclohexane	1.74E+00	5.80E-01	1.16E+00	3.28E-03	2.97E-03	1.37E-02
Ethylbenzene	6.08E-01	2.02E-01	4.05E-01	1.12E-03	1.01E-03	4.67E-03
p-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
o-Xylene	1.91E+00	6.36E-01	1.27E+00	3.49E-03	3.11E-03	1.45E-02
n-Nonane	2.30E-01	7.63E-02	1.53E-01	3.96E-04	3.44E-04	1.62E-03
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclooctane	5.06E+00	1.68E+00	3.37E+00	9.15E-03	8.14E-03	3.79E-02
Propylbenzene	3.39E-01	1.13E-01	2.26E-01	5.92E-04	5.17E-04	2.43E-03
1,3,5-Trimethylbenzene	2.15E-03	7.15E-04	1.43E-03	3.69E-06	3.20E-06	1.51E-05
Isobutylbenzene	6.07E-02	2.02E-02	4.05E-02	1.04E-04	8.99E-05	4.24E-04
Butylbenzene	9.01E-04	3.00E-04	6.00E-04	1.46E-06	1.23E-06	5.90E-06
n-Decane	2.84E-01	9.45E-02	1.89E-01	4.60E-04	3.87E-04	1.86E-03
Water	1.33E+01	4.42E+00	8.86E+00	2.40E-02	2.13E-02	9.94E-02
TEG	4.31E-10	1.43E-10	2.87E-10	2.62E-13	1.31E-13	8.61E-13
MDEA	5.48E-02	1.82E-02	3.65E-02	1.11E-04	1.04E-04	4.71E-04
VOC	**376.15**	**125.11**	**250.63**	**0.99**	**1.02**	**4.39**
Total HAPS	**18.62**	**6.19**	**12.41**	**0.039**	**0.037**	**0.16**
Total H_2S	**0.093**	**0.031**	**0.062**	**3.24E-04**	**3.528E-04**	**1.48E-03**

[1] Uncontrolled emissions are calculated using BR&E ProMax. Hourly loading emissions are based on the short-term worse case scenario. Annual emissions are based on the daily throughput of the facility.

[2] Emissions from T-1 and T-2 are routed to an enclosed combustion device (ECD-1) with a 98% DRE. Emissions are represented at that unit.

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Enclosed Combustion Device

Emission Unit:	ECD-1
Source Description:	Enclosed Combustion Device
Destruction Efficiency:	98%

Enclosed Combustion Device Information	
Unit(s):	ECD-1
Unit Count:	1
Annual Operating Hours:	8,760
Combustion Efficiency (%):	98%

Input Information

Activity	Parameters	Value	Unit	Notes:
Pilot	Hourly Volume Flow Rate	25.00	scf/hr	Design Specification
	Natural Gas Heat Value	1255.06	Btu/scf	Inlet Gas Analysis
	Annual Volume Flow Rate	0.22	MMscf/yr	scf/hr * 8760 hr/yr / 10^6
	Hourly Heat Rate	0.031	MMBtu/hr	scf/hr * Btu/scf / 10^6
	Annual Heat Rate	274.86	MMBtu/yr	MMBtu/hr * 8760 hr/yr
Process Emission Stream	Hourly Tank Flow Rate	8628.95	scf/hr	Total flow from T-1 and T-2 short-term flash, working, and breathing streams
	Hourly Loading Flow Rate	354.65	scf/hr	Loading vapor captured (scf/hr) = throughput (gal/hr) * L_L (lb/1000 gal) / Vapor Density (lb/ft^3) * Capture Efficiency (%)
	Total Hourly Volume Flow Rate	8983.60	scf/hr	Total flow from condensate tanks and condensate loading
	Hourly Weighted Heat Value	2254.11	BTU/scf	Weighted averaged heating value from tank streams and loading streams
	Annual Weighted Heat Value	2254.11	BTU/scf	Weighted averaged heating value from tank streams and loading streams
	Annual Tank Flow Rate	0.22	MMscf/yr	Total flow from T-1 and T-2 short-term flash, working, and breathing streams
	Annual Loading Flow Rate	0.022	MMscf/yr	Loading vapor captured (MMscf/yr) = throughput (gal/yr) * L_L (lb/1000 gal) / Vapor Density (lb/ft^3) / (10^6 scf/MMscf) * Capture Efficiency (%)
	Total Annual Volume Flow Rate	0.24	MMscf/yr	Total flow from condensate tanks and condensate loading
	Hourly Heat Rate	20.25	MMBtu/hr	Total hourly volume flow rate (scf/hr) * Hourly weighted heat value (Btu/scf)/ 10^6
	Annual Heat Rate	535.85	MMBtu/yr	Total annual volume flow rate (MMscf/yr) * Annual weighted heat value (Btu/scf)
	Hourly VOC	547.99	lb/hr VOC	Flash, working and breathing from tanks, and captured loading emissions
	Annual VOC	10.23	tpy VOC	Flash, working and breathing from tanks, and captured loading emissions
	Hourly HAP	26.50	lb/hr HAP	Flash, working and breathing from tanks, and captured loading emissions
	Annual HAP	0.38	tpy HAP	Flash, working and breathing from tanks, and captured loading emissions
	Hourly H_2S	0.14	lb/hr H_2S	Flash, working and breathing from tanks, and captured loading emissions
	Annual H_2S	3.46E-03	tpy H_2S	Flash, working and breathing from tanks, and captured loading emissions

Emission Calculation

Description	NO_X[1]	CO[1]	VOC[1,2]	SO_2[1]	PM[1]	H_2S[1,2]	HAPs[2]	Units	Notes
Emission Factors	100.0	84.0	5.5		7.6			lb/MMscf	NO_X, CO, and VOC: AP 42 Chapter 1, Table
	123.0	103.4	6.77		9.35			lb/MMscf	Emission Factor adjusted for pilot gas heat
	221.0	185.6	12.15		16.80			lb/MMscf	Emission Factor adjusted for process
Fuel Sulfur Content				2.0				gr S/100scf	Fuel sulfur content (gr/100scf)
				0.0029				lb S/ Mscf	Gr S/100 scf * (1 lb/7000 gr) * (1000scf/Mscf)
Pilot Emissions	0.003	0.0026	0.00017	0.00014	0.0002	-	-	lb/hr	(Emission factor (lb/ MMscf)) * (hourly flow rate (scf/hr) * (1/1000000 (MMBtu/Btu))
	0.013	0.011	0.0007	0.0006	0.001	-	-	tpy	Hourly emission rate (lb/hr) / (2000 lb/ton) * (8760 hr/yr)
Process Emissions	1.99	1.67	10.96	0.26	0.15	2.79E-03	0.53	lb/hr	Flash, working and breathing from tanks, and captured loading emissions
	0.026	0.022	0.20	6.52E-03	2.00E-03	6.92E-05	7.64E-03	tpy	
Total Emissions	**1.99**	**1.67**	**10.96**	**0.26**	**0.15**	**2.79E-03**	**0.53**	**lb/hr**	Total emission includes process and pilot emissions.
	0.040	**0.033**	**0.21**	**7.14E-03**	**3.02E-03**	**6.92E-05**	**7.64E-03**	**tpy**	

Notes:

(1) ECD NO_X, CO, Pilot VOC, and PM emission factors are from AP-42 Table 1.4-1 and 1.4-2. Fuel Gas is conservatively assumed to have 2 gr S/100scf.
Pilot Gas SO_2 Emissions (lb/hr) = Pilot Gas Flow (scf/hr) * Fuel Gas Sulfur Content (lb/ Mscf) * (64 lb/lbmol SO_2 / 32 lb/lbmol S) * (1000 scf/Mscf)
Process SO_2 Emissions (lb/hr) = H_2S Mass Flow Rate (lb/hr) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)
Process SO_2 Emissions (tpy) = H_2S Mass Flow Rate (tpy) * DRE * (64 lb/lbmol SO_2 / 34 lb/lbmol H_2S)

(2) Process VOC, HAP and H_2S emissions estimated based on event stream routed to combustor and 98% efficiency.

Green House Gas Emissio	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
Emission Factors	53.06	1.10E-03	1.00E-04	-	kg/MMBtu	40 CFR 98 Subpart C Tables C-1 & C-2
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	10391.41	**0.22**	**0.020**	**-**	**tpy**	
	10391.41	**5.39**	**5.84**	**10402.64**	**tpy CO_2e**	

(3) N_2O, CH_4, and CO_2 tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)
CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Fugitive Emissions

Emission unit number: FUG-1
Source description: Facility-wide Fugitive Emissions
Total Operating Hours: 8,760

Component		Emission factor[1] (lb/hr/source)	VOC Content[2] (wt%)	HAP Content[2] (wt%)	H_2S Content[2] (wt%)	Hexane Content[2] (wt%)	Benzene Content[2] (wt%)	Toluene Content[2] (wt%)
Valves	Inlet Gas	9.92E-03	25.68%	0.65%	0.0037%	0.61%	0.00%	0.009%
	Residue Gas	9.92E-03	26.53%	0.66%	0.0017%	0.63%	0.00%	0.008%
	Light Liquid	5.51E-03	19.92%	2.79%	0.0000%	0.69%	0.00%	0.306%
Connectors	Inlet Gas	4.41E-04	25.68%	0.65%	0.0037%	0.61%	0.00%	0.009%
	Residue Gas	4.41E-04	26.53%	0.66%	0.0017%	0.63%	0.00%	0.008%
	Light Liquid	4.63E-04	19.92%	2.79%	0.0000%	0.69%	0.00%	0.306%
Flanges	Inlet Gas	8.60E-04	25.68%	0.65%	0.0037%	0.61%	0.00%	0.009%
	Residue Gas	8.60E-04	26.53%	0.66%	0.0017%	0.63%	0.00%	0.008%
	Light Liquid	2.43E-04	19.92%	2.79%	0.0000%	0.69%	0.00%	0.306%
Pump Seals	Inlet Gas	5.29E-03	25.68%	0.65%	0.0037%	0.61%	0.00%	0.009%
	Residue Gas	5.29E-03	26.53%	0.66%	0.0017%	0.63%	0.00%	0.008%
	Light Liquid	2.87E-02	19.92%	2.79%	0.0000%	0.69%	0.00%	0.306%
Other	Inlet Gas	1.94E-02	25.68%	0.65%	0.0037%	0.61%	0.00%	0.009%
	Residue Gas	1.94E-02	26.53%	0.66%	0.0017%	0.63%	0.00%	0.008%
	Light Liquid	1.65E-02	19.92%	2.79%	0.0000%	0.69%	0.00%	0.306%
		Total (lb/hr):	-	-	-	-	-	-
		Total (tpy):	-	-	-	-	-	-

Component		Ethylbenzene Content[2] (wt%)	Xylene Content[2] (wt%)	CO_2 Content[2] (wt%)	Methane Content[2] (wt%)	Subcomponent Count[3]
Valves	Inlet Gas	0.0069%	0.021%	7.151%	50.317%	0
	Residue Gas	0.0057%	0.016%	4.192%	52.171%	0
	Light Liquid	0.35%	1.44%	0.00%	0.00%	0
Connectors	Inlet Gas	0.0069%	0.021%	7.151%	50.317%	0
	Residue Gas	0.0057%	0.016%	4.192%	52.171%	0
	Light Liquid	0.35%	1.44%	0.00%	0.00%	0
Flanges	Inlet Gas	0.0069%	0.021%	7.151%	50.317%	0
	Residue Gas	0.0057%	0.016%	4.192%	52.171%	0
	Light Liquid	0.35%	1.44%	0.00%	0.00%	0
Pump Seals	Inlet Gas	0.0069%	0.021%	7.151%	50.317%	0
	Residue Gas	0.0057%	0.016%	4.192%	52.171%	0
	Light Liquid	0.35%	1.44%	0.00%	0.00%	0
Other	Inlet Gas	0.0069%	0.021%	7.151%	50.317%	0
	Residue Gas	0.0057%	0.016%	4.192%	52.171%	0
	Light Liquid	0.35%	1.44%	0.00%	0.00%	0
	Total (lb/hr):	-	-	-	-	
	Total (tpy):	-	-	-	-	

[1] Emission factors from Table 2-4 of EPA Protocol for Equipment Leak Emission Estimates, 1995.
[2] Weight percent of gas and liquid components from site specific liquids and gas analyses.
[3] Component counts are based on facility design.
[4] Hourly Emissions [lb/hr] = Emissions Factor [lb/hr/component] * Weight Content of Chemical Component [%] * Subcomponent Count.
[5] Annual Emissions [ton/yr] = Hourly Emissions [lb/hr] * Operating Hours [hr/yr] * 1/2000 [ton/lb].

Green House Gas Emissions	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	-	-	-	-	**tpy**	
	-	-	-	-	**tpy CO_2e**	

[6] CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

Targa Northern Delaware, LLC - Plantview Compressor Station

Truck Loading (Condensate Tanks)

Equation[1]:

$$L_L = \frac{12.46 * SPM}{T}$$

Variables[1]:

L_L - Loading Loss (lbs/1000 gal loaded)
S - Saturation Factor (From Table 5.2-1 of AP-42, Section 5.2)
P - True Vapor Pressure of Loaded Liquid (psia)
M - Molecular Weight of Vapor (lb/lb mol)
T- Temperature of Bulk Liquid (°R = [°F + 460])

Unit	Material Loaded [2]	Loading Method	S	P_{max} [6] (psia)	M [6] (lb/lbmol)	T_{max} [4] (°R)	L_L (lbs/1000 gal)	Hourly Throughput [5] (gal/hr)	VOC Wt %	HAP Wt %	H_2S Wt %[3]	Vapor Control Capture Efficiency	VOC Vapor Loading Losses (lb/hr)	HAP Vapor Loading Losses (lb/hr)	H_2S Vapor Loading Losses (lb/hr)	LOAD Hourly VOC Emissions (lb/hr)	LOAD Hourly HAP Emissions (lb/hr)	LOAD Hourly H_2S Emissions [3] (lb/hr)
LOAD	Condensate	Submerged	0.6	12.88	43.54	555.00	7.55	7,560	81.83%	2.95%	0.03%	70%	46.73	1.69	0.016	46.73	1.69	0.016
												TOTAL UNCONTROLLED	46.73	1.69	0.02	**46.73**	**1.69**	**0.016**
												TOTAL CONTROLLED	14.02	0.51	4.86E-03	**14.02**	**0.51**	**4.86E-03**

Unit	Material Loaded [2]	Loading Method	S	P_{avg} [7] (psia)	M [7] (lb/lbmol)	T_{avg} [4] (°R)	L_L (lbs/1000 gal)	Annual Throughput [7] (gal/yr)	VOC Wt %	HAP Wt %	H_2S Wt %[3]	Vapor Control Capture Efficiency	VOC Vapor Loading Losses (tpy)	HAP Vapor Loading Losses (tpy)	H_2S Vapor Loading Losses (tpy)	LOAD Annual VOC Emissions (tpy)	LOAD Annual HAP Emissions (tpy)	LOAD Annual H_2S Emissions [3] (tpy)
LOAD	Condensate	Submerged	0.6	11.55	37.66	525.92	6.18	569,402	81.83%	2.95%	0.03%	70%	1.44	0.052	5.00E-04	1.44	0.052	5.00E-04
												TOTAL UNCONTROLLED	1.44	0.052	5.00E-04	**1.44**	**0.052**	**5.00E-04**
												TOTAL CONTROLLED	0.43	0.016	1.50E-04	**0.43**	**0.016**	**1.50E-04**

Notes:

[1] Loading loss equation and variables are from AP-42, Section 5.2, Transportation and Marketing of Petroleum Liquids.
[2] Material loaded is 100% condensate.
[3] H_2S content is conservatively assumed.
[4] Worst case scenario temperature is 95° F and the average temperature is 65.92° F.
[5] The maximum hourly throughput is based on the assumption that two trucks with a 180 bbl capacity can be loaded in an hour.
[6] TVP and MW pulled from Max Hourly promax
[7] TVP, MW, and annual throughput pulled from Annual Average promax

Green House Gas Emissions	CO_2[6]	CH_4[6]	N_2O[6]	CO_2e[6]	Units	Notes
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	0.052	**0.026**	**-**	**-**	**tpy**	
	0.052	**0.66**	**-**	**0.71**	**tpy CO_2e**	

[6] CO_2e tpy Emission Rate = CO_2 Emission Rate + N_2O Emission Rate*GWP Factor + CH_4 Emission Rate*GWP Factor

Targa Northern Delaware: Plantview Compressor Station

Haul Road (exempt pursuant 20.2.72.202.B(5) NMAC)

Unit: Haul-1
Description: Haul Road
Control Equipment: N/A

Input Data

Empty vehicle weight[1]	16	tons
Load weight[2]	29.9	tons
Loaded vehicle[3]	45.9	tons
Mean vehicle weight[4]	30.9	tons
Vehicle frequency	1.0	trips/hour
Round-trip distance	0.25	mile/trip
Vehicle miles traveled[5]	19.81	miles/yr
Operating hours	75.32	hours/yr
Surface silt content[6]	4.8	%
Annual wet days[7]	70	days/yr
Vehicle miles traveled[8]	0.25	mile/hr
Control percentage	0%	nominal, base course chemical treatment

Emission Factors and Constants

Parameter	PM_{30}	PM_{10}	$PM_{2.5}$
k, lb/VMT[9]	4.9	1.5	0.15
a, lb/VMT[9]	0.70	0.90	0.90
b, lb/VMT[9]	0.45	0.45	0.45
Hourly EF, lb/VMT[10]	7.37	1.88	0.19
Annual EF, lb/VMT[11]	5.96	1.52	0.15

Uncontrolled Emissions

PM_{30}	PM_{10}	$PM_{2.5}$	
1.84	0.47	0.047	lb/hr[12]
0.064	0.0163	1.63E-03	ton/yr[13]

Notes

1 Empty vehicle weight includes driver and occupants and full fuel load.
2 Cargo, transported materials, etc. (Liquid Density [lb/ft^3] * 0.13 [ft^3/gal] * 7560 [gal/truck] / 2000 [lb/ton])
3 Loaded vehicle weight = Empty + Load Size
4 Mean Vehicle weight = (Loaded Weight + Empty Weight) / 2
5 VMT/yr = Daily Throughput [bbl/d]*42 [gal/bbl] *(1/7560) [truck/ gal]*[VMT/trip]*1 [trip/day]* 365 [days/year]
6 AP-42 Table 13.2.2-1, Sand and gravel processing
7 AP-42 Figure 13.2.2-1
8 VMT/hr = Vehicle Miles Traveled per hour = Trips per hour * Segment Length
9 Table 13.2.2-2, Industrial Roads
10 AP-42 13.2.2, Equation 1a
11 AP-42 13.2.2, Equation 2
12 lb/hr = Hourly EF (lb/VMT) * VMT (mile/hr)
13 ton/yr = Annual EF (lb/VMT) * Truck/day * Mile/truck * 365day/yr * 1ton/2000lb

TARGA

Targa Northern Delaware, LLC - Plantview Compressor Station

Produced Water Tank (exempt pursuant 20.2.72.202.B(5) NMAC)

Emission unit number(s):	TK-PW
Source description:	210 bbl Atmospheric Storage Tank

Annual Operating Hours:	8,760
Number of Tanks:	1
Capacity of Tanks:	210 bbl
Hourly Throughout:	1.16 bbl/hr
Daily Throughput:	27.94 bbl/d
Annual Throughput:	10,198.50 bbl/yr

Produced Water Storage Tank Emissions[1]

Component	Uncontrolled Emissions (hourly basis)			Uncontrolled Emissions (annual basis)		
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total per Tank (lb/hr)	Flash (lb/hr)	Working and Breathing (lb/hr)	Total Emissions Per Tank (tpy)
H2S	0.00E+00	4.25E-05	4.25E-05	0.00E+00	4.25E-05	1.86E-04
Nitrogen	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methane	0.00E+00	3.64E-19	3.64E-19	0.00E+00	3.64E-19	1.59E-18
Ethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propane	0.00E+00	2.38E-03	2.38E-03	0.00E+00	2.38E-03	1.04E-02
i-Butane	0.00E+00	5.88E-04	5.88E-04	0.00E+00	5.88E-04	2.57E-03
n-Butane	0.00E+00	2.29E-03	2.29E-03	0.00E+00	2.29E-03	1.00E-02
i-Pentane	0.00E+00	6.43E-04	6.43E-04	0.00E+00	6.43E-04	2.82E-03
n-Pentane	0.00E+00	2.91E-04	2.91E-04	0.00E+00	2.91E-04	1.28E-03
Neohexane	0.00E+00	1.24E-06	1.24E-06	0.00E+00	1.24E-06	5.43E-06
Cyclopentane	0.00E+00	9.95E-04	9.95E-04	0.00E+00	9.95E-04	4.36E-03
2-Methylpentane	0.00E+00	3.43E-05	3.43E-05	0.00E+00	3.43E-05	1.50E-04
3-Methylpentane	0.00E+00	4.90E-05	4.90E-05	0.00E+00	4.90E-05	2.15E-04
n-Hexane	0.00E+00	7.21E-05	7.21E-05	0.00E+00	7.21E-05	3.16E-04
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,2,3-Trimethylbutane	0.00E+00	3.66E-05	3.66E-05	0.00E+00	3.66E-05	1.60E-04
Benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclohexane	0.00E+00	1.10E-03	1.10E-03	0.00E+00	1.10E-03	4.83E-03
2-Methylhexane	0.00E+00	1.91E-07	1.91E-07	0.00E+00	1.91E-07	8.38E-07
3-Methylhexane	0.00E+00	4.57E-05	4.57E-05	0.00E+00	4.57E-05	2.00E-04
1,1-Dimethylcyclopentane	0.00E+00	1.94E-04	1.94E-04	0.00E+00	1.94E-04	8.51E-04
n-Heptane	0.00E+00	3.64E-06	3.64E-06	0.00E+00	3.64E-06	1.59E-05
Methylcyclohexane	0.00E+00	2.77E-04	2.77E-04	0.00E+00	2.77E-04	1.21E-03
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	9.56E-04	9.56E-04	0.00E+00	9.56E-04	4.19E-03
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
n-Octane	0.00E+00	9.23E-06	9.23E-06	0.00E+00	9.23E-06	4.04E-05
Ethylcyclohexane	0.00E+00	8.74E-05	8.74E-05	0.00E+00	8.74E-05	3.83E-04
Ethylbenzene	0.00E+00	3.46E-04	3.46E-04	0.00E+00	3.46E-04	1.52E-03
p-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
o-Xylene	0.00E+00	1.01E-03	1.01E-03	0.00E+00	1.01E-03	4.42E-03
n-Nonane	0.00E+00	3.07E-07	3.07E-07	0.00E+00	3.07E-07	1.35E-06
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cyclooctane	0.00E+00	4.26E-08	4.26E-08	0.00E+00	4.26E-08	1.86E-07
Propylbenzene	0.00E+00	1.78E-04	1.78E-04	0.00E+00	1.78E-04	7.77E-04
1,3,5-Trimethylbenzene	0.00E+00	1.06E-06	1.06E-06	0.00E+00	1.06E-06	4.66E-06
Isobutylbenzene	0.00E+00	3.09E-05	3.09E-05	0.00E+00	3.09E-05	1.35E-04
Butylbenzene	0.00E+00	4.07E-07	4.07E-07	0.00E+00	4.07E-07	1.78E-06
n-Decane	0.00E+00	1.06E-07	1.06E-07	0.00E+00	1.06E-07	4.66E-07
Water	0.00E+00	6.25E-03	6.25E-03	0.00E+00	6.25E-03	2.74E-02
TEG	0.00E+00	3.79E-14	3.79E-14	0.00E+00	3.79E-14	1.66E-13
MDEA	0.00E+00	3.66E-05	3.66E-05	0.00E+00	3.66E-05	1.60E-04
VOC	**-**	**0.012**	**0.012**	**-**	**0.012**	**0.051**
Total HAPS	**-**	**2.38E-03**	**2.38E-03**	**-**	**2.382E-03**	**1.04E-02**
Total H_2S	**-**	**4.250E-05**	**4.250E-05**	**-**	**4.250E-05**	**1.86E-04**

[1] Uncontrolled emissions are calculated using BR&E ProMax. Emissions are based on the daily throughput of the facility. Mixture of condensate and produced water first flows to T-1 and T-2. The produced water, separated by gravity in the tanks, flows to the produced water afterwards.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Emission Calculation Inputs

Reciprocating Compressor (RC) Blowdowns

Compressor Name	Quantity of Compressors (#)	Quantity of Compressors Simultaneously (#)	Total Volume (scf/event)[1]	Hours / Blowdown (hr/event)	Number of Events/yr
RC Blowdowns associated with C-1, C-3, C-5, C-6, C-7, C-9	6	6	2136.3	1	180
RC blowdowns associated with C-4	1	1	1919.2	1	30
RC Blowdowns associated with C-2	1	1	4272.7	1	30
RC Blowdowns associated with C-8, C-10	2	2	6185.0	1	60

1 Blowdown volumes provided by Targa.

Dehydrator Blowdowns

Dehydrator	Volume of Gas per Blowdown (scf/event)	# Blowdowns / year (# /year)	Hours / Blowdown (hr/event)	Number of Units (#)
42" Contactor	21,870	1	1	1
30" Contactor	9,025	1	1	1

Filter Coalescer Blowdowns

Input Data	Value	Units
Volume of gas per Blowdown	6900	scf/event
Number of Filter Coalescers	1	Units
Number of Blowdowns per unit per year	2	events/yr
Duration of Event	1	hr/event

Scrubbers

Input Data	Value	Units
Volume of Gas Per Blowdown	33800	scf/event
Number of Scrubbers	5	Units
Number of Blowdowns per unit per year	1	events/yr
Duration of Event	1	hr/event
Simultaneous unit Blowdowns	1	

Pump Blowdowns

Input Data	Value	Units
Volume of gas per Blowdown	16	scf/event
Number of pumps	2	Units
Number of Blowdowns per unit per year	1	events/yr
Hours per event	1	hr/event
Simultaneous unit Blowdowns	2	Units

Reboiler Maintenance

Input Data	Value	Units
Volume of Gas Released during Reboiler Maintenance	65	scf/event
Number of Reboilers	3	-
Duration of Event	1	hr/event
Maintenance Events per year	1	event/ year
Actual Pressure	15.2	psia
Maximum Temperature	100	°F
Annual Temperature	80	°F
Simultaneous Events	1	events

Pigging

Input Data	Value	Units
Unit #1 Volume Vented	198.2	scf/event
Unit #2 Volume Vented	315	scf/event
Unit #3 Volume Vented	315	scf/event
Maximum hourly number of pigging events	1	events/hr
Unit #1 Annual Number of Events	15	events/yr
Unit #2 Annual Number of Events	15	events/yr
Unit #3 Annual Number of Events	15	events/yr
Pipelines Purged Simultaneously	1	-
Actual Pressure	70	psig
Maximum Temperatue	100	°F
Annual Temperature	80	°F

Targa Northern Delaware: Plantview Compressor Station

Emission Calculation Inputs

Pipeline Blowdown - Only if pipeline is opened and a segment is vented

Input Data	Value	Units
Pipeline Diameter	16	inches
Pipeline Length	14948	ft
Duration of Event	2	hr/event
Maintenance events per year	1	events/yr
Actual Pressure	75	psia
Maximum Temperature	100	°F
Annual Temperature	80	°F
Pipeline volume vented	98903	scf/event

Tank Maintenance

Input Data	Value	Units
Number of tanks	2	Units
Molecular Weight of Vapors	38.45	lb/lb-mol
Duration of tank purging/degassing	24	hr/event
Volume of gas released during degassing event	3019.07	scf/event
Tank Height	16	ft
Tank Diameter	15.5	ft
Number of tank purging/degassing events per tank per year	1	event/yr

Surface Coating

Input Data	Value	Units
Maximum amount of paint used in an hour	25	gal/hr
Maximum amount of paint used in a year	100	gal/yr
Source Painted	tank	-

Abrasive Blasting

Input Data	Value	Units
Blasting Material	sand	-
Usage per Event	3100	lb/event
Events per year	1	-
Duration of event	6	hr/event

TARGA

Targa Northern Delaware: Plantview Compressor Station

SSM Summary

Description	NO_x		CO		VOC		PM		PM_{10}		$PM_{2.5}$		SO_2		H_2S		Total HAPs		CO_2	CH_4	N_2O	CO_2e
	(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)	(tpy)	(tpy)	(tpy)	(tpy)
Coalescer Blowdown	-	-	-	-	109.24	0.11	-	-	-	-	-	-	-	-	0.016	<0.01	2.76	<0.01	0.030	0.21	-	5.38
Scrubber Blowdown	-	-	-	-	535.12	1.34	-	-	-	-	-	-	-	-	0.078	<0.01	13.52	0.034	0.37	2.62	-	65.91
Compressor Blowdowns	-	-	-	-	496.80	7.45	-	-	-	-	-	-	-	-	0.073	<0.01	12.55	0.19	1.79	12.61	-	317.15
Pipeline Blowdown	-	-	-	-	782.91	0.78	-	-	-	-	-	-	-	-	0.11	<0.01	19.77	0.020	0.22	1.53	-	38.57
Pigging and Purging	-	-	-	-	4.99	0.098	-	-	-	-	-	-	-	-	<0.01	<0.01	0.13	<0.01	0.027	0.19	-	4.84
Surface Coating	-	-	-	-	73.00	0.15	0.77	<0.01	0.070	<0.01	0.01	<0.01	-	-	-	-	13.39	0.027	-	-	-	-
Reboiler Maintenance	-	-	-	-	1.03	<0.01	-	-	-	-	-	-	-	-	<0.01	<0.01	0.026	<0.01	<0.01	<0.01	-	0.076
Dehydrator Blowdowns	-	-	-	-	489.13	0.24	-	-	-	-	-	-	-	-	0.071	<0.01	12.35	0.01	-	-	-	-
Pump Blowdowns	-	-	-	-	0.51	<0.01	-	-	-	-	-	-	-	-	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	-	0.01
Abrasive Blaating	-	-	-	-	-	-	23.51	0.14	3.36	0.020	0.34	<0.01	-	-	-	-	-	-	-	-	-	-
Tank Degassing	-	-	-	-	73.80	0.33	-	-	-	-	-	-	-	-	<0.01	<0.01	2.06	0.01	<0.01	<0.01	-	<0.01
TOTAL	**--**	**--**	**--**	**--**	**2,566.52**	**10.50**	**24.28**	**0.14**	**3.43**	**0.020**	**0.34**	**<0.01**	**-**	**-**	**0.35**	**<0.01**	**76.56**	**0.29**	**2.44**	**17.18**	**-**	**431.95**

TARGA

Targa Northern Delaware: Plantview Compressor Station

RC Blowdowns Associated with C-1, C-3, C-5, C-6, C-7, C-9 (1340 hp and 1380 hp)

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Compressor Blowdown Emissions

Estimated Gas Vented per Blowdown Event 1 =	2,136	scf/event
Compressors at Site =	6	units
Compressors Blowndown Simultaneously =	6	units
Assumed Blowdown Duration =	1	hrs/event
Compressor Blowdowns in One Year =	180	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	0.0037	2.96E-02	4.44E-04	--	--	--
Nitrogen	2.2484	1.78E+01	2.67E-01	--	--	--
CO2	7.1513	5.65E+01	8.48E-01	--	--	--
Methane	50.3167	3.98E+02	5.96E+00	--	--	--
Ethane	14.2545	1.13E+02	1.69E+00	--	--	--
Propane	11.3928	9.00E+01	1.35E+00	--	--	--
i-Butane	2.1898	1.73E+01	2.60E-01	--	--	--
n-Butane	5.1757	4.09E+01	0.61	--	--	--
i-Pentane	1.7280	1.37E+01	2.05E-01	--	--	--
n-Pentane	1.8252	1.44E+01	2.16E-01	--	--	--
Neohexane	0.0227	1.79E-01	2.69E-03	--	--	--
Cyclopentane	0.1473	1.16E+00	1.75E-02	--	--	--
2-Methylpentane	0.5185	4.10E+00	6.15E-02	--	--	--
3-Methylpentane	0.2800	2.21E+00	3.32E-02	--	--	--
n-Hexane	0.6116	4.83E+00	7.25E-02	--	--	--
2,2-Dimethylpentane	0.0000	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	0.2431	1.92E+00	2.88E-02	--	--	--
Benzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclohexane	0.2295	1.81E+00	2.72E-02	--	--	--
2-Methylhexane	0.0053	4.22E-02	6.33E-04	--	--	--
3-Methylhexane	0.3891	3.08E+00	4.61E-02	--	--	--
1,1-Dimethylcyclopentane	0.1065	8.42E-01	1.26E-02	--	--	--
n-Heptane	0.0474	3.75E-01	5.62E-03	--	--	--
Methylcyclohexane	0.2197	1.74E+00	2.60E-02	--	--	--
2,5-Dimethylhexane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.0093	7.33E-02	1.10E-03	--	--	--
2-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
n-Octane	0.3547	2.80E+00	4.20E-02	--	--	--
Ethylcyclohexane	0.0701	5.54E-01	8.31E-03	--	--	--
Ethylbenzene	0.0069	5.43E-02	8.15E-04	--	--	--
p-Xylene	0.0000	0.00E+00	0.00E+00	--	--	--
o-Xylene	0.0208	1.64E-01	2.47E-03	--	--	--
n-Nonane	0.0134	1.06E-01	1.59E-03	--	--	--
Isopropylbenzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclooctane	0.0409	3.23E-01	4.85E-03	--	--	--
Propylbenzene	0.0074	5.84E-02	8.76E-04	--	--	--
1,3,5-Trimethylbenzene	0.0002	1.47E-03	2.21E-05	--	--	--
Isobutylbenzene	0.0020	1.58E-02	2.38E-04	--	--	--
Butylbenzene	0.0001	6.34E-04	9.51E-06	--	--	--
n-Decane	0.0195	1.54E-01	2.31E-03	--	--	--
Water	0.3476	2.75E+00	4.12E-02	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
MDEA	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**202.93**	**3.04**	**--**	**--**	**--**
H_2S	**0.004**	**0.030**	**4.44E-04**	**--**	**--**	**--**
Total HAP	**0.65**	**5.13**	**0.077**	**--**	**--**	**--**

[1] This is a representative estimate of the amount of gas vented per blow down event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

RC Blowdowns Associated with C-4 (1775 hp)

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Compressor Blowdown Emissions

Estimated Gas Vented per Blowdown Event 1 =	1,919	scf/event
Compressors at Site =	1	units
Compressors Blowndown Simultaneously =	1	units
Assumed Blowdown Duration =	1	hrs/event
Compressor Blowdowns in One Year =	30	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	0.0037	4.44E-03	6.66E-05	--	--	--
Nitrogen	2.2484	2.66E+00	3.99E-02	--	--	--
CO2	7.1513	8.46E+00	1.27E-01	--	--	--
Methane	50.3167	5.95E+01	8.93E-01	--	--	--
Ethane	14.2545	1.69E+01	2.53E-01	--	--	--
Propane	11.3928	1.35E+01	2.02E-01	--	--	--
i-Butane	2.1898	2.59E+00	3.89E-02	--	--	--
n-Butane	5.1757	6.12E+00	0.09	--	--	--
i-Pentane	1.7280	2.04E+00	3.07E-02	--	--	--
n-Pentane	1.8252	2.16E+00	3.24E-02	--	--	--
Neohexane	0.0227	2.69E-02	4.03E-04	--	--	--
Cyclopentane	0.1473	1.74E-01	2.62E-03	--	--	--
2-Methylpentane	0.5185	6.14E-01	9.20E-03	--	--	--
3-Methylpentane	0.2800	3.31E-01	4.97E-03	--	--	--
n-Hexane	0.6116	7.24E-01	1.09E-02	--	--	--
2,2-Dimethylpentane	0.0000	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	0.2431	2.88E-01	4.31E-03	--	--	--
Benzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclohexane	0.2295	2.72E-01	4.07E-03	--	--	--
2-Methylhexane	0.0053	6.31E-03	9.47E-05	--	--	--
3-Methylhexane	0.3891	4.60E-01	6.91E-03	--	--	--
1,1-Dimethylcyclopentane	0.1065	1.26E-01	1.89E-03	--	--	--
n-Heptane	0.0474	5.61E-02	8.41E-04	--	--	--
Methylcyclohexane	0.2197	2.60E-01	3.90E-03	--	--	--
2,5-Dimethylhexane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.0093	1.10E-02	1.65E-04	--	--	--
2-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
n-Octane	0.3547	4.20E-01	6.29E-03	--	--	--
Ethylcyclohexane	0.0701	8.30E-02	1.24E-03	--	--	--
Ethylbenzene	0.0069	8.14E-03	1.22E-04	--	--	--
p-Xylene	0.0000	0.00E+00	0.00E+00	--	--	--
o-Xylene	0.0208	2.46E-02	3.69E-04	--	--	--
n-Nonane	0.0134	1.59E-02	2.38E-04	--	--	--
Isopropylbenzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclooctane	0.0409	4.84E-02	7.27E-04	--	--	--
Propylbenzene	0.0074	8.75E-03	1.31E-04	--	--	--
1,3,5-Trimethylbenzene	0.0002	2.21E-04	3.31E-06	--	--	--
Isobutylbenzene	0.0020	2.37E-03	3.56E-05	--	--	--
Butylbenzene	0.0001	9.49E-05	1.42E-06	--	--	--
n-Decane	0.0195	2.31E-02	3.46E-04	--	--	--
Water	0.3476	4.11E-01	6.17E-03	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
MDEA	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**30.38**	**0.46**	**--**	**--**	**--**
H_2S	**0.0037**	**4.44E-03**	**6.66E-05**	**--**	**--**	**--**
Total HAP	**0.65**	**0.77**	**0.012**	**--**	**--**	**--**

[1] This is a representative estimate of the amount of gas vented per blow down event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

RC Blowdowns Associated with C-2 (1875 hp)

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Compressor Blowdown Emissions

Estimated Gas Vented per Blowdown Event 1 =	4,273	scf/event
Compressors at Site =	1	units
Compressors Blowndown Simultaneously =	1	units
Assumed Blowdown Duration =	1	hrs/event
Compressor Blowdowns in One Year =	30	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	0.0037	9.88E-03	1.48E-04	--	--	--
Nitrogen	2.2484	5.92E+00	8.88E-02	--	--	--
CO2	7.1513	1.88E+01	2.83E-01	--	--	--
Methane	50.3167	1.33E+02	1.99E+00	--	--	--
Ethane	14.2545	3.76E+01	5.63E-01	--	--	--
Propane	11.3928	3.00E+01	4.50E-01	--	--	--
i-Butane	2.1898	5.77E+00	8.65E-02	--	--	--
n-Butane	5.1757	1.36E+01	0.20	--	--	--
i-Pentane	1.7280	4.55E+00	6.83E-02	--	--	--
n-Pentane	1.8252	4.81E+00	7.21E-02	--	--	--
Neohexane	0.0227	5.98E-02	8.97E-04	--	--	--
Cyclopentane	0.1473	3.88E-01	5.82E-03	--	--	--
2-Methylpentane	0.5185	1.37E+00	2.05E-02	--	--	--
3-Methylpentane	0.2800	7.38E-01	1.11E-02	--	--	--
n-Hexane	0.6116	1.61E+00	2.42E-02	--	--	--
2,2-Dimethylpentane	0.0000	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	0.2431	6.40E-01	9.61E-03	--	--	--
Benzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclohexane	0.2295	6.05E-01	9.07E-03	--	--	--
2-Methylhexane	0.0053	1.41E-02	2.11E-04	--	--	--
3-Methylhexane	0.3891	1.03E+00	1.54E-02	--	--	--
1,1-Dimethylcyclopentane	0.1065	2.81E-01	4.21E-03	--	--	--
n-Heptane	0.0474	1.25E-01	1.87E-03	--	--	--
Methylcyclohexane	0.2197	5.79E-01	8.68E-03	--	--	--
2,5-Dimethylhexane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.0093	2.44E-02	3.67E-04	--	--	--
2-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
n-Octane	0.3547	9.34E-01	1.40E-02	--	--	--
Ethylcyclohexane	0.0701	1.85E-01	2.77E-03	--	--	--
Ethylbenzene	0.0069	1.81E-02	2.72E-04	--	--	--
p-Xylene	0.0000	0.00E+00	0.00E+00	--	--	--
o-Xylene	0.0208	5.48E-02	8.22E-04	--	--	--
n-Nonane	0.0134	3.54E-02	5.31E-04	--	--	--
Isopropylbenzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclooctane	0.0409	1.08E-01	1.62E-03	--	--	--
Propylbenzene	0.0074	1.95E-02	2.92E-04	--	--	--
1,3,5-Trimethylbenzene	0.0002	4.92E-04	7.37E-06	--	--	--
Isobutylbenzene	0.0020	5.28E-03	7.92E-05	--	--	--
Butylbenzene	0.0001	2.11E-04	3.17E-06	--	--	--
n-Decane	0.0195	5.14E-02	7.71E-04	--	--	--
Water	0.3476	9.16E-01	1.37E-02	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
MDEA	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**67.65**	**1.01**	**--**	**--**	**--**
H_2S	**0.0037**	**0.010**	**1.48E-04**	**--**	**--**	**--**
Total HAP	**0.65**	**1.71**	**0.026**	**--**	**--**	**--**

[1] This is a representative estimate of the amount of gas vented per blow down event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

RC Blowdowns Associated with C-8, C-10 (2500 hp)

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# compressors blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Compressor Blowdown Emissions

Estimated Gas Vented per Blowdown Event 1 =	6,185	scf/event
Compressors at Site =	2	units
Compressors Blowndown Simultaneously =	2	units
Assumed Blowdown Duration =	1	hrs/event
Compressor Blowdowns in One Year =	60	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	0.0037	2.86E-02	4.29E-04	--	--	--
Nitrogen	2.2484	1.71E+01	2.57E-01	--	--	--
CO2	7.1513	5.45E+01	8.18E-01	--	--	--
Methane	50.3167	3.84E+02	5.76E+00	--	--	--
Ethane	14.2545	1.09E+02	1.63E+00	--	--	--
Propane	11.3928	8.69E+01	1.30E+00	--	--	--
i-Butane	2.1898	1.67E+01	2.51E-01	--	--	--
n-Butane	5.1757	3.95E+01	0.59	--	--	--
i-Pentane	1.7280	1.32E+01	1.98E-01	--	--	--
n-Pentane	1.8252	1.39E+01	2.09E-01	--	--	--
Neohexane	0.0227	1.73E-01	2.60E-03	--	--	--
Cyclopentane	0.1473	1.12E+00	1.69E-02	--	--	--
2-Methylpentane	0.5185	3.95E+00	5.93E-02	--	--	--
3-Methylpentane	0.2800	2.14E+00	3.20E-02	--	--	--
n-Hexane	0.6116	4.66E+00	7.00E-02	--	--	--
2,2-Dimethylpentane	0.0000	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	0.2431	1.85E+00	2.78E-02	--	--	--
Benzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclohexane	0.2295	1.75E+00	2.63E-02	--	--	--
2-Methylhexane	0.0053	4.07E-02	6.10E-04	--	--	--
3-Methylhexane	0.3891	2.97E+00	4.45E-02	--	--	--
1,1-Dimethylcyclopentane	0.1065	8.12E-01	1.22E-02	--	--	--
n-Heptane	0.0474	3.62E-01	5.42E-03	--	--	--
Methylcyclohexane	0.2197	1.68E+00	2.51E-02	--	--	--
2,5-Dimethylhexane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.0093	7.08E-02	1.06E-03	--	--	--
2-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
n-Octane	0.3547	2.70E+00	4.06E-02	--	--	--
Ethylcyclohexane	0.0701	5.35E-01	8.02E-03	--	--	--
Ethylbenzene	0.0069	5.25E-02	7.87E-04	--	--	--
p-Xylene	0.0000	0.00E+00	0.00E+00	--	--	--
o-Xylene	0.0208	1.59E-01	2.38E-03	--	--	--
n-Nonane	0.0134	1.02E-01	1.54E-03	--	--	--
Isopropylbenzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclooctane	0.0409	3.12E-01	4.68E-03	--	--	--
Propylbenzene	0.0074	5.64E-02	8.46E-04	--	--	--
1,3,5-Trimethylbenzene	0.0002	1.42E-03	2.13E-05	--	--	--
Isobutylbenzene	0.0020	1.53E-02	2.29E-04	--	--	--
Butylbenzene	0.0001	6.12E-04	9.17E-06	--	--	--
n-Decane	0.0195	1.49E-01	2.23E-03	--	--	--
Water	0.3476	2.65E+00	3.98E-02	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
MDEA	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**195.84**	**2.94**	**--**	**--**	**--**
H_2S	**0.0037**	**0.029**	**4.29E-04**	**--**	**--**	**--**
Total HAP	**0.65**	**4.95**	**0.074**	**--**	**--**	**--**

[1] This is a representative estimate of the amount of gas vented per blow down event.

Targa Northern Delaware: Plantview Compressor Station

Compressor Blowdowns

Compressor	Number of Compressors	Volume per Compressor Event (scf/event)	Annual events per Compressor	Annual Release (scf/yr)	Hourly Volume (scf/hr)	Molecular Weight (lb/lb-mol)
RC Blowdowns associated with C-1, C-3, C-5, C-6, C-7, C-9	6	2136.3	180	2307204	12817.8	23
RC blowdowns associated with C-4	1	1919.2	30	57576	1919.2	23
RC Blowdowns associated with C-2	1	4272.7	30	128181	4272.7	23
RC Blowdowns associated with C-8, C-10	2	6185	60	742200	12370	23

Uncontrolled Emissions	VOC		H_2S		Total HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
RC Blowdowns associated with C-1, C-3, C-5, C-6, C-7, C-9	202.93	3.04	0.030	4.44E-04	5.13	0.077
RC blowdowns associated with C-4	30.38	0.46	4.44E-03	6.66E-05	0.77	0.012
RC Blowdowns associated with C-2	67.65	1.01	9.88E-03	1.48E-04	1.71	0.026
RC Blowdowns associated with C-8, C-10	195.84	2.94	0.029	4.29E-04	4.95	0.074
TOTAL	496.80	7.45	0.073	1.09E-03	12.55	0.19

Targa Northern Delaware: Plantview Compressor Station

Filter Coalescer Blowdowns

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# units blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# units blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Filter Coalescer Blowdown Emissions

Estimated Gas Vented per Blowdown Event 1 =	6,900	scf/event
Units at Site =	1	units
Units Blowndown Simultaneously =	1	units
Blowdown Duration =	1	hrs/event
Unit Blowdowns in One Year =	2	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	0.0037	1.60E-02	1.60E-05	--	--	--
Nitrogen	2.2484	9.57E+00	9.57E-03	--	--	--
CO2	7.1513	3.04E+01	3.04E-02	--	--	--
Methane	50.3167	2.14E+02	2.14E-01	--	--	--
Ethane	14.2545	6.06E+01	6.06E-02	--	--	--
Propane	11.3928	4.85E+01	4.85E-02	--	--	--
i-Butane	2.1898	9.32E+00	9.32E-03	--	--	--
n-Butane	5.1757	2.20E+01	2.20E-02	--	--	--
i-Pentane	1.7280	7.35E+00	0.01	--	--	--
n-Pentane	1.8252	7.76E+00	7.76E-03	--	--	--
Neohexane	0.0227	9.66E-02	9.66E-05	--	--	--
Cyclopentane	0.1473	6.27E-01	6.27E-04	--	--	--
2-Methylpentane	0.5185	2.21E+00	2.21E-03	--	--	--
3-Methylpentane	0.2800	1.19E+00	1.19E-03	--	--	--
n-Hexane	0.6116	2.60E+00	2.60E-03	--	--	--
2,2-Dimethylpentane	0.0000	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	0.2431	1.03E+00	1.03E-03	--	--	--
Benzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclohexane	0.2295	9.76E-01	9.76E-04	--	--	--
2-Methylhexane	0.0053	2.27E-02	2.27E-05	--	--	--
3-Methylhexane	0.3891	1.66E+00	1.66E-03	--	--	--
1,1-Dimethylcyclopentane	0.1065	4.53E-01	4.53E-04	--	--	--
n-Heptane	0.0474	2.02E-01	2.02E-04	--	--	--
Methylcyclohexane	0.2197	9.35E-01	9.35E-04	--	--	--
2,5-Dimethylhexane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.0093	3.95E-02	3.95E-05	--	--	--
2-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
n-Octane	0.3547	1.51E+00	1.51E-03	--	--	--
Ethylcyclohexane	0.0701	2.98E-01	2.98E-04	--	--	--
Ethylbenzene	0.0069	2.93E-02	2.93E-05	--	--	--
p-Xylene	0.0000	0.00E+00	0.00E+00	--	--	--
o-Xylene	0.0208	8.85E-02	8.85E-05	--	--	--
n-Nonane	0.0134	5.71E-02	5.71E-05	--	--	--
Isopropylbenzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclooctane	0.0409	1.74E-01	1.74E-04	--	--	--
Propylbenzene	0.0074	3.14E-02	3.14E-05	--	--	--
1,3,5-Trimethylbenzene	0.0002	7.94E-04	7.94E-07	--	--	--
Isobutylbenzene	0.0020	8.52E-03	8.52E-06	--	--	--
Butylbenzene	0.0001	3.41E-04	3.41E-07	--	--	--
n-Decane	0.0195	8.30E-02	8.30E-05	--	--	--
Water	0.3476	1.48E+00	1.48E-03	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
MDEA	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**109.24**	**0.11**	--	--	--
H_2S	**0.004**	**0.016**	**0.00002**	--	--	--
Total HAP	**0.65**	**2.76**	**0.003**	--	--	--

[1] This is a representative estimate of the amount of gas vented per blow down event.

Targa Northern Delaware: Plantview Compressor Station

Scrubber Blowdown

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# units blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# units blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Scrubber Blowdown Emissions

Estimated Gas Vented per Blowdown Event 1 =	33,800	scf/event
Units at Site =	5	units
Units Blowndown Simultaneously =	1	units
Blowdown Duration =	1	hrs/event
Unit Blowdowns in One Year =	1	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	0.0037	7.81E-02	1.95E-04	--	--	--
Nitrogen	2.2484	4.69E+01	1.17E-01	--	--	--
CO2	7.1513	1.49E+02	3.73E-01	--	--	--
Methane	50.3167	1.05E+03	2.62E+00	--	--	--
Ethane	14.2545	2.97E+02	7.43E-01	--	--	--
Propane	11.3928	2.37E+02	5.94E-01	--	--	--
i-Butane	2.1898	4.56E+01	1.14E-01	--	--	--
n-Butane	5.1757	1.08E+02	2.70E-01	--	--	--
i-Pentane	1.7280	3.60E+01	0.09	--	--	--
n-Pentane	1.8252	3.80E+01	9.51E-02	--	--	--
Neohexane	0.0227	4.73E-01	1.18E-03	--	--	--
Cyclopentane	0.1473	3.07E+00	7.68E-03	--	--	--
2-Methylpentane	0.5185	1.08E+01	2.70E-02	--	--	--
3-Methylpentane	0.2800	5.83E+00	1.46E-02	--	--	--
n-Hexane	0.6116	1.27E+01	3.19E-02	--	--	--
2,2-Dimethylpentane	0.0000	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	0.2431	5.07E+00	1.27E-02	--	--	--
Benzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclohexane	0.2295	4.78E+00	1.20E-02	--	--	--
2-Methylhexane	0.0053	1.11E-01	2.78E-04	--	--	--
3-Methylhexane	0.3891	8.11E+00	2.03E-02	--	--	--
1,1-Dimethylcyclopentar	0.1065	2.22E+00	5.55E-03	--	--	--
n-Heptane	0.0474	9.88E-01	2.47E-03	--	--	--
Methylcyclohexane	0.2197	4.58E+00	1.14E-02	--	--	--
2,5-Dimethylhexane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.0093	1.93E-01	4.83E-04	--	--	--
2-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
n-Octane	0.3547	7.39E+00	1.85E-02	--	--	--
Ethylcyclohexane	0.0701	1.46E+00	3.65E-03	--	--	--
Ethylbenzene	0.0069	1.43E-01	3.58E-04	--	--	--
p-Xylene	0.0000	0.00E+00	0.00E+00	--	--	--
o-Xylene	0.0208	4.33E-01	1.08E-03	--	--	--
n-Nonane	0.0134	2.80E-01	7.00E-04	--	--	--
Isopropylbenzene	0.0000	0.00E+00	0.00E+00	--	--	--
Cyclooctane	0.0409	8.53E-01	2.13E-03	--	--	--
Propylbenzene	0.0074	1.54E-01	3.85E-04	--	--	--
1,3,5-Trimethylbenzene	0.0002	3.89E-03	9.72E-06	--	--	--
Isobutylbenzene	0.0020	4.18E-02	1.04E-04	--	--	--
Butylbenzene	0.0001	1.67E-03	4.18E-06	--	--	--
n-Decane	0.0195	4.06E-01	1.02E-03	--	--	--
Water	0.3476	7.24E+00	1.81E-02	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
MDEA	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**535.12**	**1.34**	--	--	--
H_2S	**0.0037**	**0.078**	**0.00020**	--	--	--
Total HAP	**0.65**	**13.52**	**0.034**	--	--	--

[1] This is a representative estimate of the amount of gas vented per blow down event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Pipeline Blowdown

Basis of Calculation:
Emissions from pipeline maintenance operations are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions for each Unit (lb/hr) = [Volume of gas in pipe (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] * [events per hour (event/hr) / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions for each Unit (tpy) = [Volume of gas in pipe (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [frequency of events (events/yr)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Pipeline Blowdown Emissions

Pipeline Volume Vented =	98902.71	scf/yr
Molecular Weight of Stream =	23	lb/lb-mol
Duration =	2	hrs
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	3.75E-03	1.14E-01	1.14E-04	--	--	--
Nitrogen	2.25E+00	6.86E+01	6.86E-02	--	--	--
CO2	7.15E+00	2.18E+02	2.18E-01	--	--	--
Methane	5.03E+01	1.53E+03	1.53E+00	--	--	--
Ethane	1.43E+01	4.35E+02	4.35E-01	--	--	--
Propane	1.14E+01	3.47E+02	3.47E-01	--	--	--
i-Butane	2.19E+00	6.68E+01	6.68E-02	--	--	--
n-Butane	5.18E+00	1.58E+02	1.58E-01	--	--	--
i-Pentane	1.73E+00	5.27E+01	5.27E-02	--	--	--
n-Pentane	1.83E+00	5.56E+01	5.56E-02	--	--	--
Neohexane	2.27E-02	6.92E-01	6.92E-04	--	--	--
Cyclopentane	1.47E-01	4.49E+00	4.49E-03	--	--	--
2-Methylpentane	5.19E-01	1.58E+01	1.58E-02	--	--	--
3-Methylpentane	2.80E-01	8.54E+00	8.54E-03	--	--	--
n-Hexane	6.12E-01	1.86E+01	1.86E-02	--	--	--
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00	--	--	--
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	2.43E-01	7.41E+00	7.41E-03	--	--	--
Benzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclohexane	2.29E-01	7.00E+00	7.00E-03	--	--	--
2-Methylhexane	5.34E-03	1.63E-01	1.63E-04	--	--	--
3-Methylhexane	3.89E-01	1.19E+01	1.19E-02	--	--	--
1,1-Dimethylcyclopentane	1.07E-01	3.25E+00	3.25E-03	--	--	--
n-Heptane	4.74E-02	1.45E+00	1.45E-03	--	--	--
Methylcyclohexane	2.20E-01	6.70E+00	6.70E-03	--	--	--
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	9.28E-03	2.83E-01	2.83E-04	--	--	--
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
n-Octane	3.55E-01	1.08E+01	1.08E-02	--	--	--
Ethylcyclohexane	7.01E-02	2.14E+00	2.14E-03	--	--	--
Ethylbenzene	6.88E-03	2.10E-01	2.10E-04	--	--	--
p-Xylene	0.00E+00	0.00E+00	0.00E+00	--	--	--
o-Xylene	2.08E-02	6.34E-01	6.34E-04	--	--	--
n-Nonane	1.34E-02	4.10E-01	4.10E-04	--	--	--
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclooctane	4.09E-02	1.25E+00	1.25E-03	--	--	--
Propylbenzene	7.39E-03	2.25E-01	2.25E-04	--	--	--
1,3,5-Trimethylbenzene	1.87E-04	5.69E-03	5.69E-06	--	--	--
Isobutylbenzene	2.00E-03	6.11E-02	6.11E-05	--	--	--
Butylbenzene	8.02E-05	2.45E-03	2.45E-06	--	--	--
n-Decane	1.95E-02	5.95E-01	5.95E-04	--	--	--
Water	3.48E-01	1.06E+01	1.06E-02	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
MDEA	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**782.91**	**0.78**	--	--	--
H_2S	**0.0037**	**0.114**	**0.0001**	--	--	--
Total HAP	**0.65**	**19.77**	**0.020**	--	--	--

1 This is a representative estimate of the amount of gas vented per Blowdown event.

Targa Northern Delaware: Plantview Compressor Station

Pigging Emissions

Basis of Calculation:
Emissions from pigging operations are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions for each Unit (lb/hr) = [Volume of gas in pipe (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] * [events per hour (event/hr) / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions for each Unit (tpy) = [Volume of gas in pipe (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [frequency of events (events/yr)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

For sites with multiple units, the total annual emissions are calculated by summing emissions for all units. It is assumed only one unit can be pigged/purged in one hour; therefore, the maximum volume of the units is used for the hourly calculations.

Pigging and Purging Emissions

Unit #1 - Volume Vented =	198.20	scf/event
Unit #2 - Volume Vented =	315	scf/event
Unit #3 - Volume Vented =	315	scf/event
Maximum Number of Hourly Pigging/Purging Events	1	events/hr
Unit #1 - Annual Number of Events =	15	events/yr
Unit #2 - Annual Number of Events =	15	events/yr
Unit #3 - Annual Number of Events =	15	events/yr
Pipelines Purged Simultaneously =	1	lines
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	3.75E-03	7.28E-04	1.44E-05	--	--	--
Nitrogen	2.25E+00	4.37E-01	8.61E-03	--	--	--
CO2	7.15E+00	1.39E+00	2.74E-02	--	--	--
Methane	5.03E+01	9.77E+00	1.93E-01	--	--	--
Ethane	1.43E+01	2.77E+00	5.46E-02	--	--	--
Propane	1.14E+01	2.21E+00	4.36E-02	--	--	--
i-Butane	2.19E+00	4.25E-01	8.39E-03	--	--	--
n-Butane	5.18E+00	1.01E+00	1.98E-02	--	--	--
i-Pentane	1.73E+00	3.36E-01	6.62E-03	--	--	--
n-Pentane	1.83E+00	3.54E-01	6.99E-03	--	--	--
Neohexane	2.27E-02	4.41E-03	8.69E-05	--	--	--
Cyclopentane	1.47E-01	2.86E-02	5.64E-04	--	--	--
2-Methylpentane	5.19E-01	1.01E-01	1.99E-03	--	--	--
3-Methylpentane	2.80E-01	5.44E-02	1.07E-03	--	--	--
n-Hexane	6.12E-01	1.19E-01	2.34E-03	--	--	--
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	2.43E-01	4.72E-02	9.31E-04	--	--	--
Benzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclohexane	2.29E-01	4.46E-02	8.79E-04	--	--	--
2-Methylhexane	5.34E-03	1.04E-03	2.04E-05	--	--	--
3-Methylhexane	3.89E-01	7.56E-02	1.49E-03	--	--	--
1,1-Dimethylcyclopentane	1.07E-01	2.07E-02	4.08E-04	--	--	--
n-Heptane	4.74E-02	9.21E-03	1.82E-04	--	--	--
Methylcyclohexane	2.20E-01	4.27E-02	8.41E-04	--	--	--
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	9.28E-03	1.80E-03	3.55E-05	--	--	--
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
n-Octane	3.55E-01	6.89E-02	1.36E-03	--	--	--
Ethylcyclohexane	7.01E-02	1.36E-02	2.69E-04	--	--	--
Ethylbenzene	6.88E-03	1.34E-03	2.63E-05	--	--	--
p-Xylene	0.00E+00	0.00E+00	0.00E+00	--	--	--
o-Xylene	2.08E-02	4.04E-03	7.97E-05	--	--	--
n-Nonane	1.34E-02	2.61E-03	5.14E-05	--	--	--
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclooctane	4.09E-02	7.95E-03	1.57E-04	--	--	--
Propylbenzene	7.39E-03	1.44E-03	2.83E-05	--	--	--
1,3,5-Trimethylbenzene	1.87E-04	3.62E-05	7.15E-07	--	--	--
Isobutylbenzene	2.00E-03	3.89E-04	7.67E-06	--	--	--
Butylbenzene	8.02E-05	1.56E-05	3.07E-07	--	--	--
n-Decane	1.95E-02	3.79E-03	7.47E-05	--	--	--
Water	3.48E-01	6.75E-02	1.33E-03	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
MDEA	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**4.99**	**0.10**	**--**	**-**	**-**
H_2S	**3.75E-03**	**7.28E-04**	**1.44E-05**	**--**	**--**	**--**
Total HAP	**0.65**	**0.13**	**0.002**	**--**	**-**	**-**

1 This is a representative estimate of the amount of gas vented per Blowdown event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Surface Coating Emissions

Basis of Calculation:

TCEQ's Painting Basics and Emissions Calculations for TCEQ Air Quality Permit Applications, November 5, 2012

VOC calculations are based on the product usage, VOC or HAP content, and density of a general paint used for MSS. The paint chosen has the highest VOC content of all paints typically used for these activities. It has been assumed that all VOC in the solution escapes to atmosphere. Emissions are calculated using the following equations:

Hourly VOC Emissions (lb/hr) = [Usage Rate (gal/hr)] * [VOC or HAP Content (lb/gal)]

Annual VOC Emissions (tpy) = [Usage Rate (gal/yr)] * [VOC or HAP Content lb/gal)] / [2,000 (lb/ton)]

It is assumed that all surface coating products are sprayed. Particulate emissions are calculated based on the usage rate and solids content for the product, as well as a transfer efficiency and fallout factor obtained from TCEQ's Painting Basics and Emissions Calculations for TCEQ Air Quality Permit Applications. The following equations are used to calculated particulate emissions:

Short-term PM emissions (lb/hr) = Solids Content (%) x Density (lb/gal) x Volume of Product used (gal/hr) x (1 - Transfer Efficiency (%)) x (1-Fallout Factor (%))

Annual PM emissions (tpy) = Solids Content (%) x Density (lb/gal) x Volume of Product used (gal/yr) x (1 - Transfer Efficiency (%)) x (1-Fallout Factor (%)) / 2,000 (lb/ton)

Potential VOC and HAP Emissions from Paint Usage (MSS)

Product	Density (lb/gal) [1]	VOC Content (lb/gal) [1]	HAP Content (wt %) [1]	Usage Rates		VOC Emissions		HAP Emissions	
				(gal/hr)	(gal/yr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Paint	10.71	2.92	5.0	25	100	73.00	0.15	13.39	0.027
					Totals	**73.00**	**0.15**	**13.39**	**0.027**

[1] Based on representative characteristics of common paint.

Potential PM/PM_{10}/$PM_{2.5}$ Emissions from Spray Paint Usage (MSS)

Product	Solids Content [1] (wt %)	Usage Rates		Object Coated	Transfer Efficiency [2] (%)	Fallout Factor (%) [3]			PM Emissions		PM_{10} Emissions		$PM_{2.5}$ Emissions	
		(gal/hr)	(gal/yr)			PM	PM_{10}	$PM_{2.5}$	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Paint	80	25.00	100.00	Flat Surface	75	98.56	99.87	99.99	0.77	1.54E-03	0.070	1.39E-04	0.0054	1.07E-05

[1] Per the representative Material Safety Data Sheet (MSDS)
[2] Transfer efficiency per TCEQ guidance (TCEQ's Painting Basics and Emissions Calculations for TCEQ Air Quality Permit Applications, November 5, 2012).
[3] Fallout factors per TCEQ's Painting Basics and Emissions Calculations for TCEQ Air Quality Permit Applications, November 5, 2012, Table 2.

Speciated Emissions

Composition	% by Weight	Emissions	
		(lb/hr)	(tpy)
Ethylbenzene	0.7	1.87	<0.01
Xylene	4.0	10.71	0.021
Medium Aromatic Hydrocarbons	2.0	5.36	0.011
Napthalene	0.3	0.80	<0.01
Methyl Ethyl Ketone	5.0	13.39	0.027
n-Butyl Acetate	9.0	24.10	0.048
1-methoxy-2-propanol Acetate	6.0	16.07	0.032
		72.29	**0.14**

TARGA

Targa Northern Delaware: Plantview Compressor Station

Reboiler Maintenance

Basis of Calculation:
Emissions from reboiler maintenance activities are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of Gas Vented (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# Reboilers worked on simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of Gas Vented (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# Reboilers at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Reboiler Maintenance Emissions

Estimated Gas Vented per Event [1] =	65	scf/event
Reboilers at Site =	3	units
Reboilers Maintenance Events Occurring Simultaneously =	1	events
Assumed Reboiler Maintenance Duration =	1	hrs/event
Reboiler Maintenance Activities in One Year =	1	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	3.75E-03	1.50E-04	2.25E-07	--	--	--
Nitrogen	2.25E+00	9.01E-02	1.35E-04	--	--	--
CO2	7.15E+00	2.87E-01	4.30E-04	--	--	--
Methane	5.03E+01	2.02E+00	3.02E-03	--	--	--
Ethane	1.43E+01	5.71E-01	8.57E-04	--	--	--
Propane	1.14E+01	4.57E-01	6.85E-04	--	--	--
i-Butane	2.19E+00	8.78E-02	1.32E-04	--	--	--
n-Butane	5.18E+00	2.07E-01	3.11E-04	--	--	--
i-Pentane	1.73E+00	6.93E-02	1.04E-04	--	--	--
n-Pentane	1.83E+00	7.31E-02	1.10E-04	--	--	--
Neohexane	2.27E-02	9.10E-04	1.36E-06	--	--	--
Cyclopentane	1.47E-01	5.91E-03	8.86E-06	--	--	--
2-Methylpentane	5.19E-01	2.08E-02	3.12E-05	--	--	--
3-Methylpentane	2.80E-01	1.12E-02	1.68E-05	--	--	--
n-Hexane	6.12E-01	2.45E-02	3.68E-05	--	--	--
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	2.43E-01	9.74E-03	1.46E-05	--	--	--
Benzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclohexane	2.29E-01	9.20E-03	1.38E-05	--	--	--
2-Methylhexane	5.34E-03	2.14E-04	3.21E-07	--	--	--
3-Methylhexane	3.89E-01	1.56E-02	2.34E-05	--	--	--
1,1-Dimethylcyclopentane	1.07E-01	4.27E-03	6.40E-06	--	--	--
n-Heptane	4.74E-02	1.90E-03	2.85E-06	--	--	--
Methylcyclohexane	2.20E-01	8.81E-03	1.32E-05	--	--	--
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	9.28E-03	3.72E-04	5.58E-07	--	--	--
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
n-Octane	3.55E-01	1.42E-02	2.13E-05	--	--	--
Ethylcyclohexane	7.01E-02	2.81E-03	4.21E-06	--	--	--
Ethylbenzene	6.88E-03	2.76E-04	4.13E-07	--	--	--
p-Xylene	0.00E+00	0.00E+00	0.00E+00	--	--	--
o-Xylene	2.08E-02	8.34E-04	1.25E-06	--	--	--
n-Nonane	1.34E-02	5.38E-04	8.07E-07	--	--	--
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclooctane	4.09E-02	1.64E-03	2.46E-06	--	--	--
Propylbenzene	7.39E-03	2.96E-04	4.44E-07	--	--	--
1,3,5-Trimethylbenzene	1.87E-04	7.48E-06	1.12E-08	--	--	--
Isobutylbenzene	2.00E-03	8.03E-05	1.20E-07	--	--	--
Butylbenzene	8.02E-05	3.21E-06	4.82E-09	--	--	--
n-Decane	1.95E-02	7.82E-04	1.17E-06	--	--	--
Water	3.48E-01	1.39E-02	2.09E-05	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
MDEA	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**1.03**	**1.54E-03**	**-**	**-**	**-**
H_2S	**3.75E-03**	**1.50E-04**	**2.25E-07**	**--**	**--**	**--**
Total HAP	**0.65**	**0.026**	**3.90E-05**	**-**	**-**	**-**

[1] This is a representative estimate of the amount of gas vented per reboiler maintenance event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Pump Blowdowns

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of blowdown (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# units blowndown simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of blowdown (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# units blowndown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Pump Blowdown Emissions

Estimated Gas Vented per Blowdown Event [1] =	16	scf/event
Units at Site =	2	units
Units Blowndown Simultaneously =	2	units
Assumed Blowdown Duration =	1	hrs/event
Unit Blowdowns in One Year =	1	events/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	3.75E-03	7.40E-05	1.85E-08	--	--	--
Nitrogen	2.25E+00	4.44E-02	1.11E-05	--	--	--
CO2	7.15E+00	1.41E-01	3.53E-05	--	--	--
Methane	5.03E+01	9.93E-01	2.48E-04	--	--	--
Ethane	1.43E+01	2.81E-01	7.03E-05	--	--	--
Propane	1.14E+01	2.25E-01	5.62E-05	--	--	--
i-Butane	2.19E+00	4.32E-02	1.08E-05	--	--	--
n-Butane	5.18E+00	1.02E-01	2.55E-05	--	--	--
i-Pentane	1.73E+00	3.41E-02	8.52E-06	--	--	--
n-Pentane	1.83E+00	3.60E-02	9.00E-06	--	--	--
Neohexane	2.27E-02	4.48E-04	1.12E-07	--	--	--
Cyclopentane	1.47E-01	2.91E-03	7.27E-07	--	--	--
2-Methylpentane	5.19E-01	1.02E-02	2.56E-06	--	--	--
3-Methylpentane	2.80E-01	5.52E-03	1.38E-06	--	--	--
n-Hexane	6.12E-01	1.21E-02	3.02E-06	--	--	--
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	2.43E-01	4.80E-03	1.20E-06	--	--	--
Benzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclohexane	2.29E-01	4.53E-03	1.13E-06	--	--	--
2-Methylhexane	5.34E-03	1.05E-04	2.63E-08	--	--	--
3-Methylhexane	3.89E-01	7.68E-03	1.92E-06	--	--	--
1,1-Dimethylcyclopenta	1.07E-01	2.10E-03	5.25E-07	--	--	--
n-Heptane	4.74E-02	9.35E-04	2.34E-07	--	--	--
Methylcyclohexane	2.20E-01	4.33E-03	1.08E-06	--	--	--
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	9.28E-03	1.83E-04	4.58E-08	--	--	--
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
n-Octane	3.55E-01	7.00E-03	1.75E-06	--	--	--
Ethylcyclohexane	7.01E-02	1.38E-03	3.46E-07	--	--	--
Ethylbenzene	6.88E-03	1.36E-04	3.39E-08	--	--	--
p-Xylene	0.00E+00	0.00E+00	0.00E+00	--	--	--
o-Xylene	2.08E-02	4.10E-04	1.03E-07	--	--	--
n-Nonane	1.34E-02	2.65E-04	6.63E-08	--	--	--
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclooctane	4.09E-02	8.08E-04	2.02E-07	--	--	--
Propylbenzene	7.39E-03	1.46E-04	3.65E-08	--	--	--
1,3,5-Trimethylbenzene	1.87E-04	3.68E-06	9.20E-10	--	--	--
Isobutylbenzene	2.00E-03	3.95E-05	9.88E-09	--	--	--
Butylbenzene	8.02E-05	1.58E-06	3.96E-10	--	--	--
n-Decane	1.95E-02	3.85E-04	9.62E-08	--	--	--
Water	3.48E-01	6.86E-03	1.71E-06	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
MDEA	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**0.51**	**1.27E-04**	**--**	**--**	**--**
H_2S	**3.75E-03**	**7.40E-05**	**1.85E-08**	**--**	**--**	**--**
Total HAP	**0.65**	**0.013**	**3.20E-06**	**--**	**--**	**--**

[1] This is a representative estimate of the amount of gas vented per blow down event.

TARGA

Targa Northern Delaware: Plantview Compressor Station

Abrasive Blasting

Basis of Calculation:
These calculations represent emissions resulting from dry abrasive blasting. Emission factors are based on U.S. EPA AP-42, Chapter 13.2.6, Abrasive Blasting.

Dry Abrasive Blasting

Blasting Material	Usage per Event (lb/event)	Duration of Event (hr/event)	Events per Year (event/yr)	Emissions Factor [1] (lb/1000 lb abrasive)			Hourly Emissions (lb/hr)			Annual Emissions (tpy)		
				PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Sand	3,100	6.00	1.00	91	13	1.3	23.51	3.36	0.336	0.14	0.020	2.02E-03
						Total Emissions:	**23.51**	**3.36**	**0.336**	**0.14**	**0.020**	**<0.01**

[1] Worst-case emission factor for PM based on 15 mph wind speed.
[2] Emission Factors from AP-42 13.2.6-1

mph	PM Emission Factor
5	27
10	55
15	91

Targa Northern Delaware: Plantview Compressor Station

Dehydrator Blowdowns

Basis of Calculation:
Emissions from blowdowns are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Estimated blowdown volume (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] / [hour/event] / [379.5 (scf/lb-mol)]

Maximum Uncontrolled Annual Emissions (tpy) = [Estimated blowdown volume (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] * [event/yr] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

The hourly volume is calculated from the sum of the blowdown volumes from each component of the dehydrator (i.e. the contactor, scrubber, flash tank, and filters).

Dehydrator Blowdown Emissions

Estimated Hourly Blowdown Volume 1 =	30,895	scf/event
Number of Units =	2	units
Assumed Blowdown Duration =	1	hr/event
Blowdowns Per Year =	1	event/yr
Molecular Weight of Stream =	23	lb/lb-mol
Control Type =	None	

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)	Control Efficiency (%)	Maximum Controlled Hourly Emissions (lb/hr)	Maximum Controlled Annual Emissions (tpy)
H2S	3.75E-03	7.14E-02	3.57E-05	--	--	--
Nitrogen	2.25E+00	4.28E+01	2.14E-02	--	--	--
CO2	7.15E+00	1.36E+02	6.81E-02	--	--	--
Methane	5.03E+01	9.58E+02	4.79E-01	--	--	--
Ethane	1.43E+01	2.72E+02	1.36E-01	--	--	--
Propane	1.14E+01	2.17E+02	1.09E-01	--	--	--
i-Butane	2.19E+00	4.17E+01	2.09E-02	--	--	--
n-Butane	5.18E+00	9.86E+01	4.93E-02	--	--	--
i-Pentane	1.73E+00	3.29E+01	1.65E-02	--	--	--
n-Pentane	1.83E+00	3.48E+01	1.74E-02	--	--	--
Neohexane	2.27E-02	4.32E-01	2.16E-04	--	--	--
Cyclopentane	1.47E-01	2.81E+00	1.40E-03	--	--	--
2-Methylpentane	5.19E-01	9.88E+00	4.94E-03	--	--	--
3-Methylpentane	2.80E-01	5.33E+00	2.67E-03	--	--	--
n-Hexane	6.12E-01	1.16E+01	5.82E-03	--	--	--
2,2-Dimethylpentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Methylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,2,3-Trimethylbutane	2.43E-01	4.63E+00	2.32E-03	--	--	--
Benzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclohexane	2.29E-01	4.37E+00	2.19E-03	--	--	--
2-Methylhexane	5.34E-03	1.02E-01	5.08E-05	--	--	--
3-Methylhexane	3.89E-01	7.41E+00	3.71E-03	--	--	--
1,1-Dimethylcyclopentan	1.07E-01	2.03E+00	1.01E-03	--	--	--
n-Heptane	4.74E-02	9.03E-01	4.51E-04	--	--	--
Methylcyclohexane	2.20E-01	4.19E+00	2.09E-03	--	--	--
2,5-Dimethylhexane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	9.28E-03	1.77E-01	8.84E-05	--	--	--
2-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
n-Octane	3.55E-01	6.76E+00	3.38E-03	--	--	--
Ethylcyclohexane	7.01E-02	1.34E+00	6.68E-04	--	--	--
Ethylbenzene	6.88E-03	1.31E-01	6.55E-05	--	--	--
p-Xylene	0.00E+00	0.00E+00	0.00E+00	--	--	--
o-Xylene	2.08E-02	3.96E-01	1.98E-04	--	--	--
n-Nonane	1.34E-02	2.56E-01	1.28E-04	--	--	--
Isopropylbenzene	0.00E+00	0.00E+00	0.00E+00	--	--	--
Cyclooctane	4.09E-02	7.80E-01	3.90E-04	--	--	--
Propylbenzene	7.39E-03	1.41E-01	7.04E-05	--	--	--
1,3,5-Trimethylbenzene	1.87E-04	3.55E-03	1.78E-06	--	--	--
Isobutylbenzene	2.00E-03	3.82E-02	1.91E-05	--	--	--
Butylbenzene	8.02E-05	1.53E-03	7.64E-07	--	--	--
n-Decane	1.95E-02	3.72E-01	1.86E-04	--	--	--
Water	3.48E-01	6.62E+00	3.31E-03	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
MDEA	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	**25.68**	**489.13**	**0.24**	**--**	**--**	**--**
H_2S	**3.75E-03**	**0.07**	**3.57E-05**	**--**	**--**	**--**
Total HAP	**0.65**	**12.35**	**6.18E-03**	**--**	**--**	**--**

TARGA

Targa Northern Delaware: Plantview Compressor Station

Tank Degassing

Basis of Calculation:
Emissions from tank degassing are calculated based on a mass balance as follows:

Maximum Uncontrolled Hourly Emissions (lb/hr) = [Volume of gas vented (scf/event/unit)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# tank degassing activities occurring simultaneously (units)] / [event duration (hr/event)] / [379.5 (scf/lb-mol)] + Clingage volume (scf/event) x Liquid density (lb/scf) / event duration (hr/event) x [# tank degassing activities occurring simultaneously (units)]

Maximum Uncontrolled Annual Emissions (tpy) = [Volume of gas vented (scf/event)] x [MW of stream (lb/lb-mol)] x [wt % VOC or speciated constituent] x [# tanks at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)] + Clingage volume (scf/event) x Liquid density (lb/scf) / Frequency of event (events/yr/unit) / 2,000 (lb/ton) x [# tanks at site (units)]

Tank Degassing Emissions - Non-Forced Ventilation

Estimated Gas Vented per Degassing Event =	3,019	scf/event
Number of Tanks =	2	units
Tank Degassing Events Occurring Simultaneously =	2	units
Degassing Event Duration =	24	hrs/event
Tank Degassing Events in One Year =	1	events/yr
Molecular Weight of Stream =	38	lb/lb-mol
Is Forced Ventilation used?	No	
Control Type =	Flare	

Clingage-to-vessel Volume		
Clingage volume [1] =	0.39	scf
Clingage thickness [2] =	0.0004	ft
Diameter =	15.5	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

Compound	Composition (wt %)	Maximum Uncontrolled Hourly Emissions (lb/hr)	Maximum Uncontrolled Annual Emissions (tpy)
Total VOC	**20.20**	**73.80**	**0.33**
Total HAP	**2.79**	**2.06**	**9.200E-03**
Total H_2S	**1.80E-04**	**1.33E-04**	**5.93E-07**
Total CO_2	**3.21E-02**	**0.024**	**1.06E-04**
Total CH_4	**3.92E-02**	**0.029**	**1.29E-04**

[1] HAP content is conservatively assumed to be 25% of the vented liquid vapor analysis.

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)

Section 7

Information Used to Determine Emissions

<u>Information Used to Determine Emissions</u> shall include the following:

☒ If manufacturer data are used, include specifications for emissions units <u>and</u> 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 document to support the emissions in the required forms and calculations in Section 6:

Documentation used to support calculations in this permit revision:

- Compressor manufacturer and catalyst specification sheets (for C-1 through C-10)
- Engine manufacturer specification sheet (for Trailer-1)
- Certification of Conformity with the Clean Air Act (for GEN-3)
- Enclosed combustion unit manufacturer specification sheet (for ECD-1)
- ProMax report
- Inlet gas analysis
- Current version of AP-42 located online at: EPA AP-42 Compilation Air Emissions Factors
- Specific sections used in this application:
    - Section 1.3 – Natural Gas external Combustion Sources-Natural Gas (Table 1.4-1 through 1.4-3)
    - Section 3.2 – Natural Gas-fired Reciprocating Engines (Table 3.2-2)
    - Section 3.3 – Gasoline and Diesel Industrial Engines (Tables 3.3-1 & 2)
    - Section 5.2 – Transportation And Marketing Of Petroleum Liquids
    - Section 13.2-2 - Unpaved Haul Roads
- EPA Protocol for Equipment Leak Emissions Estimates, 1995 Table 2-4
- 40 CFR 98 Subpart C Tables C-1 and C-2

POWERTHERM

Units C-5, C-7

ICE Catalyst Sizing Program

ENGINE INPUT (Manufacturer, Model, Type) - Caterpillar G3516 G3516TALE PLUS 1340bhp 1400rpm - EXPERT MODE

Input Mass Flow Rate

	lbs/hr	"scfm"	"scfh"	"acfm"	"acfh"		Estimated Exhaust Gas Composition	
lb/hr(Estimated):	15,195	3,433	206,004	9323	559,380	N2	74.5	vol%
Brake Horse Power:	1340					O2	10	vol%
			Maximum Pressure Drop (in)			H2O	10	vol%
Molecular weight:	28.50		0.027	Exhaust Density (lbs/ft3)		CO2	6	vol%

Inlet Temperature / Enter permitted grams per brake horse power hour (g/bhp-hr)

		NOx**	CO**	VOC(NMNE)**	H2CO**
Process Temperature (F):	952	0.5	0.5	0.115	0.042

Catalyst Type / Catalyst Module Details

	Module Shape		Module/Layer	2	Layers	1
NG/Diesel (Lean)	Square				cpsi	300
		X&Y (inch)	14.875	23.875	Depth	3.5

Open area for gas flow (ft2):	4.41				
Linear Velocity(ft/min):	2,115	Calculated Space Velocity:	160,224	Safety Value	2
Foil thickness (inches):	0.002				

Pressure Drop / Inlet Pollutants

			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
		NOx	0.50	1.48	6.47	59.17	35.59
		CO	3.05	9.01	39.47	360.95	217.09
		VOC	0.46	1.36	5.95	54.44	32.74
300	3.52	H2CO	0.28	0.83	3.62	33.14	19.93

Target Conversions / Required Output Pollutants

			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.0%	NOx	0.5	1.48	6.47	59.17	35.59
CO	83.0%	CO	0.5	1.48	6.47	59.17	35.59
VOC(NMNE)	75.0%	VOC	0.115	0.34	1.49	13.61	8.19
H2CO	85.0%	H2CO	0.042	0.12	0.54	4.97	2.99

Conversions Catalyst Design / Output Pollutants with Catalyst Sizing

			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.0%	NOx	0.5	1.48	6.47	59.17	35.59
CO	83.0%	CO	0.5	1.48	6.47	59.17	35.59
VOC(NMNE)	75.0%	VOC	0.115	0.34	1.49	13.61	8.19
H2CO	85.0%	H2CO	0.042	0.12	0.54	4.97	2.99

Customer:	Kodiak Gas Services			Project:	Plantview G3516LE Plus
Sales Person:	B. King	Date:	5/31/2018	Contact:	Joe Servantes

Notes:

POWERTHERM

Units C-1, C-3, C-6, C-9

ICE Catalyst Sizing Program

ENGINE INPUT (Manufacturer, Model, Type) - Caterpillar G3516B G3516B 1380 BHP @ 1400 RPM - EXPERT MODE

Input Mass Flow Rate

	lbs/hr	"scfm"	"scfh"	"acfm"	"acfh"
lb/hr(Estimated):	14,464	3,268	196,093	9063	543,780
Brake Horse Power:	1380				
			Maximum Pressure Drop (in)		
Molecular weight:	28.50		0.027	Exhaust Density (lbs/ft3)	

Estimated Exhaust Gas Composition

N2	74.5	vol%
O2	10	vol%
H2O	10	vol%
CO2	6	vol%

Inlet Temperature

Process Temperature (F): 982

Enter permitted grams per brake horse power hour (g/bhp-hr)

NOx**	CO**	VOC(NMNE)**	H2CO**
0.5	0.5	0.12	0.066

Catalyst Type

NG/Diesel (Lean)

Catalyst Module Details

Module Shape		Module/Layer	2	Layers	1
Square				cpsi	300
	X&Y (inch)	14.875	23.875	Depth	3.5

Open area for gas flow (ft2): 4.41

Linear Velocity(ft/min): 2,056

Foil thickness (inches): 0.002

Calculated Space Velocity: 152,515

Safety Value: 2

Pressure Drop

300	3.42

Inlet Pollutants

	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.50	1.52	6.66	64.02	38.50
CO	2.43	7.39	32.38	311.13	187.12
VOC	0.48	1.46	6.40	61.46	36.96
H2CO	0.44	1.34	5.86	56.34	33.88

Target Conversions

NOx	0.0%
CO	80.0%
VOC(NMNE)	75.0%
H2CO	85.0%

Required Output Pollutants

	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.5	1.52	6.66	64.02	38.50
CO	0.5	1.52	6.66	64.02	38.50
VOC	0.12	0.37	1.60	15.37	9.24
H2CO	0.066	0.20	0.88	8.45	5.08

Conversions Catalyst Design

NOx	0.0%
CO	80.0%
VOC(NMNE)	75.0%
H2CO	85.0%

Output Pollutants with Catalyst Sizing

	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.5	1.52	6.66	64.02	38.50
CO	0.5	1.52	6.66	64.02	38.50
VOC	0.12	0.37	1.60	15.37	9.24
H2CO	0.066	0.20	0.88	8.45	5.08

Customer: Kodiak Gas Services

Sales Person: B. King

Date: 5/31/2018

Project: Plantview G3516B

Contact: Joe Servantes

Notes:

POWERTHERM

Units C-4

ICE Catalyst Sizing Program

ENGINE INPUT (Manufacturer, Model, Type) - Caterpillar G3520B Caterpillar G3520B 1725 bhp @ 1400 RPM - EXPERT MODE

Input Mass Flow Rate

	lbs/hr	"scfm"	"scfh"	"acfm"	"acfh"		Estimated Exhaust Gas Composition	
lb/hr(Estimated):	18,433	4,165	249,903	11542	692,520	N2	74.5	vol%
Brake Horse Power:	1725					O2	10	vol%
			Maximum Pressure Drop (in)			H2O	10	vol%
Molecular weight:	28.50		0.027	Exhaust Density (lbs/ft3)		CO2	6	vol%

Inlet Temperature | **Enter permitted grams per brake horse power hour (g/bhp-hr)**

		NOx**	CO**	VOC(NMNE)**	H2CO**
Process Temperature (F):	981	0.5	0.5	0.135	0.0675

Catalyst Type | **Catalyst Module Details**

	Module Shape		Module/Layer	3	Layers: 1
NG/Diesel (Lean)	Square				cpsi: 300
		X&Y (inch)	14.875	23.875	Depth: 3.5

Open area for gas flow (ft2):	6.61				
Linear Velocity(ft/min):	1,746	Calculated Space Velocity:	129,578	Safety Value	2
Foil thickness (inches):	0.002				

Pressure Drop

300	2.90

Inlet Pollutants

	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.50	1.90	8.33	62.79	37.76
CO	2.32	8.82	38.64	291.36	175.23
VOC	0.54	2.05	8.99	67.82	40.79
H2CO	0.45	1.71	7.50	56.51	33.99

Target Conversions | **Required Output Pollutants**

Target Conversions			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.0%	NOx	0.5	1.90	8.33	62.79	37.76
CO	78.0%	CO	0.5	1.90	8.33	62.79	37.76
VOC(NMNE)	75.0%	VOC	0.135	0.51	2.25	16.96	10.20
H2CO	85.0%	H2CO	0.0675	0.26	1.13	8.48	5.10

Conversions Catalyst Design | **Output Pollutants with Catalyst Sizing**

Conversions Catalyst Design			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.0%	NOx	0.5	1.90	8.33	62.79	37.76
CO	78.0%	CO	0.5	1.90	8.33	62.79	37.76
VOC(NMNE)	75.0%	VOC	0.135	0.51	2.25	16.96	10.20
H2CO	85.0%	H2CO	0.0675	0.26	1.13	8.48	5.10

Customer: Kodiak Gas Services
Sales Person: B. King
Date: 5/31/2018
Project: Plantview G3520B
Contact: Joe Servantes

Notes:

Units C-2

Powertherm Company
7420 Wright Road
Houston, TX 77041
Phone: 713-682-6777
Fax: 713-682-3628

POWERTHERM

Emission Control Application Data Sheet

Customer:	Kodiak Gas Services	Project:		Date:	12/4/2017
Customer Contact	Cody Stidham	Powertherm Contact:	Kirk Weaver	Order/Quote #:	0

Engine Data:

Engine Model:	Caterpillar G3606A4		Speed:	1000	RPM
Fuel & Operating Type:	Natural Gas Lean Burn		Engine Power:	1875	Hp
				1400	KW
Exhaust Flow Rate:	11838	acfm	Exhaust Temperature:	813	°F
	20113	m^3/hr		434	°C
	22095	lbs/hr			

Catalyst Data:

Number of Core layers:	1						
Model:					Inlet Size:		in
Grade:					Outlet Size:		in
Body Diameter:		in			Body Length:		in
Estimated weight:		lbs			Estimated Back Pressure of the unit:		in of WC
		Kg				0.0	mbar
Element Part Number:	ERH-1536-2		Qty	2	Speed through inlet:		ft/min
Catalyst Make	Powertherm/ACS				Back Pressure across Element(s) only	2.92	in of WC
						7.3	mbar

Emission:

Min. Temp. at Core Face:	752 °F	400 °C	Catalyst Type:	Oxidation
Max. Temp. at Core Face:	903 °F	484 °C		
			O_2 in Exhaust	vol %
			H_2O in Exhaust	vol %

	Pollutant					
	NOx	CO	NMNEHC/VOC	CH_2O/CHCO	ORGANIC PM10	
Engine Out / Pre Emission:	0.5	2.51	1.17	0.2	0	g/bhp-hr
	120.60	605.42	282.21	48.24	0.00	mg/Nm3
Post Emission:	0.500	0.600	0.600	0.050	0.000	g/bhp-hr
	120.60	144.72	144.72	12.06	0.00	mg/Nm3
	0.0	*76.1*	*48.7*	*75.0*	*50.0*	% Reduction
	2.07	2.48	2.48	0.21		lb/hr
	9.05	10.86	10.86	0.91		tons/year operation 8760 hr/year
	57.9	69.5	69.5	5.8		ppmv
						ppmvd @ 15% O2

Acoustics:

Frequency Band (Hz):	31.5	63	125	250	500	1000	2000	4000	8000	
Raw Noise SPL (dB) at 3.28 ft.:	0	0	0	0	0	0	0	0	0	7 dBA
Estimated Attenuation (dB):	9	19	33	28	20	17	17	18	18	No Element
Plus:	9	20	35	30	24	22	23	24	23	One Element Layer
Silenced SPL (dB) at 3.28 ft.:	-9	-20	-35	-30	-24	-22	-23	-24	-23	-16.2 dBA

Warranty & Notes:

- **If Pre-Emission levels are not as noted above, contact Maxim Silencers for a re-quote.**
- To achieve Post Emissions levels detailed above, exhaust temperature and Pre-Emission data must be as specified.
- Maximum allowable exhaust temperature at core face is 1350°F.
- If applicable, the engine will require an air/fuel ratio controller to meet above emission levels. For Rich Burn engines λ must be 0.96 - 0.99.
- Catalyst cleaning/regeneration required, if initial backpressure increases by 2" of WC.
- Engine operation to be stable and reproducible.
- QAC is not designed to withstand a backfire, therefore measures should be taken prior to QAC unit to alleviate backfire pressure.
- Maximum lubrication oil consumption rate to be less than 0.0015 lb/bhp/hr.
- Lube oil sulfate ash contents should not exceed 0.5%.
- Phosphorus and/or Zinc should not exceed 5 ppmv in the exhaust stream.
- A high temperature alarm/shutdown to be maintained at downstream of catalyst at 1300°F.
- Fuel not to contain heavy or transition metals such as Pb, Ar, Zn, Cu, Sn, Fe, Ba, Ni, Cr etc.
- Chlorinated or Silicone containing compounds in the exhaust not to exceed 1 ppmv.
- Sulfur compounds in the exhaust gas stream not to exceed 25 ppmv.
- Performance guarantee is voided should the catalyst become masked or de-activated by any contaminant in the exhaust stream.
- Engine to be maintained and operated in accordance within manufacturer's recommended practice.
- Under no condition will Maxim Silencers assume any contingent liabilities.
- Operating manual is available online at www.maximsilencers.com or contact a Maxim sales representative.
- Nomenclature: QAC4-292-8, 4 is grade (Super Critical), 29 is catalyst block size, 2 is no. of catalyst(s) and 8 is flange diameter.
- Organic PM10 are estimate only and not a guarantee because of the variability in fuels and additives which change PM10.
- Maxim Silencers standard one year warranty applies.

Rev level: 86

Allmand®

MAXI-HEAT® 1MBTU

The **Maxi-Heat®** line includes a robustly designed towable indirect fired heater, with 1M BTU. This Unit provides heat for different applications including severe harsh conditions. The 1M includes two independently operating burners providing up to a combined 1,000,000 BTUs of heat. For ease of operation the **Maxi-Heat®** comes fully equipped with the iQ system, which automatically calibrates each burner providing reliable trouble free operation, eliminating the tedious trial and error combustion measurements and adjustments. Recirculation is standard on all **Maxi-Heat®** products resulting in increased efficiency of the heater and less fuel consumed. The **Maxi-Heat®** can go from warming equipment to curing concrete, the heat you can rely on when you need it most.

BRIGGS & STRATTON

KEY FEATURES

Allmand® MAXI-HEAT®

External Control Panel Provides the operator with the necessary operating parameters needed during operation eliminating the need to open the heater door.

Flexible Applications Twin Heater units on the 1M BTU model providing flexibility of heat needed for the jobsite.

iQ System Automatically calibrates burner for temperature, humidity and barometric pressure. Provides damper setting on color display, and information on efficiency, target and actual outlet temperatures.

Lifting Eye

NEW

Remote Fuel Valve and Pump can be optionally equipped to pump fuel to run the Maxi-Heat from a remote fuel tank.

Reversible Coupler Adjustable height 2" Bulldog and 3" pintle

NEW

Pacbrake Shut-Off Valve The optional air intake emergency shut-off valve automatically closes the valve and shuts down the engine when an overspeed runaway condition occurs.

16", 20" or Dual 12" Duct Flange Outlets

Fluid Containment System (FCS) Provides 130%+ fluid containment for all on-board fluids.

Centrifugal Fan Provides decreased dBA output and increased air flow efficiency.

Air Recirculation Inlet Air inlet comes standard and results in increased efficiency of the heater and less fuel consumed.

NEW

Adjustable Air Recirculation Inlet The optional adjustable air recirculation inlet connection changes size to fit either 16" or 20" ducting.

Durable Steel Enclosure is built to last through the toughest environments and conditions.

Sleek Design allowing for ease of transport and maneuverability.

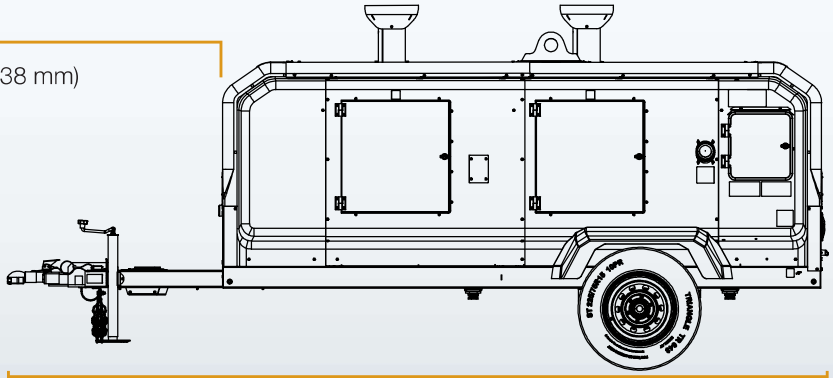
NEW

CSA Approved Steel Fuel Tank The optional 175 gallon steel double wall (UN-31A rated) fuel tank meets CSA and Transport Canada standards.

Allmand® MAXI-HEAT® TECHNICAL SPECS

Model	Maxi-Heat® 1MBTU	Maxi-Heat® 1MBTU
Engine Brand	Kubota D1005	CAT or Perkins 1.1
Engine Model	D1005	1.1
Frequency	60 Hz	60 Hz
Ducting Length - Continuous Heating	3,354 cfm with 96°F rise over ambient @125 ft	3,354 cfm with 96°F rise over ambient @125 ft
Sound Level @ 23ft (FULL LOAD) dBA	67.1 dBA	65.7 dBA
Sound Level @ 23ft (NO LOAD) dBA	62.9 dBA	62.4 dBA
Phase	1-phase	1-phase
Prime Power (kW)*	7	8
BTU per Hour	1,000,000	1,000,000
Heated Air Output Maximum (cfm)	7,060	7,060
Horsepower (@ 1,800 RPM) ******	11.6	13.8
Oil Change Interval (hr)	500	1,000
Engine Tier	Tier 4 Final	Tier 4 Final
Fuel Tank - Single (Poly - Standard)		
Fuel Capacity gal (L)	210 (794.9)	210 (794.9)
Operating Time - 1 Heater @ Full Load (hrs)	67.5	67.8
Operating Time - 2 Heater @ Full Load (hrs)	35.1	34.6
Fuel Tank - Single (Steel - Optional)		
Fuel Capacity gal (L)	175 (662.4)	175 (662.4)
Operating Time - 1 Heater @ Full Load (hrs)	56.5	56.4
Operating Time - 2 Heater @ Full Load (hrs)	29.2	28.8
Fuel Tank - Multi (Poly - Optional)		
Heater Fuel Tank - 1 Capacity gal (L)	116 (439.1)	116 (439.1)
Heater Fuel Tank - 2 Capacity gal (L)	116 (439.1)	116 (439.1)
Engine Fuel Tank Capacity gal (L)	50 (189.2)	50 (189.2)
Total Fuel Tank Capacity gal (L)	281.6 (1,065.9)	281.6 (1,065.9)
Operating Time - 1 Heater @ Full Load (hrs)	42.1	42.1
Operating Time - 2 Heater @ Full Load (hrs)	42.1	42.1
Weights & Shipping		
Net Dry Weight (lbs)†	4,633	
Operating Wet Weight NO Fuel (lbs)†	4,654	
Operating Wet Weight FULL Fuel (lbs)†	5,869	
Number of Units on 48' Flatbed	4	
Number of Units on 53' Flatbed	4	

Width
80.2 in (2,038 mm)



Height
Transport Position
83.9 in (2,130 mm)

Length
183.4 in (4,657 mm)

* Prime generator electrical output per Allmand® testing. ** Based on one hour run test full fuel tank consumption. *** All power levels are stated gross horsepower as rated by each engine's manufacturer. † Dry and wet weights vary by model.
Allmand® has a policy of continuous product improvement and reserves the right to modify its specifications at any time and without prior notice. See operator's manual or www.allmand.com website for complete warranty details.

OPTIONS

Maxi-Heat®

Thermostat Package

- Remote Thermostat
- Lead extension

$2\frac{5}{16}$" Bulldog Hitch

Lockable Battery Disconnect

16”, 20” or Dual 12” Duct Flange Outlets (ducting sold separately)

Adjustable Air Recirculation Inlet

Air Shut off Valve

Remote Fuel Valve and Pump

Single Steel Fuel Tank or Multi Poly Fuel Tanks

Custom Paint

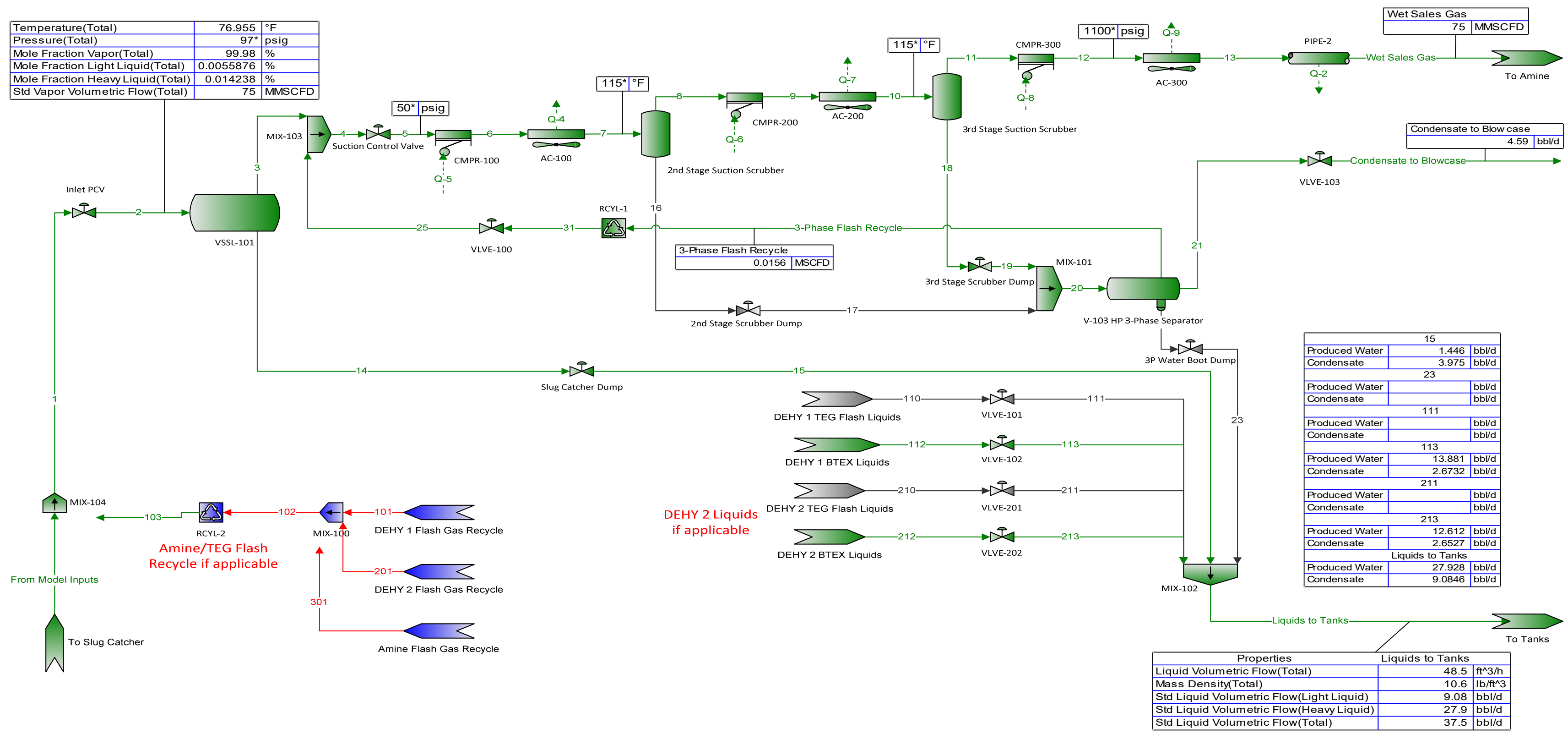
Telematics (Customer supplied – consult factory)

Emergency Stop

COMPROMISE NOTHING.

At Allmand, our sole focus is providing jobsite support equipment to help your customers get the job done. Whenever they need it. Wherever they are. And whatever it takes. What’s more, our genuine commitment to you — the highest standard of service and lowest total cost of ownership — is simply unmatched. Choose the equipment that comes with complete confidence that jobsite productivity won’t go dark at 2 a.m. **Allmand. Above All.**

Briggs & Stratton LLC
P.O. Box 888, Holdrege, NE 68949


Temperature(Total) 76.955 °F
Pressure(Total) 97* psig
Mole Fraction Vapor(Total) 99.98 %
Mole Fraction Light Liquid(Total) 0.0055876 %
Mole Fraction Heavy Liquid(Total) 0.014238 %
Std Vapor Volumetric Flow(Total) 75 MMSCFD
Inlet PCV
VSSL-101
MIX-103
Suspection Control Valve
50* psig
CMPR-100
AC-100
115* °F
2nd Stage Suction Scrubber
CMPR-200
AC-200
115* °F
3rd Stage Suction Scrubber
CMPR-300
1100* psig
AC-300
PIPE-2
Wet Sales Gas
Wet Sales Gas 75 MMSCFD
To Amine
Condensate to Blow case 4.59 bbl/d
Condensate to Blowcase
VLVE-103
RCYL-1
VLVE-100
3-Phase Flash Recycle
3-Phase Flash Recycle 0.0156 MSCFD
3rd Stage Scrubber Dump
MIX-101
V-103 HP 3-Phase Separator
2nd Stage Scrubber Dump
Slug Catcher Dump
3P Water Boot Dump
DEHY 1 TEG Flash Liquids
VLVE-101
DEHY 1 BTEX Liquids
VLVE-102
DEHY 2 TEG Flash Liquids
VLVE-201
DEHY 2 BTEX Liquids
VLVE-202
DEHY 2 Liquids if applicable
MIX-102
Liquids to Tanks
To Tanks
MIX-104
RCYL-2
Amine/TEG Flash Recycle if applicable
MIX-100
DEHY 1 Flash Gas Recycle
DEHY 2 Flash Gas Recycle
Amine Flash Gas Recycle
From Model Inputs
To Slug Catcher
15
Produced Water 1.446 bbl/d
Condensate 3.975 bbl/d
23
Produced Water bbl/d
Condensate bbl/d
111
Produced Water bbl/d
Condensate bbl/d
113
Produced Water 13.881 bbl/d
Condensate 2.6732 bbl/d
211
Produced Water bbl/d
Condensate bbl/d
213
Produced Water 12.612 bbl/d
Condensate 2.6527 bbl/d
Liquids to Tanks
Produced Water 27.928 bbl/d
Condensate 9.0846 bbl/d
Properties Liquids to Tanks
Liquid Volumetric Flow(Total) 48.5 ft^3/h
Mass Density(Total) 10.6 lb/ft^3
Std Liquid Volumetric Flow(Light Liquid) 9.08 bbl/d
Std Liquid Volumetric Flow(Heavy Liquid) 27.9 bbl/d
Std Liquid Volumetric Flow(Total) 37.5 bbl/d

Process Streams		Condensate to Blowcase	From Model Inputs	Liquids to Tanks	Wet Sales Gas
Composition	Status:	Solved	Solved	Solved	Solved
Phase: Total	From Block:	VLVE-103	To Slug Catcher	MIX-102	PIPE-2
	To Block:	--	MIX-104	To Tanks	To Amine
Mole Fraction		%	%	%	%
H2S		5.67822E-05	0.00253305	0.000114063	0.00253462
Nitrogen		5.51171E-05	1.84793	0.000388439	1.84913
CO2		0.0250417	3.74119	0.0157625	3.74358
Methane		0.00731554	72.2119	0.0527966	72.2587
Ethane		0.00143563	10.9144	0.0520551	10.9214
Propane		0.000351459	5.94846	0.107431	5.95207
i-Butane		1.56936E-05	0.867430	0.0389742	0.867904
n-Butane		9.20321E-05	2.05021	0.157390	2.05123
i-Pentane		8.38094E-06	0.551419	0.115143	0.551564
n-Pentane		2.80981E-06	0.582432	0.172600	0.582514
Neohexane		1.27197E-08	0.00606471	0.00296127	0.00606354
Cyclopentane		1.45152E-05	0.0483719	0.0684521	0.0483647
2-Methylpentane		8.08448E-07	0.138537	0.103083	0.138458
3-Methylpentane		1.93974E-06	0.0747979	0.0698361	0.0747433
n-Hexane		2.73713E-07	0.163391	0.175163	0.163211
2,2-Dimethylpentane		2.41391E-26	0	0	1.11882E-20
Methylcyclopentane		8.70773E-23	0	0	1.29853E-18
2,2,3-Trimethylbutane		1.36970E-07	0.0558501	0.0872789	0.0557525
Benzene		6.85442E-19	0	0	2.95144E-17
Cyclohexane		1.48342E-05	0.0627826	0.197144	0.0626696
2-Methylhexane		1.50834E-09	0.00122606	0.00248752	0.00122243
3-Methylhexane		1.36588E-07	0.0894078	0.216065	0.0891062
1,1-Dimethylcyclopentane		9.15657E-07	0.0249759	0.0933656	0.0249146
n-Heptane		6.62114E-09	0.0108908	0.0320837	0.0108408
Methylcyclohexane		2.49266E-06	0.0515180	0.241813	0.0512883
2,5-Dimethylhexane		0	0	0	0
Toluene		3.61190E-05	0.00231795	0.0718176	0.00230543
2-Methylheptane		0	0	0	0
n-Octane		9.04980E-09	0.0714822	0.538831	0.0703798
Ethylcyclohexane		8.07435E-07	0.0143859	0.154581	0.0141547
Ethylbenzene		1.51384E-05	0.00149138	0.0714539	0.00146472
p-Xylene		8.58788E-20	0	0	1.04635E-17
o-Xylene		7.06862E-05	0.00451039	0.292020	0.00440725
n-Nonane		9.99398E-11	0.00241108	0.0485041	0.00229310
Isopropylbenzene		2.58223E-21	0	0	3.86552E-19
Cyclooctane		2.48982E-12	0.00839849	1.01408	0.00812502
Propylbenzene		1.02579E-05	0.00141575	0.0911496	0.00135024
1,3,5-Trimethylbenzene		2.66819E-07	3.57428E-05	0.000765527	3.35622E-05
Isobutylbenzene		5.63123E-06	0.000343690	0.0254469	0.000315493
Butylbenzene		6.03807E-08	1.37563E-05	0.000710687	1.17193E-05
n-Decane		1.15344E-11	0.00315614	0.161566	0.00272638
Water		99.9654	0.444273	95.5088	0.385166
TEG		0	0	2.28224E-05	0
MDEA		0	0	0.0178563	0
Mass Fraction		%	%	%	%
H2S		0.000107378	0.00374961	0.000179733	0.00375211
Nitrogen		8.56735E-05	2.24845	0.000503108	2.25001
CO2		0.0611512	7.15135	0.0320734	7.15624
Methane		0.00651195	50.3167	0.0391606	50.3515
Ethane		0.00239529	14.2545	0.0723695	14.2642
Propane		0.000859934	11.3928	0.219028	11.4003
i-Butane		5.06126E-05	2.18982	0.104735	2.19111
n-Butane		0.000296808	5.17573	0.422953	5.17853
i-Pentane		3.35518E-05	1.72800	0.384097	1.72853
n-Pentane		1.12486E-05	1.82518	0.575761	1.82552
Neohexane		6.08210E-08	0.0227000	0.0117987	0.0226966
Cyclopentane		5.64859E-05	0.147349	0.221963	0.147333
2-Methylpentane		3.86571E-06	0.518539	0.410717	0.518266
3-Methylpentane		9.27516E-06	0.279966	0.278250	0.279774
n-Hexane		1.30880E-06	0.611566	0.697910	0.610919
2,2-Dimethylpentane		1.34212E-25	0	0	4.86955E-20
Methylcyclopentane		4.06633E-22	0	0	4.74687E-18
2,2,3-Trimethylbutane		7.61544E-07	0.243071	0.404350	0.242656
Benzene		2.97086E-18	0	0	1.00139E-16
Cyclohexane		6.92727E-05	0.229496	0.767112	0.229093
2-Methylhexane		8.38629E-09	0.00533604	0.0115243	0.00532049
3-Methylhexane		7.59421E-07	0.389120	1.00100	0.387825
1,1-Dimethylcyclopentane		4.98858E-06	0.106513	0.423847	0.106256
n-Heptane		3.68132E-08	0.0473989	0.148639	0.0471831
Methylcyclohexane		1.35802E-05	0.219706	1.09775	0.218736
2,5-Dimethylhexane		0	0	0	0
Toluene		0.000184659	0.00927636	0.305945	0.00922664
2-Methylheptane		0	0	0	0

n-Octane	5.73598E-08	0.354654	2.84577	0.349200
Ethylcyclohexane	5.02740E-06	0.0701151	0.801995	0.0689912
Ethylbenzene	8.91776E-05	0.00687705	0.350736	0.00675442
p-Xylene	5.05896E-19	0	0	4.82512E-17
o-Xylene	0.000416399	0.0207983	1.43340	0.0203236
n-Nonane	7.11225E-10	0.0134313	0.287624	0.0127747
Isopropylbenzene	1.72212E-20	0	0	2.01806E-18
Cyclooctane	1.55026E-11	0.0409332	5.26124	0.0396020
Propylbenzene	6.84111E-05	0.00739085	0.506525	0.00704914
1,3,5-Trimethylbenzene	1.77945E-06	0.000186593	0.00425409	0.000175217
Isobutylbenzene	4.19381E-05	0.00200359	0.157913	0.00183930
Butylbenzene	4.49680E-07	8.01945E-05	0.00441024	6.83226E-05
n-Decane	9.10622E-11	0.0195046	1.06285	0.0168495
Water	99.9275	0.347634	79.5531	0.301398
TEG	0	0	0.000158462	0
MDEA	0	0	0.0983790	0
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**
H2S	7.19260E-05	7.10903	0.000920946	7.10883
Nitrogen	5.73872E-05	4262.92	0.00257790	4262.92
CO2	0.0409613	13558.5	0.164343	13558.4
Methane	0.00436194	95397.4	0.200658	95397.2
Ethane	0.00160445	27025.7	0.370818	27025.3
Propane	0.000576015	21600.1	1.12229	21599.2
i-Butane	3.39021E-05	4151.77	0.536659	4151.34
n-Butane	0.000198813	9812.87	2.16719	9811.38
i-Pentane	2.24742E-05	3276.18	1.96810	3274.91
n-Pentane	7.53474E-06	3460.43	2.95018	3458.67
Neohexane	4.07401E-08	43.0377	0.0604561	43.0015
Cyclopentane	3.78363E-05	279.365	1.13733	279.141
2-Methylpentane	2.58939E-06	983.118	2.10450	981.920
3-Methylpentane	6.21284E-06	530.798	1.42574	530.066
n-Hexane	8.76679E-07	1159.49	3.57606	1157.46
2,2-Dimethylpentane	8.99000E-26	0	0	9.22597E-17
Methylcyclopentane	2.72377E-22	0	0	8.99354E-15
2,2,3-Trimethylbutane	5.10110E-07	460.847	2.07188	459.743
Benzene	1.98999E-18	0	0	1.89725E-13
Cyclohexane	4.64014E-05	435.110	3.93065	434.044
2-Methylhexane	5.61744E-09	10.1168	0.0590501	10.0803
3-Methylhexane	5.08688E-07	737.748	5.12909	734.782
1,1-Dimethylcyclopentane	3.34153E-06	201.942	2.17178	201.316
n-Heptane	2.46588E-08	89.8654	0.761622	89.3943
Methylcyclohexane	9.09654E-06	416.548	5.62481	414.422
2,5-Dimethylhexane	0	0	0	0
Toluene	0.000123691	17.5874	1.56765	17.4810
2-Methylheptane	0	0	0	0
n-Octane	3.84217E-08	672.402	14.5816	661.602
Ethylcyclohexane	3.36754E-06	132.934	4.10939	130.712
Ethylbenzene	5.97344E-05	13.0385	1.79716	12.7971
p-Xylene	3.38868E-19	0	0	9.14178E-14
o-Xylene	0.000278919	39.4322	7.34469	38.5055
n-Nonane	4.76404E-10	25.4649	1.47378	24.2032
Isopropylbenzene	1.15354E-20	0	0	3.82346E-15
Cyclooctane	1.03842E-11	77.6067	26.9584	75.0309
Propylbenzene	4.58242E-05	14.0126	2.59542	13.3555
1,3,5-Trimethylbenzene	1.19194E-06	0.353769	0.0217978	0.331970
Isobutylbenzene	2.80916E-05	3.79869	0.809142	3.48478
Butylbenzene	3.01212E-07	0.152044	0.0225979	0.129446
n-Decane	6.09968E-11	36.9796	5.44599	31.9234
Water	66.9351	659.093	407.627	571.036
TEG	0	0	0.000811954	0
MDEA	0	0	0.504090	0

Process Streams		Condensate to Blowcase	From Model Inputs	Liquids to Tanks	Wet Sales Gas
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**VLVE-103**	**To Slug Catcher**	**MIX-102**	**PIPE-2**
	To Block:	**--**	**MIX-104**	**To Tanks**	**To Amine**
Property	**Units**				
Temperature	°F	115.852	76.0000	114.182	124.769
Pressure	psia	82.91	102.91	13.16	1104.12
Molecular Weight	lb/lbmol	18.0221	23.0233	21.6285	23.0223
Mass Density	lb/ft^3	61.7392	0.424213	10.5557	5.07047
Mass Flow	lb/h	66.9836	189594	512.396	189462
Std Vapor Volumetric Flow	MMSCFD	0.0338507	75	0.215766	74.9513
Std Liquid Volumetric Flow	sgpm	0.133951	1005.80	1.09405	1005.50
Gross Ideal Gas Heating Value	Btu/ft^3	50.4137	1255.06	283.460	1255.56
Gross Liquid Heating Value	Btu/lb	2.49783	20617.1	4111.35	20626.7

1	2	3	3-Phase Flash Recycle	4	5	6
Solved	Solved	Solved	Solved	Solved	Solved	Solved
MIX-104	Inlet PCV	VSSL-101	V-103 HP 3-Phase Separator	MIX-103	Suction Control Valve	CMPR-100
Inlet PCV	VSSL-101	MIX-103	RCYL-1	Suction Control Valve	CMPR-100	AC-100
%	%	%	%	%	%	%
0.00253305	0.00253305	0.00253350	0.0102815	0.00253350	0.00253350	0.00253350
1.84793	1.84793	1.84829	1.01384	1.84829	1.84829	1.84829
3.74119	3.74119	3.74190	13.7825	3.74191	3.74191	3.74191
72.2119	72.2119	72.2261	66.9963	72.2261	72.2261	72.2261
10.9144	10.9144	10.9164	10.5863	10.9164	10.9164	10.9164
5.94846	5.94846	5.94938	3.81188	5.94938	5.94938	5.94938
0.867430	0.867430	0.867513	0.305802	0.867513	0.867513	0.867513
2.05021	2.05021	2.05030	1.09319	2.05030	2.05030	2.05030
0.551419	0.551419	0.551315	0.167147	0.551315	0.551315	0.551315
0.582432	0.582432	0.582251	0.101526	0.582251	0.582251	0.582251
0.00606471	0.00606471	0.00606081	0.000690314	0.00606081	0.00606081	0.00606081
0.0483719	0.0483719	0.0483428	0.0560944	0.0483428	0.0483428	0.0483428
0.138537	0.138537	0.138396	0.0255239	0.138396	0.138396	0.138396
0.0747979	0.0747979	0.0747096	0.0279875	0.0747096	0.0747096	0.0747096
0.163391	0.163391	0.163137	0.0160759	0.163137	0.163137	0.163137
0	0	0	1.22403E-21	1.11832E-20	1.11832E-20	1.11832E-20
0	0	0	7.61603E-19	1.29795E-18	1.29795E-18	1.29795E-18
0.0558501	0.0558501	0.0557273	0.00649678	0.0557273	0.0557273	0.0557273
0	0	0	8.56837E-17	2.95014E-17	2.95014E-17	2.95014E-17
0.0627826	0.0627826	0.0626413	0.0617434	0.0626413	0.0626413	0.0626413
0.00122606	0.00122606	0.00122188	0.000100153	0.00122188	0.00122188	0.00122188
0.0894078	0.0894078	0.0890660	0.00813168	0.0890660	0.0890660	0.0890660
0.0249759	0.0249759	0.0249034	0.0107259	0.0249034	0.0249034	0.0249034
0.0108908	0.0108908	0.0108359	0.000616345	0.0108359	0.0108359	0.0108359
0.0515180	0.0515180	0.0512652	0.0243965	0.0512652	0.0512652	0.0512652
0	0	0	0	0	0	0
0.00231795	0.00231795	0.00230440	0.00594057	0.00230440	0.00230440	0.00230440
0	0	0	0	0	0	0
0.0714822	0.0714822	0.0703480	0.00174629	0.0703480	0.0703480	0.0703480
0.0143859	0.0143859	0.0141483	0.00670435	0.0141483	0.0141483	0.0141483
0.00149138	0.00149138	0.00146407	0.00325200	0.00146407	0.00146407	0.00146407
0	0	0	2.27813E-17	1.04588E-17	1.04588E-17	1.04588E-17
0.00451039	0.00451039	0.00440529	0.0100018	0.00440529	0.00440529	0.00440529
0.00241108	0.00241108	0.00229207	3.13714E-05	0.00229207	0.00229207	0.00229207
0	0	0	7.67941E-19	3.86379E-19	3.86379E-19	3.86379E-19
0.00839849	0.00839849	0.00812135	9.85502E-06	0.00812135	0.00812135	0.00812135
0.00141575	0.00141575	0.00134963	0.00268070	0.00134963	0.00134963	0.00134963
3.57428E-05	3.57428E-05	3.35472E-05	6.57590E-05	3.35472E-05	3.35472E-05	3.35472E-05
0.000343690	0.000343690	0.000315353	0.000630517	0.000315353	0.000315353	0.000315353
1.37563E-05	1.37563E-05	1.17140E-05	2.01181E-05	1.17140E-05	1.17140E-05	1.17140E-05
0.00315614	0.00315614	0.00272515	1.09834E-05	0.00272515	0.00272515	0.00272515
0.444273	0.444273	0.430120	1.86152	0.430120	0.430120	0.430120
0	0	0	0	0	0	0
0	0	0	0	0	0	0
%	%	%	%	%	%	%
0.00374961	0.00374961	0.00375082	0.0148839	0.00375082	0.00375082	0.00375082
2.24845	2.24845	2.24921	1.20638	2.24921	2.24921	2.24921
7.15135	7.15135	7.15373	25.7647	7.15374	7.15374	7.15374
50.3167	50.3167	50.3337	45.6532	50.3337	50.3337	50.3337
14.2545	14.2545	14.2592	13.5211	14.2592	14.2592	14.2592
11.3928	11.3928	11.3962	7.13976	11.3962	11.3962	11.3962
2.18982	2.18982	2.19034	0.754973	2.19034	2.19034	2.19034
5.17573	5.17573	5.17670	2.69890	5.17670	5.17670	5.17670
1.72800	1.72800	1.72792	0.512244	1.72792	1.72792	1.72792
1.82518	1.82518	1.82487	0.311141	1.82487	1.82487	1.82487
0.0227000	0.0227000	0.0226886	0.00252685	0.0226886	0.0226886	0.0226886
0.147349	0.147349	0.147281	0.167105	0.147281	0.147281	0.147281
0.518539	0.518539	0.518083	0.0934285	0.518083	0.518083	0.518083
0.279966	0.279966	0.279675	0.102446	0.279675	0.279675	0.279675
0.611566	0.611566	0.610703	0.0588447	0.610703	0.610703	0.610703
0	0	0	5.20973E-21	4.86783E-20	4.86783E-20	4.86783E-20
0	0	0	2.72258E-18	4.74519E-18	4.74519E-18	4.74519E-18
0.243071	0.243071	0.242571	0.0276518	0.242571	0.242571	0.242571
0	0	0	2.84292E-16	1.00104E-16	1.00104E-16	1.00104E-16
0.229496	0.229496	0.229012	0.220720	0.229012	0.229012	0.229012
0.00533604	0.00533604	0.00531861	0.000426274	0.00531861	0.00531861	0.00531861
0.389120	0.389120	0.387688	0.0346103	0.387687	0.387687	0.387687
0.106513	0.106513	0.106219	0.0447334	0.106219	0.106219	0.106219
0.0473989	0.0473989	0.0471665	0.00262330	0.0471664	0.0471664	0.0471664
0.219706	0.219706	0.218658	0.101748	0.218658	0.218658	0.218658
0	0	0	0	0	0	0
0.00927636	0.00927636	0.00922344	0.0232497	0.00922344	0.00922344	0.00922344
0	0	0	0	0	0	0

0.354654	0.354654	0.349076	0.00847305	0.349076	0.349076	0.349076
0.0701151	0.0701151	0.0689669	0.0319557	0.0689669	0.0689669	0.0689669
0.00687705	0.00687705	0.00675206	0.0146649	0.00675206	0.00675206	0.00675206
0	0	0	1.02733E-16	4.82343E-17	4.82343E-17	4.82343E-17
0.0207983	0.0207983	0.0203165	0.0451033	0.0203165	0.0203165	0.0203165
0.0134313	0.0134313	0.0127702	0.000170906	0.0127702	0.0127702	0.0127702
0	0	0	3.92058E-18	2.01735E-18	2.01735E-18	2.01735E-18
0.0409332	0.0409332	0.0395880	4.69730E-05	0.0395880	0.0395880	0.0395880
0.00739085	0.00739085	0.00704667	0.0136858	0.00704667	0.00704667	0.00704667
0.000186593	0.000186593	0.000175155	0.000335721	0.000175155	0.000175155	0.000175155
0.00200359	0.00200359	0.00183866	0.00359465	0.00183866	0.00183866	0.00183866
8.01945E-05	8.01945E-05	6.82986E-05	0.000114696	6.82986E-05	6.82986E-05	6.82986E-05
0.0195046	0.0195046	0.0168435	6.63798E-05	0.0168435	0.0168435	0.0168435
0.347634	0.347634	0.336608	1.42448	0.336608	0.336608	0.336608
0	0	0	0	0	0	0
0	0	0	0	0	0	0
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
7.10903	7.10903	7.10890	5.99724E-06	7.10891	7.10891	7.10891
4262.92	4262.92	4262.92	0.000486091	4262.92	4262.92	4262.92
13558.5	13558.5	13558.4	0.0103815	13558.4	13558.4	13558.4
95397.4	95397.4	95397.2	0.0183952	95397.2	95397.2	95397.2
27025.7	27025.7	27025.3	0.00544811	27025.3	27025.3	27025.3
21600.1	21600.1	21599.2	0.00287685	21599.2	21599.2	21599.2
4151.77	4151.77	4151.34	0.000304204	4151.34	4151.34	4151.34
9812.87	9812.87	9811.38	0.00108748	9811.38	9811.38	9811.38
3276.18	3276.18	3274.91	0.000206401	3274.91	3274.91	3274.91
3460.43	3460.43	3458.67	0.000125369	3458.67	3458.67	3458.67
43.0377	43.0377	43.0015	1.01815E-06	43.0015	43.0015	43.0015
279.365	279.365	279.141	6.73325E-05	279.141	279.141	279.141
983.118	983.118	981.920	3.76455E-05	981.920	981.920	981.920
530.798	530.798	530.066	4.12790E-05	530.066	530.066	530.066
1159.49	1159.49	1157.46	2.37105E-05	1157.46	1157.46	1157.46
0	0	0	2.09918E-24	9.22597E-17	9.22597E-17	9.22597E-17
0	0	0	1.09702E-21	8.99354E-15	8.99354E-15	8.99354E-15
460.847	460.847	459.743	1.11418E-05	459.743	459.743	459.743
0	0	0	1.14551E-19	1.89727E-13	1.89727E-13	1.89727E-13
435.110	435.110	434.044	8.89358E-05	434.045	434.045	434.045
10.1168	10.1168	10.0803	1.71760E-07	10.0803	10.0803	10.0803
737.748	737.748	734.782	1.39457E-05	734.782	734.782	734.782
201.942	201.942	201.316	1.80246E-05	201.316	201.316	201.316
89.8654	89.8654	89.3943	1.05702E-06	89.3943	89.3943	89.3943
416.548	416.548	414.422	4.09978E-05	414.422	414.422	414.422
0	0	0	0	0	0	0
17.5874	17.5874	17.4811	9.36811E-06	17.4811	17.4811	17.4811
0	0	0	0	0	0	0
672.402	672.402	661.602	3.41408E-06	661.602	661.602	661.602
132.934	132.934	130.712	1.28760E-05	130.712	130.712	130.712
13.0385	13.0385	12.7971	5.90901E-06	12.7971	12.7971	12.7971
0	0	0	4.13945E-20	9.14182E-14	9.14182E-14	9.14182E-14
39.4322	39.4322	38.5058	1.81737E-05	38.5058	38.5058	38.5058
25.4649	25.4649	24.2032	6.88638E-08	24.2032	24.2032	24.2032
0	0	0	1.57974E-21	3.82347E-15	3.82347E-15	3.82347E-15
77.6067	77.6067	75.0309	1.89270E-08	75.0309	75.0309	75.0309
14.0126	14.0126	13.3555	5.51449E-06	13.3555	13.3555	13.3555
0.353769	0.353769	0.331971	1.35273E-07	0.331971	0.331971	0.331971
3.79869	3.79869	3.48481	1.44841E-06	3.48481	3.48481	3.48481
0.152044	0.152044	0.129446	4.62148E-08	0.129446	0.129446	0.129446
36.9796	36.9796	31.9234	2.67467E-08	31.9234	31.9234	31.9234
659.093	659.093	637.971	0.000573973	637.972	637.972	637.972
0	0	0	0	0	0	0
0	0	0	0	0	0	0

1	2	3	3-Phase Flash Recycle	4	5	6
Solved	Solved	Solved	Solved	Solved	Solved	Solved
MIX-104	Inlet PCV	VSSL-101	V-103 HP 3-Phase Separator	MIX-103	Suction Control Valve	CMPR-100
Inlet PCV	VSSL-101	MIX-103	RCYL-1	Suction Control Valve	CMPR-100	AC-100
76.0000	76.9552	76.9552	115.852	76.9552	72.6979	196.553
102.91	109.91*	109.91	82.91	109.91	62.91*	166.262*
23.0233	23.0233	23.0200	23.5424	23.0200	23.0200	23.0200
0.424213	0.453165	0.453013	0.321157	0.453013	0.258056	0.555865
189594	189594	189529	0.0402934	189529	189529	189529
75	75	74.9851	1.55879E-05	74.9851	74.9851	74.9851
1005.80	1005.80	1005.63	0.000199248	1005.63	1005.63	1005.63
1255.06	1255.06	1255.01	1029.84	1255.01	1255.01	1255.01
20617.1	20617.1	20619.4	16526.1	20619.4	20619.4	20619.4

7	8	9	10	11	12	13
Solved	Solved	Solved	Solved	Solved	Solved	Solved
AC-100	2nd Stage Suction Scrubber	CMPR-200	AC-200	3rd Stage Suction Scrubber	CMPR-300	AC-300
2nd Stage Suction Scrubber	CMPR-200	AC-200	3rd Stage Suction Scrubber	CMPR-300	AC-300	PIPE-2
%	%	%	%	%	%	%
0.00253350	0.00253350	0.00253350	0.00253350	0.00253462	0.00253462	0.00253462
1.84829	1.84829	1.84829	1.84829	1.84913	1.84913	1.84913
3.74191	3.74191	3.74191	3.74191	3.74358	3.74358	3.74358
72.2261	72.2261	72.2261	72.2261	72.2587	72.2587	72.2587
10.9164	10.9164	10.9164	10.9164	10.9214	10.9214	10.9214
5.94938	5.94938	5.94938	5.94938	5.95207	5.95207	5.95207
0.867513	0.867513	0.867513	0.867513	0.867904	0.867904	0.867904
2.05030	2.05030	2.05030	2.05030	2.05123	2.05123	2.05123
0.551315	0.551315	0.551315	0.551315	0.551564	0.551564	0.551564
0.582251	0.582251	0.582251	0.582251	0.582514	0.582514	0.582514
0.00606081	0.00606081	0.00606081	0.00606081	0.00606354	0.00606354	0.00606354
0.0483428	0.0483428	0.0483428	0.0483428	0.0483647	0.0483647	0.0483647
0.138396	0.138396	0.138396	0.138396	0.138458	0.138458	0.138458
0.0747096	0.0747096	0.0747096	0.0747096	0.0747433	0.0747433	0.0747433
0.163137	0.163137	0.163137	0.163137	0.163211	0.163211	0.163211
1.11832E-20	1.11832E-20	1.11832E-20	1.11832E-20	1.11882E-20	1.11882E-20	1.11882E-20
1.29795E-18	1.29795E-18	1.29795E-18	1.29795E-18	1.29853E-18	1.29853E-18	1.29853E-18
0.0557273	0.0557273	0.0557273	0.0557273	0.0557525	0.0557525	0.0557525
2.95014E-17	2.95014E-17	2.95014E-17	2.95014E-17	2.95144E-17	2.95144E-17	2.95144E-17
0.0626413	0.0626413	0.0626413	0.0626413	0.0626696	0.0626696	0.0626696
0.00122188	0.00122188	0.00122188	0.00122188	0.00122243	0.00122243	0.00122243
0.0890660	0.0890660	0.0890660	0.0890660	0.0891062	0.0891062	0.0891062
0.0249034	0.0249034	0.0249034	0.0249034	0.0249146	0.0249146	0.0249146
0.0108359	0.0108359	0.0108359	0.0108359	0.0108408	0.0108408	0.0108408
0.0512652	0.0512652	0.0512652	0.0512652	0.0512883	0.0512883	0.0512883
0	0	0	0	0	0	0
0.00230440	0.00230440	0.00230440	0.00230440	0.00230543	0.00230543	0.00230543
0	0	0	0	0	0	0
0.0703480	0.0703480	0.0703480	0.0703480	0.0703798	0.0703798	0.0703798
0.0141483	0.0141483	0.0141483	0.0141483	0.0141547	0.0141547	0.0141547
0.00146407	0.00146407	0.00146407	0.00146407	0.00146472	0.00146472	0.00146472
1.04588E-17	1.04588E-17	1.04588E-17	1.04588E-17	1.04635E-17	1.04635E-17	1.04635E-17
0.00440529	0.00440529	0.00440529	0.00440529	0.00440725	0.00440725	0.00440725
0.00229207	0.00229207	0.00229207	0.00229207	0.00229310	0.00229310	0.00229310
3.86379E-19	3.86379E-19	3.86379E-19	3.86379E-19	3.86552E-19	3.86552E-19	3.86552E-19
0.00812135	0.00812135	0.00812135	0.00812135	0.00812502	0.00812502	0.00812502
0.00134963	0.00134963	0.00134963	0.00134963	0.00135024	0.00135024	0.00135024
3.35472E-05	3.35472E-05	3.35472E-05	3.35472E-05	3.35622E-05	3.35622E-05	3.35622E-05
0.000315353	0.000315353	0.000315353	0.000315353	0.000315493	0.000315493	0.000315493
1.17140E-05	1.17140E-05	1.17140E-05	1.17140E-05	1.17193E-05	1.17193E-05	1.17193E-05
0.00272515	0.00272515	0.00272515	0.00272515	0.00272638	0.00272638	0.00272638
0.430120	0.430120	0.430120	0.430120	0.385166	0.385166	0.385166
0	0	0	0	0	0	0
0	0	0	0	0	0	0
%	%	%	%	%	%	%
0.00375082	0.00375082	0.00375082	0.00375082	0.00375211	0.00375211	0.00375211
2.24921	2.24921	2.24921	2.24921	2.25001	2.25001	2.25001
7.15374	7.15374	7.15374	7.15374	7.15624	7.15624	7.15624
50.3337	50.3337	50.3337	50.3337	50.3515	50.3515	50.3515
14.2592	14.2592	14.2592	14.2592	14.2642	14.2642	14.2642
11.3962	11.3962	11.3962	11.3962	11.4003	11.4003	11.4003
2.19034	2.19034	2.19034	2.19034	2.19111	2.19111	2.19111
5.17670	5.17670	5.17670	5.17670	5.17853	5.17853	5.17853
1.72792	1.72792	1.72792	1.72792	1.72853	1.72853	1.72853
1.82487	1.82487	1.82487	1.82487	1.82552	1.82552	1.82552
0.0226886	0.0226886	0.0226886	0.0226886	0.0226966	0.0226966	0.0226966
0.147281	0.147281	0.147281	0.147281	0.147333	0.147333	0.147333
0.518083	0.518083	0.518083	0.518083	0.518266	0.518266	0.518266
0.279675	0.279675	0.279675	0.279675	0.279774	0.279774	0.279774
0.610703	0.610703	0.610703	0.610703	0.610919	0.610919	0.610919
4.86783E-20	4.86783E-20	4.86783E-20	4.86783E-20	4.86955E-20	4.86955E-20	4.86955E-20
4.74519E-18	4.74519E-18	4.74519E-18	4.74519E-18	4.74687E-18	4.74687E-18	4.74687E-18
0.242571	0.242571	0.242571	0.242571	0.242656	0.242656	0.242656
1.00104E-16	1.00104E-16	1.00104E-16	1.00104E-16	1.00139E-16	1.00139E-16	1.00139E-16
0.229012	0.229012	0.229012	0.229012	0.229093	0.229093	0.229093
0.00531861	0.00531861	0.00531861	0.00531861	0.00532049	0.00532049	0.00532049
0.387687	0.387687	0.387687	0.387687	0.387825	0.387825	0.387825
0.106219	0.106219	0.106219	0.106219	0.106256	0.106256	0.106256
0.0471664	0.0471664	0.0471664	0.0471664	0.0471831	0.0471831	0.0471831
0.218658	0.218658	0.218658	0.218658	0.218736	0.218736	0.218736
0	0	0	0	0	0	0
0.00922344	0.00922344	0.00922344	0.00922344	0.00922664	0.00922664	0.00922664
0	0	0	0	0	0	0

0.349076	0.349076	0.349076	0.349076	0.349200	0.349200	0.349200
0.0689669	0.0689669	0.0689669	0.0689669	0.0689912	0.0689912	0.0689912
0.00675206	0.00675206	0.00675206	0.00675206	0.00675442	0.00675442	0.00675442
4.82343E-17	4.82343E-17	4.82343E-17	4.82343E-17	4.82512E-17	4.82512E-17	4.82512E-17
0.0203165	0.0203165	0.0203165	0.0203165	0.0203236	0.0203236	0.0203236
0.0127702	0.0127702	0.0127702	0.0127702	0.0127747	0.0127747	0.0127747
2.01735E-18	2.01735E-18	2.01735E-18	2.01735E-18	2.01806E-18	2.01806E-18	2.01806E-18
0.0395880	0.0395880	0.0395880	0.0395880	0.0396020	0.0396020	0.0396020
0.00704667	0.00704667	0.00704667	0.00704667	0.00704914	0.00704914	0.00704914
0.000175155	0.000175155	0.000175155	0.000175155	0.000175217	0.000175217	0.000175217
0.00183866	0.00183866	0.00183866	0.00183866	0.00183930	0.00183930	0.00183930
6.82986E-05	6.82986E-05	6.82986E-05	6.82986E-05	6.83226E-05	6.83226E-05	6.83226E-05
0.0168435	0.0168435	0.0168435	0.0168435	0.0168495	0.0168495	0.0168495
0.336608	0.336608	0.336608	0.336608	0.301398	0.301398	0.301398
0	0	0	0	0	0	0
0	0	0	0	0	0	0
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
7.10891	7.10891	7.10891	7.10891	7.10883	7.10883	7.10883
4262.92	4262.92	4262.92	4262.92	4262.92	4262.92	4262.92
13558.4	13558.4	13558.4	13558.4	13558.4	13558.4	13558.4
95397.2	95397.2	95397.2	95397.2	95397.2	95397.2	95397.2
27025.3	27025.3	27025.3	27025.3	27025.3	27025.3	27025.3
21599.2	21599.2	21599.2	21599.2	21599.2	21599.2	21599.2
4151.34	4151.34	4151.34	4151.34	4151.34	4151.34	4151.34
9811.38	9811.38	9811.38	9811.38	9811.38	9811.38	9811.38
3274.91	3274.91	3274.91	3274.91	3274.91	3274.91	3274.91
3458.67	3458.67	3458.67	3458.67	3458.67	3458.67	3458.67
43.0015	43.0015	43.0015	43.0015	43.0015	43.0015	43.0015
279.141	279.141	279.141	279.141	279.141	279.141	279.141
981.920	981.920	981.920	981.920	981.920	981.920	981.920
530.066	530.066	530.066	530.066	530.066	530.066	530.066
1157.46	1157.46	1157.46	1157.46	1157.46	1157.46	1157.46
9.22597E-17	9.22597E-17	9.22597E-17	9.22597E-17	9.22597E-17	9.22597E-17	9.22597E-17
8.99354E-15	8.99354E-15	8.99354E-15	8.99354E-15	8.99354E-15	8.99354E-15	8.99354E-15
459.743	459.743	459.743	459.743	459.743	459.743	459.743
1.89727E-13	1.89727E-13	1.89727E-13	1.89727E-13	1.89725E-13	1.89725E-13	1.89725E-13
434.045	434.045	434.045	434.045	434.044	434.044	434.044
10.0803	10.0803	10.0803	10.0803	10.0803	10.0803	10.0803
734.782	734.782	734.782	734.782	734.782	734.782	734.782
201.316	201.316	201.316	201.316	201.316	201.316	201.316
89.3943	89.3943	89.3943	89.3943	89.3943	89.3943	89.3943
414.422	414.422	414.422	414.422	414.422	414.422	414.422
0	0	0	0	0	0	0
17.4811	17.4811	17.4811	17.4811	17.4810	17.4810	17.4810
0	0	0	0	0	0	0
661.602	661.602	661.602	661.602	661.602	661.602	661.602
130.712	130.712	130.712	130.712	130.712	130.712	130.712
12.7971	12.7971	12.7971	12.7971	12.7971	12.7971	12.7971
9.14182E-14	9.14182E-14	9.14182E-14	9.14182E-14	9.14178E-14	9.14178E-14	9.14178E-14
38.5058	38.5058	38.5058	38.5058	38.5055	38.5055	38.5055
24.2032	24.2032	24.2032	24.2032	24.2032	24.2032	24.2032
3.82347E-15	3.82347E-15	3.82347E-15	3.82347E-15	3.82346E-15	3.82346E-15	3.82346E-15
75.0309	75.0309	75.0309	75.0309	75.0309	75.0309	75.0309
13.3555	13.3555	13.3555	13.3555	13.3555	13.3555	13.3555
0.331971	0.331971	0.331971	0.331971	0.331970	0.331970	0.331970
3.48481	3.48481	3.48481	3.48481	3.48478	3.48478	3.48478
0.129446	0.129446	0.129446	0.129446	0.129446	0.129446	0.129446
31.9234	31.9234	31.9234	31.9234	31.9234	31.9234	31.9234
637.972	637.972	637.972	637.972	571.036	571.036	571.036
0	0	0	0	0	0	0
0	0	0	0	0	0	0

7	8	9	10	11	12	13
Solved	Solved	Solved	Solved	Solved	Solved	Solved
AC-100	2nd Stage Suction Scrubber	CMPR-200	AC-200	3rd Stage Suction Scrubber	CMPR-300	AC-300
2nd Stage Suction Scrubber	CMPR-200	AC-200	3rd Stage Suction Scrubber	CMPR-300	AC-300	PIPE-2
115*	115	245.670	115*	115	251.796	125*
161.262	161.262	426.225*	421.225	421.225	1112.91*	1107.91
23.0200	23.0200	23.0200	23.0200	23.0223	23.0223	23.0223
0.623833	0.623833	1.35093	1.72841	1.72841	3.66866	5.08708
189529	189529	189529	189529	189462	189462	189462
74.9851	74.9851	74.9851	74.9851	74.9513	74.9513	74.9513
1005.63	1005.63	1005.63	1005.63	1005.50	1005.50	1005.50
1255.01	1255.01	1255.01	1255.01	1255.56	1255.56	1255.56
20619.4	20619.4	20619.4	20619.4	20626.7	20626.7	20626.7

14	15	16	17	18	19
Solved	Solved	Solved	Solved	Solved	Solved
VSSL-101	Slug Catcher Dump	2nd Stage Suction Scrubber	2nd Stage Scrubber Dump	3rd Stage Suction Scrubber	3rd Stage Scrubber Dump
Slug Catcher Dump	MIX-102	2nd Stage Scrubber Dump	MIX-101	3rd Stage Scrubber Dump	MIX-101
%	%			%	%
0.000233072	0.000233072			6.14884E-05	6.14884E-05
0.00562781	0.00562781			0.000521739	0.000521739
0.117320	0.117320			0.0313740	0.0313740
0.753395	0.753395			0.0381491	0.0381491
0.683786	0.683786			0.00630760	0.00630760
1.27788	1.27788			0.00210582	0.00210582
0.451430	0.451430			0.000156440	0.000156440
1.57097	1.57097			0.000595160	0.000595160
1.07301	1.07301			8.53113E-05	8.53113E-05
1.49465	1.49465			4.95389E-05	4.95389E-05
0.0257304	0.0257304			3.30450E-07	3.30450E-07
0.194931	0.194931			4.03276E-05	4.03276E-05
0.851814	0.851814			1.25562E-05	1.25562E-05
0.520229	0.520229			1.48209E-05	1.48209E-05
1.44253	1.44253			7.67297E-06	7.67297E-06
0	0			5.87520E-25	5.87520E-25
0	0			4.37586E-22	4.37586E-22
0.675087	0.675087			3.12723E-06	3.12723E-06
0	0			7.24564E-19	7.24564E-19
0.775409	0.775409			4.32465E-05	4.32465E-05
0.0222965	0.0222965			4.76059E-08	4.76059E-08
1.81297	1.81297			3.87936E-06	3.87936E-06
0.390483	0.390483			5.85213E-06	5.85213E-06
0.287978	0.287978			2.90308E-07	2.90308E-07
1.32654	1.32654			1.37207E-05	1.37207E-05
0	0			0	0
0.0706470	0.0706470			3.88366E-05	3.88366E-05
0	0			0	0
5.79088	5.79088			8.12824E-07	8.12824E-07
1.21250	1.21250			3.89293E-06	3.89293E-06
0.139224	0.139224			1.66283E-05	1.66283E-05
0	0			9.63250E-20	9.63250E-20
0.534488	0.534488			7.52572E-05	7.52572E-05
0.602556	0.602556			1.45394E-08	1.45394E-08
0	0			2.93451E-21	2.93451E-21
1.40599	1.40599			4.53853E-09	4.53853E-09
0.334851	0.334851			1.14870E-05	1.14870E-05
0.0111083	0.0111083			2.96964E-07	2.96964E-07
0.143240	0.143240			5.91885E-06	5.91885E-06
0.0103125	0.0103125			6.96128E-08	6.96128E-08
2.17662	2.17662			5.06696E-09	5.06696E-09
71.8133	71.8133			99.9203	99.9203
0	0			0	0
0	0			0	0
%	%			%	%
0.000201297	0.000201297			0.000116262	0.000116262
0.00399524	0.00399524			0.000810871	0.000810871
0.130845	0.130845			0.0766036	0.0766036
0.306289	0.306289			0.0339538	0.0339538
0.521047	0.521047			0.0105224	0.0105224
1.42798	1.42798			0.00515170	0.00515170
0.664920	0.664920			0.000504456	0.000504456
2.31391	2.31391			0.00191915	0.00191915
1.96187	1.96187			0.000341482	0.000341482
2.73279	2.73279			0.000198293	0.000198293
0.0561911	0.0561911			1.57987E-06	1.57987E-06
0.346449	0.346449			0.000156912	0.000156912
1.86022	1.86022			6.00307E-05	6.00307E-05
1.13610	1.13610			7.08581E-05	7.08581E-05
3.15025	3.15025			3.66842E-05	3.66842E-05
0	0			3.26612E-24	3.26612E-24
0	0			2.04315E-21	2.04315E-21
1.71425	1.71425			1.73848E-05	1.73848E-05
0	0			3.13998E-18	3.13998E-18
1.65376	1.65376			0.000201924	0.000201924
0.0566174	0.0566174			2.64649E-07	2.64649E-07
4.60366	4.60366			2.15660E-05	2.15660E-05
0.971604	0.971604			3.18784E-05	3.18784E-05
0.731261	0.731261			1.61387E-06	1.61387E-06
3.30070	3.30070			7.47409E-05	7.47409E-05
0	0			0	0
0.164957	0.164957			0.000198525	0.000198525
0	0			0	0

16.7632	16.7632			5.15115E-06	5.15115E-06
3.44796	3.44796			2.42355E-05	2.42355E-05
0.374569	0.374569			9.79402E-05	9.79402E-05
0	0			5.67353E-19	5.67353E-19
1.43799	1.43799			0.000443264	0.000443264
1.95844	1.95844			1.03456E-07	1.03456E-07
0	0			1.95678E-20	1.95678E-20
3.99818	3.99818			2.82547E-08	2.82547E-08
1.01991	1.01991			7.65976E-05	7.65976E-05
0.0338343	0.0338343			1.98021E-06	1.98021E-06
0.487205	0.487205			4.40739E-05	4.40739E-05
0.0350762	0.0350762			5.18363E-07	5.18363E-07
7.84820	7.84820			3.99972E-08	3.99972E-08
32.7856	32.7856			99.8683	99.8683
0	0			0	0
0	0			0	0

lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
0.000129686	0.000129686	0	0	7.79232E-05	7.79232E-05
0.00257394	0.00257394	0	0	0.000543478	0.000543478
0.0842972	0.0842972	0	0	0.0513428	0.0513428
0.197327	0.197327	0	0	0.0227572	0.0227572
0.335686	0.335686	0	0	0.00705256	0.00705256
0.919980	0.919980	0	0	0.00345287	0.00345287
0.428376	0.428376	0	0	0.000338106	0.000338106
1.49074	1.49074	0	0	0.00128629	0.00128629
1.26394	1.26394	0	0	0.000228875	0.000228875
1.76060	1.76060	0	0	0.000132904	0.000132904
0.0362012	0.0362012	0	0	1.05889E-06	1.05889E-06
0.223200	0.223200	0	0	0.000105169	0.000105169
1.19845	1.19845	0	0	4.02349E-05	4.02349E-05
0.731931	0.731931	0	0	4.74919E-05	4.74919E-05
2.02955	2.02955	0	0	2.45872E-05	2.45872E-05
0	0	0	0	2.18908E-24	2.18908E-24
0	0	0	0	1.36940E-21	1.36940E-21
1.10441	1.10441	0	0	1.16520E-05	1.16520E-05
0	0	0	0	2.10454E-18	2.10454E-18
1.06543	1.06543	0	0	0.000135337	0.000135337
0.0364758	0.0364758	0	0	1.77378E-07	1.77378E-07
2.96591	2.96591	0	0	1.44544E-05	1.44544E-05
0.625958	0.625958	0	0	2.13662E-05	2.13662E-05
0.471116	0.471116	0	0	1.08168E-06	1.08168E-06
2.12648	2.12648	0	0	5.00943E-05	5.00943E-05
0	0	0	0	0	0
0.106274	0.106274	0	0	0.000133059	0.000133059
0	0	0	0	0	0
10.7997	10.7997	0	0	3.45250E-06	3.45250E-06
2.22135	2.22135	0	0	1.62436E-05	1.62436E-05
0.241317	0.241317	0	0	6.56434E-05	6.56434E-05
0	0	0	0	3.80262E-19	3.80262E-19
0.926429	0.926429	0	0	0.000297093	0.000297093
1.26173	1.26173	0	0	6.93402E-08	6.93402E-08
0	0	0	0	1.31151E-20	1.31151E-20
2.57584	2.57584	0	0	1.89374E-08	1.89374E-08
0.657081	0.657081	0	0	5.13387E-05	5.13387E-05
0.0217978	0.0217978	0	0	1.32721E-06	1.32721E-06
0.313883	0.313883	0	0	2.95400E-05	2.95400E-05
0.0225979	0.0225979	0	0	3.47427E-07	3.47427E-07
5.05621	5.05621	0	0	2.68077E-08	2.68077E-08
21.1222	21.1222	0	0	66.9357	66.9357
0	0	0	0	0	0
0	0	0	0	0	0

14	15	16	17	18	19
Solved	Solved	Solved	Solved	Solved	Solved
VSSL-101	Slug Catcher Dump	2nd Stage Suction Scrubber	2nd Stage Scrubber Dump	3rd Stage Suction Scrubber	3rd Stage Scrubber Dump
Slug Catcher Dump	MIX-102	2nd Stage Scrubber Dump	MIX-101	3rd Stage Scrubber Dump	MIX-101
76.9552	69.7186	115	115	115	115.852
109.91	13.16*	161.262	161.262	421.225	82.91*
39.4605	39.4605			18.0247	18.0247
48.5218	2.94056			61.7429	55.3730
64.4251	64.4251	0	0	67.0239	67.0239
0.0148695	0.0148695	0	0	0.0338663	0.0338663
0.166013	0.166013	0	0	0.134151	0.134151
1473.73	1473.73			50.8646	50.8646
13748.1	13748.1			12.4315	12.4315

20	21	22	23	25	31
Solved	Solved	Solved	Solved	Solved	Solved
MIX-101	V-103 HP 3-Phase Separator	V-103 HP 3-Phase Separator	3P Water Boot Dump	VLVE-100	RCYL-1
V-103 HP 3-Phase Separator	VLVE-103	3P Water Boot Dump	MIX-102	MIX-103	VLVE-100
%	%			%	%
6.14884E-05	5.67822E-05			0.0102815	0.0102815
0.000521739	5.51171E-05			1.01384	1.01384
0.0313740	0.0250417			13.7825	13.7825
0.0381491	0.00731554			66.9963	66.9963
0.00630760	0.00143563			10.5863	10.5863
0.00210582	0.000351459			3.81188	3.81188
0.000156440	1.56936E-05			0.305802	0.305802
0.000595160	9.20321E-05			1.09319	1.09319
8.53113E-05	8.38094E-06			0.167147	0.167147
4.95389E-05	2.80981E-06			0.101526	0.101526
3.30450E-07	1.27197E-08			0.000690314	0.000690314
4.03276E-05	1.45152E-05			0.0560944	0.0560944
1.25562E-05	8.08448E-07			0.0255239	0.0255239
1.48209E-05	1.93974E-06			0.0279875	0.0279875
7.67297E-06	2.73713E-07			0.0160759	0.0160759
5.87520E-25	2.41391E-26			5.37964E-14	5.37964E-14
4.37586E-22	8.70773E-23			6.24374E-12	6.24374E-12
3.12723E-06	1.36970E-07			0.00649678	0.00649678
7.24564E-19	6.85442E-19			1.41916E-10	1.41916E-10
4.32465E-05	1.48342E-05			0.0617434	0.0617434
4.76059E-08	1.50834E-09			0.000100153	0.000100153
3.87936E-06	1.36588E-07			0.00813168	0.00813168
5.85213E-06	9.15657E-07			0.0107259	0.0107259
2.90308E-07	6.62114E-09			0.000616345	0.000616345
1.37207E-05	2.49266E-06			0.0243965	0.0243965
0	0			0	0
3.88366E-05	3.61190E-05			0.00594057	0.00594057
0	0			0	0
8.12824E-07	9.04980E-09			0.00174629	0.00174629
3.89293E-06	8.07435E-07			0.00670435	0.00670435
1.66283E-05	1.51384E-05			0.00325200	0.00325200
9.63250E-20	8.58788E-20			5.03116E-11	5.03116E-11
7.52572E-05	7.06862E-05			0.0100018	0.0100018
1.45394E-08	9.99398E-11			3.13714E-05	3.13714E-05
2.93451E-21	2.58223E-21			1.85866E-12	1.85866E-12
4.53853E-09	2.48982E-12			9.85502E-06	9.85502E-06
1.14870E-05	1.02579E-05			0.00268070	0.00268070
2.96964E-07	2.66819E-07			6.57590E-05	6.57590E-05
5.91885E-06	5.63123E-06			0.000630517	0.000630517
6.96128E-08	6.03807E-08			2.01181E-05	2.01181E-05
5.06696E-09	1.15344E-11			1.09834E-05	1.09834E-05
99.9203	99.9654			1.86152	1.86152
0	0			0	0
0	0			0	0
%	%			%	%
0.000116262	0.000107378			0.0148839	0.0148839
0.000810871	8.56735E-05			1.20638	1.20638
0.0766036	0.0611512			25.7647	25.7647
0.0339538	0.00651195			45.6532	45.6532
0.0105224	0.00239529			13.5211	13.5211
0.00515170	0.000859934			7.13976	7.13976
0.000504456	5.06126E-05			0.754973	0.754973
0.00191915	0.000296808			2.69890	2.69890
0.000341482	3.35518E-05			0.512244	0.512244
0.000198293	1.12486E-05			0.311141	0.311141
1.57987E-06	6.08210E-08			0.00252685	0.00252685
0.000156912	5.64859E-05			0.167105	0.167105
6.00307E-05	3.86571E-06			0.0934285	0.0934285
7.08581E-05	9.27516E-06			0.102446	0.102446
3.66842E-05	1.30880E-06			0.0588447	0.0588447
3.26612E-24	1.34212E-25			2.28970E-13	2.28970E-13
2.04315E-21	4.06633E-22			2.23201E-11	2.23201E-11
1.73848E-05	7.61544E-07			0.0276518	0.0276518
3.13998E-18	2.97086E-18			4.70864E-10	4.70864E-10
0.000201924	6.92727E-05			0.220720	0.220720
2.64649E-07	8.38629E-09			0.000426274	0.000426274
2.15660E-05	7.59421E-07			0.0346103	0.0346103
3.18784E-05	4.98858E-06			0.0447334	0.0447334
1.61387E-06	3.68132E-08			0.00262330	0.00262330
7.47409E-05	1.35802E-05			0.101748	0.101748
0	0			0	0
0.000198525	0.000184659			0.0232497	0.0232497
0	0			0	0

5.15115E-06	5.73598E-08			0.00847305	0.00847305
2.42355E-05	5.02740E-06			0.0319557	0.0319557
9.79402E-05	8.91776E-05			0.0146649	0.0146649
5.67353E-19	5.05896E-19			2.26881E-10	2.26881E-10
0.000443264	0.000416399			0.0451033	0.0451033
1.03456E-07	7.11225E-10			0.000170906	0.000170906
1.95678E-20	1.72212E-20			9.48908E-12	9.48908E-12
2.82547E-08	1.55026E-11			4.69730E-05	4.69730E-05
7.65976E-05	6.84111E-05			0.0136858	0.0136858
1.98021E-06	1.77945E-06			0.000335721	0.000335721
4.40739E-05	4.19381E-05			0.00359465	0.00359465
5.18363E-07	4.49680E-07			0.000114696	0.000114696
3.99972E-08	9.10622E-11			6.63798E-05	6.63798E-05
99.8683	99.9275			1.42448	1.42448
0	0			0	0
0	0			0	0

lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
7.79232E-05	7.19260E-05	0	0	5.99724E-06	5.99724E-06
0.000543478	5.73872E-05	0	0	0.000486091	0.000486091
0.0513428	0.0409613	0	0	0.0103815	0.0103815
0.0227572	0.00436194	0	0	0.0183952	0.0183952
0.00705256	0.00160445	0	0	0.00544811	0.00544811
0.00345287	0.000576015	0	0	0.00287685	0.00287685
0.000338106	3.39021E-05	0	0	0.000304204	0.000304204
0.00128629	0.000198813	0	0	0.00108748	0.00108748
0.000228875	2.24742E-05	0	0	0.000206401	0.000206401
0.000132904	7.53474E-06	0	0	0.000125369	0.000125369
1.05889E-06	4.07401E-08	0	0	1.01815E-06	1.01815E-06
0.000105169	3.78363E-05	0	0	6.73324E-05	6.73324E-05
4.02349E-05	2.58939E-06	0	0	3.76455E-05	3.76455E-05
4.74919E-05	6.21284E-06	0	0	4.12790E-05	4.12790E-05
2.45872E-05	8.76679E-07	0	0	2.37105E-05	2.37105E-05
2.18908E-24	8.99000E-26	0	0	9.22597E-17	9.22597E-17
1.36940E-21	2.72377E-22	0	0	8.99354E-15	8.99354E-15
1.16520E-05	5.10110E-07	0	0	1.11418E-05	1.11418E-05
2.10454E-18	1.98999E-18	0	0	1.89727E-13	1.89727E-13
0.000135337	4.64014E-05	0	0	8.89358E-05	8.89358E-05
1.77378E-07	5.61744E-09	0	0	1.71760E-07	1.71760E-07
1.44544E-05	5.08688E-07	0	0	1.39457E-05	1.39457E-05
2.13662E-05	3.34153E-06	0	0	1.80246E-05	1.80246E-05
1.08168E-06	2.46588E-08	0	0	1.05702E-06	1.05702E-06
5.00943E-05	9.09654E-06	0	0	4.09978E-05	4.09978E-05
0	0	0	0	0	0
0.000133059	0.000123691	0	0	9.36811E-06	9.36811E-06
0	0	0	0	0	0
3.45250E-06	3.84217E-08	0	0	3.41408E-06	3.41408E-06
1.62436E-05	3.36754E-06	0	0	1.28760E-05	1.28760E-05
6.56434E-05	5.97344E-05	0	0	5.90901E-06	5.90901E-06
3.80262E-19	3.38868E-19	0	0	9.14182E-14	9.14182E-14
0.000297093	0.000278919	0	0	1.81737E-05	1.81737E-05
6.93402E-08	4.76404E-10	0	0	6.88638E-08	6.88638E-08
1.31151E-20	1.15354E-20	0	0	3.82347E-15	3.82347E-15
1.89374E-08	1.03842E-11	0	0	1.89270E-08	1.89270E-08
5.13387E-05	4.58242E-05	0	0	5.51449E-06	5.51449E-06
1.32721E-06	1.19194E-06	0	0	1.35273E-07	1.35273E-07
2.95400E-05	2.80916E-05	0	0	1.44841E-06	1.44841E-06
3.47427E-07	3.01212E-07	0	0	4.62148E-08	4.62148E-08
2.68077E-08	6.09968E-11	0	0	2.67467E-08	2.67467E-08
66.9357	66.9351	0	0	0.000573973	0.000573973
0	0	0	0	0	0
0	0	0	0	0	0

20	21	22	23	25	31
Solved	Solved	Solved	Solved	Solved	Solved
MIX-101	V-103 HP 3-Phase Separator	V-103 HP 3-Phase Separator	3P Water Boot Dump	VLVE-100	RCYL-1
V-103 HP 3-Phase Separator	VLVE-103	3P Water Boot Dump	MIX-102	MIX-103	VLVE-100
115.852	115.852			121.580	115.852
82.91	82.91	82.91	13.16*	109.91*	82.91
18.0247	18.0221			23.5424	23.5424
55.3730	61.7392			0.424325	0.321157
67.0239	66.9836	0	0	0.0402934	0.0402934
0.0338663	0.0338507	0	0	1.55879E-05	1.55879E-05
0.134151	0.133951	0	0	0.000199248	0.000199248
50.8646	50.4137			1029.84	1029.84
12.4315	2.49783			16526.1	16526.1

101	102	103	110	111	112	113	201
Unsolved	Unsolved	Solved	Solved	Solved	Solved	Solved	Unsolved
DEHY 1 Flash Gas Recycle	MIX-100	RCYL-2	DEHY 1 TEG Flash Liquids	VLVE-101	DEHY 1 BTEX Liquids	VLVE-102	DEHY 2 Flash Gas Recycle
MIX-100	RCYL-2	--	VLVE-101	MIX-102	VLVE-102	MIX-102	MIX-100
		%			%	%	
		0.00799937			0.000103667	0.000103667	
		0.425488			6.28463E-07	6.28463E-07	
		8.21426			0.00813103	0.00813103	
		50.8289			0.000913938	0.000913938	
		16.8212			0.00509529	0.00509529	
		11.6920			0.0199250	0.0199250	
		1.66078			0.00806948	0.00806948	
		4.86394			0.0504529	0.0504529	
		1.22443			0.0422108	0.0422108	
		1.43117			0.0711768	0.0711768	
		0.0143907			0.00121346	0.00121346	
		0.197857			0.0564268	0.0564268	
		0.335811			0.0453928	0.0453928	
		0.192741			0.0348168	0.0348168	
		0.387858			0.0773189	0.0773189	
		0.000226426			0	0	
		0.00146210			0	0	
		0.131774			0.0416142	0.0416142	
		0.00155252			0	0	
		0.202871			0.147187	0.147187	
		0.00309698			0.000969971	0.000969971	
		0.204914			0.0929285	0.0929285	
		0.0739455			0.0679171	0.0679171	
		0.0242622			0.0124682	0.0124682	
		0.133975			0.153727	0.153727	
		0			0	0	
		0.00884359			0.0687908	0.0687908	
		0.000315214			0	0	
		0.108947			0.142129	0.142129	
		0.0230143			0.0725763	0.0725763	
		0.00295029			0.0635105	0.0635105	
		0.000422681			0	0	
		0.00784081			0.262398	0.262398	
		0.00209526			0.00708782	0.00708782	
		0			0	0	
		0.0135028			0.954716	0.954716	
		0.00155069			0.0699159	0.0699159	
		0			0	0	
		0.000215191			0.0160382	0.0160382	
		0			0	0	
		0.000892236			0.0117179	0.0117179	
		0.752169			97.3743	97.3743	
		0.000270913			2.40520E-05	2.40520E-05	
		5.63016E-05			0.0186886	0.0186886	
		%			%	%	
		0.00914107			0.000174761	0.000174761	
		0.399653			8.70846E-07	8.70846E-07	
		12.1212			0.0177006	0.0177006	
		27.3408			0.000725243	0.000725243	
		16.9593			0.00757852	0.00757852	
		17.2868			0.0434599	0.0434599	
		3.23657			0.0231997	0.0231997	
		9.47895			0.145052	0.145052	
		2.96205			0.150643	0.150643	
		3.46218			0.254017	0.254017	
		0.0415811			0.00517253	0.00517253	
		0.465268			0.195751	0.195751	
		0.970305			0.193493	0.193493	
		0.556915			0.148411	0.148411	
		1.12069			0.329583	0.329583	
		0.000760733			0	0	
		0.00412583			0	0	
		0.442726			0.206259	0.206259	
		0.00406617			0	0	
		0.572471			0.612731	0.612731	
		0.0104051			0.00480763	0.00480763	
		0.688461			0.460596	0.460596	
		0.243440			0.329856	0.329856	
		0.0815148			0.0617979	0.0617979	
		0.441065			0.746612	0.746612	
		0			0	0	
		0.0273212			0.313521	0.313521	
		0.00120729			0	0	

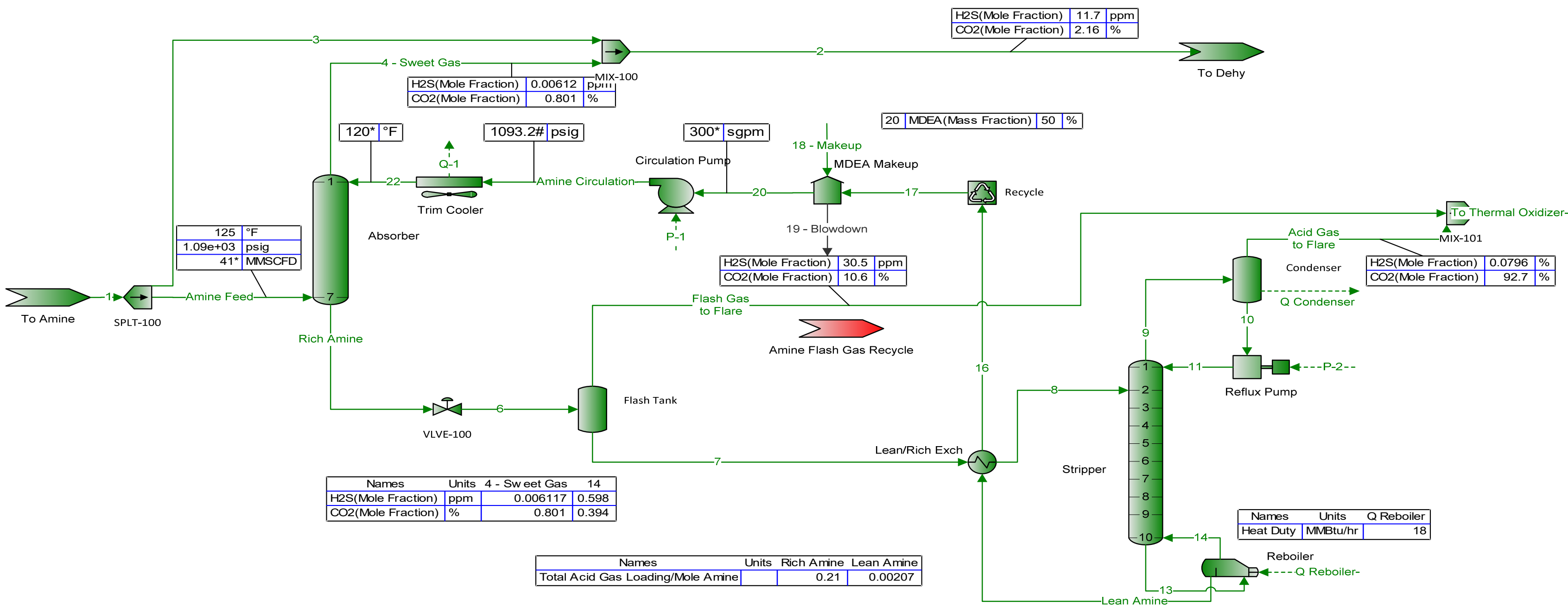
		0.417272			0.803071	0.803071	
		0.0865905			0.402840	0.402840	
		0.0105021			0.333520	0.333520	
		0.00150461			0	0	
		0.0279108			1.37796	1.37796	
		0.00901036			0.0449659	0.0449659	
		0			0	0	
		0.0508037			5.29922	5.29922	
		0.00624928			0.415667	0.415667	
		0			0	0	
		0.000968426			0.106479	0.106479	
		0			0	0	
		0.00425656			0.0824699	0.0824699	
		0.454346			86.7723	86.7723	
		0.00136412			0.000178664	0.000178664	
		0.000224952			0.110156	0.110156	
		lb/h	lb/h	lb/h	lb/h	lb/h	
		0.0107127	0	0	0.000407861	0.000407861	
		0.468365	0	0	2.03239E-06	2.03239E-06	
		14.2052	0	0	0.0413099	0.0413099	
		32.0415	0	0	0.00169258	0.00169258	
		19.8750	0	0	0.0176869	0.0176869	
		20.2590	0	0	0.101427	0.101427	
		3.79304	0	0	0.0541439	0.0541439	
		11.1087	0	0	0.338525	0.338525	
		3.47131	0	0	0.351572	0.351572	
		4.05743	0	0	0.592829	0.592829	
		0.0487301	0	0	0.0120717	0.0120717	
		0.545261	0	0	0.456846	0.456846	
		1.13713	0	0	0.451577	0.451577	
		0.652664	0	0	0.346365	0.346365	
		1.31337	0	0	0.769186	0.769186	
		0.000891525	0	0	0	0	
		0.00483518	0	0	0	0	
		0.518843	0	0	0.481370	0.481370	
		0.00476526	0	0	0	0	
		0.670895	0	0	1.43000	1.43000	
		0.0121940	0	0	0.0112201	0.0112201	
		0.806827	0	0	1.07495	1.07495	
		0.285294	0	0	0.769823	0.769823	
		0.0955296	0	0	0.144225	0.144225	
		0.516898	0	0	1.74245	1.74245	
		0	0	0	0	0	
		0.0320185	0	0	0.731700	0.731700	
		0.00141485	0	0	0	0	
		0.489013	0	0	1.87422	1.87422	
		0.101478	0	0	0.940154	0.940154	
		0.0123077	0	0	0.778375	0.778375	
		0.00176330	0	0	0	0	
		0.0327095	0	0	3.21591	3.21591	
		0.0105595	0	0	0.104942	0.104942	
		0	0	0	0	0	
		0.0595384	0	0	12.3674	12.3674	
		0.00732372	0	0	0.970090	0.970090	
		0	0	0	0	0	
		0.00113493	0	0	0.248501	0.248501	
		0	0	0	0	0	
		0.00498839	0	0	0.192469	0.192469	
		0.532462	0	0	202.511	202.511	
		0.00159865	0	0	0.000416970	0.000416970	
		0.000263627	0	0	0.257085	0.257085	
101	102	103	110	111	112	113	201
Unsolved	Unsolved	Solved	Solved	Solved	Solved	Solved	Unsolved
DEHY 1 Flash Gas Recycle	MIX-100	RCYL-2	DEHY 1 TEG Flash Liquids	VLVE-101	DEHY 1 BTEX Liquids	VLVE-102	DEHY 2 Flash Gas Recycle
MIX-100	RCYL-2	--	VLVE-101	MIX-102	VLVE-102	MIX-102	MIX-100
		137.682			120	120	
	102.91*	84.91	82.91	13.16*	13.16	13.16*	
		29.8243			20.2164	20.2164	
		0.406212			59.4187	59.4187	
		117.193	0	0	233.382	233.382	
		0.0357879	0	0	0.105140	0.105140	
		0.538380	0	0	0.482830	0.482830	
		1526.62			189.495	189.495	
		19320.5			2627.18	2627.18	

210	211	212	213	301
Solved	Solved	Solved	Solved	Unsolved
DEHY 2 TEG Flash Liquids	VLVE-201	DEHY 2 BTEX Liquids	VLVE-202	Amine Flash Gas Recycle
VLVE-201	MIX-102	VLVE-202	MIX-102	--
		%	%	
		0.000106998	0.000106998	
		6.57083E-07	6.57083E-07	
		0.00837150	0.00837150	
		0.000971228	0.000971228	
		0.00551835	0.00551835	
		0.0217598	0.0217598	
		0.00885936	0.00885936	
		0.0552989	0.0552989	
		0.0464808	0.0464808	
		0.0786673	0.0786673	
		0.00134466	0.00134466	
		0.0620156	0.0620156	
		0.0501600	0.0501600	
		0.0383478	0.0383478	
		0.0857936	0.0857936	
		0	0	
		0	0	
		0.0461408	0.0461408	
		0	0	
		0.162200	0.162200	
		0.00107774	0.00107774	
		0.103295	0.103295	
		0.0751700	0.0751700	
		0.0138850	0.0138850	
		0.170090	0.170090	
		0	0	
		0.0753227	0.0753227	
		0	0	
		0.158842	0.158842	
		0.0803431	0.0803431	
		0.0696522	0.0696522	
		0	0	
		0.286894	0.286894	
		0.00794292	0.00794292	
		0	0	
		1.01841	1.01841	
		0.0766208	0.0766208	
		0	0	
		0.0174862	0.0174862	
		0	0	
		0.0131893	0.0131893	
		97.1400	97.1400	
		2.50163E-05	2.50163E-05	
		0.0197153	0.0197153	
		%	%	
		0.000178666	0.000178666	
		9.01867E-07	9.01867E-07	
		0.0180512	0.0180512	
		0.000763394	0.000763394	
		0.00812990	0.00812990	
		0.0470117	0.0470117	
		0.0252290	0.0252290	
		0.157476	0.157476	
		0.164308	0.164308	
		0.278087	0.278087	
		0.00567743	0.00567743	
		0.213098	0.213098	
		0.211786	0.211786	
		0.161913	0.161913	
		0.362239	0.362239	
		0	0	
		0	0	
		0.226526	0.226526	
		0	0	
		0.668821	0.668821	
		0.00529109	0.00529109	
		0.507120	0.507120	
		0.361619	0.361619	
		0.0681678	0.0681678	
		0.818247	0.818247	
		0	0	
		0.340035	0.340035	
		0	0	

		0.888992	0.888992	
		0.441720	0.441720	
		0.362304	0.362304	
		0	0	
		1.49231	1.49231	
		0.0499127	0.0499127	
		0	0	
		5.59914	5.59914	
		0.451209	0.451209	
		0	0	
		0.114991	0.114991	
		0	0	
		0.0919451	0.0919451	
		85.7424	85.7424	
		0.000184065	0.000184065	
		0.115106	0.115106	
lb/h	lb/h	lb/h	lb/h	
0	0	0.000383399	0.000383399	
0	0	1.93531E-06	1.93531E-06	
0	0	0.0387360	0.0387360	
0	0	0.00163816	0.00163816	
0	0	0.0174459	0.0174459	
0	0	0.100882	0.100882	
0	0	0.0541389	0.0541389	
0	0	0.337928	0.337928	
0	0	0.352588	0.352588	
0	0	0.596745	0.596745	
0	0	0.0121832	0.0121832	
0	0	0.457286	0.457286	
0	0	0.454470	0.454470	
0	0	0.347447	0.347447	
0	0	0.777326	0.777326	
0	0	0	0	
0	0	0	0	
0	0	0.486101	0.486101	
0	0	0	0	
0	0	1.43522	1.43522	
0	0	0.0113541	0.0113541	
0	0	1.08823	1.08823	
0	0	0.775996	0.775996	
0	0	0.146281	0.146281	
0	0	1.75587	1.75587	
0	0	0	0	
0	0	0.729679	0.729679	
0	0	0	0	
0	0	1.90768	1.90768	
0	0	0.947885	0.947885	
0	0	0.777466	0.777466	
0	0	0	0	
0	0	3.20235	3.20235	
0	0	0.107107	0.107107	
0	0	0	0	
0	0	12.0152	12.0152	
0	0	0.968247	0.968247	
0	0	0	0	
0	0	0.246758	0.246758	
0	0	0	0	
0	0	0.197305	0.197305	
0	0	183.994	183.994	
0	0	0.000394984	0.000394984	
0	0	0.247005	0.247005	

210	211	212	213	301
Solved	Solved	Solved	Solved	Unsolved
DEHY 2 TEG Flash Liquids	VLVE-201	DEHY 2 BTEX Liquids	VLVE-202	Amine Flash Gas Recycle
VLVE-201	MIX-102	VLVE-202	MIX-102	--
		120	120	
82.91	13.16*	13.16	13.16*	
		20.4100	20.4100	
		59.2367	59.2367	
0	0	214.590	214.590	
0	0	0.0957569	0.0957569	
0	0	0.445210	0.445210	
		201.802	201.802	
		2832.30	2832.30	

Names	Units	Acid Gas to Flare		Acid Gas to Flare		Flash Gas to Flare		Flash Gas to Flare	
Mass Flow Sum	lb/h	(HAPs)	4.4578	(VOCs)	12.329	(HAPs)	0.72864	(VOCs)	46.19
Mass Flow Sum	ton/yr	(HAPs)	19.525	(VOCs)	54.001	(HAPs)	3.1914	(VOCs)	202.31



Process Streams	Acid Gas to Flare	Amine Circulation	Amine Feed	Flash Gas to Flare	Lean Amine	Rich Amine
Composition Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total From Block:	Condenser	Circulation Pump	SPLT-100	Flash Tank	Reboiler	Absorber
To Block:	MIX-101	Trim Cooler	Absorber	MIX-101	Lean/Rich Exch	VLVE-100
Mole Fraction	%	%	%	%	%	%
H2S	0.0795934	4.05543E-05	0.00253462	0.00304651	4.05381E-05	0.00229922
Nitrogen	0.000821644	0	1.84913	0.490590	0	0.00119439
CO2	92.6937	0.0271155	3.74358	10.6081	0.0271160	2.67502
Methane	0.475890	0	72.2588	64.7725	0	0.168094
Ethane	0.181186	0	10.9214	12.7179	0	0.0354882
Propane	0.0589896	0	5.95207	4.74454	0	0.0129957
i-Butane	0.00489885	0	0.867905	0.470681	0	0.00126226
n-Butane	0.0225084	0	2.05123	1.49150	0	0.00419755
i-Pentane	0.00134516	0	0.551565	0.172278	0	0.000449334
n-Pentane	0.00234742	0	0.582514	0.231789	0	0.000619763
Neohexane	2.12515E-05	0	0.00606355	0.00212290	0	5.66924E-06
Cyclopentane	0.00197528	0	0.0483647	0.0568927	0	0.000191719
2-Methylpentane	0.000453001	0	0.138458	0.0454286	0	0.000121268
3-Methylpentane	0.000242303	0	0.0747434	0.0243109	0	6.48926E-05
n-Hexane	0.000486459	0	0.163211	0.0490748	0	0.000130919
2,2-Dimethylpentane	0	0	0	0	0	0
Methylcyclopentane	0	0	0	0	0	0
2,2,3-Trimethylbutane	4.68864E-05	0	0.0557525	0.00869760	0	2.20899E-05
Benzene	0	0	0	0	0	0
Cyclohexane	0.00404004	0	0.0626696	0.0741265	0	0.000291296
2-Methylhexane	9.47526E-07	0	0.00122243	0.000176929	0	4.49182E-07
3-Methylhexane	6.89792E-05	0	0.0891063	0.0128791	0	3.26973E-05
1,1-Dimethylcyclopentane	0.000223403	0	0.0249146	0.0121463	0	3.53184E-05
n-Heptane	7.70052E-06	0	0.0108408	0.00144502	0	3.66750E-06
Methylcyclohexane	0.000693948	0	0.0512883	0.0280729	0	8.66558E-05
2,5-Dimethylhexane	0	0	0	0	0	0
Toluene	0.00975088	0	0.00230543	0.00628963	0	0.000290984
2-Methylheptane	0	0	0	0	0	0
n-Octane	6.39849E-05	0	0.0703798	0.00922230	0	2.38264E-05
Ethylcyclohexane	0.000175224	0	0.0141547	0.00622178	0	1.98118E-05
Ethylbenzene	0.00400204	0	0.00146472	0.00290943	0	0.000120211
p-Xylene	0	0	0	0	0	0
o-Xylene	0.0165318	0	0.00440725	0.00875339	0	0.000488779
n-Nonane	3.80748E-07	0	0.00229311	0.000113655	0	2.82094E-07
Isopropylbenzene	0	0	0	0	0	0
Cyclooctane	0	0	0.00812502	4.80820E-06	0	1.14825E-08
Propylbenzene	0.00240326	0	0.00135024	0.00210114	0	7.30328E-05
1,3,5-Trimethylbenzene	0	0	0	0	0	0
Isobutylbenzene	0.000672740	0	0.000315493	0.000436467	0	2.00818E-05
Butylbenzene	0	0	0	0	0	0
n-Decane	4.50749E-08	0	0.00272638	3.81683E-05	0	9.23912E-08
Water	6.43690	86.8349	0.385167	3.94491	86.8336	84.3603
MDEA	4.37973E-13	13.1380	0	0.000672475	13.1392	12.7360
Mass Fraction	%	%	%	%	%	%
H2S	0.0642828	4.41418E-05	0.00375212	0.00440579	4.41224E-05	0.00247958
Nitrogen	0.000545452	0	2.25001	0.583171	0	0.00105877
CO2	96.6726	0.0381124	7.15626	19.8105	0.0381117	3.72530
Methane	0.180919	0	50.3516	44.0933	0	0.0853314
Ethane	0.129107	0	14.2643	16.2273	0	0.0337668
Propane	0.0616422	0	11.4003	8.87770	0	0.0181335
i-Butane	0.00674750	0	2.19112	1.16086	0	0.00232154
n-Butane	0.0310023	0	5.17855	3.67856	0	0.00772015
i-Pentane	0.00229990	0	1.72853	0.527437	0	0.00102585
n-Pentane	0.00401353	0	1.82552	0.709631	0	0.00141495
Neohexane	4.33991E-05	0	0.0226967	0.00776288	0	1.54595E-05
Cyclopentane	0.00328289	0	0.147334	0.169313	0	0.000425474
2-Methylpentane	0.000925101	0	0.518267	0.166121	0	0.000330687
3-Methylpentane	0.000494822	0	0.279774	0.0888985	0	0.000176956
n-Hexane	0.000993428	0	0.610920	0.179454	0	0.000357004
2,2-Dimethylpentane	0	0	0	0	0	0
Methylcyclopentane	0	0	0	0	0	0
2,2,3-Trimethylbutane	0.000111335	0	0.242657	0.0369817	0	7.00418E-05
Benzene	0	0	0	0	0	0
Cyclohexane	0.00805741	0	0.229093	0.264720	0	0.000775755
2-Methylhexane	2.24996E-06	0	0.00532050	0.000752292	0	1.42425E-06
3-Methylhexane	0.000163795	0	0.387826	0.0547612	0	0.000103675
1,1-Dimethylcyclopentane	0.000519812	0	0.106257	0.0506063	0	0.000109733
n-Heptane	1.82853E-05	0	0.0471832	0.00614415	0	1.16288E-05
Methylcyclohexane	0.00161467	0	0.218736	0.116963	0	0.000269237
2,5-Dimethylhexane	0	0	0	0	0	0
Toluene	0.0212908	0	0.00922666	0.0245910	0	0.000848392

2-Methylheptane	0	0	0	0	0	0
n-Octane	0.000173204	0	0.349200	0.0447017	0	8.61231E-05
Ethylcyclohexane	0.000465954	0	0.0689914	0.0296256	0	7.03482E-05
Ethylbenzene	0.0100686	0	0.00675444	0.0131069	0	0.000403843
p-Xylene	0	0	0	0	0	0
o-Xylene	0.0415919	0	0.0203236	0.0394338	0	0.00164203
n-Nonane	1.15723E-06	0	0.0127747	0.000618551	0	1.14487E-06
Isopropylbenzene	0	0	0	0	0	0
Cyclooctane	0	0	0.0396021	2.28947E-05	0	4.07722E-08
Propylbenzene	0.00684512	0	0.00704916	0.0107162	0	0.000277766
1,3,5-Trimethylbenzene	0	0	0	0	0	0
Isobutylbenzene	0.00213976	0	0.00183930	0.00248584	0	8.52906E-05
Butylbenzene	0	0	0	0	0	0
n-Decane	1.51982E-07	0	0.0168495	0.000230443	0	4.15975E-07
Water	2.74805	49.9618	0.301399	3.01570	49.9590	48.0913
MDEA	1.23678E-12	50	0	0.00340036	50.0028	48.0241
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
H2S	3.87531	0.0676330	3.88869	0.0125113	0.0675987	3.95542
Nitrogen	0.0328827	0	2331.91	1.65606	0	1.68894
CO2	5827.93	58.3949	7416.74	56.2569	58.3898	5942.58
Methane	10.9068	0	52184.4	125.214	0	136.120
Ethane	7.78326	0	14783.5	46.0815	0	53.8648
Propane	3.71612	0	11815.2	25.2104	0	28.9265
i-Butane	0.406775	0	2270.87	3.29655	0	3.70332
n-Butane	1.86898	0	5367.04	10.4462	0	12.3152
i-Pentane	0.138650	0	1791.45	1.49779	0	1.63644
n-Pentane	0.241957	0	1891.97	2.01517	0	2.25713
Neohexane	0.00261633	0	23.5228	0.0220446	0	0.0246609
Cyclopentane	0.197910	0	152.697	0.480805	0	0.678715
2-Methylpentane	0.0557700	0	537.132	0.471741	0	0.527511
3-Methylpentane	0.0298305	0	289.958	0.252449	0	0.282280
n-Hexane	0.0598891	0	633.157	0.509603	0	0.569492
2,2-Dimethylpentane	0	0	0	0	0	0
Methylcyclopentane	0	0	0	0	0	0
2,2,3-Trimethylbutane	0.00671183	0	251.489	0.105019	0	0.111730
Benzene	0	0	0	0	0	0
Cyclohexane	0.485743	0	237.432	0.751739	0	1.23748
2-Methylhexane	0.000135639	0	5.51417	0.00213632	0	0.00227196
3-Methylhexane	0.00987444	0	401.942	0.155508	0	0.165382
1,1-Dimethylcyclopentane	0.0313370	0	110.124	0.143709	0	0.175046
n-Heptane	0.00110234	0	48.9007	0.0174478	0	0.0185502
Methylcyclohexane	0.0973409	0	226.698	0.332145	0	0.429486
2,5-Dimethylhexane	0	0	0	0	0	0
Toluene	1.28352	0	9.56250	0.0698323	0	1.35335
2-Methylheptane	0	0	0	0	0	0
n-Octane	0.0104417	0	361.911	0.126942	0	0.137383
Ethylcyclohexane	0.0280901	0	71.5026	0.0841292	0	0.112219
Ethylbenzene	0.606989	0	7.00029	0.0372203	0	0.644209
p-Xylene	0	0	0	0	0	0
o-Xylene	2.50738	0	21.0634	0.111982	0	2.61936
n-Nonane	6.97639E-05	0	13.2397	0.00175653	0	0.00182629
Isopropylbenzene	0	0	0	0	0	0
Cyclooctane	0	0	41.0436	6.50152E-05	0	6.50397E-05
Propylbenzene	0.412660	0	7.30574	0.0304312	0	0.443092
1,3,5-Trimethylbenzene	0	0	0	0	0	0
Isobutylbenzene	0.128996	0	1.90625	0.00705916	0	0.136055
Butylbenzene	0	0	0	0	0	0
n-Decane	9.16225E-06	0	17.4628	0.000654399	0	0.000663562
Water	165.667	76550.2	312.369	8.56383	76540.8	76715.1
MDEA	7.45597E-11	76608.7	0	0.00965617	76607.9	76607.9

Process Streams		**Acid Gas to Flare**	**Amine Circulation**	**Amine Feed**	**Flash Gas to Flare**	**Lean Amine**	**Rich Amine**
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**Condenser**	**Circulation Pump**	**SPLT-100**	**Flash Tank**	**Reboiler**	**Absorber**
	To Block:	**MIX-101**	**Trim Cooler**	**Absorber**	**MIX-101**	**Lean/Rich Exch**	**VLVE-100**
Property	**Units**						
Temperature	°F	120.000	208.287	124.788	150.705	259.826	147.984
Pressure	psia	26.6959	1106.12*	1104.12	82.91	30.6959	1104.12
Molecular Weight	lb/lbmol	42.1981	31.3110	23.0223	23.5662	31.3123	31.6019
Mass Density	lb/ft^3	0.182614	62.1393	5.07021	0.302597	60.3272	66.1517
Mass Flow	lb/h	6028.53	153217	103640	283.975	153207	159520
Std Vapor Volumetric Flow	MMSCFD	1.30114	44.5673	41*	0.109748	44.5625	45.9734
Std Liquid Volumetric Flow	sgpm	14.7521	300	550.028	1.42041	299.980	316.152
Gross Ideal Gas Heating Value	Btu/ft^3	16.3592	556.836	1255.56	1097.40	556.885	542.878
Gross Liquid Heating Value	Btu/lb	44.9828	6048.20	20626.7	17574.6	6048.53	5842.17

To Thermal Oxidizer	1	2	3	4 - Sweet Gas	6	7	8	9	10
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
MIX-101	To Amine	MIX-100	SPLT-100	Absorber	VLVE-100	Flash Tank	Lean/Rich Exch	Stripper	Condenser
--	SPLT-100	To Dehy	MIX-100	MIX-100	Flash Tank	Lean/Rich Exch	Stripper	Condenser	Reflux Pump
%	%	%	%	%	%	%	%	%	%
0.0736391	0.00253462	0.00117041	0.00253462	6.11725E-07	0.00229922	0.00229743	0.00229743	0.0231826	0.000162725
0.0389190	1.84913	1.88373	1.84913	1.91341	0.00119439	2.33098E-05	2.33098E-05	0.000238131	1.39666E-08
86.3085	3.74358	2.15942	3.74358	0.801025	2.67502	2.65604	2.65604	26.9063	0.0600241
5.47729	72.2588	73.5352	72.2588	74.6297	0.168094	0.0135009	0.0135009	0.137929	1.56204E-05
1.15637	10.9214	11.1080	10.9214	11.2680	0.0354882	0.00514019	0.00514019	0.0525143	6.62713E-06
0.423462	5.95207	6.05774	5.95207	6.14836	0.0129957	0.00167352	0.00167352	0.0170970	1.65549E-06
0.0411304	0.867905	0.883709	0.867905	0.897260	0.00126226	0.000138979	0.000138979	0.00141980	8.66143E-08
0.136776	2.05123	2.08782	2.05123	2.11920	0.00419755	0.000638558	0.000638558	0.00652362	5.99587E-07
0.0146414	0.551565	0.561829	0.551565	0.570630	0.000449334	3.81617E-05	3.81617E-05	0.000389854	1.80569E-08
0.0201949	0.582514	0.593264	0.582514	0.602481	0.000619763	6.65956E-05	6.65956E-05	0.000680335	3.88972E-08
0.000184731	0.00606355	0.00617593	0.00606355	0.00627229	5.66924E-06	6.02900E-07	6.02900E-07	6.15907E-06	1.99649E-10
0.00624711	0.0483647	0.0491695	0.0483647	0.0498596	0.000191719	5.60380E-05	5.60380E-05	0.000572578	1.70115E-07
0.00395149	0.138458	0.141030	0.138458	0.143234	0.000121268	1.28515E-05	1.28515E-05	0.000131288	4.25013E-09
0.00211451	0.0747434	0.0761318	0.0747434	0.0773223	6.48926E-05	6.87406E-06	6.87406E-06	7.02237E-05	2.27286E-09
0.00426597	0.163211	0.166250	0.163211	0.168855	0.000130919	1.38007E-05	1.38007E-05	0.000140984	4.55623E-09
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0.000719795	0.0557525	0.0568046	0.0557525	0.0577068	2.20899E-05	1.33015E-06	1.33015E-06	1.35884E-05	2.54480E-10
0	0	0	0	0	0	0	0	0	0
0.00949181	0.0626696	0.0636857	0.0626696	0.0645569	0.000291296	0.000114615	0.000114615	0.00117106	3.03353E-07
1.46365E-05	0.00122243	0.00124552	0.00122243	0.00126532	4.49182E-07	2.68810E-08	2.68810E-08	2.74607E-07	5.12610E-12
0.00106543	0.0891063	0.0907894	0.0891063	0.0922327	3.26973E-05	1.95692E-06	1.95692E-06	1.99912E-05	3.73180E-10
0.00115084	0.0249146	0.0253689	0.0249146	0.0257584	3.53184E-05	6.33788E-06	6.33788E-06	6.47492E-05	6.22661E-09
0.000119505	0.0108408	0.0110457	0.0108408	0.0112215	3.66750E-06	2.18462E-07	2.18462E-07	2.23173E-06	4.16075E-11
0.00282366	0.0512883	0.0522147	0.0512883	0.0530091	8.66558E-05	1.96871E-05	1.96871E-05	0.000201131	2.45735E-08
0	0	0	0	0	0	0	0	0	0
0.00948164	0.00230543	0.00216761	0.00230543	0.00204943	0.000290984	0.000276630	0.000276630	0.00283902	1.84536E-05
0	0	0	0	0	0	0	0	0	0
0.000776377	0.0703798	0.0717105	0.0703798	0.0728515	2.38264E-05	1.81523E-06	1.81523E-06	1.85437E-05	2.96722E-10
0.000645564	0.0141547	0.0144129	0.0141547	0.0146344	1.98118E-05	4.97106E-06	4.97106E-06	5.07854E-05	4.91421E-09
0.00391705	0.00146472	0.00141758	0.00146472	0.00137716	0.000120211	0.000113537	0.000113537	0.00116421	6.16230E-06
0	0	0	0	0	0	0	0	0	0
0.0159268	0.00440725	0.00418597	0.00440725	0.00399623	0.000488779	0.000469003	0.000469003	0.00481818	3.81336E-05
9.19198E-06	0.00229311	0.00233677	0.00229311	0.00237421	2.82094E-07	1.08017E-08	1.08017E-08	1.10346E-07	7.49505E-13
0	0	0	0	0	0	0	0	0	0
3.74013E-07	0.00812502	0.00828035	0.00812502	0.00841354	1.14825E-08	4.33423E-12	4.33423E-12	0	0
0.00237976	0.00135024	0.00133040	0.00135024	0.00131339	7.30328E-05	6.81797E-05	6.81797E-05	0.000698607	2.97960E-06
0	0	0	0	0	0	0	0	0	0
0.000654361	0.000315493	0.000308972	0.000315493	0.000303380	2.00818E-05	1.90854E-05	1.90854E-05	0.000195689	1.01557E-06
0	0	0	0	0	0	0	0	0	0
3.01055E-06	0.00272638	0.00277844	0.00272638	0.00282309	9.23912E-08	1.27876E-09	1.27876E-09	1.30632E-08	3.28012E-14
6.24306	0.385167	0.279224	0.385167	0.188380	84.3603	84.5528	84.5528	72.8415	99.9396
5.23094E-05	0	8.44834E-05	0	0.000156927	12.7360	12.7665	12.7665	7.11550E-05	0.000100192
%	%	%	%	%	%	%	%	%	%
0.0615891	0.00375212	0.00175860	0.00375212	9.31130E-07	0.00247958	0.00247614	0.00247614	0.0315592	0.000307571
0.0267555	2.25001	2.32651	2.25001	2.39396	0.00105877	2.06503E-05	2.06503E-05	0.000266462	2.16988E-08
93.2149	7.15626	4.18990	7.15626	1.57447	3.72530	3.69661	3.69661	47.2991	0.146504
2.15636	50.3516	52.0098	50.3516	53.4719	0.0853314	0.00684944	0.00684944	0.0883854	1.38977E-05
0.853303	14.2643	14.7257	14.2643	15.1325	0.0337668	0.00488789	0.00488789	0.0630741	1.10516E-05
0.458242	11.4003	11.7768	11.4003	12.1087	0.0181335	0.00233372	0.00233372	0.0301141	4.04855E-06
0.0586664	2.19112	2.26449	2.19112	2.32918	0.00232154	0.000255455	0.000255455	0.00329627	2.79197E-07
0.195091	5.17855	5.35001	5.17855	5.50119	0.00772015	0.00117372	0.00117372	0.0151455	1.93274E-06
0.0259238	1.72853	1.78712	1.72853	1.83877	0.00102585	8.70723E-05	8.70723E-05	0.00112353	7.22522E-08
0.0357565	1.82552	1.88711	1.82552	1.94140	0.00141495	0.000151949	0.000151949	0.00196067	1.55642E-07
0.000390668	0.0226967	0.0234642	0.0226967	0.0241409	1.54595E-05	1.64305E-06	1.64305E-06	2.12008E-05	9.54176E-10
0.0107519	0.147334	0.152033	0.147334	0.156176	0.000425474	0.000124288	0.000124288	0.00160402	6.61672E-07
0.00835660	0.518267	0.535812	0.518267	0.551282	0.000330687	3.50236E-05	3.50236E-05	0.000451919	2.03125E-08
0.00447175	0.279774	0.289247	0.279774	0.297599	0.000176956	1.87335E-05	1.87335E-05	0.000241724	1.08626E-08
0.00902166	0.610920	0.631630	0.610920	0.649890	0.000357004	3.76103E-05	3.76103E-05	0.000485297	2.17754E-08
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0.00176999	0.242657	0.250945	0.242657	0.258253	7.00418E-05	4.21503E-06	4.21503E-06	5.43872E-05	1.41419E-09
0	0	0	0	0	0	0	0	0	0
0.0196037	0.229093	0.236300	0.229093	0.242655	0.000775755	0.000305047	0.000305047	0.00393674	1.41589E-06
3.59914E-05	0.00532050	0.00550234	0.00532050	0.00566265	1.42425E-06	8.51814E-08	8.51814E-08	1.09911E-06	2.84867E-11
0.00261992	0.387826	0.401080	0.387826	0.412766	0.000103675	6.20115E-06	6.20115E-06	8.00144E-05	2.07383E-09
0.00277301	0.106257	0.109817	0.106257	0.112957	0.000109733	1.96796E-05	1.96796E-05	0.000253944	3.39063E-08
0.000293864	0.0471832	0.0487966	0.0471832	0.0502191	1.16288E-05	6.92268E-07	6.92268E-07	8.93244E-06	2.31220E-10
0.00680374	0.218736	0.226028	0.218736	0.232457	0.000269237	6.11300E-05	6.11300E-05	0.000788829	1.33812E-07
0	0	0	0	0	0	0	0	0	0
0.0214392	0.00922666	0.00880524	0.00922666	0.00843368	0.000848392	0.000806051	0.000806051	0.0104487	9.42974E-05

0	0	0	0	0	0	0	0	0	0
0.00217637	0.349200	0.361141	0.349200	0.371669	8.61231E-05	6.55737E-06	6.55737E-06	8.46107E-05	1.87976E-09
0.00177773	0.0689914	0.0713040	0.0689914	0.0733431	7.03482E-05	1.76406E-05	1.76406E-05	0.000227632	3.05826E-08
0.0102053	0.00675444	0.00663513	0.00675444	0.00652993	0.000403843	0.000381189	0.000381189	0.00493704	3.62829E-05
0	0	0	0	0	0	0	0	0	0
0.0414948	0.0203236	0.0195928	0.0203236	0.0189485	0.00164203	0.00157463	0.00157463	0.0204323	0.000224526
2.89314E-05	0.0127747	0.0132133	0.0127747	0.0135999	1.14487E-06	4.38117E-08	4.38117E-08	5.65305E-07	5.33123E-12
0	0	0	0	0	0	0	0	0	0
1.02994E-06	0.0396021	0.0409647	0.0396021	0.0421661	4.07722E-08	1.53807E-11	1.53807E-11	0	0
0.00701927	0.00704916	0.00704979	0.00704916	0.00705035	0.000277766	0.000259151	0.000259151	0.00335398	1.98614E-05
0	0	0	0	0	0	0	0	0	0
0.00215533	0.00183930	0.00182831	0.00183930	0.00181862	8.52906E-05	8.10095E-05	8.10095E-05	0.00104913	7.55963E-06
0	0	0	0	0	0	0	0	0	0
1.05119E-05	0.0168495	0.0174289	0.0168495	0.0179398	4.15975E-07	5.75389E-09	5.75389E-09	7.42426E-08	2.58831E-13
2.76009	0.301399	0.221775	0.301399	0.151572	48.0913	48.1717	48.1717	52.4171	99.8521
0.000152969	0	0.000443843	0	0.000835177	48.0241	48.1097	48.1097	0.000338686	0.000662138
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
3.88782	7.10883	3.22105	3.22014	0.000906340	3.95542	3.94290	3.94290	3.89472	0.0194153
1.68894	4262.92	4261.23	1931.01	2330.22	1.68894	0.0328827	0.0328827	0.0328841	1.36973E-06
5884.19	13558.4	7674.20	6141.65	1532.56	5942.58	5886.32	5886.32	5837.18	9.24803
136.120	95397.2	95261.1	43212.8	52048.3	136.120	10.9068	10.9068	10.9076	0.000877284
53.8648	27025.3	26971.5	12241.9	14729.6	53.8648	7.78326	7.78326	7.78396	0.000697625
28.9265	21599.2	21570.3	9783.96	11786.3	28.9265	3.71612	3.71612	3.71637	0.000255563
3.70332	4151.34	4147.64	1880.46	2267.17	3.70332	0.406775	0.406775	0.406793	1.76242E-05
12.3152	9811.38	9799.06	4444.34	5354.73	12.3152	1.86898	1.86898	1.86911	0.000122003
1.63644	3274.91	3273.27	1483.46	1789.81	1.63644	0.138650	0.138650	0.138655	4.56089E-06
2.25713	3458.67	3456.42	1566.70	1889.71	2.25713	0.241957	0.241957	0.241967	9.82481E-06
0.0246609	43.0015	42.9769	19.4787	23.4981	0.0246609	0.00261633	0.00261633	0.00261639	6.02320E-08
0.678715	279.141	278.463	126.445	152.018	0.678715	0.197910	0.197910	0.197952	4.17678E-05
0.527511	981.920	981.392	444.788	536.604	0.527511	0.0557700	0.0557700	0.0557713	1.28222E-06
0.282280	530.066	529.784	240.108	289.676	0.282280	0.0298305	0.0298305	0.0298311	6.85699E-07
0.569492	1157.46	1156.89	524.304	632.588	0.569492	0.0598891	0.0598891	0.0598905	1.37457E-06
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
0.111730	459.743	459.631	208.253	251.378	0.111730	0.00671183	0.00671183	0.00671192	8.92703E-08
0	0	0	0	0	0	0	0	0	0
1.23748	434.044	432.807	196.612	236.194	1.23748	0.485743	0.485743	0.485832	8.93776E-05
0.00227196	10.0803	10.0781	4.56617	5.51189	0.00227196	0.000135639	0.000135639	0.000135641	1.79821E-09
0.165382	734.782	734.616	332.840	401.777	0.165382	0.00987444	0.00987444	0.00987457	1.30910E-07
0.175046	201.316	201.141	91.1917	109.949	0.175046	0.0313370	0.0313370	0.0313392	2.14032E-06
0.0185502	89.3943	89.3757	40.4936	48.8821	0.0185502	0.00110234	0.00110234	0.00110235	1.45957E-08
0.429486	414.422	413.992	187.724	226.268	0.429486	0.0973409	0.0973409	0.0973493	8.44685E-06
0	0	0	0	0	0	0	0	0	0
1.35335	17.4810	16.1277	7.91851	8.20915	1.35335	1.28352	1.28352	1.28947	0.00595249
0	0	0	0	0	0	0	0	0	0
0.137383	661.602	661.464	299.691	361.774	0.137383	0.0104417	0.0104417	0.0104418	1.18659E-07
0.112219	130.712	130.600	59.2098	71.3904	0.112219	0.0280901	0.0280901	0.0280921	1.93051E-06
0.644209	12.7971	12.1529	5.79679	6.35608	0.644209	0.606989	0.606989	0.609279	0.00229035
0	0	0	0	0	0	0	0	0	0
2.61936	38.5055	35.8862	17.4422	18.4440	2.61936	2.50738	2.50738	2.52155	0.0141731
0.00182629	24.2032	24.2014	10.9635	13.2379	0.00182629	6.97639E-05	6.97639E-05	6.97642E-05	3.36532E-10
0	0	0	0	0	0	0	0	0	0
6.50152E-05	75.0309	75.0308	33.9873	41.0435	6.50397E-05	2.44916E-08	2.44916E-08	0	0
0.443092	13.3555	12.9124	6.04973	6.86265	0.443092	0.412660	0.412660	0.413914	0.00125374
0	0	0	0	0	0	0	0	0	0
0.136055	3.48478	3.34873	1.57853	1.77020	0.136055	0.128996	0.128996	0.129473	0.000477199
0	0	0	0	0	0	0	0	0	0
0.000663562	31.9234	31.9227	14.4606	17.4621	0.000663562	9.16225E-06	9.16225E-06	9.16227E-06	1.63386E-11
174.231	571.036	406.203	258.667	147.536	76715.1	76706.5	76706.5	6468.79	6303.13
0.00965617	0	0.812942	0	0.812942	76607.9	76607.9	76607.9	0.0417972	0.0417972

To Thermal Oxidizer	1	2	3	4 - Sweet Gas	6	7	8	9	10
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
MIX-101	To Amine	MIX-100	SPLT-100	Absorber	VLVE-100	Flash Tank	Lean/Rich Exch	Stripper	Condenser
--	SPLT-100	To Dehy	MIX-100	MIX-100	Flash Tank	Lean/Rich Exch	Stripper	Condenser	Reflux Pump
122.319	124.788	124.296	124.788	124.340	150.705	150.705	210*	226.361	120.000
26.6959	1104.12	1101.12	1104.12	1101.12	82.91*	82.91	77.91	26.6959	26.6959
40.7488	23.0223	22.6820	23.0223	22.3901	31.6019	31.6211	31.6211	25.0349	18.0311
0.175562	5.07021	4.97819	5.07021	4.90689	47.6665	66.1246	54.8466	0.0917619	61.6926
6312.50	189462	183160	85822.0	97337.6	159520	159236	159236	12341.0	6312.46
1.41088	74.9512	73.5452	33.9512	39.5939	45.9734	45.8636	45.8636	4.48960	3.18847
16.1725	1005.49	989.342	455.466	533.876	316.152	314.732	314.732	27.3753	12.6232
100.449	1255.56	1277.64	1255.56	1296.58	542.878	541.551	541.551	40.4553	50.2883
833.569	20626.7	21307.8	20626.7	21908.3	5842.17	5821.24	5821.24	22.0096	0.0697099

11	13	14	16	17	18 - Makeup	19 - Blowdown	20	22
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Reflux Pump	Stripper	Reboiler	Lean/Rich Exch	Recycle	--	MDEA Makeup	MDEA Makeup	Trim Cooler
Stripper	Reboiler	Stripper	Recycle	MDEA Makeup	MDEA Makeup	--	Circulation Pump	Absorber
%	%	%	%	%	%	%	%	%
0.000162725	4.39149E-05	5.97983E-05	4.05381E-05	4.05587E-05	0	4.05587E-05	4.05543E-05	4.05543E-05
1.39666E-08	0	0	0	0	0	0	0	0
0.0600241	0.0913984	0.393757	0.0271160	0.0271184	0	0.0271184	0.0271155	0.0271155
1.56204E-05	0	0	0	0	0	0	0	0
6.62713E-06	0	0	0	0	0	0	0	0
1.65549E-06	0	0	0	0	0	0	0	0
8.66143E-08	0	0	0	0	0	0	0	0
5.99587E-07	0	0	0	0	0	0	0	0
1.80569E-08	0	0	0	0	0	0	0	0
3.88972E-08	0	0	0	0	0	0	0	0
1.99649E-10	0	0	0	0	0	0	0	0
1.70115E-07	0	0	0	0	0	0	0	0
4.25013E-09	0	0	0	0	0	0	0	0
2.27286E-09	0	0	0	0	0	0	0	0
4.55623E-09	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2.54480E-10	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
3.03353E-07	0	0	0	0	0	0	0	0
5.12610E-12	0	0	0	0	0	0	0	0
3.73180E-10	0	0	0	0	0	0	0	0
6.22661E-09	0	0	0	0	0	0	0	0
4.16075E-11	0	0	0	0	0	0	0	0
2.45735E-08	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.84536E-05	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2.96722E-10	0	0	0	0	0	0	0	0
4.91421E-09	0	0	0	0	0	0	0	0
6.16230E-06	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
3.81336E-05	0	0	0	0	0	0	0	0
7.49505E-13	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2.97960E-06	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.01557E-06	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
3.28012E-14	0	0	0	0	0	0	0	0
99.9396	89.0574	99.5172	86.8336	86.8336	98.7054	86.8336	86.8349	86.8349
0.000100192	10.8512	0.0889625	13.1392	13.1393	1.29458	13.1393	13.1380	13.1380
%	%	%	%	%	%	%	%	%
0.000307571	5.15829E-05	0.000111930	4.41224E-05	4.41448E-05	0	4.41448E-05	4.41418E-05	4.41418E-05
2.16988E-08	0	0	0	0	0	0	0	0
0.146504	0.138633	0.951746	0.0381117	0.0381150	0	0.0381150	0.0381124	0.0381124
1.38977E-05	0	0	0	0	0	0	0	0
1.10516E-05	0	0	0	0	0	0	0	0
4.04855E-06	0	0	0	0	0	0	0	0
2.79197E-07	0	0	0	0	0	0	0	0
1.93274E-06	0	0	0	0	0	0	0	0
7.22522E-08	0	0	0	0	0	0	0	0
1.55642E-07	0	0	0	0	0	0	0	0
9.54176E-10	0	0	0	0	0	0	0	0
6.61672E-07	0	0	0	0	0	0	0	0
2.03125E-08	0	0	0	0	0	0	0	0
1.08626E-08	0	0	0	0	0	0	0	0
2.17754E-08	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.41419E-09	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.41589E-06	0	0	0	0	0	0	0	0
2.84867E-11	0	0	0	0	0	0	0	0
2.07383E-09	0	0	0	0	0	0	0	0
3.39063E-08	0	0	0	0	0	0	0	0
2.31220E-10	0	0	0	0	0	0	0	0
1.33812E-07	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
9.42974E-05	0	0	0	0	0	0	0	0

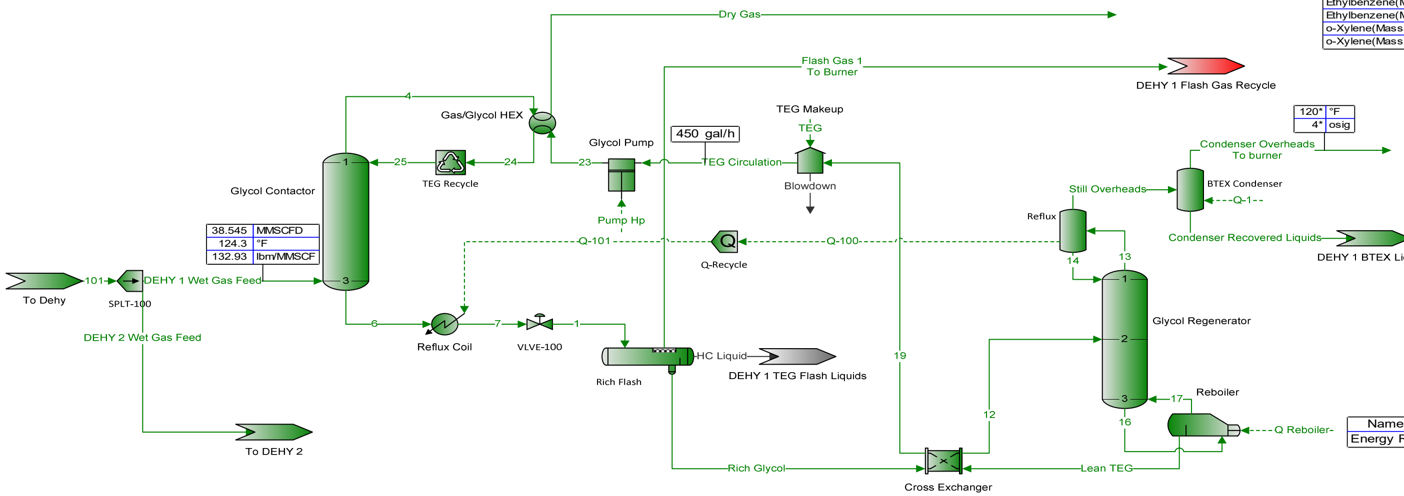
0	0	0	0	0	0	0	0	0
1.87976E-09	0	0	0	0	0	0	0	0
3.05826E-08	0	0	0	0	0	0	0	0
3.62829E-05	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.000224526	0	0	0	0	0	0	0	0
5.33123E-12	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.98614E-05	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
7.55963E-06	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2.58831E-13	0	0	0	0	0	0	0	0
99.8521	55.2960	98.4659	49.9590	49.9590	92.0172	49.9590	49.9618	49.9618
0.000662138	44.5654	0.582227	50.0028	50.0028	7.98279	50.0028	50	50
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
0.0194153	0.0887986	0.0211999	0.0675987	0.0676330	0	0	0.0676330	0.0676330
1.36973E-06	0	0	0	0	0	0	0	0
9.24803	238.654	180.264	58.3898	58.3949	0	0	58.3949	58.3949
0.000877284	0	0	0	0	0	0	0	0
0.000697625	0	0	0	0	0	0	0	0
0.000255563	0	0	0	0	0	0	0	0
1.76242E-05	0	0	0	0	0	0	0	0
0.000122003	0	0	0	0	0	0	0	0
4.56089E-06	0	0	0	0	0	0	0	0
9.82481E-06	0	0	0	0	0	0	0	0
6.02320E-08	0	0	0	0	0	0	0	0
4.17678E-05	0	0	0	0	0	0	0	0
1.28222E-06	0	0	0	0	0	0	0	0
6.85699E-07	0	0	0	0	0	0	0	0
1.37457E-06	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
8.92703E-08	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
8.93776E-05	0	0	0	0	0	0	0	0
1.79821E-09	0	0	0	0	0	0	0	0
1.30910E-07	0	0	0	0	0	0	0	0
2.14032E-06	0	0	0	0	0	0	0	0
1.45957E-08	0	0	0	0	0	0	0	0
8.44685E-06	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.00595249	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.18659E-07	0	0	0	0	0	0	0	0
1.93051E-06	0	0	0	0	0	0	0	0
0.00229035	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.0141731	0	0	0	0	0	0	0	0
3.36532E-10	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.00125374	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.000477199	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.63386E-11	0	0	0	0	0	0	0	0
6303.13	95190.6	18649.8	76540.8	76540.8	9.48392	0	76550.2	76550.2
0.0417972	76718.2	110.276	76607.9	76607.9	0.822761	0	76608.7	76608.7

11	13	14	16	17	18 - Makeup	19 - Blowdown	20	22
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Reflux Pump	Stripper	Reboiler	Lean/Rich Exch	Recycle	--	MDEA Makeup	MDEA Makeup	Trim Cooler
Stripper	Reboiler	Stripper	Recycle	MDEA Makeup	MDEA Makeup	--	Circulation Pump	Absorber
120.004	258.209	259.826	205.117	205.142	80*		205.133	120*
28.6959	30.6959	30.6959	25.6959	25.6959	34.6959*	25.6959	25.6959	1101.12
18.0311	29.0147	18.2076	31.3123	31.3123	19.3247	31.3123	31.3110	31.3110
61.6926	60.3544	0.0734932	62.1065	62.1058	62.6978		62.1060	64.3862
6312.46	172148	18940.3	153207	153207	10.3067	0	153217	153217
3.18847	54.0366	9.47413	44.5625	44.5624	0.00485748	0	44.5673	44.5673
12.6232	337.914	37.9346	299.980	299.979	0.0205359	0	300*	300
50.2883	468.635	53.5422	556.885	556.886	100.223	556.886	556.836	556.836
0.0697099	5390.72	69.7241	6048.53	6048.54	965.634	6048.54	6048.20	6048.20

Names	Units	Still Overheads		Still Overheads		Condenser Overheads To burner		Condenser Overheads To burner		Flash Gas 1 To Burner		Flash Gas 1 To Burner	
Mass Flow Sum	lb/h	(HAPs)	7.043	(VOCs)	51.94	(HAPs)	1.548	(VOCs)	21.13	(HAPs)	0.6558	(VOCs)	24.29
Mass Flow Sum	ton/yr	(HAPs)	30.85	(VOCs)	227.5	(HAPs)	6.781	(VOCs)	92.55	(HAPs)	2.872	(VOCs)	106.4

Names	Units	Condenser Overheads To burner
Temperature	°F	120*
Pressure	psig	0.25*
Molecular Weight	lb/lbmol	48.61
Std Vapor Volumetric Flow	MMSCFD	0.005465
Net Ideal Gas Heating Value	Btu/ft^3	2053
H2S(Mole Fraction)	%	0.063471
CO2(Mole Fraction)	%	14.556
H2S(Mass Flow)	lb/h	0.012981
H2S(Mass Flow)	ton/yr	0.056857
Benzene(Mass Flow)	lb/h	0
Benzene(Mass Flow)	ton/yr	0
Toluene(Mass Flow)	lb/h	0.22112
Toluene(Mass Flow)	ton/yr	0.9685
Ethylbenzene(Mass Flow)	lb/h	0.083585
Ethylbenzene(Mass Flow)	ton/yr	0.3661
o-Xylene(Mass Flow)	lb/h	0.26434
o-Xylene(Mass Flow)	ton/yr	1.1578

Names	Units	DEHY 1 Wet Gas Feed	Dry Gas
Water Content	lbm/MMSCF	132.9	5.443



Names	Units	Q Reboiler	Q-100
Energy Rate	MBtu/h	554.5	21.68

Names	Units	Dry Gas	Flash Gas 1 To Burner	Still Overheads	Condenser Overheads To burner	Condenser Recovered Liquids
H2S(Mass Flow)	lb/h	1.67	0.00526	0.0134	0.013	0.000408
H2S(Mass Flow)	lb/h	1.67	0.00526	0.0134	0.013	0.000408
Benzene(Mass Flow)	lb/h	0	0	0	0	0
Benzene(Mass Flow)	lb/h	0	0	0	0	0
Toluene(Mass Flow)	lb/h	7.49	0.0121	0.953	0.221	0.732
Toluene(Mass Flow)	lb/h	7.49	0.0121	0.953	0.221	0.732
Ethylbenzene(Mass Flow)	lb/h	5.5	0.00664	0.862	0.0836	0.778
Ethylbenzene(Mass Flow)	lb/h	5.5	0.00664	0.862	0.0836	0.778
o-Xylene(Mass Flow)	lb/h	15.3	0.0192	3.48	0.264	3.22
o-Xylene(Mass Flow)	lb/h	15.3	0.0192	3.48	0.264	3.22

Names	Units	Still Overheads	Condenser Recovered Liquids	Condenser Overheads To burner
Temperature	°F	204	120	120*
Pressure	psig	0.5	0.25	0.25*
Volume Fraction Vapor	%	100	0	100
Volume Fraction Light Liquid	%	0	16.4	0
Volume Fraction Heavy Liquid	%	0	83.6	0
Molecular Weight	lb/lbmol	21.6	20.2	48.6
Mass Flow	lb/h	263	233	29.2
Std Vapor Volumetric Flow	MMSCFD	0.111	0.105	0.00547
Std Liquid Volumetric Flow	sgpm	0.579	0.483	0.0961
Specific Gravity		0.746	0.953	1.68
API Gravity			14.8	

Process Streams		Blowdown	Condenser Overheads To burner	Condenser Recovered Liquids	DEHY 1 Wet Gas Feed
Composition	Status:	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	TEG Makeup	BTEX Condenser	BTEX Condenser	SPLT-100
	To Block:	--	--	DEHY 1 BTEX Liquids	Glycol Contactor
Mole Fraction		%	%	%	%
H2S		1.55293E-08	0.0634712	0.000103667	0.00117041
Nitrogen		1.07763E-13	0.0197411	6.28463E-07	1.88373
CO2		8.10681E-08	14.5559	0.00813103	2.15942
Methane		7.42648E-10	9.12439	0.000913938	73.5352
Ethane		1.02345E-08	10.5864	0.00509529	11.1080
Propane		5.58049E-08	13.9624	0.0199250	6.05774
i-Butane		2.22758E-08	2.63415	0.00806948	0.883709
n-Butane		2.02907E-07	11.0760	0.0504529	2.08782
i-Pentane		2.21110E-07	3.95311	0.0422108	0.561829
n-Pentane		4.23112E-07	5.12213	0.0711768	0.593264
Neohexane		2.16171E-08	0.0574206	0.00121346	0.00617593
Cyclopentane		5.16542E-06	2.42342	0.0564268	0.0491695
2-Methylpentane		1.05041E-06	1.53417	0.0453928	0.141030
3-Methylpentane		1.12400E-06	1.03330	0.0348168	0.0761318
n-Hexane		2.10758E-06	1.89325	0.0773189	0.166250
2,2-Dimethylpentane		0	0	0	0
Methylcyclopentane		0	0	0	0
2,2,3-Trimethylbutane		9.23983E-07	0.741084	0.0416142	0.0568046
Benzene		0	0	0	0
Cyclohexane		1.57092E-05	2.25174	0.147187	0.0636857
2-Methylhexane		1.33192E-08	0.0126037	0.000969971	0.00124552
3-Methylhexane		1.67439E-06	1.07788	0.0929285	0.0907894
1,1-Dimethylcyclopentane		5.83730E-06	0.854616	0.0679171	0.0253689
n-Heptane		2.54958E-07	0.113963	0.0124682	0.0110457
Methylcyclohexane		1.76003E-05	1.21383	0.153727	0.0522147
2,5-Dimethylhexane		0	0	0	0
Toluene		0.000221829	0.399907	0.0687908	0.00216761
2-Methylheptane		0	0	0	0
n-Octane		5.95902E-06	0.476044	0.142129	0.0717105
Ethylcyclohexane		2.64232E-05	0.203972	0.0725763	0.0144129
Ethylbenzene		0.000485695	0.131197	0.0635105	0.00141758
p-Xylene		0	0	0	0
o-Xylene		0.00365628	0.414916	0.262398	0.00418597
n-Nonane		7.28564E-07	0.00855833	0.00708782	0.00233677
Isopropylbenzene		0	0	0	0
Cyclooctane		0.323408	1.10703	0.954716	0.00828035
Propylbenzene		0.000824007	0.0586846	0.0699159	0.00133040
1,3,5-Trimethylbenzene		0	0	0	0
Isobutylbenzene		0.000262951	0.00821310	0.0160382	0.000308972
Butylbenzene		0	0	0	0
n-Decane		3.56654E-06	0.00515063	0.0117179	0.00277844
Water		6.06475	12.8769	97.3743	0.279224
TEG		92.7953	1.78078E-10	2.40520E-05	0
MDEA		0.810962	0.00447571	0.0186886	8.44834E-05
Mass Fraction		%	%	%	%
H2S		3.73286E-09	0.0445002	0.000174761	0.00175860
Nitrogen		2.12919E-14	0.0113766	8.70846E-07	2.32651
CO2		2.51639E-08	13.1783	0.0177006	4.18990
Methane		8.40300E-11	3.01127	0.000725243	52.0098
Ethane		2.17053E-09	6.54849	0.00757852	14.7257
Propane		1.73560E-08	12.6657	0.0434599	11.7768
i-Butane		9.13181E-09	3.14961	0.0231997	2.26449
n-Butane		8.31803E-08	13.2434	0.145052	5.35001
i-Pentane		1.12517E-07	5.86736	0.150643	1.78712
n-Pentane		2.15310E-07	7.60246	0.254017	1.88711
Neohexane		1.31390E-08	0.101795	0.00517253	0.0234642
Cyclopentane		2.55510E-06	3.49644	0.195751	0.152033
2-Methylpentane		6.38441E-07	2.71977	0.193493	0.535812
3-Methylpentane		6.83170E-07	1.83183	0.148411	0.289247
n-Hexane		1.28100E-06	3.35634	0.329583	0.631630
2,2-Dimethylpentane		0	0	0	0
Methylcyclopentane		0	0	0	0
2,2,3-Trimethylbutane		6.53012E-07	1.52763	0.206259	0.250945
Benzene		0	0	0	0
Cyclohexane		9.32476E-06	3.89848	0.612731	0.236300
2-Methylhexane		9.41318E-09	0.0259805	0.00480763	0.00550234
3-Methylhexane		1.18335E-06	2.22189	0.460596	0.401080
1,1-Dimethylcyclopentane		4.04243E-06	1.72622	0.329856	0.109817
n-Heptane		1.80188E-07	0.234918	0.0617979	0.0487966
Methylcyclohexane		1.21885E-05	2.45178	0.746612	0.226028
2,5-Dimethylhexane		0	0	0	0
Toluene		0.000144159	0.758010	0.313521	0.00880524
2-Methylheptane		0	0	0	0

n-Octane	4.80099E-06	1.11866	0.803071	0.361141
Ethylcyclohexane	2.09126E-05	0.470854	0.402840	0.0713040
Ethylbenzene	0.000363685	0.286536	0.333520	0.00663513
p-Xylene	0	0	0	0
o-Xylene	0.00273780	0.906183	1.37796	0.0195928
n-Nonane	6.59057E-07	0.0225807	0.0449659	0.0132133
Isopropylbenzene	0	0	0	0
Cyclooctane	0.255961	2.55550	5.29922	0.0409647
Propylbenzene	0.000698531	0.145102	0.415667	0.00704979
1,3,5-Trimethylbenzene	0	0	0	0
Isobutylbenzene	0.000248924	0.0226774	0.106479	0.00182831
Butylbenzene	0	0	0	0
n-Decane	3.57912E-06	0.0150759	0.0824699	0.0174289
Water	0.770610	4.77230	86.7723	0.221775
TEG	98.2876	5.50145E-10	0.000178664	0
MDEA	0.681585	0.0109717	0.110156	0.000443843
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**
H2S	0	0.0129811	0.000407861	1.68816
Nitrogen	0	0.00331865	2.03239E-06	2233.32
CO2	0	3.84423	0.0413099	4022.07
Methane	0	0.878412	0.00169258	49926.5
Ethane	0	1.91025	0.0176869	14135.8
Propane	0	3.69470	0.101427	11305.0
i-Butane	0	0.918768	0.0541439	2173.78
n-Butane	0	3.86320	0.338525	5135.71
i-Pentane	0	1.71156	0.351572	1715.53
n-Pentane	0	2.21770	0.592829	1811.51
Neohexane	0	0.0296944	0.0120717	22.5243
Cyclopentane	0	1.01994	0.456846	145.943
2-Methylpentane	0	0.793380	0.451577	514.350
3-Methylpentane	0	0.534359	0.346365	277.661
n-Hexane	0	0.979072	0.769186	606.330
2,2-Dimethylpentane	0	0	0	0
Methylcyclopentane	0	0	0	0
2,2,3-Trimethylbutane	0	0.445622	0.481370	240.893
Benzene	0	0	0	0
Cyclohexane	0	1.13722	1.43000	226.835
2-Methylhexane	0	0.00757874	0.0112201	5.28193
3-Methylhexane	0	0.648144	1.07495	385.014
1,1-Dimethylcyclopentane	0	0.503552	0.769823	105.418
n-Heptane	0	0.0685275	0.144225	46.8420
Methylcyclohexane	0	0.715205	1.74245	216.974
2,5-Dimethylhexane	0	0	0	0
Toluene	0	0.221118	0.731700	8.45254
2-Methylheptane	0	0	0	0
n-Octane	0	0.326321	1.87422	346.675
Ethylcyclohexane	0	0.137352	0.940154	68.4479
Ethylbenzene	0	0.0835848	0.778375	6.36935
p-Xylene	0	0	0	0
o-Xylene	0	0.264341	3.21591	18.8080
n-Nonane	0	0.00658699	0.104942	12.6840
Isopropylbenzene	0	0	0	0
Cyclooctane	0	0.745459	12.3674	39.3238
Propylbenzene	0	0.0423274	0.970090	6.76740
1,3,5-Trimethylbenzene	0	0	0	0
Isobutylbenzene	0	0.00661518	0.248501	1.75507
Butylbenzene	0	0	0	0
n-Decane	0	0.00439777	0.192469	16.7308
Water	0	1.39212	202.511	212.892
TEG	0	1.60482E-10	0.000416970	0
MDEA	0	0.00320054	0.257085	0.426064

Process Streams		**Blowdown**	**Condenser Overheads To burner**	**Condenser Recovered Liquids**	**DEHY 1 Wet Gas Feed**
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**TEG Makeup**	**BTEX Condenser**	**BTEX Condenser**	**SPLT-100**
	To Block:	**--**	**--**	**DEHY 1 BTEX Liquids**	**Glycol Contactor**
Property	**Units**				
Temperature	°F		120*	120	124.296
Pressure	psia	12.91	13.16*	13.16	1101.12
Molecular Weight	lb/lbmol	141.781	48.6100	20.2164	22.6820
Mass Density	lb/ft^3		0.104114	59.4187	4.97819
Mass Flow	lb/h	0	29.1708	233.382	95994.4
Std Vapor Volumetric Flow	MMSCFD	0	0.00546548	0.105140	38.5452
Std Liquid Volumetric Flow	sgpm	0	0.0960515	0.482830	518.516
Gross Ideal Gas Heating Value	Btu/ft^3	3885.68	2228.28	189.495	1277.64
Gross Liquid Heating Value	Btu/lb	10134.4	17226.8	2627.18	21307.8

DEHY 2 Wet Gas Feed	Dry Gas	Flash Gas 1 To Burner	HC Liquid	Lean TEG	Rich Glycol	Still Overheads	TEG
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
SPLT-100	Gas/Glycol HEX	Rich Flash	Rich Flash	Reboiler	Rich Flash	Reflux	--
To DEHY 2	--	--	DEHY 1 TEG Flash Liquids	Cross Exchanger	Cross Exchanger	BTEX Condenser	TEG Makeup
%	%	%		%	%	%	%
0.00117041	0.00116132	0.00820235		1.55293E-08	0.000936440	0.00323493	0*
1.88373	1.88981	0.414567		1.07763E-13	0.000282553	0.000976091	0*
2.15942	2.16068	8.57414		8.10681E-08	0.210448	0.727000	0*
73.5352	73.7559	50.0520		7.42648E-10	0.130768	0.451744	0*
11.1080	11.1359	16.8658		1.02345E-08	0.152831	0.527961	0*
6.05774	6.07055	11.8486		5.58049E-08	0.205203	0.708882	0*
0.883709	0.885489	1.70278		2.22758E-08	0.0398998	0.137835	0*
2.08782	2.09084	4.94715		2.02907E-07	0.172316	0.595271	0*
0.561829	0.562460	1.25126		2.21110E-07	0.0681613	0.235465	0*
0.593264	0.593668	1.44140		4.23112E-07	0.0928539	0.320766	0*
0.00617593	0.00617856	0.0143546		2.16171E-08	0.00115528	0.00399089	0*
0.0491695	0.0487486	0.190728		5.16542E-06	0.0501957	0.173390	0*
0.141030	0.141007	0.332182		1.05041E-06	0.0344366	0.118960	0*
0.0761318	0.0760579	0.189584		1.12400E-06	0.0243619	0.0841562	0*
0.166250	0.166151	0.380816		2.10758E-06	0.0483588	0.167052	0*
0	0	0		0	0	0	0*
0	0	0		0	0	0	0*
0.0568046	0.0567160	0.130046		9.23983E-07	0.0220522	0.0761779	0*
0	0	0		0	0	0	0*
0.0636857	0.0630879	0.193366		1.57092E-05	0.0727220	0.251182	0*
0.00124552	0.00124403	0.00265697		1.33192E-08	0.000447202	0.00154484	0*
0.0907894	0.0905932	0.202184		1.67439E-06	0.0409906	0.141599	0*
0.0253689	0.0251138	0.0716333		5.83730E-06	0.0309175	0.106791	0*
0.0110457	0.0110219	0.0229041		2.54958E-07	0.00506120	0.0174835	0*
0.0522147	0.0517368	0.130004		1.76003E-05	0.0596764	0.206111	0*
0	0	0		0	0	0	0*
0.00216761	0.00192654	0.00698675		0.000221829	0.0248071	0.0851527	0*
0	0	0		0	0	0	0*
0.0717105	0.0714370	0.123463		5.95902E-06	0.0459234	0.158630	0*
0.0144129	0.0142213	0.0266060		2.64232E-05	0.0229073	0.0790691	0*
0.00141758	0.00122833	0.00332063		0.000485695	0.0196980	0.0668551	0*
0	0	0		0	0	0	0*
0.00418597	0.00341844	0.00959787		0.00365628	0.0807370	0.269934	0*
0.00233677	0.00232251	0.00316870		7.28564E-07	0.00207329	0.00716048	0*
0	0	0		0	0	0	0*
0.00828035	0.00552282	0.0195985		0.323408	0.508334	0.962243	0*
0.00133040	0.00113400	0.00251680		0.000824007	0.0206637	0.0693609	0*
0	0	0		0	0	0	0*
0.000308972	0.000264713	0.000500811		0.000262951	0.00471755	0.0156515	0*
0	0	0		0	0	0	0*
0.00277844	0.00275357	0.00293002		3.56654E-06	0.00330063	0.0113934	0*
0.279224	0.0114652	0.834549		6.06475	31.2879	93.1990	0.827516*
0	0.000219093	0.000253147		92.7953	65.9335	2.28635E-05	99.1725*
8.44834E-05	1.71645E-05	5.80885E-05		0.810962	0.581416	0.0179862	0*
%	%	%		%	%	%	%
0.00175860	0.00174495	0.00930422		3.73286E-09	0.000298275	0.00509953	0*
2.32651	2.33401	0.386538		2.12919E-14	7.39763E-05	0.00126477	0*
4.18990	4.19233	12.5594		2.51639E-08	0.0865600	1.47991	0*
52.0098	52.1659	26.7254		8.40300E-11	0.0196065	0.335211	0*
14.7257	14.7626	16.8795		2.17053E-09	0.0429495	0.734305	0*
11.7768	11.8016	17.3898		1.73560E-08	0.0845680	1.44585	0*
2.26449	2.26905	3.29405		9.13181E-09	0.0216740	0.370559	0*
5.35001	5.35773	9.57035		8.31803E-08	0.0936038	1.60034	0*
1.78712	1.78912	3.00474		1.12517E-07	0.0459614	0.785797	0*
1.88711	1.88839	3.46133		2.15310E-07	0.0626116	1.07046	0*
0.0234642	0.0234741	0.0411724		1.31390E-08	0.000930455	0.0159077	0*
0.152033	0.150731	0.445213		2.55510E-06	0.0329014	0.562473	0*
0.535812	0.535728	0.952774		6.38441E-07	0.0277351	0.474175	0*
0.289247	0.288966	0.543769		6.83170E-07	0.0196209	0.335447	0*
0.631630	0.631256	1.09227		1.28100E-06	0.0389479	0.665870	0*
0	0	0		0	0	0	0*
0	0	0		0	0	0	0*
0.250945	0.250554	0.433713		6.53012E-07	0.0206516	0.353070	0*
0	0	0		0	0	0	0*
0.236300	0.234082	0.541645		9.32476E-06	0.0571999	0.977793	0*
0.00550234	0.00549573	0.00886123		9.41318E-09	0.000418799	0.00716004	0*
0.401080	0.400213	0.674302		1.18335E-06	0.0383872	0.656285	0*
0.109817	0.108713	0.234097		4.04243E-06	0.0283714	0.484999	0*
0.0487966	0.0486912	0.0763872		1.80188E-07	0.00473975	0.0810324	0*
0.226028	0.223959	0.424852		1.21885E-05	0.0547619	0.936064	0*
0	0	0		0	0	0	0*
0.00880524	0.00782595	0.0214263		0.000144159	0.0213621	0.362906	0*
0	0	0		0	0	0	0*

0.361141	0.359763	0.469398		4.80099E-06	0.0490270	0.838134	0*
0.0713040	0.0703560	0.0993694		2.09126E-05	0.0240238	0.410397	0*
0.00663513	0.00574931	0.0117337		0.000363685	0.0195447	0.328300	0*
0	0	0		0	0	0	0*
0.0195928	0.0160003	0.0339146		0.00273780	0.0801088	1.32555	0*
0.0132133	0.0131326	0.0135265		6.59057E-07	0.00248520	0.0424788	0*
0	0	0		0	0	0	0*
0.0409647	0.0273226	0.0731972		0.255961	0.533111	4.99438	0*
0.00704979	0.00600907	0.0100682		0.000698531	0.0232117	0.385606	0*
0	0	0		0	0	0	0*
0.00182831	0.00156641	0.00223726		0.000248924	0.00591771	0.0971679	0*
0	0	0		0	0	0	0*
0.0174289	0.0172728	0.0138756		3.57912E-06	0.00438907	0.0749821	0*
0.221775	0.00910627	0.500407		0.770610	5.26797	77.6617	0.1*
0	0.00145057	0.00126530		98.2876	92.5388	0.000158814	99.9*
0.000443843	9.01758E-05	0.000230388		0.681585	0.647518	0.0991366	0*
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
1.53289	1.66951	0.00526285	0	1.57762E-07	0.0133891	0.0133889	0*
2027.91	2233.10	0.218642	0	8.99858E-13	0.00332068	0.00332068	0*
3652.14	4011.08	7.10410	0	1.06350E-06	3.88554	3.88554	0*
45334.5	49910.5	15.1170	0	3.55135E-09	0.880104	0.880104	0*
12835.7	14124.3	9.54772	0	9.17327E-08	1.92793	1.92793	0*
10265.3	11291.4	9.83640	0	7.33514E-07	3.79613	3.79612	0*
1973.85	2170.95	1.86325	0	3.85937E-07	0.972912	0.972911	0*
4663.35	5126.09	5.41339	0	3.51544E-06	4.20173	4.20173	0*
1557.74	1711.77	1.69960	0	4.75530E-06	2.06313	2.06313	0*
1644.90	1806.75	1.95787	0	9.09964E-06	2.81054	2.81053	0*
20.4526	22.4592	0.0232888	0	5.55291E-07	0.0417667	0.0417661	0*
132.520	144.214	0.251831	0	0.000107986	1.47689	1.47678	0*
467.043	512.566	0.538929	0	2.69824E-05	1.24498	1.24496	0*
252.123	276.472	0.307579	0	2.88728E-05	0.880753	0.880724	0*
550.563	603.963	0.617832	0	5.41386E-05	1.74831	1.74826	0*
0	0	0	0	0	0	0	0*
0	0	0	0	0	0	0	0*
218.737	239.721	0.245326	0	2.75982E-05	0.927020	0.926993	0*
0	0	0	0	0	0	0	0*
205.972	223.961	0.306377	0	0.000394092	2.56761	2.56722	0*
4.79613	5.25812	0.00501228	0	3.97829E-07	0.0187992	0.0187989	0*
349.602	382.909	0.381413	0	5.00120E-05	1.72314	1.72309	0*
95.7226	104.013	0.132415	0	0.000170845	1.27355	1.27338	0*
42.5337	46.5861	0.0432078	0	7.61528E-06	0.212760	0.212752	0*
197.018	214.276	0.240314	0	0.000515122	2.45817	2.45766	0*
0	0	0	0	0	0	0	0*
7.67512	7.48759	0.0121196	0	0.00609257	0.958910	0.952818	0*
0	0	0	0	0	0	0	0*
314.790	344.209	0.265511	0	0.000202904	2.20074	2.20054	0*
62.1524	67.3141	0.0562075	0	0.000883827	1.07839	1.07751	0*
5.78353	5.50074	0.00663704	0	0.0153704	0.877330	0.861960	0*
0	0	0	0	0	0	0	0*
17.0782	15.3085	0.0191835	0	0.115707	3.59596	3.48025	0*
11.5174	12.5648	0.00765118	0	2.78537E-05	0.111557	0.111529	0*
0	0	0	0	0	0	0	0*
35.7070	26.1413	0.0414034	0	10.8176	23.9305	13.1129	0*
6.14497	5.74927	0.00569502	0	0.0295220	1.04194	1.01242	0*
0	0	0	0	0	0	0	0*
1.59365	1.49869	0.00126549	0	0.0105203	0.265637	0.255117	0*
0	0	0	0	0	0	0	0*
15.1920	16.5261	0.00784860	0	0.000151264	0.197018	0.196867	0*
193.311	8.71256	0.283051	0	32.5682	236.471	203.903	0.00127210*
0	1.38786	0.000715709	0	4153.92	4153.92	0.000416970	1.27083*
0.386877	0.0862770	0.000130317	0	28.8058	29.0661	0.260285	0*

DEHY 2 Wet Gas Feed	Dry Gas	Flash Gas 1 To Burner	HC Liquid	Lean TEG	Rich Glycol	Still Overheads	TEG
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
SPLT-100	Gas/Glycol HEX	Rich Flash	Rich Flash	Reboiler	Rich Flash	Reflux	--
To DEHY 2	--	--	DEHY 1 TEG Flash Liquids	Cross Exchanger	Cross Exchanger	BTEX Condenser	TEG Makeup
124.296	132.072	137.906		400.000	137.906	203.934	130*
1101.12	1093.12	82.91	82.91	13.41	82.91	13.41	25*
22.6820	22.6820	30.0448		141.781	106.998	21.6195	149.079
4.97819	4.80363	0.399270		57.9588	67.2808	0.0410410	68.3513
87165.3	95676.5	56.5642	0	4226.29	4488.84	262.552	1.27210
35	38.4175	0.0171466	0	0.271485	0.382090	0.110605	7.77155E-05
470.826	517.681	0.258400	0	7.49775	8.07663	0.578882	0.00225156
1277.64	1280.38	1528.73		3885.68	2844.89	290.240	4095.08
21307.8	21355.7	19203.5		10134.4	9790.20	4249.27	10163.6

TEG Circulation	1	4	6	7	12	13	14	16
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
TEG Makeup Glycol Pump	VLVE-100 Rich Flash	Glycol Contactor Gas/Glycol HEX	Glycol Contactor Reflux Coil	Reflux Coil VLVE-100	Cross Exchanger Glycol Regenerator	Glycol Regenerator Reflux	Reflux Glycol Regenerator	Glycol Regenerator Reboiler
%	%	%	%	%	%	%	%	%
0	0.00124850	0.00116132	0.00124850	0.00124850	0.000936440	0.00294102	1.89976E-06	7.62979E-07
0	0.0180754	1.88981	0.0180754	0.0180754	0.000282553	0.000887356	7.69960E-09	1.00333E-10
0	0.569655	2.16068	0.569655	0.569655	0.210448	0.660921	0.000128896	1.16366E-05
0	2.27481	73.7559	2.27481	2.27481	0.130768	0.410677	6.74003E-06	3.26606E-07
0	0.870628	11.1359	0.870628	0.870628	0.152831	0.479965	7.85336E-06	2.25200E-06
0	0.705270	6.07055	0.705270	0.705270	0.205203	0.644439	7.64182E-06	8.20586E-06
0	0.111318	0.885489	0.111318	0.111318	0.0398998	0.125305	6.54008E-07	2.58926E-06
0	0.377387	2.09084	0.377387	0.377387	0.172316	0.541156	6.23824E-06	1.97213E-05
2.21047E-07	0.118973	0.562460	0.118973	0.118973	0.0681613	0.214059	1.24424E-06	1.56888E-05
4.22991E-07	0.150772	0.593668	0.150772	0.150772	0.0928539	0.291606	1.56442E-06	2.76471E-05
0	0.00172217	0.00617856	0.00172217	0.00172217	0.00115528	0.00362809	7.42421E-09	8.00901E-07
5.16395E-06	0.0562314	0.0487486	0.0562314	0.0562314	0.0501957	0.157628	3.72663E-06	0.000133614
1.05010E-06	0.0472243	0.141007	0.0472243	0.0472243	0.0344366	0.108145	5.21873E-07	3.55498E-05
1.12367E-06	0.0314579	0.0760579	0.0314579	0.0314579	0.0243619	0.0765057	6.78410E-07	3.41024E-05
2.10698E-06	0.0626373	0.166151	0.0626373	0.0626373	0.0483588	0.151865	4.74185E-07	6.42599E-05
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
9.23719E-07	0.0266904	0.0567160	0.0266904	0.0266904	0.0220522	0.0692527	2.72630E-07	3.16251E-05
0	0	0	0	0	0	0	0	0
1.57047E-05	0.0779035	0.0630879	0.0779035	0.0779035	0.0727220	0.228348	5.33124E-06	0.000334106
0	0.000542108	0.00124403	0.000542108	0.000542108	0.000447202	0.00140440	2.05830E-09	5.06569E-07
1.67392E-06	0.0479136	0.0905932	0.0479136	0.0479136	0.0409906	0.128727	1.91202E-07	5.81125E-05
5.83563E-06	0.0326662	0.0251138	0.0326662	0.0326662	0.0309175	0.0970830	5.93940E-07	0.000132980
2.54885E-07	0.00582752	0.0110219	0.00582752	0.00582752	0.00506120	0.0158941	2.67601E-08	8.53741E-06
1.75953E-05	0.0626968	0.0517368	0.0626968	0.0626968	0.0596764	0.187374	2.08210E-06	0.000346737
0	0	0	0	0	0	0	0	0
0.000221766	0.0240418	0.00192654	0.0240418	0.0240418	0.0248071	0.0774148	3.59638E-05	0.00198442
0	0	0	0	0	0	0	0	0
5.95732E-06	0.0492536	0.0714370	0.0492536	0.0492536	0.0459234	0.144209	1.56524E-07	0.000158078
2.64156E-05	0.0230661	0.0142213	0.0230661	0.0230661	0.0229073	0.0718811	8.07739E-07	0.000357023
0.000485556	0.0189946	0.00122833	0.0189946	0.0189946	0.0196980	0.0607791	1.88583E-05	0.00327716
0	0	0	0	0	0	0	0	0
0.00365523	0.0776817	0.00341844	0.0776817	0.0776817	0.0807370	0.245406	0.000117076	0.0212000
7.28355E-07	0.00212034	0.00232251	0.00212034	0.00212034	0.00207329	0.00650953	2.24340E-09	1.44434E-05
0	0	0	0	0	0	0	0	0
0.323315	0.487344	0.00552282	0.487344	0.487344	0.508334	0.874766	9.75227E-07	0.624876
0.000823772	0.0198843	0.00113400	0.0198843	0.0198843	0.0206637	0.0630567	1.52790E-05	0.00501045
0	0	0	0	0	0	0	0	0
0.000262876	0.00453645	0.000264713	0.00453645	0.00453645	0.00471755	0.0142292	6.47947E-06	0.00147567
0	0	0	0	0	0	0	0	0
3.56552E-06	0.00328472	0.00275357	0.00328472	0.00328472	0.00330063	0.0103576	1.57181E-09	5.20293E-05
6.06325	29.9800	0.0114652	29.9800	29.9800	31.2879	93.8152	99.9775	29.0319
92.7972	63.1017	0.000219093	63.1017	63.1017	65.9335	0.00188392	0.0204945	69.6382
0.810730	0.556447	1.71645E-05	0.556447	0.556447	0.581416	0.0164956	0.00158932	0.670193
%	%	%	%	%	%	%	%	%
0	0.000410347	0.00174495	0.000410347	0.000410347	0.000298275	0.00470698	3.58816E-06	2.33535E-07
0	0.00488322	2.33401	0.00488322	0.00488322	7.39763E-05	0.00116734	1.19535E-08	2.52429E-11
0	0.241775	4.19233	0.241775	0.241775	0.0865600	1.36593	0.000314376	4.59939E-06
0	0.351939	52.1659	0.351939	0.351939	0.0196065	0.309389	5.99233E-06	4.70568E-08
0	0.252467	14.7626	0.252467	0.252467	0.0429495	0.677740	1.30869E-05	6.08157E-07
0	0.299919	11.8016	0.299919	0.299919	0.0845680	1.33448	1.86747E-05	3.24973E-06
0	0.0623963	2.26905	0.0623963	0.0623963	0.0216740	0.342014	2.10663E-06	1.35159E-06
0	0.211535	5.35773	0.211535	0.211535	0.0936038	1.47706	2.00940E-05	1.02945E-05
1.12483E-07	0.0827811	1.78912	0.0827811	0.0827811	0.0459614	0.725265	4.97502E-06	1.01659E-05
2.15245E-07	0.104906	1.88839	0.104906	0.104906	0.0626116	0.988003	6.25527E-06	1.79145E-05
0	0.00143124	0.0234741	0.00143124	0.00143124	0.000930455	0.0146823	3.54565E-08	6.19854E-07
2.55433E-06	0.0380323	0.150731	0.0380323	0.0380323	0.0329014	0.519145	1.44844E-05	8.41594E-05
6.38249E-07	0.0392465	0.535728	0.0392465	0.0392465	0.0277351	0.437648	2.49236E-06	2.75136E-05
6.82964E-07	0.0261436	0.288966	0.0261436	0.0261436	0.0196209	0.309607	3.23995E-06	2.63934E-05
1.28061E-06	0.0520557	0.631256	0.0520557	0.0520557	0.0389479	0.614576	2.26461E-06	4.97337E-05
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
6.52815E-07	0.0257919	0.250554	0.0257919	0.0257919	0.0206516	0.325872	1.51395E-06	2.84601E-05
0	0	0	0	0	0	0	0	0
9.32195E-06	0.0632284	0.234082	0.0632284	0.0632284	0.0571999	0.902473	2.48653E-05	0.000252531
0	0.000523859	0.00549573	0.000523859	0.000523859	0.000418799	0.00660848	1.14300E-08	4.55872E-07
1.18300E-06	0.0463007	0.400213	0.0463007	0.0463007	0.0383872	0.605729	1.06177E-06	5.22966E-05
4.04121E-06	0.0309315	0.108713	0.0309315	0.0309315	0.0283714	0.447638	3.23188E-06	0.000117264
1.80134E-07	0.00563135	0.0486912	0.00563135	0.00563135	0.00473975	0.0747902	1.48602E-07	7.68298E-06
1.21848E-05	0.0593674	0.223959	0.0593674	0.0593674	0.0547619	0.863957	1.13296E-05	0.000305758
0	0	0	0	0	0	0	0	0
0.000144115	0.0213629	0.00782595	0.0213629	0.0213629	0.0213621	0.334964	0.000183640	0.00164211
0	0	0	0	0	0	0	0	0

4.79954E-06	0.0542582	0.359763	0.0542582	0.0542582	0.0490270	0.773570	9.90871E-07	0.000162172
2.09063E-05	0.0249614	0.0703560	0.0249614	0.0249614	0.0240238	0.378783	5.02314E-06	0.000359804
0.000363576	0.0194475	0.00574931	0.0194475	0.0194475	0.0195447	0.303019	0.000110955	0.00312469
0	0	0	0	0	0	0	0	0
0.00273697	0.0795339	0.0160003	0.0795339	0.0795339	0.0801088	1.22349	0.000688828	0.0202137
6.58859E-07	0.00262260	0.0131326	0.00262260	0.00262260	0.00248520	0.0392065	1.59457E-08	1.66369E-05
0	0	0	0	0	0	0	0	0
0.255884	0.527387	0.0273226	0.527387	0.527387	0.533111	4.60965	6.06471E-06	0.629743
0.000698321	0.0230482	0.00600907	0.0230482	0.0230482	0.0232117	0.355909	0.000101773	0.00540852
0	0	0	0	0	0	0	0	0
0.000248849	0.00587191	0.00156641	0.00587191	0.00587191	0.00591771	0.0896864	4.81962E-05	0.00177881
0	0	0	0	0	0	0	0	0
3.57804E-06	0.00450712	0.0172728	0.00450712	0.00450712	0.00438907	0.0692060	1.23940E-08	6.64851E-05
0.770408	5.20864	0.00910627	5.20864	5.20864	5.26797	79.3684	99.8173	4.69725
98.2881	91.3872	0.00145057	91.3872	91.3872	92.5388	0.0132858	0.170565	93.9220
0.681380	0.639463	9.01758E-05	0.639463	0.639463	0.647518	0.0923083	0.0104957	0.717243
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
0	0.0186520	1.66951	0.0186520	0.0186520	0.0133891	0.0133897	7.86286E-07	1.07092E-05
0	0.221962	2233.10	0.221962	0.221962	0.00332068	0.00332068	2.61942E-09	1.15757E-09
0	10.9896	4011.08	10.9896	10.9896	3.88554	3.88561	6.88902E-05	0.000210915
0	15.9971	49910.5	15.9971	15.9971	0.880104	0.880105	1.31312E-06	2.15789E-06
0	11.4757	14124.3	11.4757	11.4757	1.92793	1.92794	2.86778E-06	2.78883E-05
0	13.6325	11291.4	13.6325	13.6325	3.79613	3.79613	4.09226E-06	0.000149023
0	2.83617	2170.95	2.83617	2.83617	0.972912	0.972912	4.61632E-07	6.19801E-05
0	9.61512	5126.09	9.61512	9.61512	4.20173	4.20173	4.40326E-06	0.000472077
4.75530E-06	3.76274	1711.77	3.76274	3.76274	2.06313	2.06313	1.09019E-06	0.000466179
9.09964E-06	4.76841	1806.75	4.76841	4.76841	2.81054	2.81053	1.37074E-06	0.000821509
0	0.0650555	22.4592	0.0650555	0.0650555	0.0417667	0.0417661	7.76970E-09	2.84247E-05
0.000107986	1.72872	144.214	1.72872	1.72872	1.47689	1.47679	3.17401E-06	0.00385931
2.69824E-05	1.78391	512.566	1.78391	1.78391	1.24498	1.24496	5.46158E-07	0.00126169
2.88728E-05	1.18833	276.472	1.18833	1.18833	0.880753	0.880725	7.09980E-07	0.00121033
5.41386E-05	2.36614	603.963	2.36614	2.36614	1.74831	1.74826	4.96251E-07	0.00228064
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2.75982E-05	1.17235	239.721	1.17235	1.17235	0.927020	0.926993	3.31757E-07	0.00130510
0	0	0	0	0	0	0	0	0
0.000394092	2.87399	223.961	2.87399	2.87399	2.56761	2.56722	5.44882E-06	0.0115804
0	0.0238115	5.25812	0.0238115	0.0238115	0.0187992	0.0187989	2.50470E-09	2.09050E-05
5.00120E-05	2.10455	382.909	2.10455	2.10455	1.72314	1.72309	2.32670E-07	0.00239817
0.000170845	1.40596	104.013	1.40596	1.40596	1.27355	1.27338	7.08212E-07	0.00537739
7.61528E-06	0.255968	46.5861	0.255968	0.255968	0.212760	0.212752	3.25637E-08	0.000352319
0.000515122	2.69849	214.276	2.69849	2.69849	2.45817	2.45766	2.48269E-06	0.0140212
0	0	0	0	0	0	0	0	0
0.00609257	0.971030	7.48759	0.971030	0.971030	0.958910	0.952858	4.02417E-05	0.0753024
0	0	0	0	0	0	0	0	0
0.000202904	2.46625	344.209	2.46625	2.46625	2.20074	2.20054	2.17133E-07	0.00743672
0.000883827	1.13460	67.3141	1.13460	1.13460	1.07839	1.07751	1.10074E-06	0.0164996
0.0153704	0.883967	5.50074	0.883967	0.883967	0.877330	0.861984	2.43139E-05	0.143289
0	0	0	0	0	0	0	0	0
0.115707	3.61514	15.3085	3.61514	3.61514	3.59596	3.48040	0.000150945	0.926940
2.78537E-05	0.119208	12.5648	0.119208	0.119208	0.111557	0.111529	3.49423E-09	0.000762919
0	0	0	0	0	0	0	0	0
10.8176	23.9719	26.1413	23.9719	23.9719	23.9305	13.1129	1.32898E-06	28.8782
0.0295220	1.04763	5.74927	1.04763	1.04763	1.04194	1.01244	2.23018E-05	0.248019
0	0	0	0	0	0	0	0	0
0.0105203	0.266902	1.49869	0.266902	0.266902	0.265637	0.255127	1.05614E-05	0.0815709
0	0	0	0	0	0	0	0	0
0.000151264	0.204867	16.5261	0.204867	0.204867	0.197018	0.196867	2.71594E-09	0.00304881
32.5695	236.754	8.71256	236.754	236.754	236.471	225.776	21.8733	215.402
4155.19	4153.92	1.38786	4153.92	4153.92	4153.92	0.0377935	0.0373766	4306.99
28.8058	29.0662	0.0862770	29.0662	29.0662	29.0661	0.262585	0.00229997	32.8907

TEG Circulation	1	4	6	7	12	13	14	16
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
TEG Makeup	VLVE-100	Glycol Contactor	Glycol Contactor	Reflux Coil	Cross Exchanger	Glycol Regenerator	Reflux	Glycol Regenerator
Glycol Pump	Rich Flash	Gas/Glycol HEX	Reflux Coil	VLVE-100	Glycol Regenerator	Reflux	Glycol Regenerator	Reboiler
256.680	137.906	127.372	126.493	134.544	275*	205.592	203.934	281.946
12.91	82.91*	1098.12	1101.12	1096.12	77.91	13.41	13.41	13.41
141.783	103.693	22.6820	103.693	103.693	106.998	21.2944	18.0442	111.345
63.5010	21.8123	4.90591	66.5033	66.2441	51.3477	0.0403211	60.0619	62.6925
4227.56	4545.41	95676.5	4545.41	4545.41	4488.84	284.466	21.9133	4585.71
0.271562	0.399236	38.4175	0.399236	0.399236	0.382090	0.121666	0.0110605	0.375093
7.5*	8.33503	517.681	8.33503	8.33503	8.07663	0.622680	0.0437977	8.18806
3885.74	2788.36	1280.38	2788.36	2788.36	2844.89	268.511	51.2185	2955.16
10134.4	9907.35	21355.7	9907.35	9907.35	9790.20	3923.39	18.8626	9775.42

17	19	23	24	25	101
Solved	Solved	Solved	Solved	Solved	Solved
Reboiler	Cross Exchanger	Glycol Pump	Gas/Glycol HEX	TEG Recycle	To Dehy
Glycol Regenerator	TEG Makeup	Gas/Glycol HEX	TEG Recycle	Glycol Contactor	SPLT-100
%	%	%	%	%	%
2.72151E-06	1.55293E-08	0	0	0	0.00117041
3.62954E-10	1.07763E-13	0	0	0	1.88373
4.19154E-05	8.10681E-08	0	0	0	2.15942
1.18046E-06	7.42648E-10	0	0	0	73.5352
8.12607E-06	1.02345E-08	0	0	0	11.1080
2.95614E-05	5.58049E-08	0	0	0	6.05774
9.31550E-06	2.22758E-08	0	0	0	0.883709
7.08653E-05	2.02907E-07	0	0	0	2.08782
5.62186E-05	2.21110E-07	2.21047E-07	2.21047E-07	2.17460E-07	0.561829
9.89816E-05	4.23112E-07	4.22991E-07	4.22991E-07	4.16486E-07	0.593264
2.84285E-06	2.16171E-08	0	0	0	0.00617593
0.000470188	5.16542E-06	5.16395E-06	5.16395E-06	5.12806E-06	0.0491695
0.000125948	1.05041E-06	1.05010E-06	1.05010E-06	1.04042E-06	0.141030
0.000120515	1.12400E-06	1.12367E-06	1.12367E-06	1.11410E-06	0.0761318
0.000227117	2.10758E-06	2.10698E-06	2.10698E-06	2.08816E-06	0.166250
0	0	0	0	0	0
0	0	0	0	0	0
0.000112071	9.23983E-07	9.23719E-07	9.23719E-07	9.15106E-07	0.0568046
0	0	0	0	0	0
0.00116840	1.57092E-05	1.57047E-05	1.57047E-05	1.56181E-05	0.0636857
1.79903E-06	1.33192E-08	0	0	0	0.00124552
0.000205997	1.67439E-06	1.67392E-06	1.67392E-06	1.65776E-06	0.0907894
0.000466132	5.83730E-06	5.83563E-06	5.83563E-06	5.80283E-06	0.0253689
3.02398E-05	2.54958E-07	2.54885E-07	2.54885E-07	2.52598E-07	0.0110457
0.00120917	1.76003E-05	1.75953E-05	1.75953E-05	1.75068E-05	0.0522147
0	0	0	0	0	0
0.00660292	0.000221829	0.000221766	0.000221766	0.000221546	0.00216761
0	0	0	0	0	0
0.000556675	5.95902E-06	5.95732E-06	5.95732E-06	5.91843E-06	0.0717105
0.00122329	2.64232E-05	2.64156E-05	2.64156E-05	2.63338E-05	0.0144129
0.0105916	0.000485695	0.000485556	0.000485556	0.000485227	0.00141758
0	0	0	0	0	0
0.0671696	0.00365628	0.00365523	0.00365523	0.00365332	0.00418597
5.03802E-05	7.28564E-07	7.28355E-07	7.28355E-07	7.25004E-07	0.00233677
0	0	0	0	0	0
1.41481	0.323408	0.323315	0.323315	0.322469	0.00828035
0.0159801	0.000824007	0.000823772	0.000823772	0.000823284	0.00133040
0	0	0	0	0	0
0.00465335	0.000262951	0.000262876	0.000262876	0.000262733	0.000308972
0	0	0	0	0	0
0.000179016	3.56654E-06	3.56552E-06	3.56552E-06	3.55462E-06	0.00277844
89.2124	6.06475	6.06325	6.06325	6.06420	0.279224
8.95998	92.7953	92.7972	92.7972	92.7993	0
0.301338	0.810962	0.810730	0.810730	0.808492	8.44834E-05
%	%	%	%	%	%
2.93570E-06	3.73286E-09	0	0	0	0.00175860
3.21816E-10	2.12919E-14	0	0	0	2.32651
5.83863E-05	2.51639E-08	0	0	0	4.18990
5.99396E-07	8.40300E-11	0	0	0	52.0098
7.73376E-06	2.17053E-09	0	0	0	14.7257
4.12582E-05	1.73560E-08	0	0	0	11.7768
1.71372E-05	9.13181E-09	0	0	0	2.26449
0.000130367	8.31803E-08	0	0	0	5.35001
0.000128381	1.12517E-07	1.12483E-07	1.12483E-07	1.10658E-07	1.78712
0.000226034	2.15310E-07	2.15245E-07	2.15245E-07	2.11936E-07	1.88711
7.75403E-06	1.31390E-08	0	0	0	0.0234642
0.00104372	2.55510E-06	2.55433E-06	2.55433E-06	2.53659E-06	0.152033
0.000343531	6.38441E-07	6.38249E-07	6.38249E-07	6.32364E-07	0.535812
0.000328713	6.83170E-07	6.82964E-07	6.82964E-07	6.77144E-07	0.289247
0.000619474	1.28100E-06	1.28061E-06	1.28061E-06	1.26918E-06	0.631630
0	0	0	0	0	0
0	0	0	0	0	0
0.000355435	6.53012E-07	6.52815E-07	6.52815E-07	6.46729E-07	0.250945
0	0	0	0	0	0
0.00311232	9.32476E-06	9.32195E-06	9.32195E-06	9.27057E-06	0.236300
5.70564E-06	9.41318E-09	0	0	0	0.00550234
0.000653322	1.18335E-06	1.18300E-06	1.18300E-06	1.17158E-06	0.401080
0.00144860	4.04243E-06	4.04121E-06	4.04121E-06	4.01851E-06	0.109817
9.59061E-05	1.80188E-07	1.80134E-07	1.80134E-07	1.78518E-07	0.0487966
0.00375775	1.21885E-05	1.21848E-05	1.21848E-05	1.21236E-05	0.226028
0	0	0	0	0	0
0.0192561	0.000144159	0.000144115	0.000144115	0.000143973	0.00880524
0	0	0	0	0	0

0.00201265	4.80099E-06	4.79954E-06	4.79954E-06	4.76822E-06	0.361141
0.00434472	2.09126E-05	2.09063E-05	2.09063E-05	2.08415E-05	0.0713040
0.0355905	0.000363685	0.000363576	0.000363576	0.000363330	0.00663513
0	0	0	0	0	0
0.225707	0.00273780	0.00273697	0.00273697	0.00273554	0.0195928
0.000204515	6.59057E-07	6.58859E-07	6.58859E-07	6.55828E-07	0.0132133
0	0	0	0	0	0
5.02494	0.255961	0.255884	0.255884	0.255214	0.0409647
0.0607919	0.000698531	0.000698321	0.000698321	0.000697909	0.00704979
0	0	0	0	0	0
0.0197682	0.000248924	0.000248849	0.000248849	0.000248714	0.00182831
0	0	0	0	0	0
0.000806177	3.57912E-06	3.57804E-06	3.57804E-06	3.56712E-06	0.0174289
50.8695	0.770610	0.770408	0.770408	0.770530	0.221775
42.5882	98.2876	98.2881	98.2881	98.2905	0
1.13654	0.681585	0.681380	0.681380	0.679500	0.000443843
lb/h	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
1.05515E-05	1.57762E-07	0	0	0	3.22105
1.15667E-09	8.99858E-13	0	0	0	4261.23
0.000209851	1.06350E-06	0	0	0	7674.20
2.15434E-06	3.55135E-09	0	0	0	95261.1
2.77966E-05	9.17327E-08	0	0	0	26971.5
0.000148290	7.33514E-07	0	0	0	21570.3
6.15942E-05	3.85937E-07	0	0	0	4147.64
0.000468561	3.51544E-06	0	0	0	9799.06
0.000461424	4.75530E-06	4.75530E-06	4.75530E-06	4.67817E-06	3273.27
0.000812409	9.09964E-06	9.09964E-06	9.09964E-06	8.95975E-06	3456.42
2.78694E-05	5.55291E-07	0	0	0	42.9769
0.00375132	0.000107986	0.000107986	0.000107986	0.000107236	278.463
0.00123471	2.69824E-05	2.69824E-05	2.69824E-05	2.67337E-05	981.392
0.00118145	2.88728E-05	2.88728E-05	2.88728E-05	2.86268E-05	529.784
0.00222650	5.41386E-05	5.41386E-05	5.41386E-05	5.36554E-05	1156.89
0	0	0	0	0	0
0	0	0	0	0	0
0.00127750	2.75982E-05	2.75982E-05	2.75982E-05	2.73410E-05	459.631
0	0	0	0	0	0
0.0111863	0.000394092	0.000394092	0.000394092	0.000391921	432.807
2.05071E-05	3.97829E-07	0	0	0	10.0781
0.00234816	5.00120E-05	5.00120E-05	5.00120E-05	4.95295E-05	734.616
0.00520655	0.000170845	0.000170845	0.000170845	0.000169886	201.141
0.000344704	7.61528E-06	7.61528E-06	7.61528E-06	7.54699E-06	89.3757
0.0135061	0.000515122	0.000515122	0.000515122	0.000512534	413.992
0	0	0	0	0	0
0.0692098	0.00609257	0.00609257	0.00609257	0.00608656	16.1277
0	0	0	0	0	0
0.00723382	0.000202904	0.000202904	0.000202904	0.000201580	661.464
0.0156157	0.000883827	0.000883827	0.000883827	0.000881092	130.600
0.127919	0.0153704	0.0153704	0.0153704	0.0153601	12.1529
0	0	0	0	0	0
0.811233	0.115707	0.115707	0.115707	0.115647	35.8862
0.000735065	2.78537E-05	2.78537E-05	2.78537E-05	2.77257E-05	24.2014
0	0	0	0	0	0
18.0606	10.8176	10.8176	10.8176	10.7894	75.0308
0.218497	0.0295220	0.0295220	0.0295220	0.0295047	12.9124
0	0	0	0	0	0
0.0710507	0.0105203	0.0105203	0.0105203	0.0105146	3.34873
0	0	0	0	0	0
0.00289755	0.000151264	0.000151264	0.000151264	0.000150803	31.9227
182.834	32.5682	32.5695	32.5695	32.5748	406.203
153.070	4153.92	4155.19	4155.19	4155.31	0
4.08492	28.8058	28.8058	28.8058	28.7264	0.812942

17	19	23	24	25	101
Solved	Solved	Solved	Solved	Solved	Solved
Reboiler	**Cross Exchanger**	**Glycol Pump**	**Gas/Glycol HEX**	**TEG Recycle**	**To Dehy**
Glycol Regenerator	**TEG Makeup**	**Gas/Glycol HEX**	**TEG Recycle**	**Glycol Contactor**	**SPLT-100**
400.000	256.716	259.726	137.372	137.373	124.296
13.41	12.91	1108.12	1103.12*	1103.12	1101.12
31.5943	141.781	141.783	141.783	141.783	22.6820
0.0462328	63.4996	63.4986	67.9889	67.9891	4.97819
359.418	4226.29	4227.56	4227.56	4227.58	183160
0.103609	0.271485	0.271562	0.271562	0.271564	73.5452
0.690308	7.49775	7.5	7.5	7.5	989.342
516.943	3885.68	3885.74	3885.74	3885.69	1277.64
5554.02	10134.4	10134.4	10134.4	10134.3	21307.8

Process Streams		Condenser Overheads To burner	DEHY 1 Wet Gas Feed	Flash Gas 1 To Burner
Composition	Status:	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser	SPLT-100	Rich Flash
	To Block:	--	Glycol Contactor	--
Mole Fraction		%	%	%
H2S		0.0646865	0.00117041	0.00826136
Nitrogen		0.0208396	1.88373	0.419001
CO2		14.9991	2.15956	8.63388
Methane		9.41918	73.5351	50.1451
Ethane		10.6689	11.1080	16.7560
Propane		13.8616	6.05774	11.7198
i-Butane		2.58754	0.883707	1.68005
n-Butane		10.9304	2.08782	4.89984
i-Pentane		3.86923	0.561828	1.24017
n-Pentane		4.96671	0.593263	1.42578
Neohexane		0.0555076	0.00617592	0.0141926
Cyclopentane		2.38214	0.0491694	0.192022
2-Methylpentane		1.49816	0.141029	0.329821
3-Methylpentane		1.01846	0.0761317	0.189070
n-Hexane		1.83073	0.166249	0.378138
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		0.720008	0.0568045	0.129879
Benzene		0	0	0
Cyclohexane		2.21584	0.0636856	0.195185
2-Methylhexane		0.0122103	0.00124552	0.00265793
3-Methylhexane		1.04322	0.0907893	0.202781
1,1-Dimethylcyclopentane		0.832365	0.0253688	0.0724838
n-Heptane		0.109938	0.0110457	0.0229508
Methylcyclohexane		1.18706	0.0522147	0.131390
2,5-Dimethylhexane		0	0	0
Toluene		0.399499	0.00216759	0.00717578
2-Methylheptane		0	0	0
n-Octane		0.457496	0.0717104	0.124291
Ethylcyclohexane		0.200547	0.0144129	0.0270054
Ethylbenzene		0.131044	0.00141757	0.00342016
p-Xylene		0	0	0
o-Xylene		0.416573	0.00418594	0.00991946
n-Nonane		0.00819770	0.00233677	0.00321253
Isopropylbenzene		0	0	0
Cyclooctane		1.13725	0.00828034	0.0206901
Propylbenzene		0.0589125	0.00133040	0.00259834
1,3,5-Trimethylbenzene		0	0	0
Isobutylbenzene		0.00837280	0.000308970	0.000517039
Butylbenzene		0	0	0
n-Decane		0.00488691	0.00277844	0.00297956
Water		12.8788	0.279227	1.00946
TEG		1.60664E-10	0	0.000250743
MDEA		0.00456857	8.44860E-05	6.36238E-05
Mass Fraction		%	%	%
H2S		0.0456506	0.00175860	0.00939371
Nitrogen		0.0120887	2.32650	0.391612
CO2		13.6689	4.19016	12.6773
Methane		3.12900	52.0097	26.8395
Ethane		6.64293	14.7256	16.8099
Propane		12.6570	11.7767	17.2421
i-Butane		3.11423	2.26449	3.25792
n-Butane		13.1553	5.35000	9.50166
i-Pentane		5.78064	1.78711	2.98527
n-Pentane		7.42027	1.88710	3.43206
Neohexane		0.0990507	0.0234641	0.0408056
Cyclopentane		3.45948	0.152032	0.449313
2-Methylpentane		2.67340	0.535811	0.948278
3-Methylpentane		1.81739	0.289246	0.543600
n-Hexane		3.26684	0.631629	1.08720
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		1.49395	0.250945	0.434201
Benzene		0	0	0
Cyclohexane		3.86156	0.236300	0.548055
2-Methylhexane		0.0253352	0.00550232	0.00888576
3-Methylhexane		2.16458	0.401079	0.677921
1,1-Dimethylcyclopentane		1.69233	0.109817	0.237447
n-Heptane		0.228111	0.0487965	0.0767270
Methylcyclohexane		2.41348	0.226027	0.430415
2,5-Dimethylhexane		0	0	0
Toluene		0.762216	0.00880517	0.0220589
2-Methylheptane		0	0	0

n-Octane	1.08214	0.361140	0.473685
Ethylcyclohexane	0.465994	0.0713038	0.101104
Ethylbenzene	0.288086	0.00663507	0.0121144
p-Xylene	0	0	0
o-Xylene	0.915786	0.0195926	0.0351354
n-Nonane	0.0217715	0.0132132	0.0137466
Isopropylbenzene	0	0	0
Cyclooctane	2.64252	0.0409646	0.0774605
Propylbenzene	0.146624	0.00704976	0.0104195
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.0232704	0.00182830	0.00231531
Butylbenzene	0	0	0
n-Decane	0.0143981	0.0174289	0.0141441
Water	4.80440	0.221777	0.606746
TEG	4.99612E-10	0	0.00125631
MDEA	0.0112730	0.000443856	0.000252949
Mass Flow	**lb/h**	**lb/h**	**lb/h**
H2S	0.0131274	2.12613	0.00540240
Nitrogen	0.00347625	2812.72	0.225219
CO2	3.93068	5065.87	7.29083
Methane	0.899787	62879.3	15.4356
Ethane	1.91026	17803.1	9.66748
Propane	3.63970	14238.0	9.91608
i-Butane	0.895538	2737.74	1.87365
n-Butane	3.78297	6468.10	5.46448
i-Pentane	1.66230	2160.60	1.71685
n-Pentane	2.13380	2281.49	1.97381
Neohexane	0.0284833	28.3679	0.0234676
Cyclopentane	0.994819	183.806	0.258403
2-Methylpentane	0.768773	647.791	0.545362
3-Methylpentane	0.522614	349.696	0.312629
n-Hexane	0.939424	763.634	0.625256
2,2-Dimethylpentane	0	0	0
Methylcyclopentane	0	0	0
2,2,3-Trimethylbutane	0.429605	303.390	0.249713
Benzene	0	0	0
Cyclohexane	1.11044	285.684	0.315191
2-Methylhexane	0.00728546	6.65226	0.00511027
3-Methylhexane	0.622453	484.901	0.389878
1,1-Dimethylcyclopentane	0.486652	132.768	0.136557
n-Heptane	0.0655965	58.9945	0.0441263
Methylcyclohexane	0.694029	273.265	0.247535
2,5-Dimethylhexane	0	0	0
Toluene	0.219185	10.6454	0.0126863
2-Methylheptane	0	0	0
n-Octane	0.311184	436.615	0.272420
Ethylcyclohexane	0.134003	86.2057	0.0581455
Ethylbenzene	0.0828429	8.02175	0.00696711
p-Xylene	0	0	0
o-Xylene	0.263346	23.6873	0.0202066
n-Nonane	0.00626069	15.9747	0.00790580
Isopropylbenzene	0	0	0
Cyclooctane	0.759893	49.5259	0.0445481
Propylbenzene	0.0421636	8.52310	0.00599232
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.00669172	2.21040	0.00133155
Butylbenzene	0	0	0
n-Decane	0.00414037	21.0713	0.00813438
Water	1.38157	268.127	0.348945
TEG	1.43670E-10	0	0.000722513
MDEA	0.00324171	0.536618	0.000145473

Process Streams		Condenser Overheads To burner	DEHY 1 Wet Gas Feed	Flash Gas 1 To Burner
Properties	Status:	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser	SPLT-100	Rich Flash
	To Block:	--	Glycol Contactor	--
Property	**Units**			
Temperature	°F	120*	124.296	139.326
Pressure	psia	13.16*	1101.12	82.91
Molecular Weight	lb/lbmol	48.2923	22.6820	29.9726
Mass Density	lb/ft^3	0.103412	4.97819	0.397214
Mass Flow	lb/h	28.7563	120899	57.5108
Std Vapor Volumetric Flow	MMSCFD	0.00542326	48.5453	0.0174755
Std Liquid Volumetric Flow	sgpm	0.0947639	653.039	0.262638
Gross Ideal Gas Heating Value	Btu/ft^3	2200.34	1277.64	1521.40
Gross Liquid Heating Value	Btu/lb	17121.9	21307.7	19156.6

Process Streams		Condenser Overheads To burner	DEHY 1 Wet Gas Feed	Flash Gas 1 To Burner
Composition	**Status:**	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**BTEX Condenser**	**SPLT-100**	**Rich Flash**
	To Block:	--	**Glycol Contactor**	--
Mole Fraction		**%**	**%**	**%**
H2S		0.0659126	0.00117041	0.00833062
Nitrogen		0.0221070	1.88373	0.424374
CO2		15.4811	2.15956	8.70692
Methane		9.73498	73.5351	50.2660
Ethane		10.7185	11.1080	16.6262
Propane		13.6849	6.05774	11.5634
i-Butane		2.52397	0.883707	1.65205
n-Butane		10.7341	2.08782	4.83959
i-Pentane		3.77397	0.561828	1.22536
n-Pentane		4.79846	0.593263	1.40480
Neohexane		0.0535627	0.00617592	0.0139778
Cyclopentane		2.35183	0.0491694	0.193309
2-Methylpentane		1.46792	0.141029	0.326467
3-Methylpentane		1.01058	0.0761317	0.188174
n-Hexane		1.77839	0.166249	0.374174
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		0.705944	0.0568045	0.129376
Benzene		0	0	0
Cyclohexane		2.21403	0.0636856	0.197060
2-Methylhexane		0.0119647	0.00124552	0.00265273
3-Methylhexane		1.02251	0.0907893	0.203012
1,1-Dimethylcyclopentane		0.823460	0.0253688	0.0733740
n-Heptane		0.107565	0.0110457	0.0229433
Methylcyclohexane		1.18588	0.0522147	0.132798
2,5-Dimethylhexane		0	0	0
Toluene		0.410627	0.00216759	0.00738834
2-Methylheptane		0	0	0
n-Octane		0.448498	0.0717104	0.124888
Ethylcyclohexane		0.202970	0.0144129	0.0274322
Ethylbenzene		0.135113	0.00141757	0.00353121
p-Xylene		0	0	0
o-Xylene		0.431478	0.00418594	0.0102700
n-Nonane		0.00802535	0.00233677	0.00325549
Isopropylbenzene		0	0	0
Cyclooctane		1.13109	0.00828034	0.0211738
Propylbenzene		0.0611689	0.00133040	0.00268861
1,3,5-Trimethylbenzene		0	0	0
Isobutylbenzene		0.00884351	0.000308970	0.000535147
Butylbenzene		0	0	0
n-Decane		0.00472579	0.00277844	0.00302929
Water		12.8806	0.279227	1.22104
TEG		1.42590E-10	0	0.000247981
MDEA		0.00509888	8.44860E-05	7.24520E-05
Mass Fraction		**%**	**%**	**%**
H2S		0.0467780	0.00175860	0.00950228
Nitrogen		0.0128961	2.32650	0.397882
CO2		14.1877	4.19016	12.8248
Methane		3.25213	52.0097	26.9889
Ethane		6.71143	14.7256	16.7322
Propane		12.5661	11.7767	17.0656
i-Butane		3.05484	2.26449	3.21370
n-Butane		12.9918	5.35000	9.41435
i-Pentane		5.67009	1.78711	2.95892
n-Pentane		7.20929	1.88710	3.39221
Neohexane		0.0961185	0.0234641	0.0403145
Cyclopentane		3.43471	0.152032	0.453748
2-Methylpentane		2.63419	0.535811	0.941589
3-Methylpentane		1.81350	0.289246	0.542727
n-Hexane		3.19133	0.631629	1.07919
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		1.47302	0.250945	0.433879
Benzene		0	0	0
Cyclohexane		3.88014	0.236300	0.555061
2-Methylhexane		0.0249654	0.00550232	0.00889629
3-Methylhexane		2.13357	0.401079	0.680828
1,1-Dimethylcyclopentane		1.68366	0.109817	0.241119
n-Heptane		0.224444	0.0487965	0.0769436
Methylcyclohexane		2.42467	0.226027	0.436395
2,5-Dimethylhexane		0	0	0
Toluene		0.787863	0.00880517	0.0227839
2-Methylheptane		0	0	0

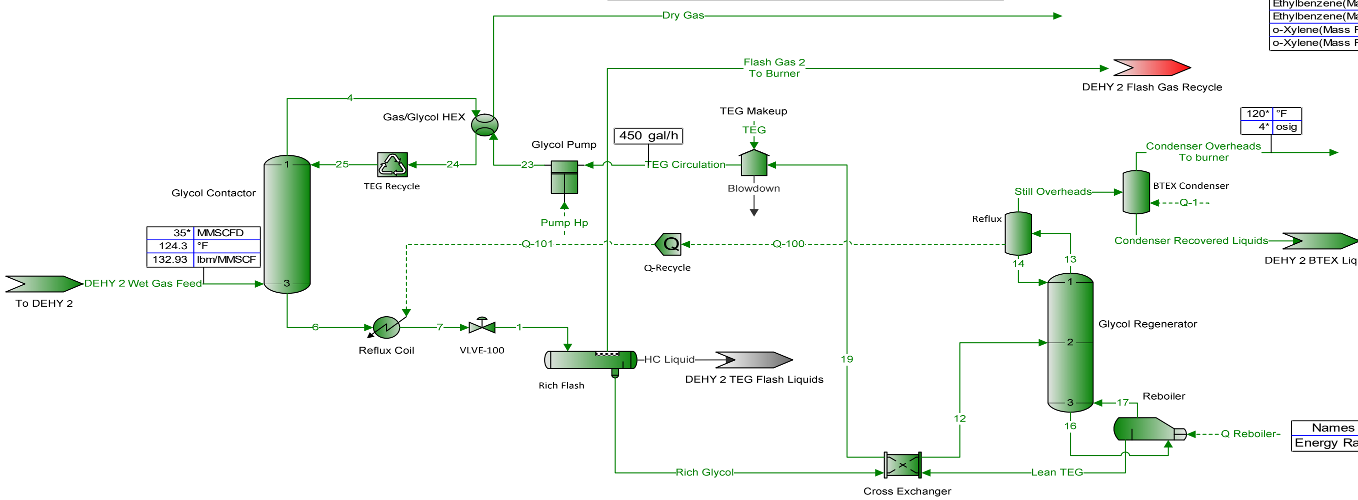
n-Octane	1.06683	0.361140	0.477456
Ethylcyclohexane	0.474280	0.0713038	0.103025
Ethylbenzene	0.298704	0.00663507	0.0125471
p-Xylene	0	0	0
o-Xylene	0.953897	0.0195926	0.0364914
n-Nonane	0.0214339	0.0132132	0.0139743
Isopropylbenzene	0	0	0
Cyclooctane	2.64303	0.0409646	0.0795206
Propylbenzene	0.153097	0.00704976	0.0108154
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.0247171	0.00182830	0.00240394
Butylbenzene	0	0	0
n-Decane	0.0140019	0.0174289	0.0144255
Water	4.83213	0.221777	0.736228
TEG	4.45906E-10	0	0.00124638
MDEA	0.0126525	0.000443856	0.000288954
Mass Flow	**lb/h**	**lb/h**	**lb/h**
H2S	0.0132805	2.67359	0.00555309
Nitrogen	0.00366128	3536.98	0.232521
CO2	4.02796	6370.29	7.49477
Methane	0.923299	79070.2	15.7722
Ethane	1.90542	22387.3	9.77823
Propane	3.56759	17904.1	9.97308
i-Butane	0.867288	3442.69	1.87807
n-Butane	3.68846	8133.58	5.50170
i-Pentane	1.60977	2716.94	1.72918
n-Pentane	2.04676	2868.95	1.98239
Neohexane	0.0272886	35.6724	0.0235596
Cyclopentane	0.975135	231.134	0.265168
2-Methylpentane	0.747861	814.591	0.550261
3-Methylpentane	0.514862	439.740	0.317168
n-Hexane	0.906036	960.263	0.630672
2,2-Dimethylpentane	0	0	0
Methylcyclopentane	0	0	0
2,2,3-Trimethylbutane	0.418198	381.510	0.253557
Benzene	0	0	0
Cyclohexane	1.10160	359.246	0.324375
2-Methylhexane	0.00708782	8.36516	0.00519895
3-Methylhexane	0.605732	609.759	0.397873
1,1-Dimethylcyclopentane	0.478001	166.954	0.140909
n-Heptane	0.0637209	74.1851	0.0449655
Methylcyclohexane	0.688379	343.629	0.255027
2,5-Dimethylhexane	0	0	0
Toluene	0.223679	13.3865	0.0133148
2-Methylheptane	0	0	0
n-Octane	0.302881	549.040	0.279023
Ethylcyclohexane	0.134651	108.403	0.0602073
Ethylbenzene	0.0848038	10.0873	0.00733249
p-Xylene	0	0	0
o-Xylene	0.270817	29.7866	0.0213254
n-Nonane	0.00608520	20.0880	0.00816653
Isopropylbenzene	0	0	0
Cyclooctane	0.750372	62.2784	0.0464715
Propylbenzene	0.0434651	10.7177	0.00632047
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.00701733	2.77955	0.00140485
Butylbenzene	0	0	0
n-Decane	0.00397521	26.4970	0.00843018
Water	1.37187	337.167	0.430248
TEG	1.26595E-10	0	0.000728379
MDEA	0.00359211	0.674793	0.000168863

Process Streams		**Condenser Overheads To burner**	**DEHY 1 Wet Gas Feed**	**Flash Gas 1 To Burner**
Properties	**Status:**	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**BTEX Condenser**	**SPLT-100**	**Rich Flash**
	To Block:	--	**Glycol Contactor**	--
Property	**Units**			
Temperature	°F	120*	124.296	140.992
Pressure	psia	13.16*	1101.12	82.91
Molecular Weight	lb/lbmol	48.0218	22.6820	29.8786
Mass Density	lb/ft^3	0.102813	4.97819	0.394687
Mass Flow	lb/h	28.3906	152030	58.4396
Std Vapor Volumetric Flow	MMSCFD	0.00538444	61.0453	0.0178136
Std Liquid Volumetric Flow	sgpm	0.0935613	821.191	0.266808
Gross Ideal Gas Heating Value	Btu/ft^3	2173.64	1277.64	1512.17
Gross Liquid Heating Value	Btu/lb	17008.6	21307.7	19099.1

Names	Units	Condenser Overheads To burner
Temperature	°F	120*
Pressure	psig	0.25*
Molecular Weight	lb/lbmol	48.75
Std Vapor Volumetric Flow	MMSCFD	0.005484
Net Ideal Gas Heating Value	Btu/ft^3	2064
H2S(Mole Fraction)	%	0.06297
CO2(Mole Fraction)	%	14.382
H2S(Mass Flow)	lb/h	0.012923
H2S(Mass Flow)	ton/yr	0.056603
Benzene(Mass Flow)	lb/h	0
Benzene(Mass Flow)	ton/yr	0
Toluene(Mass Flow)	lb/h	0.22354
Toluene(Mass Flow)	ton/yr	0.97911
Ethylbenzene(Mass Flow)	lb/h	0.084562
Ethylbenzene(Mass Flow)	ton/yr	0.37038
o-Xylene(Mass Flow)	lb/h	0.26676
o-Xylene(Mass Flow)	ton/yr	1.1684

Names	Units	Still Overheads		Still Overheads		Condenser Overheads To burner		Condenser Overheads To burner		Flash Gas 2 To Burner		Flash Gas 2 To Burner	
Mass Flow Sum	lb/h	(HAPs)	7.059	(VOCs)	51.89	(VOCs)	21.35	(HAPs)	1.572	(HAPs)	0.6516	(VOCs)	24.17
Mass Flow Sum	ton/yr	(HAPs)	30.92	(VOCs)	227.3	(VOCs)	93.53	(HAPs)	6.886	(HAPs)	2.854	(VOCs)	105.9

Names	Units	DEHY 2 Wet Gas Feed	Dry Gas
Water Content	lbm/MMSCF	132.9	5.269



Names	Units	Q Reboiler	Q-100
Energy Rate	MBTU/h	535.2	19.87

Names	Units	Dry Gas	Flash Gas 2 To Burner	Still Overheads	Condenser Overheads To burner	Condenser Recovered Liquids
H2S(Mass Flow)	lb/h	1.51	0.00521	0.0133	0.0129	0.000383
H2S(Mass Flow)	lb/h	1.51	0.00521	0.0133	0.0129	0.000383
Benzene(Mass Flow)	lb/h	0	0	0	0	0
Benzene(Mass Flow)	lb/h	0	0	0	0	0
Toluene(Mass Flow)	lb/h	6.71	0.0119	0.953	0.224	0.73
Toluene(Mass Flow)	lb/h	6.71	0.0119	0.953	0.224	0.73
Ethylbenzene(Mass Flow)	lb/h	4.92	0.00651	0.862	0.0846	0.777
Ethylbenzene(Mass Flow)	lb/h	4.92	0.00651	0.862	0.0846	0.777
o-Xylene(Mass Flow)	lb/h	13.6	0.0188	3.47	0.267	3.2
o-Xylene(Mass Flow)	lb/h	13.6	0.0188	3.47	0.267	3.2

Names	Units	Still Overheads	Condenser Recovered Liquids	Condenser Overheads To burner
Temperature	°F	204	120	120*
Pressure	psig	0.5	0.25	0.25*
Volume Fraction Vapor	%	100	0	100
Volume Fraction Light Liquid	%	0	17.6	0
Volume Fraction Heavy Liquid	%	0	82.4	0
Molecular Weight	lb/lbmol	21.9	20.4	48.8
Mass Flow	lb/h	244	215	29.4
Std Vapor Volumetric Flow	MMSCFD	0.101	0.0958	0.00548
Std Liquid Volumetric Flow	sgpm	0.542	0.445	0.0966
Specific Gravity		0.758	0.95	1.68
API Gravity			15.2	

Process Streams	Blowdown	Condenser Overheads To burner	Condenser Recovered Liquids	DEHY 2 Wet Gas Feed
Composition Status:	Solved	Solved	Solved	Solved
Phase: Total From Block:	TEG Makeup	BTEX Condenser	BTEX Condenser	To DEHY 2
To Block:	--	--	DEHY 2 BTEX Liquids	Glycol Contactor
Mole Fraction	%	%	%	%
H2S	1.83689E-08	0.0629700	0.000106998	0.00117041
Nitrogen	1.30584E-13	0.0193275	6.57083E-07	1.88373
CO2	9.63696E-08	14.3823	0.00837150	2.15942
Methane	9.00767E-10	9.00756	0.000971228	73.5352
Ethane	1.24596E-08	10.5437	0.00551835	11.1080
Propane	6.81621E-08	13.9841	0.0217598	6.05774
i-Butane	2.73876E-08	2.64895	0.00885936	0.883709
n-Butane	2.47387E-07	11.1229	0.0552989	2.08782
i-Pentane	2.70619E-07	3.98492	0.0464808	0.561829
n-Pentane	5.18746E-07	5.18318	0.0786673	0.593264
Neohexane	2.68198E-08	0.0582082	0.00134466	0.00617593
Cyclopentane	6.26582E-06	2.44345	0.0620156	0.0491695
2-Methylpentane	1.28937E-06	1.55071	0.0501600	0.141030
3-Methylpentane	1.37065E-06	1.04131	0.0383478	0.0761318
n-Hexane	2.59766E-06	1.92205	0.0857936	0.166250
2,2-Dimethylpentane	0	0	0	0
Methylcyclopentane	0	0	0	0
2,2,3-Trimethylbutane	1.12840E-06	0.751732	0.0461408	0.0568046
Benzene	0	0	0	0
Cyclohexane	1.89876E-05	2.27551	0.162200	0.0636857
2-Methylhexane	1.63379E-08	0.0128072	0.00107774	0.00124552
3-Methylhexane	2.05378E-06	1.09607	0.103295	0.0907894
1,1-Dimethylcyclopentane	7.09405E-06	0.867400	0.0751700	0.0253689
n-Heptane	3.12200E-07	0.116085	0.0138850	0.0110457
Methylcyclohexane	2.13065E-05	1.23165	0.170090	0.0522147
2,5-Dimethylhexane	0	0	0	0
Toluene	0.000257540	0.402903	0.0753227	0.00216761
2-Methylheptane	0	0	0	0
n-Octane	7.27887E-06	0.486344	0.158842	0.0717105
Ethylcyclohexane	3.17567E-05	0.206890	0.0803431	0.0144129
Ethylbenzene	0.000560967	0.132275	0.0696522	0.00141758
p-Xylene	0	0	0	0
o-Xylene	0.00418447	0.417276	0.286894	0.00418597
n-Nonane	8.92617E-07	0.00875922	0.00794292	0.00233677
Isopropylbenzene	0	0	0	0
Cyclooctane	0.355339	1.08544	1.01841	0.00828035
Propylbenzene	0.000945262	0.0590633	0.0766208	0.00133040
1,3,5-Trimethylbenzene	0	0	0	0
Isobutylbenzene	0.000298419	0.00821686	0.0174862	0.000308972
Butylbenzene	0	0	0	0
n-Decane	4.37627E-06	0.00528848	0.0131893	0.00277844
Water	6.05230	12.8761	97.1400	0.279224
TEG	92.7650	1.85692E-10	2.50163E-05	0
MDEA	0.821058	0.00453765	0.0197153	8.44834E-05
Mass Fraction	%	%	%	%
H2S	4.41543E-09	0.0440182	0.000178666	0.00175860
Nitrogen	2.58008E-14	0.0111053	9.01867E-07	2.32651
CO2	2.99133E-08	12.9827	0.0180512	4.18990
Methane	1.01920E-10	2.96392	0.000763394	52.0098
Ethane	2.64242E-09	6.50281	0.00812990	14.7257
Propane	2.11990E-08	12.6479	0.0470117	11.7768
i-Butane	1.12273E-08	3.15794	0.0252290	2.26449
n-Butane	1.01414E-07	13.2601	0.157476	5.35001
i-Pentane	1.37710E-07	5.89708	0.164308	1.78712
n-Pentane	2.63975E-07	7.67031	0.278087	1.88711
Neohexane	1.63011E-08	0.102886	0.00567743	0.0234642
Cyclopentane	3.09940E-06	3.51490	0.213098	0.152033
2-Methylpentane	7.83681E-07	2.74095	0.211786	0.535812
3-Methylpentane	8.33083E-07	1.84056	0.161913	0.289247
n-Hexane	1.57886E-06	3.39732	0.362239	0.631630
2,2-Dimethylpentane	0	0	0	0
Methylcyclopentane	0	0	0	0
2,2,3-Trimethylbutane	7.97479E-07	1.54500	0.226526	0.250945
Benzene	0	0	0	0
Cyclohexane	1.12707E-05	3.92798	0.668821	0.236300
2-Methylhexane	1.15465E-08	0.0263219	0.00529109	0.00550234
3-Methylhexane	1.45147E-06	2.25269	0.507120	0.401080
1,1-Dimethylcyclopentane	4.91272E-06	1.74686	0.361619	0.109817
n-Heptane	2.20641E-07	0.238583	0.0681678	0.0487966
Methylcyclohexane	1.47551E-05	2.48041	0.818247	0.226028
2,5-Dimethylhexane	0	0	0	0
Toluene	0.000167364	0.761429	0.340035	0.00880524
2-Methylheptane	0	0	0	0

n-Octane	5.86431E-06	1.13948	0.888992	0.361141
Ethylcyclohexane	2.51336E-05	0.476178	0.441720	0.0713040
Ethylbenzene	0.000420046	0.288036	0.362304	0.00663513
p-Xylene	0	0	0	0
o-Xylene	0.00313329	0.908643	1.49231	0.0195928
n-Nonane	8.07454E-07	0.0230424	0.0499127	0.0132133
Isopropylbenzene	0	0	0	0
Cyclooctane	0.281230	2.49824	5.59914	0.0409647
Propylbenzene	0.000801317	0.145606	0.451209	0.00704979
1,3,5-Trimethylbenzene	0	0	0	0
Isobutylbenzene	0.000282499	0.0226207	0.114991	0.00182831
Butylbenzene	0	0	0	0
n-Decane	4.39168E-06	0.0154336	0.0919451	0.0174289
Water	0.769023	4.75787	85.7424	0.221775
TEG	98.2548	5.71969E-10	0.000184065	0
MDEA	0.690065	0.0110907	0.115106	0.000443843

Mass Flow	lb/h	lb/h	lb/h	lb/h
H2S	0	0.0129230	0.000383399	1.53289
Nitrogen	0	0.00326030	1.93531E-06	2027.91
CO2	0	3.81147	0.0387360	3652.14
Methane	0	0.870152	0.00163816	45334.5
Ethane	0	1.90911	0.0174459	12835.7
Propane	0	3.71319	0.100882	10265.3
i-Butane	0	0.927112	0.0541389	1973.85
n-Butane	0	3.89294	0.337928	4663.35
i-Pentane	0	1.73127	0.352588	1557.74
n-Pentane	0	2.25186	0.596745	1644.90
Neohexane	0	0.0302054	0.0121832	20.4526
Cyclopentane	0	1.03191	0.457286	132.520
2-Methylpentane	0	0.804693	0.454470	467.043
3-Methylpentane	0	0.540356	0.347447	252.123
n-Hexane	0	0.997391	0.777326	550.563
2,2-Dimethylpentane	0	0	0	0
Methylcyclopentane	0	0	0	0
2,2,3-Trimethylbutane	0	0.453582	0.486101	218.737
Benzene	0	0	0	0
Cyclohexane	0	1.15318	1.43522	205.972
2-Methylhexane	0	0.00772763	0.0113541	4.79613
3-Methylhexane	0	0.661349	1.08823	349.602
1,1-Dimethylcyclopentane	0	0.512845	0.775996	95.7226
n-Heptane	0	0.0700436	0.146281	42.5337
Methylcyclohexane	0	0.728204	1.75587	197.018
2,5-Dimethylhexane	0	0	0	0
Toluene	0	0.223542	0.729679	7.67512
2-Methylheptane	0	0	0	0
n-Octane	0	0.334530	1.90768	314.790
Ethylcyclohexane	0	0.139797	0.947885	62.1524
Ethylbenzene	0	0.0845621	0.777466	5.78353
p-Xylene	0	0	0	0
o-Xylene	0	0.266761	3.20235	17.0782
n-Nonane	0	0.00676483	0.107107	11.5174
Isopropylbenzene	0	0	0	0
Cyclooctane	0	0.733437	12.0152	35.7070
Propylbenzene	0	0.0427473	0.968247	6.14497
1,3,5-Trimethylbenzene	0	0	0	0
Isobutylbenzene	0	0.00664101	0.246758	1.59365
Butylbenzene	0	0	0	0
n-Decane	0	0.00453103	0.197305	15.1920
Water	0	1.39682	183.994	193.311
TEG	0	1.67920E-10	0.000394984	0
MDEA	0	0.00325602	0.247005	0.386877

Process Streams		Blowdown	Condenser Overheads To burner	Condenser Recovered Liquids	DEHY 2 Wet Gas Feed
Properties	Status:	Solved	Solved	Solved	Solved
Phase: Total	From Block:	TEG Makeup	BTEX Condenser	BTEX Condenser	To DEHY 2
	To Block:	--	--	DEHY 2 BTEX Liquids	Glycol Contactor
Property	Units				
Temperature	°F		120*	120	124.296
Pressure	psia	12.91	13.16*	13.16	1101.12
Molecular Weight	lb/lbmol	141.782	48.7542	20.4100	22.6820
Mass Density	lb/ft^3		0.104433	59.2367	4.97819
Std Vapor Volumetric Flow	MMSCFD	0	0.00548431	0.0957569	35*
Std Liquid Volumetric Flow	sgpm	0	0.0966163	0.445210	470.826
Gross Ideal Gas Heating Value	Btu/ft^3	3886.76	2240.19	201.802	1277.64
Gross Liquid Heating Value	Btu/lb	10137.3	17268.1	2832.30	21307.8

Dry Gas	Flash Gas 2 To Burner	HC Liquid	Lean TEG	Rich Glycol	Still Overheads	TEG	TEG Circulation
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Gas/Glycol HEX	Rich Flash	Rich Flash	Reboiler	Rich Flash	Reflux	--	TEG Makeup
--	--	DEHY 2 TEG Flash Liquids	Cross Exchanger	Cross Exchanger	BTEX Condenser	TEG Makeup	Glycol Pump
%	%		%	%	%	%	%
0.00116019	0.00818054		1.83689E-08	0.000954114	0.00351233	0*	0
1.88991	0.412967		1.30584E-13	0.000284574	0.00104760	0*	0
2.16028	8.55302		9.63696E-08	0.213788	0.787020	0*	0
73.7585	50.0202		9.00767E-10	0.132797	0.488865	0*	0
11.1357	16.9061		1.24596E-08	0.156569	0.576380	0*	0
6.07021	11.8950		6.81621E-08	0.211368	0.778110	0*	0
0.885428	1.71085		2.73876E-08	0.0412557	0.151875	0*	0
2.09057	4.96355		2.47387E-07	0.177883	0.654839	0*	0
0.562366	1.25497		2.70619E-07	0.0705809	0.259829	0*	2.70542E-07
0.593537	1.44659		5.18746E-07	0.0964831	0.355182	0*	5.18599E-07
0.00617698	0.0144093		2.68198E-08	0.00120204	0.00442500	0*	0
0.0486889	0.190204		6.26582E-06	0.0518936	0.191019	0*	6.26405E-06
0.140963	0.332933		1.28937E-06	0.0357072	0.131446	0*	1.28901E-06
0.0760282	0.189714		1.37065E-06	0.0251766	0.0926790	0*	1.37026E-06
0.166089	0.381636		2.59766E-06	0.0503278	0.185265	0*	2.59692E-06
0	0		0	0	0	0*	0
0	0		0	0	0	0*	0
0.0566888	0.130044		1.12840E-06	0.0229175	0.0843632	0*	1.12809E-06
0	0		0	0	0	0*	0
0.0630044	0.192643		1.89876E-05	0.0751717	0.276679	0*	1.89822E-05
0.00124347	0.00265534		1.63379E-08	0.000465371	0.00171313	0*	0
0.0905426	0.201869		2.05378E-06	0.0426695	0.157074	0*	2.05320E-06
0.0250773	0.0712978		7.09405E-06	0.0320823	0.118086	0*	7.09204E-06
0.0110156	0.0228744		3.12200E-07	0.00527587	0.0194213	0*	3.12111E-07
0.0516679	0.129449		2.13065E-05	0.0618401	0.227595	0*	2.13005E-05
0	0		0	0	0	0*	0
0.00190146	0.00691438		0.000257540	0.0254688	0.0930680	0*	0.000257467
0	0		0	0	0	0*	0
0.0713809	0.123083		7.27887E-06	0.0479729	0.176583	0*	7.27682E-06
0.0141958	0.0264504		3.17567E-05	0.0237099	0.0871982	0*	3.17477E-05
0.00120878	0.00328219		0.000560967	0.0202506	0.0730445	0*	0.000560808
0	0		0	0	0	0*	0
0.00334237	0.00947040		0.00418447	0.0828991	0.293957	0*	0.00418329
0.00231997	0.00315089		8.92617E-07	0.00217030	0.00798713	0*	8.92364E-07
0	0		0	0	0	0*	0
0.00534250	0.0190156		0.355339	0.536443	1.02204	0*	0.355238
0.00111408	0.00248510		0.000945262	0.0212436	0.0756697	0*	0.000944995
0	0		0	0	0	0*	0
0.000260484	0.000494548		0.000298419	0.00483094	0.0169840	0*	0.000298335
0	0		0	0	0	0*	0
0.00274940	0.00291013		4.37627E-06	0.00346972	0.0127613	0*	4.37503E-06
0.0110971	0.771280		6.05230	29.5557	92.5754	0.827516*	6.05082
0.000220076	0.000254028		92.7650	67.5660	2.36612E-05	99.1725*	92.7668
1.74046E-05	5.66599E-05		0.821058	0.603155	0.0188931	0*	0.820825
%	%		%	%	%	%	%
0.00174334	0.00927187		4.41543E-09	0.000297695	0.00545459	0*	0
2.33426	0.384729		2.58008E-14	7.29830E-05	0.00133727	0*	0
4.19179	12.5182		2.99133E-08	0.0861372	1.57829	0*	0
52.1705	26.6865		1.01920E-10	0.0195037	0.357368	0*	0
14.7632	16.9059		2.64242E-09	0.0431010	0.789740	0*	0
11.8016	17.4435		2.11990E-08	0.0853287	1.56348	0*	0
2.26901	3.30696		1.12273E-08	0.0219526	0.402238	0*	0
5.35734	9.59421		1.01414E-07	0.0946532	1.73433	0*	0
1.78892	3.01117		1.37710E-07	0.0466204	0.854225	0*	1.37669E-07
1.88807	3.47096		2.63975E-07	0.0637295	1.16771	0*	2.63896E-07
0.0234694	0.0412953		1.63011E-08	0.000948335	0.0173761	0*	0
0.150555	0.443625		3.09940E-06	0.0333193	0.610457	0*	3.09848E-06
0.535589	0.954147		7.83681E-07	0.0281708	0.516161	0*	7.83448E-07
0.288868	0.543697		8.33083E-07	0.0198628	0.363932	0*	8.32835E-07
0.631053	1.09372		1.57886E-06	0.0397056	0.727499	0*	1.57839E-06
0	0		0	0	0	0*	0
0	0		0	0	0	0*	0
0.250447	0.433353		7.97479E-07	0.0210234	0.385199	0*	7.97242E-07
0	0		0	0	0	0*	0
0.233785	0.539177		1.12707E-05	0.0579186	1.06105	0*	1.12673E-05
0.00549358	0.00884852		1.15465E-08	0.000426909	0.00782207	0*	0
0.400011	0.672700		1.45147E-06	0.0391430	0.717192	0*	1.45104E-06
0.108561	0.232809		4.91272E-06	0.0288387	0.528327	0*	4.91126E-06
0.0486662	0.0762256		2.20641E-07	0.00483983	0.0886766	0*	2.20576E-07
0.223673	0.422691		1.47551E-05	0.0555879	1.01828	0*	1.47507E-05
0	0		0	0	0	0*	0
0.00772451	0.0211870		0.000167364	0.0214837	0.390748	0*	0.000167315
0	0		0	0	0	0*	0

0.359500	0.467569		5.86431E-06	0.0501685	0.919137	0*	5.86257E-06
0.0702334	0.0987071		2.51336E-05	0.0243575	0.445867	0*	2.51262E-05
0.00565811	0.0115883		0.000420046	0.0196825	0.353366	0*	0.000419921
0	0		0	0	0	0*	0
0.0156451	0.0334368		0.00313329	0.0805734	1.42207	0*	0.00313236
0.0131189	0.0134395		8.07454E-07	0.00254832	0.0466790	0*	8.07214E-07
0	0		0	0	0	0*	0
0.0264319	0.0709622		0.281230	0.551094	5.22596	0*	0.281147
0.00590380	0.00993328		0.000801317	0.0233756	0.414431	0*	0.000801079
0	0		0	0	0	0*	0
0.00154147	0.00220747		0.000282499	0.00593613	0.103874	0*	0.000282415
0	0		0	0	0	0*	0
0.0172476	0.0137701		4.39168E-06	0.00451963	0.0827373	0*	4.39038E-06
0.00881436	0.462092		0.769023	4.87463	75.9962	0.1*	0.768824
0.00145716	0.00126867		98.2548	92.8924	0.000161914	99.9*	98.2553
9.14417E-05	0.000224538		0.690065	0.658003	0.102588	0*	0.689860
lb/h	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
1.51438	0.00520844	0	1.86592E-07	0.0133065	0.0133064	0*	0
2027.69	0.216120	0	1.09032E-12	0.00326224	0.00326224	0*	0
3641.26	7.03203	0	1.26411E-06	3.85021	3.85021	0*	0
45318.7	14.9910	0	4.30707E-09	0.871790	0.871790	0*	0
12824.2	9.49683	0	1.11666E-07	1.92655	1.92655	0*	0
10251.6	9.79880	0	8.95853E-07	3.81407	3.81407	0*	0
1971.01	1.85767	0	4.74455E-07	0.981252	0.981251	0*	0
4653.73	5.38951	0	4.28565E-06	4.23087	4.23086	0*	0
1553.97	1.69151	0	5.81950E-06	2.08387	2.08386	0*	5.81950E-06
1640.10	1.94980	0	1.11553E-05	2.84862	2.84861	0*	1.11553E-05
20.3870	0.0231975	0	6.88870E-07	0.0423892	0.0423885	0*	0
130.781	0.249204	0	0.000130978	1.48933	1.48920	0*	0.000130978
465.247	0.535988	0	3.31177E-05	1.25920	1.25916	0*	3.31177E-05
250.930	0.305420	0	3.52054E-05	0.887838	0.887803	0*	3.52054E-05
548.174	0.614394	0	6.67212E-05	1.77478	1.77472	0*	6.67212E-05
0	0	0	0	0	0	0*	0
0	0	0	0	0	0	0*	0
217.554	0.243434	0	3.37008E-05	0.939717	0.939683	0*	3.37008E-05
0	0	0	0	0	0	0*	0
203.081	0.302880	0	0.000476289	2.58888	2.58840	0*	0.000476289
4.77207	0.00497062	0	4.87944E-07	0.0190823	0.0190818	0*	0
347.475	0.377886	0	6.13380E-05	1.74964	1.74957	0*	6.13380E-05
94.3030	0.130780	0	0.000207607	1.28905	1.28884	0*	0.000207607
42.2746	0.0428194	0	9.32410E-06	0.216334	0.216325	0*	9.32410E-06
194.297	0.237445	0	0.000623536	2.48470	2.48408	0*	0.000623536
0	0	0	0	0	0	0*	0
6.71000	0.0119017	0	0.00707267	0.960293	0.953220	0*	0.00707267
0	0	0	0	0	0	0*	0
312.285	0.262655	0	0.000247821	2.24246	2.24221	0*	0.000247821
61.0093	0.0554483	0	0.00106213	1.08874	1.08768	0*	0.00106213
4.91500	0.00650969	0	0.0177508	0.879779	0.862028	0*	0.0177508
0	0	0	0	0	0	0*	0
13.5903	0.0187830	0	0.132410	3.60152	3.46911	0*	0.132410
11.3960	0.00754957	0	3.41223E-05	0.113906	0.113872	0*	3.41223E-05
0	0	0	0	0	0	0*	0
22.9605	0.0398628	0	11.8845	24.6331	12.7486	0*	11.8845
5.12842	0.00557998	0	0.0338630	1.04486	1.01099	0*	0.0338630
0	0	0	0	0	0	0*	0
1.33902	0.00124004	0	0.0119381	0.265337	0.253399	0*	0.0119381
0	0	0	0	0	0	0*	0
14.9824	0.00773529	0	0.000185589	0.202021	0.201836	0*	0.000185589
7.65672	0.259578	0	32.4982	217.889	185.391	0.00125733*	32.4995
1.26578	0.000712669	0	4152.16	4152.16	0.000394985	1.25607*	4153.42
0.0794321	0.000126133	0	29.1616	29.4118	0.250261	0*	29.1616

Dry Gas	Flash Gas 2 To Burner	HC Liquid	Lean TEG	Rich Glycol	Still Overheads	TEG	TEG Circulation
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Gas/Glycol HEX	**Rich Flash**	**Rich Flash**	**Reboiler**	**Rich Flash**	**Reflux**	**--**	**TEG Makeup**
--	**--**	**DEHY 2 TEG Flash Liquids**	**Cross Exchanger**	**Cross Exchanger**	**BTEX Condenser**	**TEG Makeup**	**Glycol Pump**
132.666	137.382		400.000	137.382	203.604	130*	257.454
1093.12	82.91	82.91	13.41	82.91	13.41	25*	12.91
22.6808	30.0694		141.782	109.229	21.9454	149.079	141.784
4.79386	0.400004		57.9519	67.2762	0.0416807	68.3513	63.4644
34.8818	0.0170145	0	0.271458	0.372700	0.101241	7.68132E-05	0.271535
470.030	0.256657	0	7.49777	8.03960	0.541826	0.00222541	7.5*
1280.33	1531.29		3886.76	2915.76	312.223	4095.08	3886.82
21356.0	19220.2		10137.3	9833.46	4569.59	10163.6	10137.3

1	4	6	7	12	13	14	16	17
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
VLVE-100	**Glycol Contactor**	**Glycol Contactor**	**Reflux Coil**	**Cross Exchanger**	**Glycol Regenerator**	**Reflux**	**Glycol Regenerator**	**Reboiler**
Rich Flash	**Gas/Glycol HEX**	**Reflux Coil**	**VLVE-100**	**Glycol Regenerator**	**Reflux**	**Glycol Regenerator**	**Reboiler**	**Glycol Regenerator**
%	%	%	%	%	%	%	%	%
0.00126961	0.00116019	0.00126961	0.00126961	0.000954114	0.00319322	2.06527E-06	8.67009E-07	3.21883E-06
0.0183018	1.88991	0.0183018	0.0183018	0.000284574	0.000952369	8.26445E-09	1.16673E-10	4.39646E-10
0.577871	2.16028	0.577871	0.577871	0.213788	0.715485	0.000139763	1.32792E-05	4.98124E-05
2.31083	73.7585	2.31083	2.31083	0.132797	0.444423	7.29739E-06	3.80167E-07	1.43122E-06
0.887838	11.1357	0.887838	0.887838	0.156569	0.523983	8.58470E-06	2.63092E-06	9.88742E-06
0.721462	6.07021	0.721462	0.721462	0.211368	0.707374	8.39720E-06	9.61829E-06	3.60844E-05
0.114149	0.885428	0.114149	0.114149	0.0412557	0.138068	7.21894E-07	3.05492E-06	1.14451E-05
0.386820	2.09057	0.386820	0.386820	0.177883	0.595309	6.86925E-06	2.30756E-05	8.63390E-05
0.122290	0.562366	0.122290	0.122290	0.0705809	0.236208	1.37509E-06	1.84299E-05	6.87545E-05
0.155427	0.593537	0.155427	0.155427	0.0964831	0.322893	1.73233E-06	3.25353E-05	0.000121262
0.00177865	0.00617698	0.00177865	0.00177865	0.00120204	0.00402273	8.24586E-09	9.54326E-07	3.52471E-06
0.0579321	0.0486889	0.0579321	0.0579321	0.0518936	0.173654	4.11532E-06	0.000155751	0.000570017
0.0486838	0.140963	0.0486838	0.0486838	0.0357072	0.119496	5.77125E-07	4.19148E-05	0.000154499
0.0323601	0.0760282	0.0323601	0.0323601	0.0251766	0.0842537	7.48107E-07	3.99506E-05	0.000146867
0.0647924	0.166089	0.0647924	0.0647924	0.0503278	0.168423	5.26015E-07	7.60854E-05	0.000279740
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.0275945	0.0566888	0.0275945	0.0275945	0.0229175	0.0766938	3.02010E-07	3.70909E-05	0.000136753
0	0	0	0	0	0	0	0	0
0.0803004	0.0630044	0.0803004	0.0803004	0.0751717	0.251527	5.88561E-06	0.000388154	0.00141122
0.000560983	0.00124347	0.000560983	0.000560983	0.000465371	0.00155739	2.28751E-09	5.96632E-07	2.20479E-06
0.0496200	0.0905426	0.0496200	0.0496200	0.0426695	0.142794	2.12616E-07	6.84491E-05	0.000252449
0.0337944	0.0250773	0.0337944	0.0337944	0.0320823	0.107351	6.58847E-07	0.000155308	0.000566050
0.00604421	0.0110156	0.00604421	0.00604421	0.00527587	0.0176557	2.97494E-08	1.00394E-05	3.69961E-05
0.0647918	0.0516679	0.0647918	0.0647918	0.0618401	0.206905	2.30351E-06	0.000403487	0.00146261
0	0	0	0	0	0	0	0	0
0.0246588	0.00190146	0.0246588	0.0246588	0.0254688	0.0846108	3.94282E-05	0.00222080	0.00766156
0	0	0	0	0	0	0	0	0
0.0512521	0.0713809	0.0512521	0.0512521	0.0479729	0.160530	1.74240E-07	0.000185477	0.000679312
0.0238296	0.0141958	0.0238296	0.0238296	0.0237099	0.0792712	8.92932E-07	0.000412843	0.00146894
0.0195098	0.00120878	0.0195098	0.0195098	0.0202506	0.0664060	2.06774E-05	0.00365392	0.0122253
0	0	0	0	0	0	0	0	0
0.0796933	0.00334237	0.0796933	0.0796933	0.0828991	0.267245	0.000127949	0.0234459	0.0768247
0.00221311	0.00231997	0.00221311	0.00221311	0.00217030	0.00726103	2.50735E-09	1.70058E-05	6.16599E-05
0	0	0	0	0	0	0	0	0
0.513853	0.00534250	0.513853	0.513853	0.536443	0.929128	1.02711E-06	0.673224	1.55417
0.0204246	0.00111408	0.0204246	0.0204246	0.0212436	0.0687922	1.67311E-05	0.00555183	0.0183179
0	0	0	0	0	0	0	0	0
0.00464162	0.000260484	0.00464162	0.00464162	0.00483094	0.0154407	7.06243E-06	0.00161848	0.00527673
0	0	0	0	0	0	0	0	0
0.00344528	0.00274940	0.00344528	0.00344528	0.00346972	0.0116012	1.76267E-09	6.13970E-05	0.000219417
28.2990	0.0110971	28.2990	28.2990	29.5557	93.2482	99.9764	28.0616	89.0554
64.6162	0.000220076	64.6162	64.6162	67.5660	0.00198194	0.0215647	70.5423	8.95724
0.576825	1.74046E-05	0.576825	0.576825	0.603155	0.0173276	0.00167304	0.684241	0.305085
%	%	%	%	%	%	%	%	%
0.000409077	0.00174334	0.000409077	0.000409077	0.000297695	0.00504044	3.90045E-06	2.62411E-07	3.45614E-06
0.00484712	2.33426	0.00484712	0.00484712	7.29830E-05	0.00123566	1.28294E-08	2.90260E-11	3.88019E-10
0.240437	4.19179	0.240437	0.240437	0.0861372	1.45840	0.000340851	5.18999E-06	6.90665E-05
0.350479	52.1705	0.350479	0.350479	0.0195037	0.330215	6.48731E-06	5.41619E-08	7.23370E-07
0.252393	14.7632	0.252393	0.252393	0.0431010	0.729735	1.43044E-05	7.02549E-07	9.36668E-06
0.300768	11.8016	0.300768	0.300768	0.0853287	1.44469	2.05190E-05	3.76653E-06	5.01300E-05
0.0627243	2.26901	0.0627243	0.0627243	0.0219526	0.371676	2.32510E-06	1.57685E-06	2.09577E-05
0.212556	5.35734	0.212556	0.212556	0.0946532	1.60256	2.21247E-05	1.19109E-05	0.000158100
0.0834148	1.78892	0.0834148	0.0834148	0.0466204	0.789320	5.49777E-06	1.18087E-05	0.000156284
0.106018	1.88807	0.106018	0.106018	0.0637295	1.07899	6.92603E-06	2.08464E-05	0.000275637
0.00144910	0.0234694	0.00144910	0.00144910	0.000948335	0.0160558	3.93772E-08	7.30346E-07	9.56950E-06
0.0384118	0.150555	0.0384118	0.0384118	0.0333193	0.564074	1.59938E-05	9.70066E-05	0.00125948
0.0396635	0.535589	0.0396635	0.0396635	0.0281708	0.476943	2.75600E-06	3.20774E-05	0.000419462
0.0263643	0.288868	0.0263643	0.0263643	0.0198628	0.336280	3.57250E-06	3.05742E-05	0.000398740
0.0527874	0.631053	0.0527874	0.0527874	0.0397056	0.672222	2.51193E-06	5.82281E-05	0.000759489
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.0261410	0.250447	0.0261410	0.0261410	0.0210234	0.355931	1.67696E-06	3.30059E-05	0.000431714
0	0	0	0	0	0	0	0	0
0.0638917	0.233785	0.0638917	0.0638917	0.0579186	0.980430	2.74486E-05	0.000290105	0.00374179
0.000531434	0.00549358	0.000531434	0.000531434	0.000426909	0.00722774	1.27018E-08	5.30922E-07	6.96027E-06
0.0470063	0.400011	0.0470063	0.0470063	0.0391430	0.662699	1.18059E-06	6.09105E-05	0.000796953
0.0313703	0.108561	0.0313703	0.0313703	0.0288387	0.488184	3.58476E-06	0.000135423	0.00175101
0.00572584	0.0486662	0.00572584	0.00572584	0.00483983	0.0819388	1.65189E-07	8.93370E-06	0.000116793
0.0601442	0.223673	0.0601442	0.0601442	0.0555879	0.940913	1.25333E-05	0.000351826	0.00452442
0	0	0	0	0	0	0	0	0
0.0214801	0.00772451	0.0214801	0.0214801	0.0214837	0.361073	0.000201314	0.00181719	0.0222403
0	0	0	0	0	0	0	0	0

0.0553490	0.359500	0.0553490	0.0553490	0.0501685	0.849299	1.10293E-06	0.000188153	0.00244471
0.0252802	0.0702334	0.0252802	0.0252802	0.0243575	0.411989	5.55247E-06	0.000411410	0.00519312
0.0195820	0.00565811	0.0195820	0.0195820	0.0196825	0.326526	0.000121647	0.00344500	0.0408908
0	0	0	0	0	0	0	0	0
0.0799883	0.0156451	0.0799883	0.0799883	0.0805734	1.31408	0.000752738	0.0221053	0.256960
0.00268350	0.0131189	0.00268350	0.00268350	0.00254832	0.0431322	1.78204E-08	1.93696E-05	0.000249150
0	0	0	0	0	0	0	0	0
0.545135	0.0264319	0.545135	0.545135	0.551094	4.82888	6.38683E-06	0.670888	5.49446
0.0232088	0.00590380	0.0232088	0.0232088	0.0233756	0.382950	0.000111435	0.00592596	0.0693639
0	0	0	0	0	0	0	0	0
0.00588985	0.00154147	0.00588985	0.00588985	0.00593613	0.0959856	5.25281E-05	0.00192915	0.0223131
0	0	0	0	0	0	0	0	0
0.00463444	0.0172476	0.00463444	0.00463444	0.00451963	0.0764507	1.38978E-08	7.75791E-05	0.000983566
4.81987	0.00881436	4.81987	4.81987	4.87463	77.8055	99.8077	4.48953	50.5457
91.7395	0.00145716	91.7395	91.7395	92.8924	0.0137851	0.179458	94.0784	42.3789
0.649839	9.14417E-05	0.649839	0.649839	0.658003	0.0956327	0.0110477	0.724096	1.14536
lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
0.0185150	1.51438	0.0185150	0.0185150	0.0133065	0.0133071	7.82422E-07	1.19851E-05	1.17985E-05
0.219383	2027.69	0.219383	0.219383	0.00326224	0.00326224	2.57355E-09	1.32570E-09	1.32461E-09
10.8822	3641.26	10.8822	10.8822	3.85021	3.85028	6.83739E-05	0.000237042	0.000235778
15.8628	45318.7	15.8628	15.8628	0.871790	0.871791	1.30134E-06	2.47373E-06	2.46942E-06
11.4234	12824.2	11.4234	11.4234	1.92655	1.92656	2.86944E-06	3.20874E-05	3.19758E-05
13.6129	10251.6	13.6129	13.6129	3.81407	3.81408	4.11606E-06	0.000172029	0.000171133
2.83892	1971.01	2.83892	2.83892	0.981252	0.981252	4.66410E-07	7.20193E-05	7.15448E-05
9.62038	4653.73	9.62038	9.62038	4.23087	4.23087	4.43816E-06	0.000544005	0.000539719
3.77538	1553.97	3.77538	3.77538	2.08387	2.08386	1.10284E-06	0.000539337	0.000533517
4.79842	1640.10	4.79842	4.79842	2.84862	2.84861	1.38935E-06	0.000952117	0.000940962
0.0655867	20.3870	0.0655867	0.0655867	0.0423892	0.0423885	7.89898E-09	3.33570E-05	3.26681E-05
1.73853	130.781	1.73853	1.73853	1.48933	1.48920	3.20832E-06	0.00443057	0.00429960
1.79518	465.247	1.79518	1.79518	1.25920	1.25916	5.52848E-07	0.00146507	0.00143195
1.19326	250.930	1.19326	1.19326	0.887838	0.887804	7.16637E-07	0.00139641	0.00136121
2.38918	548.174	2.38918	2.38918	1.77478	1.77472	5.03887E-07	0.00265945	0.00259273
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
1.18315	217.554	1.18315	1.18315	0.939717	0.939683	3.36395E-07	0.00150748	0.00147378
0	0	0	0	0	0	0	0	0
2.89176	203.081	2.89176	2.89176	2.58888	2.58841	5.50613E-06	0.0132499	0.0127737
0.0240529	4.77207	0.0240529	0.0240529	0.0190823	0.0190818	2.54796E-09	2.42488E-05	2.37608E-05
2.12752	347.475	2.12752	2.12752	1.74964	1.74957	2.36824E-07	0.00278196	0.00272062
1.41983	94.3030	1.41983	1.41983	1.28905	1.28884	7.19095E-07	0.00618515	0.00597755
0.259153	42.2746	0.259153	0.259153	0.216334	0.216325	3.31366E-08	0.000408028	0.000398704
2.72215	194.297	2.72215	2.72215	2.48470	2.48408	2.51415E-06	0.0160689	0.0154454
0	0	0	0	0	0	0	0	0
0.972195	6.71000	0.972195	0.972195	0.960293	0.953261	4.03831E-05	0.0829962	0.0759235
0	0	0	0	0	0	0	0	0
2.50512	312.285	2.50512	2.50512	2.24246	2.24221	2.21246E-07	0.00859351	0.00834569
1.14419	61.0093	1.14419	1.14419	1.08874	1.08768	1.11381E-06	0.0187903	0.0177282
0.886288	4.91500	0.886288	0.886288	0.879779	0.862052	2.44022E-05	0.157343	0.139592
0	0	0	0	0	0	0	0	0
3.62030	13.5903	3.62030	3.62030	3.60152	3.46926	0.000150998	1.00961	0.877204
0.121456	11.3960	0.121456	0.121456	0.113906	0.113872	3.57473E-09	0.000884664	0.000850542
0	0	0	0	0	0	0	0	0
24.6730	22.9605	24.6730	24.6730	24.6331	12.7486	1.28118E-06	30.6414	18.7568
1.05044	5.12842	1.05044	1.05044	1.04486	1.01102	2.23537E-05	0.270656	0.236793
0	0	0	0	0	0	0	0	0
0.266577	1.33902	0.266577	0.266577	0.265337	0.253409	1.05370E-05	0.0881099	0.0761718
0	0	0	0	0	0	0	0	0
0.209757	14.9824	0.209757	0.209757	0.202021	0.201836	2.78787E-09	0.00354326	0.00335767
218.149	7.65672	218.149	218.149	217.889	205.412	20.0212	205.050	172.552
4152.16	1.26578	4152.16	4152.16	4152.16	0.0363938	0.0359988	4296.83	144.672
29.4120	0.0794321	29.4120	29.4120	29.4118	0.252477	0.00221614	33.0716	3.91001

1	4	6	7	12	13	14	16	17
Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
VLVE-100	**Glycol Contactor**	**Glycol Contactor**	**Reflux Coil**	**Cross Exchanger**	**Glycol Regenerator**	**Reflux**	**Glycol Regenerator**	**Reboiler**
Rich Flash	**Gas/Glycol HEX**	**Reflux Coil**	**VLVE-100**	**Glycol Regenerator**	**Reflux**	**Glycol Regenerator**	**Reboiler**	**Glycol Regenerator**
137.382	127.425	126.542	133.994	275*	205.444	203.604	284.138	400.000
82.91*	1098.12	1101.12	1096.12	77.91	13.41	13.41	13.41	13.41
105.773	22.6808	105.773	105.773	109.229	21.5909	18.0457	112.603	31.7407
21.8780	4.90462	66.4738	66.2305	51.5196	0.0408916	60.0705	62.5882	0.0464479
0.389714	34.8818	0.389714	0.389714	0.372700	0.111365	0.0101241	0.369413	0.0979542
8.29626	470.030	8.29626	8.29626	8.03960	0.581919	0.0400927	8.15426	0.656484
2855.32	1280.33	2855.32	2855.32	2915.76	288.500	51.2664	2995.64	526.099
9949.96	21356.0	9949.96	9949.96	9833.46	4223.89	19.8568	9801.07	5638.62

19	23	24	25
Solved	Solved	Solved	Solved
Cross Exchanger	Glycol Pump	Gas/Glycol HEX	TEG Recycle
TEG Makeup	Gas/Glycol HEX	TEG Recycle	Glycol Contactor
%	%	%	%
1.83689E-08	0	0	0
1.30584E-13	0	0	0
9.63696E-08	0	0	0
9.00767E-10	0	0	0
1.24596E-08	0	0	0
6.81621E-08	0	0	0
2.73876E-08	0	0	0
2.47387E-07	0	0	2.52094E-07
2.70619E-07	2.70542E-07	2.70542E-07	2.75253E-07
5.18746E-07	5.18599E-07	5.18599E-07	5.27135E-07
2.68198E-08	0	0	0
6.26582E-06	6.26405E-06	6.26405E-06	6.30905E-06
1.28937E-06	1.28901E-06	1.28901E-06	1.30171E-06
1.37065E-06	1.37026E-06	1.37026E-06	1.38268E-06
2.59766E-06	2.59692E-06	2.59692E-06	2.62157E-06
0	0	0	0
0	0	0	0
1.12840E-06	1.12809E-06	1.12809E-06	1.13908E-06
0	0	0	0
1.89876E-05	1.89822E-05	1.89822E-05	1.90891E-05
1.63379E-08	0	0	0
2.05378E-06	2.05320E-06	2.05320E-06	2.07363E-06
7.09405E-06	7.09204E-06	7.09204E-06	7.13252E-06
3.12200E-07	3.12111E-07	3.12111E-07	3.14998E-07
2.13065E-05	2.13005E-05	2.13005E-05	2.14093E-05
0	0	0	0
0.000257540	0.000257467	0.000257467	0.000257722
0	0	0	0
7.27887E-06	7.27682E-06	7.27682E-06	7.32515E-06
3.17567E-05	3.17477E-05	3.17477E-05	3.18471E-05
0.000560967	0.000560808	0.000560808	0.000561188
0	0	0	0
0.00418447	0.00418329	0.00418329	0.00418541
8.92617E-07	8.92364E-07	8.92364E-07	8.96492E-07
0	0	0	0
0.355339	0.355238	0.355238	0.356494
0.000945262	0.000944995	0.000944995	0.000945537
0	0	0	0
0.000298419	0.000298335	0.000298335	0.000298483
0	0	0	0
4.37627E-06	4.37503E-06	4.37503E-06	4.38852E-06
6.05230	6.05082	6.05082	6.04995
92.7650	92.7668	92.7668	92.7680
0.821058	0.820825	0.820825	0.819228
%	%	%	%
4.41543E-09	0	0	0
2.58008E-14	0	0	0
2.99133E-08	0	0	0
1.01920E-10	0	0	0
2.64242E-09	0	0	0
2.11990E-08	0	0	0
1.12273E-08	0	0	0
1.01414E-07	0	0	1.03341E-07
1.37710E-07	1.37669E-07	1.37669E-07	1.40065E-07
2.63975E-07	2.63896E-07	2.63896E-07	2.68237E-07
1.63011E-08	0	0	0
3.09940E-06	3.09848E-06	3.09848E-06	3.12071E-06
7.83681E-07	7.83448E-07	7.83448E-07	7.91161E-07
8.33083E-07	8.32835E-07	8.32835E-07	8.40375E-07
1.57886E-06	1.57839E-06	1.57839E-06	1.59336E-06
0	0	0	0
0	0	0	0
7.97479E-07	7.97242E-07	7.97242E-07	8.05006E-07
0	0	0	0
1.12707E-05	1.12673E-05	1.12673E-05	1.13307E-05
1.15465E-08	0	0	0
1.45147E-06	1.45104E-06	1.45104E-06	1.46547E-06
4.91272E-06	4.91126E-06	4.91126E-06	4.93925E-06
2.20641E-07	2.20576E-07	2.20576E-07	2.22614E-07
1.47551E-05	1.47507E-05	1.47507E-05	1.48259E-05
0	0	0	0
0.000167364	0.000167315	0.000167315	0.000167479
0	0	0	0

5.86431E-06	5.86257E-06	5.86257E-06	5.90146E-06
2.51336E-05	2.51262E-05	2.51262E-05	2.52046E-05
0.000420046	0.000419921	0.000419921	0.000420202
0	0	0	0
0.00313329	0.00313236	0.00313236	0.00313392
8.07454E-07	8.07214E-07	8.07214E-07	8.10941E-07
0	0	0	0
0.281230	0.281147	0.281147	0.282138
0.000801317	0.000801079	0.000801079	0.000801532
0	0	0	0
0.000282499	0.000282415	0.000282415	0.000282553
0	0	0	0
4.39168E-06	4.39038E-06	4.39038E-06	4.40387E-06
0.769023	0.768824	0.768824	0.768707
98.2548	98.2553	98.2553	98.2558
0.690065	0.689860	0.689860	0.688512
lb/h	lb/h	lb/h	lb/h
1.86592E-07	0	0	0
1.09032E-12	0	0	0
1.26411E-06	0	0	0
4.30707E-09	0	0	0
1.11666E-07	0	0	0
8.95853E-07	0	0	0
4.74455E-07	0	0	0
4.28565E-06	0	0	4.36840E-06
5.81950E-06	5.81950E-06	5.81950E-06	5.92077E-06
1.11553E-05	1.11553E-05	1.11553E-05	1.13388E-05
6.88870E-07	0	0	0
0.000130978	0.000130978	0.000130978	0.000131918
3.31177E-05	3.31177E-05	3.31177E-05	3.34437E-05
3.52054E-05	3.52054E-05	3.52054E-05	3.55240E-05
6.67212E-05	6.67212E-05	6.67212E-05	6.73537E-05
0	0	0	0
0	0	0	0
3.37008E-05	3.37008E-05	3.37008E-05	3.40289E-05
0	0	0	0
0.000476289	0.000476289	0.000476289	0.000478968
4.87944E-07	0	0	0
6.13380E-05	6.13380E-05	6.13380E-05	6.19477E-05
0.000207607	0.000207607	0.000207607	0.000208790
9.32410E-06	9.32410E-06	9.32410E-06	9.41025E-06
0.000623536	0.000623536	0.000623536	0.000626714
0	0	0	0
0.00707267	0.00707267	0.00707267	0.00707962
0	0	0	0
0.000247821	0.000247821	0.000247821	0.000249464
0.00106213	0.00106213	0.00106213	0.00106544
0.0177508	0.0177508	0.0177508	0.0177626
0	0	0	0
0.132410	0.132410	0.132410	0.132476
3.41223E-05	3.41223E-05	3.41223E-05	3.42798E-05
0	0	0	0
11.8845	11.8845	11.8845	11.9264
0.0338630	0.0338630	0.0338630	0.0338820
0	0	0	0
0.0119381	0.0119381	0.0119381	0.0119440
0	0	0	0
0.000185589	0.000185589	0.000185589	0.000186159
32.4982	32.4995	32.4995	32.4945
4152.16	4153.42	4153.42	4153.43
29.1616	29.1616	29.1616	29.1045

19	23	24	25
Solved	Solved	Solved	Solved
Cross Exchanger	Glycol Pump	Gas/Glycol HEX	TEG Recycle
TEG Makeup	Gas/Glycol HEX	TEG Recycle	Glycol Contactor
257.490	260.506	137.425	137.427
12.91	1108.12	1103.12*	1103.12
141.782	141.784	141.784	141.785
63.4631	63.4621	67.9793	67.9790
0.271458	0.271535	0.271535	0.271532
7.49777	7.5	7.5	7.5
3886.76	3886.82	3886.82	3886.88
10137.3	10137.3	10137.3	10137.4

Process Streams		Condenser Overheads To burner	DEHY 2 Wet Gas Feed	Flash Gas 2 To Burner
Composition	Status:	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser	To DEHY 2	Rich Flash
	To Block:	--	Glycol Contactor	--
Mole Fraction		%	%	%
H2S		0.0613437	0.00117041	0.00811813
Nitrogen		0.0180843	1.88373	0.408461
CO2		13.8408	2.15956	8.49666
Methane		8.63634	73.5351	49.9440
Ethane		10.3681	11.1080	17.0212
Propane		13.9772	6.05774	12.0230
i-Butane		2.68042	0.883707	1.73277
n-Butane		11.2240	2.08782	5.00618
i-Pentane		4.07871	0.561828	1.26406
n-Pentane		5.37362	0.593263	1.45938
Neohexane		0.0608292	0.00617592	0.0145468
Cyclopentane		2.52185	0.0491694	0.188487
2-Methylpentane		1.61217	0.141029	0.334612
3-Methylpentane		1.07495	0.0761317	0.189833
n-Hexane		2.03055	0.166249	0.383352
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		0.795307	0.0568045	0.129801
Benzene		0	0	0
Cyclohexane		2.39046	0.0636856	0.190319
2-Methylhexane		0.0136588	0.00124552	0.00264565
3-Methylhexane		1.17321	0.0907893	0.200592
1,1-Dimethylcyclopentane		0.925260	0.0253688	0.0702351
n-Heptane		0.125150	0.0110457	0.0227415
Methylcyclohexane		1.31934	0.0522147	0.127657
2,5-Dimethylhexane		0	0	0
Toluene		0.424408	0.00216759	0.00668795
2-Methylheptane		0	0	0
n-Octane		0.532448	0.0717104	0.121706
Ethylcyclohexane		0.222913	0.0144129	0.0259628
Ethylbenzene		0.139977	0.00141757	0.00315945
p-Xylene		0	0	0
o-Xylene		0.436487	0.00418594	0.00904125
n-Nonane		0.00966234	0.00233677	0.00309288
Isopropylbenzene		0	0	0
Cyclooctane		0.978423	0.00828034	0.0165703
Propylbenzene		0.0620719	0.00133040	0.00238265
1,3,5-Trimethylbenzene		0	0	0
Isobutylbenzene		0.00847073	0.000308970	0.000474587
Butylbenzene		0	0	0
n-Decane		0.00588000	0.00277844	0.00284624
Water		12.8731	0.279227	0.589135
TEG		2.18088E-10	0	0.000256937
MDEA		0.00474877	8.44860E-05	5.05762E-05
Mass Fraction		%	%	%
H2S		0.0424156	0.00175860	0.00918196
Nitrogen		0.0102781	2.32650	0.379739
CO2		12.3582	4.19016	12.4098
Methane		2.81090	52.0097	26.5903
Ethane		6.32506	14.7256	16.9856
Propane		12.5044	11.7767	17.5944
i-Butane		3.16075	2.26449	3.34235
n-Butane		13.2353	5.35000	9.65645
i-Pentane		5.97031	1.78711	3.02668
n-Pentane		7.86577	1.88710	3.49436
Neohexane		0.106351	0.0234641	0.0416025
Cyclopentane		3.58828	0.152032	0.438705
2-Methylpentane		2.81863	0.535811	0.956961
3-Methylpentane		1.87938	0.289246	0.542905
n-Hexane		3.55010	0.631629	1.09635
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		1.61680	0.250945	0.431641
Benzene		0	0	0
Cyclohexane		4.08160	0.236300	0.531563
2-Methylhexane		0.0277673	0.00550232	0.00879787
3-Methylhexane		2.38505	0.401079	0.667050
1,1-Dimethylcyclopentane		1.84314	0.109817	0.228862
n-Heptane		0.254421	0.0487965	0.0756247
Methylcyclohexane		2.62816	0.226027	0.415972
2,5-Dimethylhexane		0	0	0
Toluene		0.793358	0.00880517	0.0204504
2-Methylheptane		0	0	0

n-Octane	1.23395	0.361140	0.461375
Ethylcyclohexane	0.507483	0.0713038	0.0966856
Ethylbenzene	0.301497	0.00663507	0.0111317
p-Xylene	0	0	0
o-Xylene	0.940152	0.0195926	0.0318551
n-Nonane	0.0251421	0.0132132	0.0131646
Isopropylbenzene	0	0	0
Cyclooctane	2.22748	0.0409646	0.0617079
Propylbenzene	0.151361	0.00704976	0.00950393
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.0230663	0.00182830	0.00211396
Butylbenzene	0	0	0
n-Decane	0.0169735	0.0174289	0.0134397
Water	4.70510	0.221777	0.352229
TEG	6.64460E-10	0	0.00128052
MDEA	0.0114806	0.000443856	0.000200011
Mass Flow	**lb/h**	**lb/h**	**lb/h**
H2S	0.0127416	1.09492	0.00503573
Nitrogen	0.00308752	1448.51	0.208263
CO2	3.71237	2608.84	6.80597
Methane	0.844390	32381.8	14.5831
Ethane	1.90004	9168.32	9.31550
Propane	3.75629	7332.31	9.64944
i-Butane	0.949482	1409.89	1.83307
n-Butane	3.97585	3330.96	5.29595
i-Pentane	1.79347	1112.67	1.65994
n-Pentane	2.36286	1174.93	1.91644
Neohexane	0.0319475	14.6090	0.0228163
Cyclopentane	1.07791	94.6569	0.240602
2-Methylpentane	0.846710	333.601	0.524832
3-Methylpentane	0.564564	180.088	0.297749
n-Hexane	1.06644	393.258	0.601280
2,2-Dimethylpentane	0	0	0
Methylcyclopentane	0	0	0
2,2,3-Trimethylbutane	0.485683	156.241	0.236728
Benzene	0	0	0
Cyclohexane	1.22610	147.123	0.291529
2-Methylhexane	0.00834124	3.42580	0.00482508
3-Methylhexane	0.716464	249.716	0.365835
1,1-Dimethylcyclopentane	0.553676	68.3732	0.125516
n-Heptane	0.0764276	30.3812	0.0414753
Methylcyclohexane	0.789495	140.727	0.228134
2,5-Dimethylhexane	0	0	0
Toluene	0.238323	5.48219	0.0112158
2-Methylheptane	0	0	0
n-Octane	0.370676	224.849	0.253035
Ethylcyclohexane	0.152447	44.3945	0.0530259
Ethylbenzene	0.0905692	4.13107	0.00610504
p-Xylene	0	0	0
o-Xylene	0.282420	12.1986	0.0174705
n-Nonane	0.00755265	8.22669	0.00721993
Isopropylbenzene	0	0	0
Cyclooctane	0.669131	25.5050	0.0338429
Propylbenzene	0.0454686	4.38925	0.00521230
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.00692906	1.13832	0.00115937
Butylbenzene	0	0	0
n-Decane	0.00509881	10.8514	0.00737082
Water	1.41340	138.081	0.193175
TEG	1.99602E-10	0	0.000702287
MDEA	0.00344875	0.276349	0.000109693

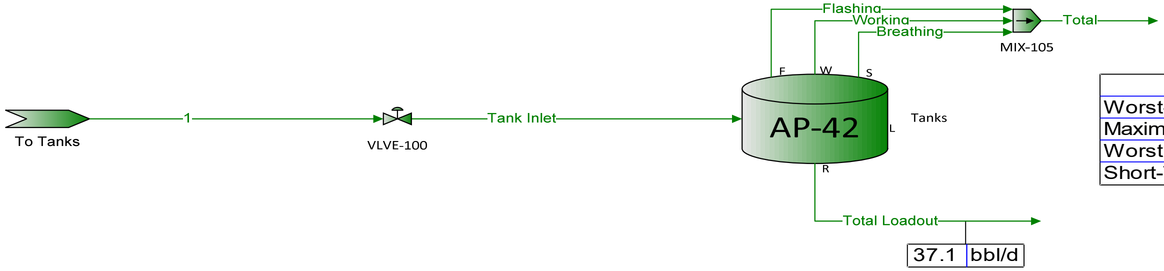
Process Streams		**Condenser Overheads To burner**	**DEHY 2 Wet Gas Feed**	**Flash Gas 2 To Burner**
Properties	**Status:**	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**BTEX Condenser**	**To DEHY 2**	**Rich Flash**
	To Block:	--	**Glycol Contactor**	--
Property	**Units**			
Temperature	°F	120*	124.296	135.847
Pressure	psia	13.16*	1101.12	82.91
Molecular Weight	lb/lbmol	49.2896	22.6820	30.1322
Mass Density	lb/ft^3	0.105615	4.97819	0.402028
Std Vapor Volumetric Flow	MMSCFD	0.00555069	25*	0.0165768
Std Liquid Volumetric Flow	sgpm	0.0986023	336.304	0.250710
Gross Ideal Gas Heating Value	Btu/ft^3	2281.59	1277.64	1538.11
Gross Liquid Heating Value	Btu/lb	17397.5	21307.7	19266.6

Process Streams		Condenser Overheads To burner	DEHY 2 Wet Gas Feed	Flash Gas 2 To Burner
Composition	Status:	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser	To DEHY 2	Rich Flash
	To Block:	--	Glycol Contactor	--
Mole Fraction		%	%	%
H2S		0.0585504	0.00117041	0.00803922
Nitrogen		0.0162993	1.88373	0.402769
CO2		12.9849	2.15956	8.43195
Methane		8.04384	73.5351	49.8736
Ethane		9.97762	11.1080	17.1695
Propane		13.7489	6.05774	12.1783
i-Butane		2.68406	0.883707	1.75842
n-Butane		11.2359	2.08782	5.05222
i-Pentane		4.19965	0.561828	1.27268
n-Pentane		5.65458	0.593263	1.47151
Neohexane		0.0652658	0.00617592	0.0146852
Cyclopentane		2.68263	0.0491694	0.185900
2-Methylpentane		1.73559	0.141029	0.335834
3-Methylpentane		1.15224	0.0761317	0.189502
n-Hexane		2.25667	0.166249	0.384303
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		0.896071	0.0568045	0.129021
Benzene		0	0	0
Cyclohexane		2.69951	0.0636856	0.186892
2-Methylhexane		0.0157177	0.00124552	0.00262366
3-Methylhexane		1.36357	0.0907893	0.198249
1,1-Dimethylcyclopentane		1.07464	0.0253688	0.0686926
n-Heptane		0.148054	0.0110457	0.0224793
Methylcyclohexane		1.56979	0.0522147	0.124998
2,5-Dimethylhexane		0	0	0
Toluene		0.488529	0.00216759	0.00625665
2-Methylheptane		0	0	0
n-Octane		0.660916	0.0717104	0.119397
Ethylcyclohexane		0.274511	0.0144129	0.0252641
Ethylbenzene		0.162148	0.00141757	0.00290437
p-Xylene		0	0	0
o-Xylene		0.479161	0.00418594	0.00799129
n-Nonane		0.0122507	0.00233677	0.00300611
Isopropylbenzene		0	0	0
Cyclooctane		0.698726	0.00828034	0.0119352
Propylbenzene		0.0705416	0.00133040	0.00216309
1,3,5-Trimethylbenzene		0	0	0
Isobutylbenzene		0.00933159	0.000308970	0.000434317
Butylbenzene		0	0	0
n-Decane		0.00751971	0.00277844	0.00275208
Water		12.8672	0.279227	0.355450
TEG		3.37932E-10	0	0.000261802
MDEA		0.00515590	8.44860E-05	4.39018E-05
Mass Fraction		%	%	%
H2S		0.0396031	0.00175860	0.00907323
Nitrogen		0.00906198	2.32650	0.373645
CO2		11.3416	4.19016	12.2889
Methane		2.56108	52.0097	26.4960
Ethane		5.95436	14.7256	17.0968
Propane		12.0323	11.7767	17.7835
i-Butane		3.09615	2.26449	3.38455
n-Butane		12.9610	5.35000	9.72437
i-Pentane		6.01354	1.78711	3.04079
n-Pentane		8.09688	1.88710	3.51585
Neohexane		0.111624	0.0234641	0.0419085
Cyclopentane		3.73398	0.152032	0.431757
2-Methylpentane		2.96837	0.535811	0.958397
3-Methylpentane		1.97067	0.289246	0.540797
n-Hexane		3.85957	0.631629	1.09672
2,2-Dimethylpentane		0	0	0
Methylcyclopentane		0	0	0
2,2,3-Trimethylbutane		1.78200	0.250945	0.428128
Benzene		0	0	0
Cyclohexane		4.50896	0.236300	0.520871
2-Methylhexane		0.0312575	0.00550232	0.00870604
3-Methylhexane		2.71170	0.401079	0.657848
1,1-Dimethylcyclopentane		2.09412	0.109817	0.223356
n-Heptane		0.294432	0.0487965	0.0745926
Methylcyclohexane		3.05900	0.226027	0.406434
2,5-Dimethylhexane		0	0	0
Toluene		0.893346	0.00880517	0.0190906
2-Methylheptane		0	0	0

n-Octane	1.49834	0.361140	0.451654
Ethylcyclohexane	0.611350	0.0713038	0.0938820
Ethylbenzene	0.341649	0.00663507	0.0102110
p-Xylene	0	0	0
o-Xylene	1.00960	0.0195926	0.0280954
n-Nonane	0.0311835	0.0132132	0.0127678
Isopropylbenzene	0	0	0
Cyclooctane	1.55610	0.0409646	0.0443517
Propylbenzene	0.168270	0.00704976	0.00860966
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.0248574	0.00182830	0.00193043
Butylbenzene	0	0	0
n-Decane	0.0212343	0.0174289	0.0129672
Water	4.60058	0.221777	0.212059
TEG	1.00718E-09	0	0.00130198
MDEA	0.0121936	0.000443856	0.000173244
Mass Flow	**lb/h**	**lb/h**	**lb/h**
H2S	0.0124685	0.547460	0.00477797
Nitrogen	0.00285304	724.253	0.196761
CO2	3.57074	1304.42	6.47132
Methane	0.806320	16190.9	13.9528
Ethane	1.87465	4584.16	9.00316
Propane	3.78822	3666.16	9.36481
i-Butane	0.974780	704.946	1.78231
n-Butane	4.08060	1665.48	5.12085
i-Pentane	1.89328	556.337	1.60128
n-Pentane	2.54919	587.464	1.85144
Neohexane	0.0351432	7.30449	0.0220690
Cyclopentane	1.17559	47.3284	0.227363
2-Methylpentane	0.934551	166.801	0.504692
3-Methylpentane	0.620438	90.0438	0.284784
n-Hexane	1.21513	196.629	0.577531
2,2-Dimethylpentane	0	0	0
Methylcyclopentane	0	0	0
2,2,3-Trimethylbutane	0.561036	78.1204	0.225452
Benzene	0	0	0
Cyclohexane	1.41958	73.5613	0.274291
2-Methylhexane	0.00984099	1.71290	0.00458460
3-Methylhexane	0.853739	124.858	0.346423
1,1-Dimethylcyclopentane	0.659303	34.1866	0.117619
n-Heptane	0.0926977	15.1906	0.0392804
Methylcyclohexane	0.963082	70.3635	0.214028
2,5-Dimethylhexane	0	0	0
Toluene	0.281257	2.74109	0.0100531
2-Methylheptane	0	0	0
n-Octane	0.471730	112.425	0.237841
Ethylcyclohexane	0.192475	22.1973	0.0494383
Ethylbenzene	0.107563	2.06553	0.00537714
p-Xylene	0	0	0
o-Xylene	0.317860	6.09929	0.0147951
n-Nonane	0.00981770	4.11334	0.00672354
Isopropylbenzene	0	0	0
Cyclooctane	0.489916	12.7525	0.0233556
Propylbenzene	0.0529776	2.19463	0.00453385
1,3,5-Trimethylbenzene	0	0	0
Isobutylbenzene	0.00782600	0.569158	0.00101657
Butylbenzene	0	0	0
n-Decane	0.00668533	5.42569	0.00682854
Water	1.44843	69.0404	0.111670
TEG	3.17098E-10	0	0.000685620
MDEA	0.00383898	0.138175	9.12303E-05

Process Streams		**Condenser Overheads To burner**	**DEHY 2 Wet Gas Feed**	**Flash Gas 2 To Burner**
Properties	**Status:**	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**BTEX Condenser**	**To DEHY 2**	**Rich Flash**
	To Block:	--	**Glycol Contactor**	--
Property	**Units**			
Temperature	°F	120*	124.296	133.848
Pressure	psia	13.16*	1101.12	82.91
Molecular Weight	lb/lbmol	50.3862	22.6820	30.1969
Mass Density	lb/ft^3	0.108036	4.97819	0.404441
Std Vapor Volumetric Flow	MMSCFD	0.00569086	12.5*	0.0158827
Std Liquid Volumetric Flow	sgpm	0.102658	168.152	0.240951
Gross Ideal Gas Heating Value	Btu/ft^3	2359.55	1277.64	1545.84
Gross Liquid Heating Value	Btu/lb	17602.9	21307.7	19323.2

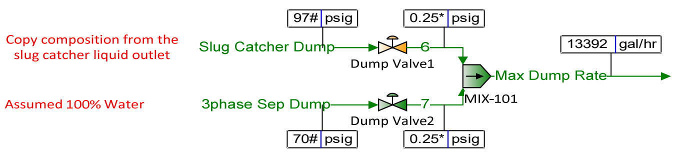
Names	Units	Flashing	Working	Breathing	Total
VOCs	ton/yr	6.6413	1.9057	3.5386	12.086
Total	ton/yr	6.6413	1.9057	3.5386	12.086



Tanks		
Worst-Case Liquid Surface Temperature	95	°F
Maximum Battery Filling Rate	13392#	gal/hr
Worst Case Flashing Losses (VOCs)	507.12	lb/h
Short-Term Working Losses (VOCs)	155.23	lb/h

Total Loadout		
Produced Water	27.937	bbl/d
Condensate	9.206	bbl/d

Calculated Max Hourly Liquid Dump Rates



Process Streams	Breathing	Flashing	Max Dump Rate	Slug Catcher Dump	Tank Inlet	Total	Total Loadout	Working
Composition Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total** From Block:	Tanks	Tanks	MIX-101	--	VLVE-100	MIX-105	Tanks	Tanks
To Block:	MIX-105	MIX-105	--	Dump Valve1	Tanks	--	--	MIX-105
Mole Fraction	%	%	%	%	%	%	%	%
H2S	0.0401749	0.0242395	2.82561E-06	2.34757E-05*	0.000114063	0.0305627	3.03757E-05	0.0401749
Nitrogen	0.00925901	0.227493	4.46081E-05	0.000370612*	0.000388439	0.140897	2.25404E-06	0.00925901
CO2	3.23365	5.93678	0.00441652	0.0366932*	0.0157625	4.86417	0.00243683	3.23365
Methane	4.47897	28.6356	0.0219144	0.182069*	0.0527966	19.0502	0.000582789	4.47897
Ethane	19.2094	18.5098	0.0858370	0.713148*	0.0520551	18.7874	0.000561461	19.2094
Propane	30.8099	18.7984	0.273138	2.26927*	0.107431	23.5646	0.0429600	30.8099
i-Butane	5.36402	3.36082	0.0957122	0.795193*	0.0389742	4.15569	0.0276595	5.36402
n-Butane	14.7070	9.32055	0.338148	2.80939*	0.157390	11.4579	0.126331	14.7070
i-Pentane	4.22544	2.75122	0.238056	1.97781*	0.115143	3.33619	0.106290	4.22544
n-Pentane	4.69743	3.09152	0.290005	2.40941*	0.172600	3.72875	0.162826	4.69743
Neohexane	0.0498728	0.0331266	0.00497594	0.0413409*	0.00296127	0.0397716	0.00286010	0.0498728
Cyclopentane	1.12032	0.744456	0.0407791	0.338799*	0.0684521	0.893599	0.0661842	1.12032
2-Methylpentane	1.17006	0.786613	0.143451	1.19181*	0.103083	0.938767	0.100786	1.17006
3-Methylpentane	0.688105	0.464641	0.0953116	0.791865*	0.0698361	0.553312	0.0685072	0.688105
n-Hexane	1.33469	0.912687	0.228059	1.89476*	0.175163	1.08014	0.172676	1.33469
2,2-Dimethylpentane	0	0	0	0*	0	0	0	0
Methylcyclopentane	0	0	0.117298	0.974530*	0	0	0	0
2,2,3-Trimethylbutane	0.487719	0.332434	0	0*	0.0872789	0.394052	0.0864357	0.487719
Benzene	0	0	0.135054	1.12205*	0	0	0	0
Cyclohexane	0.986315	0.676482	0.245803	2.04217*	0.197144	0.799424	0.195489	0.986315
2-Methylhexane	0.00908855	0.00631479	0.0539851	0.448517*	0.00248752	0.00741542	0.00247397	0.00908855
3-Methylhexane	0.691338	0.483307	0.102952	0.855347*	0.216065	0.565854	0.215104	0.691338
1,1-Dimethylcyclopentane	0.365848	0.252929	0.0257907	0.214273*	0.0933656	0.297736	0.0928039	0.365848
n-Heptane	0.0769706	0.0543077	0.205409	1.70657*	0.0320837	0.0633004	0.0319979	0.0769706
Methylcyclohexane	0.551526	0.387490	0.393884	3.27246*	0.241813	0.452580	0.241234	0.551526
2,5-Dimethylhexane	0	0	0.0165590	0.137575*	0	0	0	0
Toluene	0.125066	0.0884497	0.540894	4.49384*	0.0718176	0.102979	0.0717319	0.125066
2-Methylheptane	0	0	0.182458	1.51589*	0	0	0	0
n-Octane	0.392680	0.286515	0.816000	6.77947*	0.538831	0.328642	0.539408	0.392680
Ethylcyclohexane	0.102878	0.0745848	0	0*	0.154581	0.0858114	0.154770	0.102878
Ethylbenzene	0.0368509	0.0269997	0.305624	2.53918*	0.0714539	0.0309087	0.0715654	0.0368509
p-Xylene	0	0	0.691033	5.74122*	0	0	0	0
o-Xylene	0.113801	0.0838636	0.231720	1.92517*	0.292020	0.0957430	0.292560	0.113801
n-Nonane	0.0104193	0.00788573	1.30152	10.8133*	0.0485041	0.00889107	0.0486129	0.0104193
Isopropylbenzene	0	0	0	0*	0	0	0	0
Cyclooctane	0.281399	0.208166	0	0*	1.01408	0.237225	1.01622	0.281399
Propylbenzene	0.0167048	0.0125786	0	0*	0.0911496	0.0142159	0.0913610	0.0167048
1,3,5-Trimethylbenzene	0.000103322	7.84702E-05	0	0*	0.000765527	8.83314E-05	0.000767388	0.000103322
Isobutylbenzene	0.00259923	0.00197698	0	0*	0.0254469	0.00222389	0.0255107	0.00259923
Butylbenzene	3.56128E-05	2.78388E-05	0	0*	0.000710687	3.09235E-05	0.000712555	3.56128E-05
n-Decane	0.0105621	0.00826111	4.80880	39.9523*	0.161566	0.00917416	0.161984	0.0105621
Water	4.59647	3.40704	87.9654	0.0141982*	95.5088	3.87901	95.7606	4.59647
TEG	3.39130E-12	4.45008E-12	0	0*	2.28224E-05	4.02995E-12	2.28851E-05	3.39130E-12
MDEA	0.00338268	0.00238178	0	0*	0.0178563	0.00277894	0.0178977	0.00338268
Mass Fraction	%	%	%	%	%	%	%	%
H2S	0.0283824	0.0213400	3.23949E-06	6.93809E-06*	0.000179733	0.0245124	4.79914E-05	0.0283824
Nitrogen	0.00537667	0.164624	4.20371E-05	9.00318E-05*	0.000503108	0.0928864	2.92721E-06	0.00537667
CO2	2.95001	6.74926	0.00653852	0.0140037*	0.0320734	5.03778	0.00497161	2.95001
Methane	1.48947	11.8669	0.0118264	0.0253289*	0.0391606	7.19207	0.000433419	1.48947
Ethane	11.9734	14.3774	0.0868255	0.185956*	0.0723695	13.2944	0.000782645	11.9734
Propane	28.1623	21.4129	0.405163	0.867748*	0.219028	24.4534	0.0878185	28.1623
i-Butane	6.46272	5.04598	0.187138	0.400798*	0.104735	5.68419	0.0745268	6.46272
n-Butane	17.7194	13.9940	0.661153	1.41601*	0.422953	15.6722	0.340390	17.7194
i-Pentane	6.31951	5.12760	0.577779	1.23744*	0.384097	5.66453	0.355507	6.31951
n-Pentane	7.02542	5.76183	0.703862	1.50748*	0.575761	6.33105	0.544601	7.02542
Neohexane	0.0890903	0.0737427	0.0144248	0.0308940*	0.0117987	0.0806565	0.0114259	0.0890903
Cyclopentane	1.62872	1.34871	0.0962082	0.206051*	0.221963	1.47485	0.215180	1.62872
2-Methylpentane	2.09014	1.75107	0.415852	0.890641*	0.410717	1.90382	0.402633	2.09014
3-Methylpentane	1.22920	1.03433	0.276301	0.591760*	0.278250	1.12211	0.273681	1.22920
n-Hexane	2.38423	2.03172	0.661126	1.41595*	0.697910	2.19052	0.689828	2.38423
2,2-Dimethylpentane	0	0	0	0*	0	0	0	0
Methylcyclopentane	0	0	0.332083	0.711229*	0	0	0	0
2,2,3-Trimethylbutane	1.01305	0.860480	0	0*	0.404350	0.929208	0.401509	1.01305
Benzene	0	0	0.354875	0.760045*	0	0	0	0
Cyclohexane	1.72069	1.47068	0.695895	1.49041*	0.767112	1.58330	0.762693	1.72069
2-Methylhexane	0.0188779	0.0163453	0.181971	0.389732*	0.0115243	0.0174862	0.0114920	0.0188779
3-Methylhexane	1.43598	1.25100	0.347029	0.743241*	1.00100	1.33433	0.999195	1.43598
1,1-Dimethylcyclopentane	0.744618	0.641517	0.0851856	0.182444*	0.423847	0.687962	0.422417	0.744618
n-Heptane	0.159876	0.140571	0.692387	1.48290*	0.148639	0.149268	0.148636	0.159876
Methylcyclohexane	1.12253	0.982810	1.30098	2.78635*	1.09775	1.04575	1.09803	1.12253
2,5-Dimethylhexane	0	0	0.0636302	0.136278*	0	0	0	0
Toluene	0.238870	0.210521	1.67651	3.59062*	0.305945	0.223292	0.306393	0.238870
2-Methylheptane	0	0	0.701117	1.50160*	0	0	0	0

n-Octane	0.929815	0.845437	3.13558	6.71555*	2.84577	0.883448	2.85639	0.929815
Ethylcyclohexane	0.239302	0.216198	0	0*	0.801995	0.226606	0.805110	0.239302
Ethylbenzene	0.0810985	0.0740457	1.09150	2.33768*	0.350736	0.0772228	0.352217	0.0810985
p-Xylene	0	0	2.46793	5.28563*	0	0	0	0
o-Xylene	0.250445	0.229992	0.827559	1.77240*	1.43340	0.239206	1.43987	0.250445
n-Nonane	0.0277011	0.0261262	5.61539	12.0266*	0.287624	0.0268356	0.289036	0.0277011
Isopropylbenzene	0	0	0	0*	0	0	0	0
Cyclooctane	0.654558	0.603408	0	0*	5.26124	0.626450	5.28633	0.654558
Propylbenzene	0.0416198	0.0390538	0	0*	0.506525	0.0402097	0.509050	0.0416198
1,3,5-Trimethylbenzene	0.000257424	0.000243634	0	0*	0.00425409	0.000249846	0.00427577	0.000257424
Isobutylbenzene	0.00723167	0.00685446	0	0*	0.157913	0.00702438	0.158730	0.00723167
Butylbenzene	9.90833E-05	9.65206E-05	0	0*	0.00441024	9.76751E-05	0.00443359	9.90833E-05
n-Decane	0.0311519	0.0303631	23.0165	49.2949*	1.06285	0.0307184	1.06843	0.0311519
Water	1.71652	1.58554	53.3097	0.00221813*	79.5531	1.64454	79.9749	1.71652
TEG	1.05570E-11	1.72631E-11	0	0*	0.000158462	1.42421E-11	0.000159320	1.05570E-11
MDEA	0.00835571	0.00733160	0	0*	0.0983790	0.00779294	0.0988694	0.00835571

Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2S	0.000229302	0.000323573	0.00309168	0.00309168*	0.000920946	0.000676364	0.000244582	0.000123488
Nitrogen	4.34384E-05	0.00249615	0.0401191	0.0401191*	0.00257790	0.00256299	1.49181E-05	2.33932E-05
CO2	0.0238332	0.102338	6.24019	6.24019*	0.164343	0.139006	0.0253372	0.0128351
Methane	0.0120335	0.179935	11.2868	11.2868*	0.200658	0.198449	0.00220886	0.00648051
Ethane	0.0967336	0.218001	82.8640	82.8640*	0.370818	0.366830	0.00398865	0.0520948
Propane	0.227525	0.324679	386.677	386.677*	1.12229	0.674734	0.447555	0.122531
i-Butane	0.0522126	0.0765112	178.600	178.600*	0.536659	0.156842	0.379816	0.0281185
n-Butane	0.143156	0.212188	630.988	630.988*	2.16719	0.432439	1.73476	0.0770948
i-Pentane	0.0510556	0.0777486	551.417	551.417*	1.96810	0.156300	1.81180	0.0274954
n-Pentane	0.0567587	0.0873654	671.748	671.748*	2.95018	0.174691	2.77549	0.0305667
Neohexane	0.000719765	0.00111815	13.7667	13.7667*	0.0604561	0.00222553	0.0582306	0.000387621
Cyclopentane	0.0131585	0.0204503	91.8186	91.8186*	1.13733	0.0406951	1.09664	0.00708636
2-Methylpentane	0.0168864	0.0265511	396.879	396.879*	2.10450	0.0525314	2.05197	0.00909396
3-Methylpentane	0.00993072	0.0156833	263.694	263.694*	1.42574	0.0309621	1.39478	0.00534808
n-Hexane	0.0192623	0.0308065	630.961	630.961*	3.57606	0.0604423	3.51562	0.0103735
2,2-Dimethylpentane	0	0	0	0*	0	0	0	0
Methylcyclopentane	0	0	316.931	316.931*	0	0	0	0
2,2,3-Trimethylbutane	0.00818444	0.0130473	0	0*	2.07188	0.0256394	2.04624	0.00440764
Benzene	0	0	338.684	338.684*	0	0	0	0
Cyclohexane	0.0139015	0.0222996	664.144	664.144*	3.93065	0.0436876	3.88697	0.00748650
2-Methylhexane	0.000152516	0.000247841	173.669	173.669*	0.0590501	0.000482492	0.0585676	8.21355E-05
3-Methylhexane	0.0116014	0.0189687	331.196	331.196*	5.12909	0.0368179	5.09227	0.00624779
1,1-Dimethylcyclopentane	0.00601580	0.00972718	81.2989	81.2989*	2.17178	0.0189827	2.15279	0.00323974
n-Heptane	0.00129165	0.00213145	660.796	660.796*	0.761622	0.00411870	0.757503	0.000695602
Methylcyclohexane	0.00906900	0.0149021	1241.62	1241.62*	5.62481	0.0288551	5.59595	0.00488400
2,5-Dimethylhexane	0	0	60.7270	60.7270*	0	0	0	0
Toluene	0.00192984	0.00319209	1600.02	1600.02*	1.56765	0.00616123	1.56149	0.00103930
2-Methylheptane	0	0	669.128	669.128*	0	0	0	0
n-Octane	0.00751202	0.0128192	2992.52	2992.52*	14.5816	0.0243767	14.5572	0.00404551
Ethylcyclohexane	0.00193333	0.00327816	0	0*	4.10939	0.00625266	4.10314	0.00104117
Ethylbenzene	0.000655198	0.00112274	1041.70	1041.70*	1.79716	0.00213079	1.79503	0.000352849
p-Xylene	0	0	2355.33	2355.33*	0	0	0	0
o-Xylene	0.00202336	0.00348733	789.801	789.801*	7.34469	0.00660034	7.33809	0.00108966
n-Nonane	0.000223799	0.000396145	5359.18	5359.18*	1.47378	0.000740468	1.47303	0.000120524
Isopropylbenzene	0	0	0	0*	0	0	0	0
Cyclooctane	0.00528820	0.00914934	0	0*	26.9584	0.0172854	26.9411	0.00284790
Propylbenzene	0.000336248	0.000592165	0	0*	2.59542	0.00110949	2.59431	0.000181082
1,3,5-Trimethylbenzene	2.07974E-06	3.69417E-06	0	0*	0.0217978	6.89393E-06	0.0217909	1.12002E-06
Isobutylbenzene	5.84250E-05	0.000103933	0	0*	0.809142	0.000193822	0.808948	3.14641E-05
Butylbenzene	8.00499E-07	1.46352E-06	0	0*	0.0225979	2.69512E-06	0.0225952	4.31099E-07
n-Decane	0.000251677	0.000460389	21966.3	21966.3*	5.44599	0.000847605	5.44514	0.000135538
Water	0.0138678	0.0240412	50877.3	0.988421*	407.627	0.0453774	407.582	0.00746837
TEG	8.52905E-14	2.61756E-13	0	0*	0.000811954	3.92979E-13	0.000811954	4.59322E-14
MDEA	6.75061E-05	0.000111168	0	0*	0.504090	0.000215028	0.503875	3.63547E-05

Process Streams		Breathing	Flashing	Max Dump Rate	Slug Catcher Dump	Tank Inlet	Total	Total Loadout	Working
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	Tanks	Tanks	MIX-101	--	VLVE-100	MIX-105	Tanks	Tanks
	To Block:	MIX-105	MIX-105	--	Dump Valve1	Tanks	--	--	MIX-105
Property	Units								
Temperature	°F	75.5598	75.5598	70.2887	70*	114.126	75.1798	75.5598	75.5598
Pressure	psia	12.88	12.88	13.16	109.91*	12.91*	12.88	12.88	12.88
Molecular Weight	lb/lbmol	48.2410	38.7116	29.7267	115.316	21.6285	42.4929	21.5712	48.2410
Mass Density	lb/ft^3	0.112726	0.0877050	50.7489	45.8644	10.1809	0.0974397	58.5065	0.112726
Mass Flow	lb/h	0.807904	1.51628	95437.4	44561.0	512.396	2.75927	509.637	0.435088
Std Vapor Volumetric Flow	MMSCFD	0.000152527	0.000356733	29.2399	3.51942	0.215766	0.000591402	0.215175	8.21419E-05
Std Liquid Volumetric Flow	sgpm	0.00298875	0.00611796	223.198	121.492	1.09405	0.0107163	1.08334	0.00160956
Gross Ideal Gas Heating Value	Btu/ft^3	2595.50	2029.54	789.800	6194.12	283.460	2254.11	278.043	2595.50
Gross Liquid Heating Value	Btu/lb	20256.8	19755.3	9447.20	20233.3	4111.35	19981.2	4025.43	20256.8

1	3phase Sep Dump	6	7
Solved	Solved	Solved	Solved
To Tanks	--	Dump Valve1	Dump Valve2
VLVE-100	Dump Valve2	MIX-101	MIX-101
%	%	%	%
0.000114063	0*	2.34757E-05	0
0.000388439	0*	0.000370612	0
0.0157625	0*	0.0366932	0
0.0527966	0*	0.182069	0
0.0520551	0*	0.713148	0
0.107431	0*	2.26927	0
0.0389742	0*	0.795193	0
0.157390	0*	2.80939	0
0.115143	0*	1.97781	0
0.172600	0*	2.40941	0
0.00296127	0*	0.0413409	0
0.0684521	0*	0.338799	0
0.103083	0*	1.19181	0
0.0698361	0*	0.791865	0
0.175163	0*	1.89476	0
0	0*	0	0
0	0*	0.974530	0
0.0872789	0*	0	0
0	0*	1.12205	0
0.197144	0*	2.04217	0
0.00248752	0*	0.448517	0
0.216065	0*	0.855347	0
0.0933656	0*	0.214273	0
0.0320837	0*	1.70657	0
0.241813	0*	3.27246	0
0	0*	0.137575	0
0.0718176	0*	4.49384	0
0	0*	1.51589	0
0.538831	0*	6.77947	0
0.154581	0*	0	0
0.0714539	0*	2.53918	0
0	0*	5.74122	0
0.292020	0*	1.92517	0
0.0485041	0*	10.8133	0
0	0*	0	0
1.01408	0*	0	0
0.0911496	0*	0	0
0.000765527	0*	0	0
0.0254469	0*	0	0
0.000710687	0*	0	0
0.161566	0*	39.9523	0
95.5088	100*	0.0141982	100
2.28224E-05	0*	0	0
0.0178563	0*	0	0
%	%	%	%
0.000179733	0*	6.93809E-06	0
0.000503108	0*	9.00318E-05	0
0.0320734	0*	0.0140037	0
0.0391606	0*	0.0253289	0
0.0723695	0*	0.185956	0
0.219028	0*	0.867748	0
0.104735	0*	0.400798	0
0.422953	0*	1.41601	0
0.384097	0*	1.23744	0
0.575761	0*	1.50748	0
0.0117987	0*	0.0308940	0
0.221963	0*	0.206051	0
0.410717	0*	0.890641	0
0.278250	0*	0.591760	0
0.697910	0*	1.41595	0
0	0*	0	0
0	0*	0.711229	0
0.404350	0*	0	0
0	0*	0.760045	0
0.767112	0*	1.49041	0
0.0115243	0*	0.389732	0
1.00100	0*	0.743241	0
0.423847	0*	0.182444	0
0.148639	0*	1.48290	0
1.09775	0*	2.78635	0
0	0*	0.136278	0
0.305945	0*	3.59062	0
0	0*	1.50160	0

2.84577	0*	6.71555	0
0.801995	0*	0	0
0.350736	0*	2.33768	0
0	0*	5.28563	0
1.43340	0*	1.77240	0
0.287624	0*	12.0266	0
0	0*	0	0
5.26124	0*	0	0
0.506525	0*	0	0
0.00425409	0*	0	0
0.157913	0*	0	0
0.00441024	0*	0	0
1.06285	0*	49.2949	0
79.5531	100*	0.00221813	100
0.000158462	0*	0	0
0.0983790	0*	0	0

lb/h	lb/h	lb/h	lb/h
0.000920946	0*	0.00309168	0
0.00257790	0*	0.0401191	0
0.164343	0*	6.24019	0
0.200658	0*	11.2868	0
0.370818	0*	82.8640	0
1.12229	0*	386.677	0
0.536659	0*	178.600	0
2.16719	0*	630.988	0
1.96810	0*	551.417	0
2.95018	0*	671.748	0
0.0604561	0*	13.7667	0
1.13733	0*	91.8186	0
2.10450	0*	396.879	0
1.42574	0*	263.694	0
3.57606	0*	630.961	0
0	0*	0	0
0	0*	316.931	0
2.07188	0*	0	0
0	0*	338.684	0
3.93065	0*	664.144	0
0.0590501	0*	173.669	0
5.12909	0*	331.196	0
2.17178	0*	81.2989	0
0.761622	0*	660.796	0
5.62481	0*	1241.62	0
0	0*	60.7270	0
1.56765	0*	1600.02	0
0	0*	669.128	0
14.5816	0*	2992.52	0
4.10939	0*	0	0
1.79716	0*	1041.70	0
0	0*	2355.33	0
7.34469	0*	789.801	0
1.47378	0*	5359.18	0
0	0*	0	0
26.9584	0*	0	0
2.59542	0*	0	0
0.0217978	0*	0	0
0.809142	0*	0	0
0.0225979	0*	0	0
5.44599	0*	21966.3	0
407.627	50876.4*	0.988421	50876.4
0.000811954	0*	0	0
0.504090	0*	0	0

1	3phase Sep Dump	6	7
Solved	Solved	Solved	Solved
To Tanks	--	Dump Valve1	Dump Valve2
VLVE-100	Dump Valve2	MIX-101	MIX-101
114.182	70*	70.5875	70.2019
13.16	82.91*	13.16*	13.16*
21.6285	18.0153	115.316	18.0153
10.5557	62.2854	41.7643	62.2797
512.396	50876.4	44561.0	50876.4
0.215766	25.7205	3.51942	25.7205
1.09405	101.706	121.492	101.706
283.460	50.3100	6194.12	50.3100
4111.35	0	20233.3	0

Tank Losse
Tanl

Client Name:	Targa Resources
Location:	Plantview Compressor Station
Flowsheet:	Tank Emissions

Stream Con

Stream	Connection Type	Other Block
Tank Inlet	Inlet	VLVE-100
Working	Working Losses Stream	MIX-105
Total Loadout	Residual Liquid Stream	

Working and Standing Pr

Tank Geometry	Vertical Cylinder	
Shell Length	25*	ft
Shell Diameter	12*	ft
Number of Storage Tanks	2*	
Maximum Fraction Fill of Tank	90	%
Average Fraction Fill of Tank	50	%
Minimum Fraction Fill of Tank	10	%
Material Category	Light Organics*	
Insulation	Uninsulated	
Bolted or Riveted Construction?	FALSE	
Vapor Balanced Tank?	FALSE	
Known Sum of Increases in Liquid Level?	FALSE	
Sum of Increases in Liquid Level	337.752	ft/yr
Shell Color	Tan*	
Shell Paint Condition	Average*	
Roof Color	Tan*	
Roof Paint Condition	Average*	

Composition Subset Pro

Component Subset	All Selected*
Atomic Basis	FALSE

Composition Subset Prop

Index	Selected Components
H2S	TRUE
Nitrogen	TRUE
CO2	TRUE
Methane	TRUE
Ethane	TRUE
Propane	TRUE
i-Butane	TRUE
n-Butane	TRUE
i-Pentane	TRUE
n-Pentane	TRUE
Neohexane	TRUE
Cyclopentane	TRUE
2-Methylpentane	TRUE
3-Methylpentane	TRUE
n-Hexane	TRUE
2,2-Dimethylpentane	TRUE
Methylcyclopentane	TRUE
2,2,3-Trimethylbutane	TRUE
Benzene	TRUE
Cyclohexane	TRUE
2-Methylhexane	TRUE
3-Methylhexane	TRUE
1,1-Dimethylcyclopentane	TRUE
n-Heptane	TRUE
Methylcyclohexane	TRUE
2,5-Dimethylhexane	TRUE
Toluene	TRUE
2-Methylheptane	TRUE
n-Octane	TRUE
Ethylcyclohexane	TRUE
Ethylbenzene	TRUE
p-Xylene	TRUE

o-Xylene	TRUE
n-Nonane	TRUE
Isopropylbenzene	TRUE
Cyclooctane	TRUE
Propylbenzene	TRUE
1,3,5-Trimethylbenzene	TRUE
Isobutylbenzene	TRUE
Butylbenzene	TRUE
n-Decane	TRUE
Water	TRUE
TEG	TRUE
MDEA	TRUE

Details Properties

Vapor Space Volume	1427.85	ft^3
Vapor Density	0.0767598	lb/ft^3
Vapor Space Expansion Factor	1	1/day
Vented Vapor Saturation Factor	0.114575	
Vapor Space Outage	12.625	ft
Average Daily Vapor Temperature Range	37.2360	°R
Average Daily Vapor Pressure Range	2.53109	psi
Breather Vent Pressure Setting Range	0.28	psi
Vapor Pressure at Average Daily Liquid Surface Temperature	11.5492	psia
Average Daily Liquid Surface Temperature	525.921	°R
Average Daily Ambient Temperature Range	28.2	°R
Tank Roof Surface Solar Absorptance	0.49	
Tank Shell Surface Solar Absorptance	0.49	
Vapor Pressure at Maximum Liquid Surface Temperature	12.8800	psia
Vapor Pressure at Minimum Liquid Surface Temperature	10.3489	psia
Maximum Liquid Surface Temperature	535.230	°R
Minimum Liquid Surface Temperature	516.612	°R

Results Properties

Flashing Losses	6.64130	ton/yr
Working Losses	1.90568	ton/yr
Standing Losses	3.53862	ton/yr
Working Losses per Tank	0.952842	ton/yr

Results Properties

Index	Flashing Losses Mass Flows ton/yr	Working Losses Mass Flows ton/yr
H2S	0.00141725	0.000540878
Nitrogen	0.0109332	0.000102462
CO2	0.448239	0.0562178
Methane	0.788114	0.0283846
Ethane	0.954846	0.228175
Propane	1.42209	0.536685
i-Butane	0.335119	0.123159
n-Butane	0.929385	0.337675
i-Pentane	0.340539	0.120430
n-Pentane	0.382660	0.133882
Neohexane	0.00489748	0.00169778
Cyclopentane	0.0895722	0.0310383
2-Methylpentane	0.116294	0.0398315
3-Methylpentane	0.0686930	0.0234246
n-Hexane	0.134933	0.0454358
2,2-Dimethylpentane	0	0
Methylcyclopentane	0	0
2,2,3-Trimethylbutane	0.0571471	0.0193055
Benzene	0	0
Cyclohexane	0.0976723	0.0327909
2-Methylhexane	0.00108554	0.000359754
3-Methylhexane	0.0830829	0.0273653
1,1-Dimethylcyclopentane	0.0426050	0.0141901
n-Heptane	0.00933576	0.00304674
Methylcyclohexane	0.0652713	0.0213919
2,5-Dimethylhexane	0	0
Toluene	0.0139814	0.00455212
2-Methylheptane	0	0
n-Octane	0.0561480	0.0177193
Ethylcyclohexane	0.0143583	0.00456034
Ethylbenzene	0.00491760	0.00154548
p-Xylene	0	0

o-Xylene	0.0152745	0.00477269
n-Nonane	0.00173512	0.000527896
Isopropylbenzene	0	0
Cyclooctane	0.0400741	0.0124738
Propylbenzene	0.00259368	0.000793141
1,3,5-Trimethylbenzene	1.61805E-05	4.90569E-06
Isobutylbenzene	0.000455225	0.000137813
Butylbenzene	6.41022E-06	1.88822E-06
n-Decane	0.00201651	0.000593656
Water	0.105300	0.0327115
TEG	1.14649E-12	2.01183E-13
MDEA	0.000486914	0.000159233

Short Term Propert

Maximum Battery Filling Rate	318.854*	bbl/hr
Short-Term Number of Storage Tanks	2	
Worst-Case Liquid Surface Temperature	95	°F
Worst-Case Flashing Losses	507.125	lb/h
Short-Term Working Losses	155.232	lb/h

Short Term Propertie

Index	Worst-Case Flashing Losses Mass Flows lb/h	Short-Term Working Losses Mass Flows lb/h
H2S	0.0925123	0.0307699
Nitrogen	0.514808	0.00921706
CO2	24.8698	5.21387
Methane	38.1724	2.47658
Ethane	53.9791	17.9536
Propane	98.9683	32.9172
i-Butane	27.0010	8.98062
n-Butane	79.3100	26.3788
i-Pentane	32.2127	10.7140
n-Pentane	37.2977	12.4053
Neohexane	0.491943	0.163622
Cyclopentane	9.00243	2.99424
2-Methylpentane	12.0378	4.00381
3-Methylpentane	7.18256	2.38894
n-Hexane	14.4889	4.81905
2,2-Dimethylpentane	0	0
Methylcyclopentane	0	0
2,2,3-Trimethylbutane	6.11892	2.03517
Benzene	0	0
Cyclohexane	10.5777	3.51817
2-Methylhexane	0.120935	0.0402234
3-Methylhexane	9.36848	3.11599
1,1-Dimethylcyclopentane	4.69932	1.56301
n-Heptane	1.07269	0.356779
Methylcyclohexane	7.44070	2.47480
2,5-Dimethylhexane	0	0
Toluene	1.61190	0.536122
2-Methylheptane	0	0
n-Octane	6.90329	2.29606
Ethylcyclohexane	1.74338	0.579854
Ethylbenzene	0.608294	0.202320
p-Xylene	0	0
o-Xylene	1.91077	0.635528
n-Nonane	0.229520	0.0763392
Isopropylbenzene	0	0
Cyclooctane	5.06016	1.68303
Propylbenzene	0.338885	0.112714
1,3,5-Trimethylbenzene	0.00214944	0.000714911
Isobutylbenzene	0.0607085	0.0201918
Butylbenzene	0.000900963	0.000299663
n-Decane	0.284046	0.0944746
Water	13.2953	4.42206
TEG	4.31073E-10	1.43376E-10
MDEA	0.0548498	0.0182432

Notes:

s Report
ks

	Job:	Plantview Annual Average & Max Hourly Emissions Report
	Modified:	2/29/2024 8:54
	Status:	Solved 8:54 AM, 2/29/2024

nections

Stream	Connection Type	Other Block
Flashing	Flashing Losses Stream	MIX-105
Breathing	Standing Losses Stream	MIX-105

roperties : Scalar Data

Roof Type	Cone	
Slope of Coned Roof	0.0625	
Breather Vent Pressure	0.25*	psig
Breather Vacuum Pressure	-0.0300000	psig
Operating Pressure	0	psig
Location	Roswell, NM*	
Time Frame	Year	
Known Liquid Bulk Temperature?	FALSE	
Liquid Bulk Temperature	64.2313	°F
Use AP 42 Raoult's Vapor Pressure?	FALSE	
Flashing Temperature	75.5598	°F
Average Daily Maximum Ambient Temperature	75.8	°F
Average Daily Minimum Ambient Temperature	47.6	°F
Atmospheric Pressure at Tank Location	12.88	psia
Daily Solar Insolation	1722	Btu/(day*ft^2)
Average Wind Speed	8.7	mph
Include Short Term Emissions	TRUE	

operties : Scalar Data

Species in Results	Selected Species
Fraction Denominator	Selected Species

erties : Tabulated Data

s : Scalar Data

Liquid Height	12.5	ft
Roof Outage	0.125	ft
Tank Roof Height	0.375	ft
Tank Shell Radius	6	ft
Vapor Molecular Weight	37.6555	lb/lbmol
Average Vapor Temperature	527.940	°R
Average Daily Ambient Temperature	521.37	°R
Net Working Loss Throughput	38198.9	ft^3/yr
Working Loss Turnover (Saturation) Factor	1	
Number of Turnovers per Year	16.8876	
Annual Net Throughput	13608.4	bbl/yr
Maximum Liquid Height	22.5	ft
Minimum Liquid Height	2.5	ft
Working Loss Product Factor	1	
Vent Setting Correction Factor	0.841848	
Annual Net Throughput Per Tank	6804.22	bbl/yr

s : Scalar Data

Standing Losses per Tank	1.76931	ton/yr
Flashing Losses per Tank	3.32065	ton/yr
Working and Standing Losses	5.44430	ton/yr
Working and Standing Losses per Tank	2.72215	ton/yr

: Tabulated Data

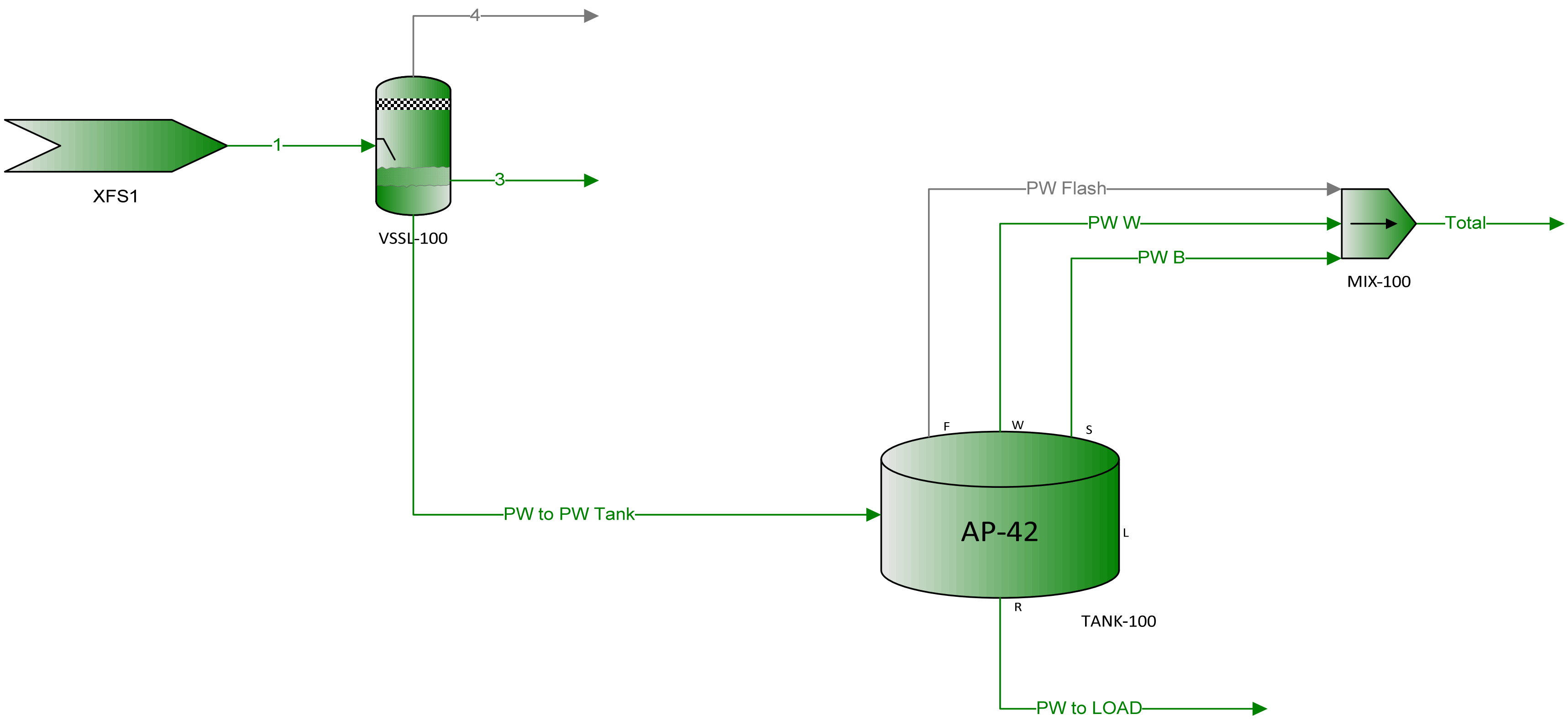
Standing Losses Mass Flows ton/yr	Working and Standing Losses Mass Flows ton/yr
0.00100434	0.00154522
0.000190260	0.000292723
0.104390	0.160607
0.0527068	0.0810914
0.423693	0.651868
0.996558	1.53324
0.228691	0.351850
0.627021	0.964696
0.223624	0.344054
0.248603	0.382485
0.00315257	0.00485035
0.0576342	0.0886725
0.0739623	0.113794
0.0434966	0.0669211
0.0843688	0.129805
0	0
0	0
0.0358479	0.0551533
0	0
0.0608886	0.0936795
0.000668018	0.00102777
0.0508140	0.0781793
0.0263492	0.0405393
0.00565742	0.00870416
0.0397222	0.0611141
0	0
0.00845272	0.0130048
0	0
0.0329026	0.0506220
0.00846798	0.0130283
0.00286977	0.00441525
0	0

0.00886230	0.0136350
0.000980238	0.00150813
0	0
0.0231623	0.0356361
0.00147277	0.00226591
9.10927E-06	1.40150E-05
0.000255901	0.000393714
3.50618E-06	5.39440E-06
0.00110235	0.00169600
0.0607411	0.0934526
3.73572E-13	5.74756E-13
0.000295677	0.000454910

ties : Scalar Data

Worst-Case Flashing Losses per Tank	253.562	lb/h
Short-Term Working Losses per Tank	77.6159	lb/h
Short-Term Vapor Molecular Weight	43.5426	lb/lbmol
Vapor Pressure at Worst-Case Temperature	12.8800	psia

s : Tabulated Data



XFS1
1
4
3
VSSL-100
PW Flash
PW W
PW B
Total
MIX-100
F
W
S
AP-42
L
R
TANK-100
PW to PW Tank
PW to LOAD

Process Streams		PW B	PW Flash	PW to LOAD	PW to PW Tank	PW W	Total	1
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	TANK-100	TANK-100	TANK-100	VSSL-100	TANK-100	MIX-100	XFS1
	To Block:	MIX-100	MIX-100	--	TANK-100	MIX-100	--	VSSL-100
Mole Fraction		%	%	%	%	%	%	%
H2S		0.237380	0.0271138	7.67567E-06	1.31863E-05	0.237380	0.237380	3.07653E-05
Nitrogen		0	0	0	0	0	0	0
CO2		0	0	0	0	0	0	0
Methane		4.31375E-15	1.27093E-14	0	1.00145E-19	4.31375E-15	4.31375E-15	8.86360E-19
Ethane		0	0	0	0	0	0	0
Propane		10.2675	28.6155	0	0.000238363	10.2675	10.2675	0.0419623
i-Butane		1.92445	7.67886	0	4.46766E-05	1.92445	1.92445	0.0285791
n-Butane		7.50406	22.7829	0	0.000174208	7.50406	7.50406	0.128383
i-Pentane		1.69655	7.26286	0	3.93856E-05	1.69655	1.69655	0.104727
n-Pentane		0.768314	8.24968	0	1.78366E-05	0.768314	0.768314	0.161247
Neohexane		0.00273988	0.0873689	0	6.36069E-08	0.00273988	0.00273988	0.00276674
Cyclopentane		2.70160	2.06180	0	6.27182E-05	2.70160	2.70160	0.0652212
2-Methylpentane		0.0756637	2.05879	0	1.75655E-06	0.0756637	0.0756637	0.0961698
3-Methylpentane		0.108205	1.21545	0	2.51201E-06	0.108205	0.108205	0.0652696
n-Hexane		0.159335	2.50096	0	3.69899E-06	0.159335	0.159335	0.172928
2,2-Dimethylpentane		0	0	0	0	0	0	0
Methylcyclopentane		0	0	0	0	0	0	0
2,2,3-Trimethylbutane		0.0695755	0.896489	0	1.61521E-06	0.0695755	0.0695755	0.0871422
Benzene		0	0	0	0	0	0	0
Cyclohexane		2.49553	2.02261	0	5.79342E-05	2.49553	2.49553	0.201764
2-Methylhexane		0.000363489	0.0166367	0	8.43846E-09	0.000363489	0.000363489	0.00242437
3-Methylhexane		0.0868779	1.29952	0	2.01689E-06	0.0868779	0.0868779	0.215031
1,1-Dimethylcyclopentane		0.376569	0.670686	0	8.74212E-06	0.376569	0.376569	0.0934664
n-Heptane		0.00691273	0.146794	0	1.60480E-07	0.00691273	0.00691273	0.0322977
Methylcyclohexane		0.536666	1.02005	0	1.24588E-05	0.536666	0.536666	0.242873
2,5-Dimethylhexane		0	0	0	0	0	0	0
Toluene		1.97464	0.246217	0.000154226	0.000200064	1.97464	1.97464	0.0734110
2-Methylheptane		0	0	0	0	0	0	0
n-Octane		0.0153856	0.768122	0	3.57179E-07	0.0153856	0.0153856	0.543792
Ethylcyclohexane		0.148247	0.201999	0	3.44157E-06	0.148247	0.148247	0.157044
Ethylbenzene		0.620723	0.0804008	4.41631E-05	5.85723E-05	0.620723	0.620723	0.0789145
p-Xylene		0	0	0	0	0	0	0
o-Xylene		1.80818	0.232535	0.000209971	0.000251944	1.80818	1.80818	0.301115
n-Nonane		0.000456062	0.0221764	0	1.05876E-08	0.000456062	0.000456062	0.0492506
Isopropylbenzene		0	0	0	0	0	0	0
Cyclooctane		7.21932E-05	0.547285	0	1.67598E-09	7.21932E-05	7.21932E-05	1.01971
Propylbenzene		0.281156	0.0371494	1.76483E-05	2.41750E-05	0.281156	0.281156	0.0969490
1,3,5-Trimethylbenzene		0.00168495	0.000221857	1.12816E-07	1.51929E-07	0.00168495	0.00168495	0.000777605
Isobutylbenzene		0.0438406	0.00597897	9.38766E-06	1.04052E-05	0.0438406	0.0438406	0.0279638
Butylbenzene		0.000577274	7.86647E-05	3.21955E-08	4.55963E-08	0.000577274	0.000577274	0.000728515
n-Decane		0.000142366	0.0235829	0	3.30504E-09	0.000142366	0.000142366	0.164872
Water		66.0280	9.21402	99.9992	99.9984	66.0280	66.0280	95.7253
TEG		4.79883E-11	1.17731E-11	2.38629E-05	2.38623E-05	4.79883E-11	4.79883E-11	2.28424E-05
MDEA		0.0585371	0.00617511	0.000309157	0.000310509	0.0585371	0.0585371	0.0178847
Mass Fraction		%	%	%	%	%	%	%
H2S		0.236775	0.0159848	1.45201E-05	2.49441E-05	0.236775	0.236775	4.85230E-05
Nitrogen		0	0	0	0	0	0	0
CO2		0	0	0	0	0	0	0
Methane		2.02538E-15	3.52694E-15	0	8.91725E-20	2.02538E-15	2.02538E-15	6.58047E-19
Ethane		0	0	0	0	0	0	0
Propane		13.2508	21.8275	0	0.000583400	13.2508	13.2508	0.0856308
i-Butane		3.27364	7.72050	0	0.000144130	3.27364	3.27364	0.0768717
n-Butane		12.7650	22.9064	0	0.000562009	12.7650	12.7650	0.345323
i-Pentane		3.58241	9.06449	0	0.000157725	3.58241	3.58241	0.349672
n-Pentane		1.62237	10.2961	0	7.14287E-05	1.62237	1.62237	0.538388
Neohexane		0.00691029	0.130241	0	3.04243E-07	0.00691029	0.00691029	0.0110339
Cyclopentane		5.54529	2.50135	0	0.000244145	5.54529	5.54529	0.211683
2-Methylpentane		0.190832	3.06903	0	8.40187E-06	0.190832	0.190832	0.383528
3-Methylpentane		0.272906	1.81187	0	1.20154E-05	0.272906	0.272906	0.260297
n-Hexane		0.401860	3.72817	0	1.76929E-05	0.401860	0.401860	0.689641
2,2-Dimethylpentane		0	0	0	0	0	0	0
Methylcyclopentane		0	0	0	0	0	0	0
2,2,3-Trimethylbutane		0.204039	1.55391	0	8.98334E-06	0.204039	0.204039	0.404092
Benzene		0	0	0	0	0	0	0
Cyclohexane		6.14677	2.94456	0	0.000270627	6.14677	6.14677	0.785817
2-Methylhexane		0.00106598	0.0288370	0	4.69323E-08	0.00106598	0.00106598	0.0112422
3-Methylhexane		0.254781	2.25250	0	1.12174E-05	0.254781	0.254781	0.997133
1,1-Dimethylcyclopentane		1.08212	1.13914	0	4.76430E-05	1.08212	1.08212	0.424698
n-Heptane		0.0202725	0.254444	0	8.92547E-07	0.0202725	0.0202725	0.149769
Methylcyclohexane		1.54218	1.73252	0	6.78983E-05	1.54218	1.54218	1.10358
2,5-Dimethylhexane		0	0	0	0	0	0	0
Toluene		5.32489	0.392433	0.000788752	0.00102316	5.32489	5.32489	0.313024
2-Methylheptane		0	0	0	0	0	0	0

n-Octane	0.0514362	1.51779	0	2.26461E-06	0.0514362	0.0514362	2.87464
Ethylcyclohexane	0.486864	0.392101	0	2.14354E-05	0.486864	0.486864	0.815526
Ethylbenzene	1.92868	0.147655	0.000260245	0.000345149	1.92868	1.92868	0.387716
p-Xylene	0	0	0	0	0	0	0
o-Xylene	5.61829	0.427046	0.00123732	0.00148463	5.61829	5.61829	1.47941
n-Nonane	0.00171190	0.0492007	0	7.53709E-08	0.00171190	0.00171190	0.292322
Isopropylbenzene	0	0	0	0	0	0	0
Cyclooctane	0.000237093	1.06234	0	1.04386E-08	0.000237093	0.000237093	5.29533
Propylbenzene	0.989015	0.0772383	0.000117739	0.000161278	0.989015	0.989015	0.539253
1,3,5-Trimethylbenzene	0.00592709	0.000461268	7.52636E-07	1.01356E-06	0.00592709	0.00592709	0.00432522
Isobutylbenzene	0.172214	0.0138817	6.99375E-05	7.75166E-05	0.172214	0.172214	0.173693
Butylbenzene	0.00226764	0.000182641	2.39854E-07	3.39683E-07	0.00226764	0.00226764	0.00452507
n-Decane	0.000592837	0.0580433	0	2.61011E-08	0.000592837	0.000592837	1.08561
Water	34.8137	2.87142	99.9953	99.9924	34.8137	34.8137	79.8074
TEG	2.10915E-10	3.05836E-11	0.000198910	0.000198901	2.10915E-10	2.10915E-10	0.000158748
MDEA	0.204151	0.0127289	0.00204484	0.00205374	0.204151	0.204151	0.0986271
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
H2S	1.25511E-05	0	5.91894E-05	0.000101686	2.99455E-05	4.24966E-05	0.000247855
Nitrogen	0	0	0	0	0	0	0
CO2	0	0	0	0	0	0	0
Methane	1.07362E-19	0	0	3.63517E-19	2.56155E-19	3.63517E-19	3.36130E-18
Ethane	0	0	0	0	0	0	0
Propane	0.000702404	0	0	0.00237827	0.00167586	0.00237827	0.437402
i-Butane	0.000173530	0	0	0.000587555	0.000414025	0.000587555	0.392660
n-Butane	0.000676650	0	0	0.00229107	0.00161442	0.00229107	1.76391
i-Pentane	0.000189898	0	0	0.000642974	0.000453076	0.000642974	1.78612
n-Pentane	8.59990E-05	0	0	0.000291184	0.000205185	0.000291184	2.75008
Neohexane	3.66303E-07	0	0	1.24026E-06	8.73961E-07	1.24026E-06	0.0563609
Cyclopentane	0.000293947	0	0	0.000995274	0.000701327	0.000995274	1.08128
2-Methylpentane	1.01157E-05	0	0	3.42507E-05	2.41350E-05	3.42507E-05	1.95906
3-Methylpentane	1.44663E-05	0	0	4.89814E-05	3.45151E-05	4.89814E-05	1.32960
n-Hexane	2.13020E-05	0	0	7.21262E-05	5.08243E-05	7.21262E-05	3.52268
2,2-Dimethylpentane	0	0	0	0	0	0	0
Methylcyclopentane	0	0	0	0	0	0	0
2,2,3-Trimethylbutane	1.08158E-05	0	0	3.66211E-05	2.58054E-05	3.66211E-05	2.06410
Benzene	0	0	0	0	0	0	0
Cyclohexane	0.000325830	0	0	0.00110323	0.000777397	0.00110323	4.01395
2-Methylhexane	5.65057E-08	0	0	1.91323E-07	1.34817E-07	1.91323E-07	0.0574251
3-Methylhexane	1.35055E-05	0	0	4.57282E-05	3.22227E-05	4.57282E-05	5.09335
1,1-Dimethylcyclopentane	5.73614E-05	0	0	0.000194220	0.000136858	0.000194220	2.16936
n-Heptane	1.07461E-06	0	0	3.63852E-06	2.56391E-06	3.63852E-06	0.765020
Methylcyclohexane	8.17484E-05	0	0	0.000276792	0.000195043	0.000276792	5.63709
2,5-Dimethylhexane	0	0	0	0	0	0	0
Toluene	0.000282264	0	0.00321525	0.00417097	0.000673452	0.000955715	1.59892
2-Methylheptane	0	0	0	0	0	0	0
n-Octane	2.72655E-06	0	0	9.23181E-06	6.50526E-06	9.23181E-06	14.6836
Ethylcyclohexane	2.58079E-05	0	0	8.73828E-05	6.15749E-05	8.73828E-05	4.16570
Ethylbenzene	0.000102236	0	0.00106086	0.00140702	0.000243925	0.000346161	1.98045
p-Xylene	0	0	0	0	0	0	0
o-Xylene	0.000297816	0	0.00504380	0.00605218	0.000710559	0.00100837	7.55683
n-Nonane	9.07452E-08	0	0	3.07254E-07	2.16509E-07	3.07254E-07	1.49318
Isopropylbenzene	0	0	0	0	0	0	0
Cyclooctane	1.25679E-08	0	0	4.25537E-08	2.99858E-08	4.25537E-08	27.0485
Propylbenzene	5.24260E-05	0	0.000479949	0.000657458	0.000125083	0.000177509	2.75450
1,3,5-Trimethylbenzene	3.14185E-07	0	3.06803E-06	4.13183E-06	7.49614E-07	1.06380E-06	0.0220932
Isobutylbenzene	9.12879E-06	0	0.000285092	0.000316001	2.17803E-05	3.09091E-05	0.887225
Butylbenzene	1.20204E-07	0	9.77739E-07	1.38474E-06	2.86794E-07	4.06999E-07	0.0231140
n-Decane	3.14253E-08	0	0	1.06403E-07	7.49775E-08	1.06403E-07	5.54527
Water	0.00184542	0	407.619	407.625	0.00440298	0.00624840	407.656
TEG	1.11803E-14	0	0.000810833	0.000810833	2.66750E-14	3.78553E-14	0.000810883
MDEA	1.08217E-05	0	0.00833555	0.00837219	2.58194E-05	3.66411E-05	0.503786

Process Streams		**PW B**	**PW Flash**	**PW to LOAD**	**PW to PW Tank**	**PW W**	**Total**	**1**
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**TANK-100**	**TANK-100**	**TANK-100**	**VSSL-100**	**TANK-100**	**MIX-100**	**XFS1**
	To Block:	**MIX-100**	**MIX-100**	**--**	**TANK-100**	**MIX-100**	**--**	**VSSL-100**
Property	**Units**							
Temperature	°F	75.6975	75.6975	75.6975	75.5598	75.6975	75.6975	75.5598
Pressure	psia	12.88	12.88	12.88	12.88	12.88	12.88	12.88
Molecular Weight	lb/lbmol	34.1679	57.8088	18.0160	18.0164	34.1679	34.1679	21.6085
Mass Density	lb/ft^3	0.332249		62.2268	62.2279	0.332249	0.332249	58.4919
Mass Flow	lb/h	0.00530084	0	407.638	407.656	0.0126472	0.0179481	510.799
Std Vapor Volumetric Flow	MMSCFD	1.41296E-06	0	0.206073	0.206078	3.37118E-06	4.78414E-06	0.215293
Std Liquid Volumetric Flow	sgpm	1.42814E-05	0	0.814900	0.814949	3.40738E-05	4.83552E-05	1.08603
Gross Ideal Gas Heating Va	Btu/ft^3	1232.35	3128.81	50.3445	50.3720	1232.35	1232.35	280.289
Gross Liquid Heating Value	Btu/lb	13216.4	20367.2	0.724140	1.30599	13216.4	13216.4	4057.99

3	4
Solved	Solved
VSSL-100	VSSL-100
--	--
%	
0.000423875	
0	
0	
1.84681E-17	
0	
0.975011	
0.666680	
2.99545	
2.44579	
3.76672	
0.0646365	
1.52233	
2.24672	
1.52480	
4.03993	
0	
0	
2.03582	
0	
4.71240	
0.0566391	
5.02361	
2.18341	
0.754549	
5.67383	
0	
1.71059	
0	
12.7043	
3.66885	
1.84233	
0	
7.02915	
1.15061	
0	
23.8229	
2.26442	
0.0181634	
0.653071	
0.0170189	
3.85183	
0.167160	
3.33420E-08	
0.410887	
%	
0.000141715	
0	
0	
2.90643E-18	
0	
0.421766	
0.380125	
1.70793	
1.73107	
2.66599	
0.0546422	
1.04736	
1.89933	
1.28903	
3.41526	
0	
0	
2.00116	
0	
3.89056	
0.0556749	
4.93809	
2.10306	
0.741704	
5.46503	
0	
1.54616	
0	

14.2361	
4.03867	
1.91873	
0	
7.32068	
1.44768	
0	
26.2242	
2.66992	
0.0214159	
0.859881	
0.0224083	
5.37629	
0.0295421	
4.91190E-08	
0.480317	

lb/h	lb/h
0.000146169	0
0	0
0	0
2.99778E-18	0
0	0
0.435023	0
0.392073	0
1.76162	0
1.78548	0
2.74979	0
0.0563597	0
1.08028	0
1.95903	0
1.32955	0
3.52261	0
0	0
0	0
2.06406	0
0	0
4.01285	0
0.0574249	0
5.09330	0
2.16916	0
0.765017	0
5.63681	0
0	0
1.59475	0
0	0
14.6836	0
4.16562	0
1.97904	0
0	0
7.55078	0
1.49318	0
0	0
27.0485	0
2.75384	0
0.0220891	0
0.886909	0
0.0231127	0
5.54527	0
0.0304707	0
5.06629E-08	0
0.495414	0

3	4
Solved	Solved
VSSL-100	VSSL-100
--	--
75.5598	
12.88	12.88
101.937	
47.2743	
103.143	0
0.00921536	0
0.271082	0
5421.79	
20091.3	

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EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Supreme Station Inlet		**For:**	18958G
Sample Date:	10/27/2023		**Cyl. Ident.:**	2023078002
Sampled By:	DJ		**Company:**	Targa
Time Sampled:	09:35		**Analysis Date:**	10/27/2023
Sample Temp:	76 F		**Analysis By:**	BH
Sample Press:	72 psi	**H2S (PPM)** = 2.0	**Data File:**	LS1_0012.D

Component	Mole%	GPM REAL	GPM IDEAL
H2S	0.000		
Nitrogen	1.812		
Methane	70.849		
CO2	3.676		
Ethane	10.753	2.875	2.868
Propane	5.932	1.634	1.630
Isobutane	0.886	0.290	0.289
N-Butane	2.134	0.673	0.671
Isopentane	0.626	0.229	0.228
N-Pentane	0.690	0.250	0.249
Hexanes+	2.642	1.196	1.194
Total	100.000	7.147	7.129

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	24.807
VAPOR PRESS PSIA:	3641.7
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.8602
AIR = 1 (IDEAL):	0.8564
H2O = 1 (IDEAL):	0.395
REPORTED BASIS:	14.73
Unnormalized Total:	96.400

HEATING VALUE

BTU/CUFT (DRY)	1365.0
BTU/CUFT (WET)	1341.9

BTEX SUMMARY

WT% BENZENE	3.210
WT% TOLUENE	0.362
WT% E BENZENE	0.499
WT% XYLENES	1.882

LAB MANAGER

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Sample Name: Supreme Station Inlet
Company: Targa

Data File: LS1_0012.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.008	0.028
CYCLOPENTANE	0.063	0.198
2-METHYLPENTANE	0.204	0.708
3-METHYLPENTANE	0.115	0.400
HEXANE (C6)	0.276	0.970
DIMETHYLPENTANES	0.000	0.000
METHYLCYCLOPENTANE	0.000	0.000
2,2,3 TRIMETHYLBUTANE	0.109	0.440
BENZENE	0.000	0.000
CYCLOHEXANE	0.124	0.422
2-METHYLHEXANE	0.003	0.012
3-METHYLHEXANE	0.234	0.944
DIMETHYCYCLOPENTANES	0.056	0.220
HEPTANE (C7)	0.034	0.137
METHYLCYCLOHEXANE	0.158	0.629
2,5 DIMETHYLHEXANE	0.000	0.000
TOLUENE	0.008	0.032
2-METHYLHEPTANE	0.000	0.000
OTHER OCTANES	0.473	2.164
OCTANE (C8)	0.075	0.346
ETHYLCYCLOHEXANE	0.114	0.514
ETHYL BENZENE	0.013	0.054
M,P-XYLENE	0.000	0.000
O-XYLENE	0.049	0.212
OTHER NONANES	0.054	0.276
NONANE (C-9)	0.000	0.000
IC3 BENZENE	0.000	0.000
CYCLOOCTANE	0.126	0.606
NC3 BENZENE	0.030	0.145
TM BENZENE(S)	0.001	0.007
IC4 BENZENE	0.013	0.071
NC4 BENZENE	0.001	0.007
DECANES + (C10+)	0.210	1.186

*HEXANES PLUS SUMMARY

AVG MOLE WT	104.545
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	54.4
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.761

COMPONENT RATIOS

HEXANES	(C6)	MOLE%	25.327
HEPTANES	(C7)	MOLE%	24.626
OCTANES	(C8)	MOLE%	27.046
NONANES	(C9)	MOLE%	8.679
DECANES+	(C10+)	MOLE%	14.322
HEXANES	(C6)	WT%	20.692
HEPTANES	(C7)	WT%	23.194
OCTANES	(C8)	WT%	28.471
NONANES	(C9)	WT%	9.476
DECANES+	(C10+)	WT%	18.167

Remarks: NR=NOT REPORTED ON FIELD TAG

* Hexane+ portion calculated by Allocation Process

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

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

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

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

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

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

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

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

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 \text{ scf}] = (3.67)\ (CON)\ (C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2x10^4$ $lb/10^6$ 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]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylcholanthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
207-08-9	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D
74-98-6	Propane	1.6E+00	E

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ 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.

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
Acetaldehyde[k,l]	8.36 E-03	A
Acrolein[k,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
Tetrachloroethane[k]	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, CO, and PM10, "uncontrolled" means no combustion or add-on controls; however, the factor may include turbocharged units. For all other pollutants, "uncontrolled" means no oxidation control; the data set may include units with control techniques used for NOx 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-10 = Particulate Matter ≤ 10 microns (μm) aerodynamic diameter. A "<" sign in 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:

$$\text{lb/hp-hr} = (\text{lb/MMBtu})\ (\text{heat input, MMBtu/hr})\ (\text{1/operating HP, 1/hp})$$

[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

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/10^6scf.

[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.

Table 3.3-1. EMISSION FACTORS FOR UNCONTROLLED GASOLINE AND DIESEL INDUSTRIAL ENGINES[a]

Pollutant	Gasoline Fuel (SCC 2-02-003-01, 2-03-003-01)		Diesel Fuel (SCC 2-02-001-02, 2-03-001-01)		EMISSION FACTOR RATING
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	
NO_x	0.011	1.63	0.031	4.41	D
CO	6.96 E-03[d]	0.99[d]	6.68 E-03	0.95	D
SO_x	5.91 E-04	0.084	2.05 E-03	0.29	D
PM-10[b]	7.21 E-04	0.10	2.20 E-03	0.31	D
CO_2[c]	1.08	154	1.15	164	B
Aldehydes	4.85 E-04	0.07	4.63 E-04	0.07	D
TOC					
Exhaust	0.015	2.10	2.47 E-03	0.35	D
Evaporative	6.61 E-04	0.09	0.00	0.00	E
Crankcase	4.85 E-03	0.69	4.41 E-05	0.01	E
Refueling	1.08 E-03	0.15	0.00	0.00	E

[a] References 2,5-6,9-14. When necessary, an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr was used to convert from lb/MMBtu to lb/hp-hr. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code. TOC = total organic compounds.

[b] PM-10 = particulate matter less than or equal to 10 µm aerodynamic diameter. All particulate is assumed to be ≤ 1 µm in size.

[c] Assumes 99% conversion of carbon in fuel to CO_2 with 87 weight % carbon in diesel, 86 weight % carbon in gasoline, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and gasoline heating value of 20,300 Btu/lb.

[d] Instead of 0.439 lb/hp-hr (power output) and 62.7 lb/mmBtu (fuel input), the correct emissions factors values are 6.96 E-03 lb/hp-hr (power output) and 0.99 lb/mmBtu (fuel input), respectively. This is an editorial correction. March 24, 2009

Table 3.3-2. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR UNCONTROLLED DIESEL ENGINES[a]

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (Fuel Input) (lb/MMBtu)
Benzene[b]	9.33 E-04
Toluene[b]	4.09 E-04
Xylenes[b]	2.85 E-04
Propylene	2.58 E-03
1,3-Butadiene[b,c]	<3.91 E-05
Formaldehyde[b]	1.18 E-03
Acetaldehyde[b]	7.67 E-04
Acrolein[b]	<9.25 E-05
Polycyclic aromatic hydrocarbons (PAH)	
Naphthalene[b]	8.48 E-05
Acenaphthylene	<5.06 E-06
Acenaphthene	<1.42 E-06
Fluorene	2.92 E-05
Phenanthrene	2.94 E-05
Anthracene	1.87 E-06
Fluoranthene	7.61 E-06
Pyrene	4.78 E-06
Benzo(a)anthracene	1.68 E-06
Chrysene	3.53 E-07
Benzo(b)fluoranthene	<9.91 E-08
Benzo(k)fluoranthene	<1.55 E-07
Benzo(a)pyrene	<1.88 E-07
Indeno(1,2,3-cd)pyrene	<3.75 E-07
Dibenz(a,h)anthracene	<5.83 E-07
Benzo(g,h,l)perylene	<4.89 E-07
TOTAL PAH	1.68 E-04

[a] Based on the uncontrolled levels of 2 diesel engines from References 6-7. Source Classification Codes 2-02-001-02, 2-03-001-01. To convert from lb/MMBtu to ng/J, multiply by 430.
[b] Hazardous air pollutant listed in the *Clean Air Act*.
[c] Based on data from 1 engine.

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

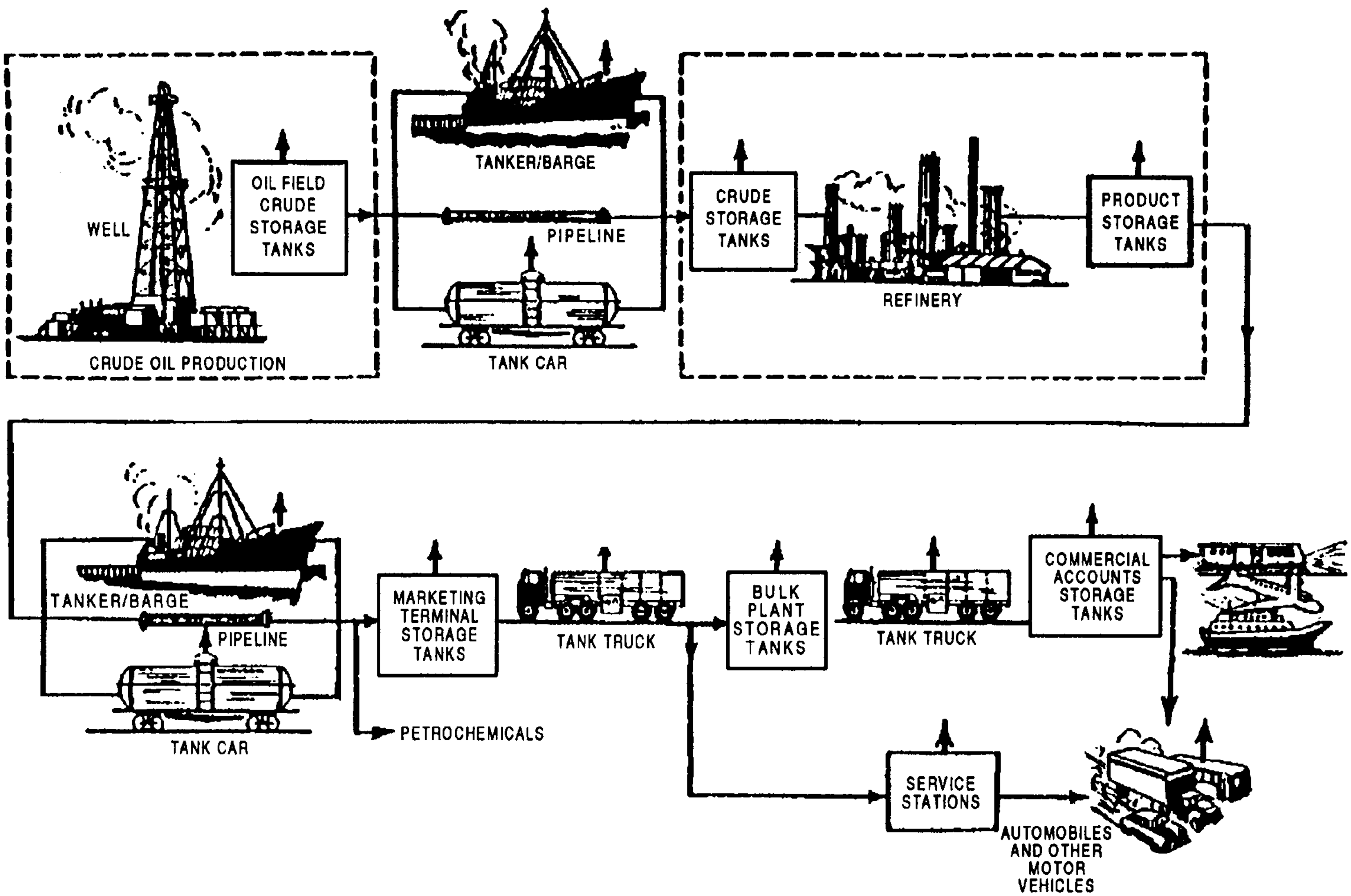

Figure 5.2-1. Flow sheet of petroleum production, refining, and distribution systems.
(Points of organic emissions are indicated by vertical arrows.)

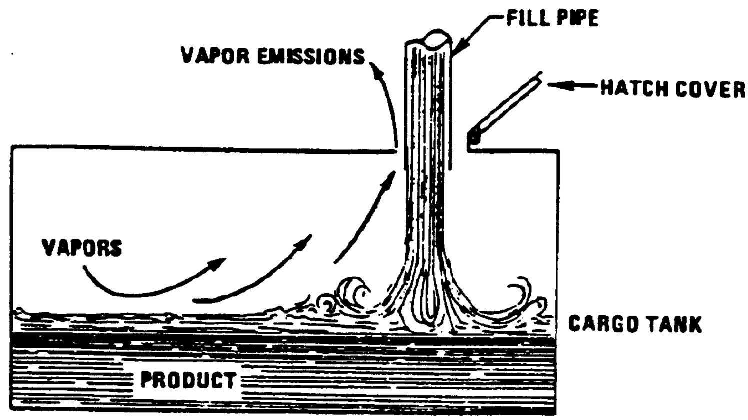

Figure 5.2-2. Splash loading method.

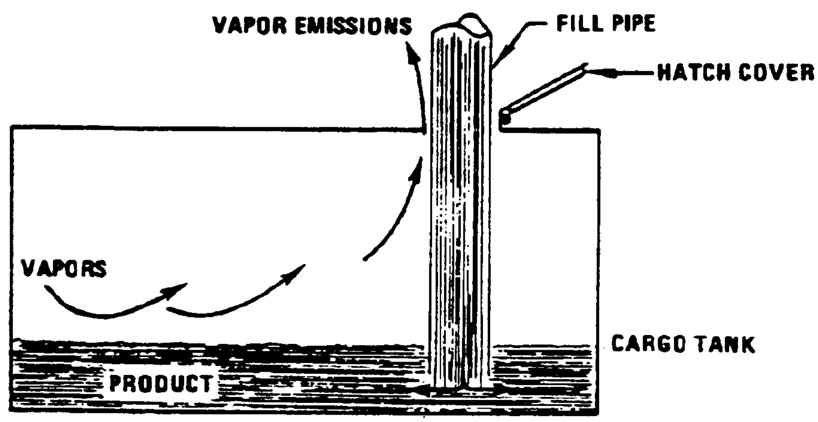

Figure 5.2-3. Submerged fill pipe.

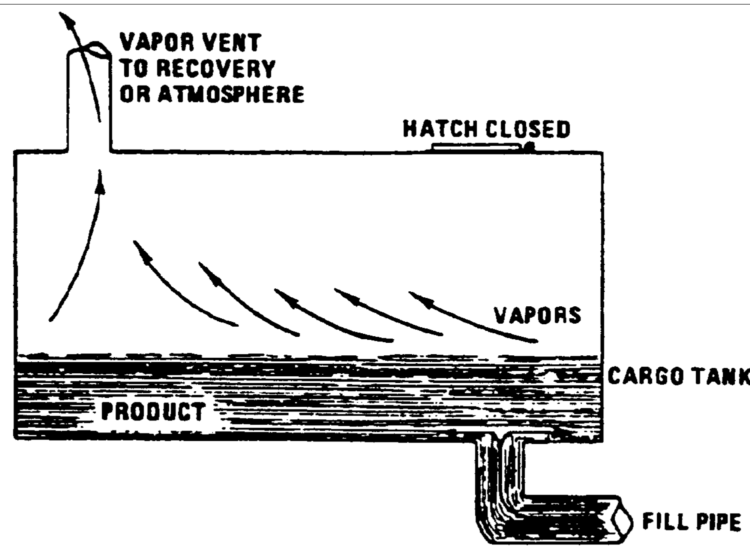

Figure 5.2-4. Bottom loading.

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:

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

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)

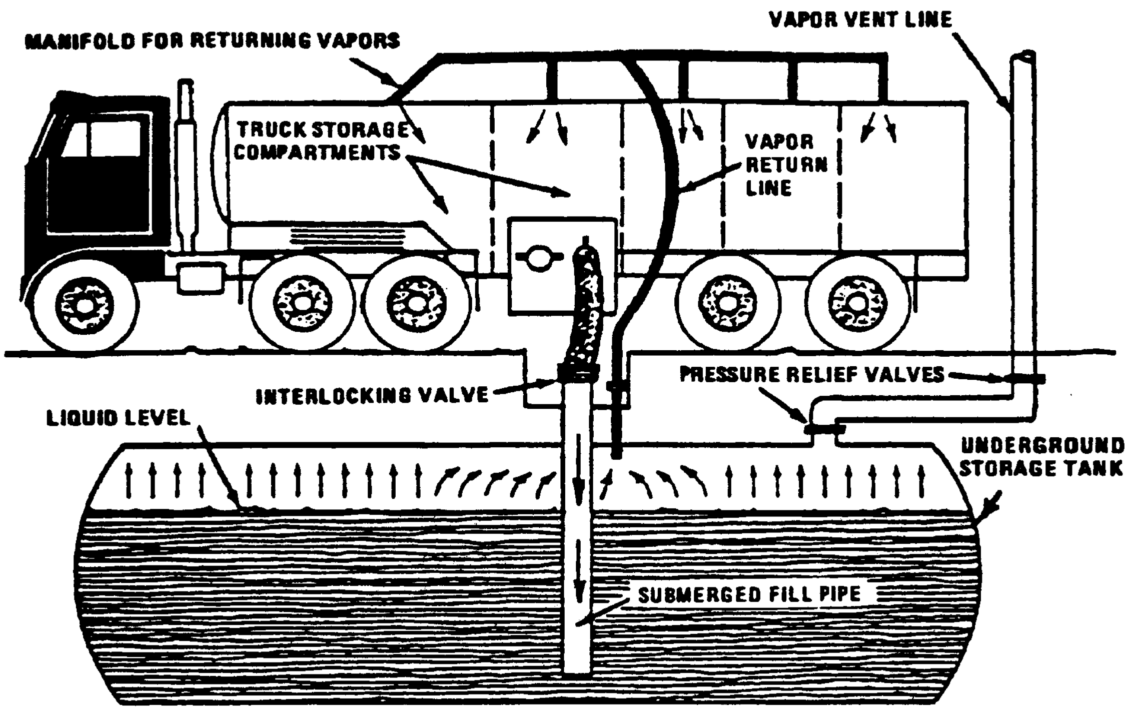

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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:

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

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].

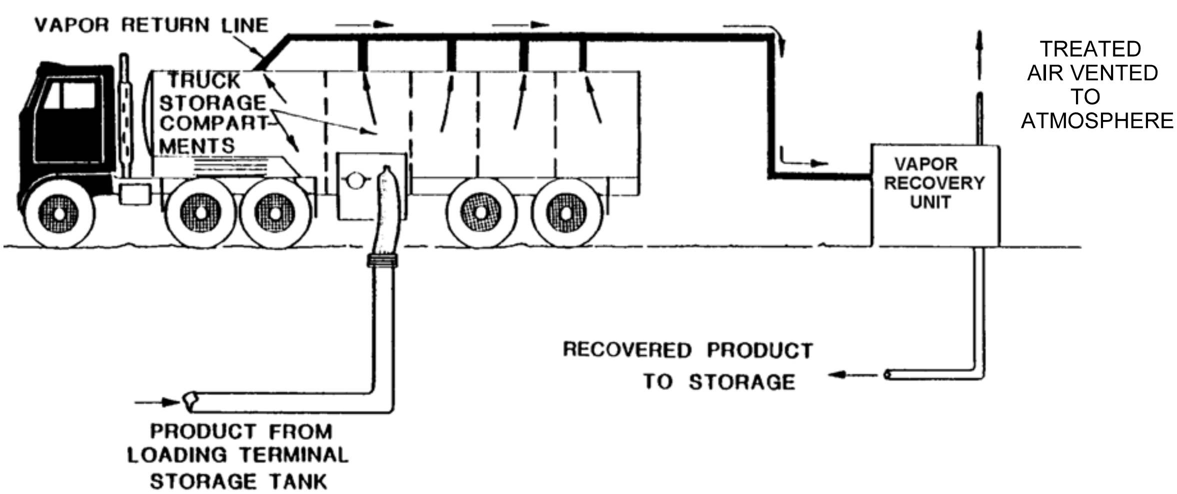

Figure 5.2-6. Tank truck loading with vapor recovery.

Sample Calculation -

Loading losses (L_L) from a gasoline tank truck in dedicated vapor balance service and practicing vapor recovery would be calculated as follows, using Equation 1:

Design basis -

Cargo tank volume is 8000 gal
Gasoline Reid vapor pressure (RVP) is 9 psia
Product temperature is 80°F
Vapor recovery efficiency is 95 percent
Vapor collection efficiency is 98.7 percent (NSPS-level annual leak test)

Loading loss equation -

$$L_L = 12.46 \frac{SPM}{T} \left(1 - \frac{eff}{100}\right)$$

where:

S = saturation factor (see Table 5.2-1) - 1.00
P = true vapor pressure of gasoline = 6.6 psia
M = molecular weight of gasoline vapors = 66
T = temperature of gasoline = 540°R
eff = overall reduction efficiency (95 percent control x 98.7 percent collection) = 94 percent

$$L_L = 12.46 \frac{(1.00)(6.6)(66)}{540} \left(1 - \frac{94}{100}\right)$$

$$= 0.60 \text{ lb}/10^3 \text{ gal}$$

Total loading losses are:

$$(0.60 \text{ lb}/10^3 \text{ gal})(8.0 \times 10^3 \text{ gal}) = 4.8 \text{ pounds (lb)}$$

Measurements of gasoline loading losses from ships and barges have led to the development of emission factors for these specific loading operations.[8] These factors are presented in Table 5.2-2 and should be used instead of Equation 1 for gasoline loading operations at marine terminals. Factors are expressed in units of milligrams per liter (mg/L) and pounds per 1000 gallons (lb/10^3 gal).

Table 5.2-2 (Metric And English Units). VOLATILE ORGANIC COMPOUND (VOC) EMISSION FACTORS FOR GASOLINE LOADING OPERATIONS AT MARINE TERMINALS[a]

Vessel Tank Condition	Previous Cargo	Ships/Ocean Barges[b]		Barges[b]	
		mg/L Transferred	$lb/10^3$ gal Transferred	mg/L Transferred	$lb/10^3$ gal Transferred
Uncleaned	Volatile[c]	315	2.6	465	3.9
Ballasted	Volatile	205	1.7	—[d]	—[d]
Cleaned	Volatile	180	1.5	ND	ND
Gas-freed	Volatile	85	0.7	ND	ND
Any condition	Nonvolatile	85	0.7	ND	ND
Gas-freed	Any cargo	ND	ND	245	2.0
Typical overall situation[e]	Any cargo	215	1.8	410	3.4

[a] References 2,9. Factors are for both VOC emissions (which excludes methane and ethane) and total organic emissions, because methane and ethane have been found to constitute a negligible weight fraction of the evaporative emissions from gasoline. ND = no data.
[b] Ocean barges (tank compartment depth about 12.2 m [40 ft]) exhibit emission levels similar to tank ships. Shallow draft barges (compartment depth 3.0 to 3.7 m [10 to 12 ft]) exhibit higher emission levels.
[c] Volatile cargoes are those with a true vapor pressure greater than 10 kilopascals (kPa) (1.5 psia).
[d] Barges are usually not ballasted.
[e] Based on observation that 41% of tested ship compartments were uncleaned, 11% ballasted, 24% cleaned, and 24% gas-freed. For barges, 76% were uncleaned.

In addition to Equation 1, which estimates emissions from the loading of petroleum liquids, Equation 2 has been developed specifically for estimating emissions from the loading of crude oil into ships and ocean barges:

$$C_L = C_A + C_G \qquad (2)$$

where:

C_L = total loading loss, $lb/10^3$ gal of crude oil loaded
C_A = arrival emission factor, contributed by vapors in the empty tank compartment before loading, $lb/10^3$ gal loaded (see Note below)
C_G = generated emission factor, contributed by evaporation during loading, $lb/10^3$ gal loaded

Note: Values of C_A for various cargo tank conditions are listed in Table 5.2-3.

5.2-3 (English Units). AVERAGE ARRIVAL EMISSION FACTORS, C_A, FOR CRUDE OIL LOADING EMISSION EQUATION[a]

Ship/Ocean Barge Tank Condition	Previous Cargo	Arrival Emission Factor, lb/10^3 gal
Uncleaned	Volatile[b]	0.86
Ballasted	Volatile	0.46
Cleaned or gas-freed	Volatile	0.33
Any condition	Nonvolatile	0.33

[a] Arrival emission factors (C_A) to be added to generated emission factors (C_G) calculated in Equation 3 to produce total crude oil loading loss (C_L). Factors are for total organic compounds; VOC emission factors average about 15% lower, because VOC does not include methane or ethane.
[b] Volatile cargoes are those with a true vapor pressure greater than 10 kPa (1.5 psia).

This equation was developed empirically from test measurements of several vessel compartments.[8] The quantity C_G can be calculated using Equation 3:

$$C_G = 1.84\ (0.44\ P - 0.42)\ \frac{M\,G}{T} \tag{3}$$

where:

P = true vapor pressure of loaded crude oil, psia
M = molecular weight of vapors, lb/lb-mole
G = vapor growth factor = 1.02 (dimensionless)
T = temperature of vapors, °R (°F + 460)

Emission factors derived from Equation 3 and Table 5.2-3 represent total organic compounds. Volatile organic compound (VOC) emission factors (which exclude methane and ethane because they are exempted from the regulatory definition of "VOC") for crude oil vapors have been found to range from approximately 55 to 100 weight percent of these total organic factors. When specific vapor composition information is not available, the VOC emission factor can be estimated by taking 85 percent of the total organic factor.[3]

5.2.2.1.2 Ballasting Losses -

Ballasting operations are a major source of evaporative emissions associated with the unloading of petroleum liquids at marine terminals. It is common practice to load several cargo tank compartments with sea water after the cargo has been unloaded. This water, termed "ballast", improves the stability of the empty tanker during the subsequent voyage. Although ballasting practices vary, individual cargo tanks are ballasted typically about 80 percent, and the total vessel 15 to 40 percent, of capacity. Ballasting emissions occur as vapor-laden air in the "empty" cargo tank is displaced to the atmosphere by ballast water being pumped into the tank. Upon arrival at a loading port, the ballast water is pumped from the cargo tanks before the new cargo is loaded. The ballasting of cargo tanks reduces the quantity of vapors returning in the empty tank, thereby reducing the quantity of vapors emitted during subsequent tanker loading. Regulations administered by the U. S. Coast Guard require that, at marine terminals located in ozone nonattainment areas, large tankers with crude oil washing systems contain the organic vapors from ballasting.[10] This is accomplished principally by displacing the vapors during ballasting into a cargo tank being simultaneously unloaded. In other areas, marine vessels emit organic vapors directly to the atmosphere.

Equation 4 has been developed from test data to calculate the ballasting emissions from crude oil ships and ocean barges[8]:

$$L_B = 0.31 + 0.20\ P + 0.01\ PU_A \tag{4}$$

where:

L_B = ballasting emission factor, lb/10^3 gal of ballast water
P = true vapor pressure of discharged crude oil, psia
U_A = arrival cargo true ullage, before dockside discharge, measured from the deck, feet; (the term "ullage" here refers to the distance between the cargo surface level and the deck level)

Table 5.2-4 lists average total organic emission factors for ballasting into uncleaned crude oil cargo compartments. The first category applies to "full" compartments wherein the crude oil true ullage just before cargo discharge is less than 1.5 meters (m) (5 ft). The second category applies to lightered, or short-loaded, compartments (part of cargo previously discharged, or original load a partial fill), with an arrival true ullage greater than 1.5 m (5 ft). It should be remembered that these tabulated emission factors are examples only, based on average conditions, to be used when crude oil vapor pressure is unknown. Equation 4 should be used when information about crude oil vapor pressure and cargo compartment condition is available. The following sample calculation illustrates the use of Equation 4.

5.2-4 (Metric And English Units). TOTAL ORGANIC EMISSION FACTORS FOR CRUDE OIL BALLASTING[a]

	Average Emission Factors			
	By Category		Typical Overall[b]	
Compartment Condition Before Cargo Discharge	mg/L Ballast Water	lb/10^3 gal Ballast Water	mg/L Ballast Water	lb/10^3 gal Ballast Water
Fully loaded[c]	111	0.9	129	1.1
Lightered or previously short loaded[d]	171	1.4 A		

[a] Assumes crude oil temperature of 16°C (60°F) and RVP of 34 kPa (5 psia). VOC emission factors average about 85% of these total organic factors, because VOCs do not include methane or ethane.
[b] Based on observation that 70% of tested compartments had been fully loaded before ballasting. May not represent average vessel practices.
[c] Assumed typical arrival ullage of 0.6 m (2 ft).
[d] Assumed typical arrival ullage of 6.1 m (20 ft).

Sample Calculation -

Ballasting emissions from a crude oil cargo ship would be calculated as follows, using Equation 4:

Design basis -

Vessel and cargo description: 80,000 dead-weight-ton tanker, crude oil capacity 500,000 barrels (bbl); 20 percent of the cargo capacity is filled with ballast water after cargo discharge. The crude oil has an RVP of 6 psia and is discharged at 75°F.

Compartment conditions: 70 percent of the ballast water is loaded into compartments that had been fully loaded to 2 ft ullage, and 30 percent is loaded into compartments that had been lightered to 15 ft ullage before arrival at dockside.

Ballasting emission equation -

$$L_B = 0.31 + 0.20\ P + 0.01\ PU_A$$

where:

P = true vapor pressure of crude oil
= 4.6 psia
U_A = true cargo ullage for the full compartments = 2 ft, and true cargo ullage for the lightered compartments = 15 ft

$$L_B = 0.70\ [0.31 + (0.20)\ (4.6) + (0.01)\ (4.6)\ (2)] + 0.30\ [0.31 + (0.20)\ (4.6) + (0.01)\ (4.6)\ (15)]$$

$$= 1.5\ \text{lb}/10^3\ \text{gal}$$

Total ballasting emissions are:

$$(1.5\ \text{lb}/10^3\ \text{gal})\ (0.20)\ (500{,}000\ \text{bbl})\ (42\ \text{gal/bbl}) = 6{,}300\ \text{lb}$$

Since VOC emissions average about 85 percent of these total organic emissions, emissions of VOCs are about: (0.85)(6,300 lb) = 5,360 lb

5.2.2.1.3 Transit Losses -

In addition to loading and ballasting losses, losses occur while the cargo is in transit. Transit losses are similar in many ways to breathing losses associated with petroleum storage (see Section 7.1, "Organic Liquid Storage Tanks"). Experimental tests on ships and barges[4] have indicated that transit losses can be calculated using Equation 5:

$$L_T = 0.1\ PW \qquad (5)$$

where:

L_T = transit loss from ships and barges, lb/week-10^3 gal transported
P = true vapor pressure of the transported liquid, psia
W = density of the condensed vapors, lb/gal

Emissions from gasoline truck cargo tanks during transit have been studied by a combination of theoretical and experimental techniques, and typical emission values are presented in Table 5.2-5.[11-12] Emissions depend on the extent of venting from the cargo tank during transit, which in turn depends on the vapor tightness of the tank, the pressure relief valve settings, the pressure in the tank at the start of the trip, the vapor pressure of the fuel being transported, and the degree of fuel vapor saturation of the space in the tank. The emissions are not directly proportional to the time spent in transit. If the vapor leakage rate of the tank increases, emissions increase up to a point, and then the rate changes as other determining factors take over. Truck tanks in dedicated vapor balance service usually contain saturated vapors, and this leads to lower emissions during transit because no additional fuel evaporates to raise the pressure in the tank to cause venting. Table 5.2-5 lists "typical" values for transit emissions and "extreme" values that could occur in the unlikely event that all determining factors combined to cause maximum emissions.

Table 5.2-5 (Metric And English Units). TOTAL UNCONTROLLED ORGANIC EMISSION FACTORS FOR PETROLEUM LIQUID RAIL TANK CARS AND TANK TRUCKS

Emission Source	Gasoline[a]	Crude Oil[b]	Jet Naphtha (JP-4)	Jet Kerosene	Distillate Oil No. 2	Residual Oil No. 6
Loading operations[c]						
Submerged loading - Dedicated normal service[d]						
mg/L transferred	590	240	180	1.9	1.7	0.01
lb/10^3 gal transferred	5	2	1.5	0.016	0.014	0.0001
Submerged loading - Vapor balance service[d]						
mg/L transferred	980	400	300	—[e]	—[e]	—[e]
lb/10^3 gal transferred	8	3	2.5	—[e]	—[e]	—[e]
Splash loading - Dedicated normal service						
mg/L transferred	1,430	580	430	5	4	0.03
lb/10^3 gal transferred	12	5	4	0.04	0.03	0.0003
Splash loading - Vapor balance service						
mg/L transferred	980	400	300	—[e]	—[e]	—[e]
lb/10^3 gal transferred	8	3	2.5	—[e]	—[e]	—[e]

Table 5.2-5 (cont.).

Emission Source	Gasoline[a]	Crude Oil[b]	Jet Naphtha (JP-4)	Jet Kerosene	Distillate Oil No. 2	Residual Oil No. 6
Transit losses						
Loaded with product						
mg/L transported						
Typical	0 - 1.0	ND	ND	ND	ND	ND
Extreme	0 - 9.0	ND	ND	ND	ND	ND
$lb/10^3$ gal transported						
Typical	0 - 0.01	ND	ND	ND	ND	ND
Extreme	0 - 0.08	ND	ND	ND	ND	ND
Return with vapor						
mg/L transported						
Typical	0 - 13.0	ND	ND	ND	ND	ND
Extreme	0 - 44.0	ND	ND	ND	ND	ND
$lb/10^3$ gal transported						
Typical	0 - 0.11	ND	ND	ND	ND	ND
Extreme	0 - 0.37	ND	ND	ND	ND	ND

[a] Reference 2. Gasoline factors represent emissions of VOC as well as total organics, because methane and ethane constitute a negligible weight fraction of the evaporative emissions from gasoline. VOC factors for crude oil can be assumed to be 15% lower than the total organic factors, to account for the methane and ethane content of crude oil evaporative emissions. All other products should be assumed to have VOC factors equal to total organics. The example gasoline has an RVP of 69 kPa (10 psia). ND = no data.
[b] The example crude oil has an RVP of 34 kPa (5 psia).
[c] Loading emission factors are calculated using Equation 1 for a dispensed product temperature of 16°C (60°F).
[d] Reference 2.
[e] Not normally used.

In the absence of specific inputs for Equations 1 through 5, the typical evaporative emission factors presented in Tables 5.2-5 and 5.2-6 should be used. It should be noted that, although the crude oil used to calculate the emission values presented in these tables has an RVP of 5, the RVP of crude oils can range from less than 1 up to 10. Similarly, the RVP of gasolines ranges from 7 to 13. In areas where loading and transportation sources are major factors affecting air quality, it is advisable to obtain the necessary parameters and to calculate emission estimates using Equations 1 through 5.

5.2.2.2 Service Stations -

Another major source of evaporative emissions is the filling of underground gasoline storage tanks at service stations. Gasoline is usually delivered to service stations in 30,000-liter (8,000-gal) tank trucks or smaller account trucks. Emissions are generated when gasoline vapors in the underground storage tank are displaced to the atmosphere by the gasoline being loaded into the tank. As with other loading losses, the quantity of loss in service station tank filling depends on several variables, including the method and rate of filling, the tank configuration, and the gasoline temperature, vapor pressure and composition. An average emission rate for submerged filling is 880 mg/L (7.3 lb/1000 gal) of transferred gasoline, and the rate for splash filling is 1380 mg/L (11.5 lb/1000 gal) transferred gasoline (see Table 5.2-7).[5]

Table 5.2-6 (Metric And English Units). TOTAL ORGANIC EMISSION FACTORS FOR PETROLEUM MARINE VESSEL SOURCES[a]

Emission Source	Gasoline[b]	Crude Oil[c]	Jet Naphtha (JP-4)	Jet Kerosene	Distillate Oil No. 2	Residual Oil No. 6
Loading operations						
Ships/ocean barges						
mg/L transferred	—[d]	73	60	0.63	0.55	0.004
lb/10^3 gal transferred	—[d]	0.61	0.50	0.005	0.005	0.00004
Barges						
mg/L transferred	—[d]	120	150	1.60	1.40	0.011
lb/10^3 gal transferred	—[d]	1.0	1.2	0.013	0.012	0.00009
Tanker ballasting						
mg/L ballast water	100	—[e]	ND	ND	ND	ND
lb/10^3 gal ballast water	0.8	—[e]	ND	ND	ND	ND
Transit						
mg/week-L transported	320	150	84	0.60	0.54	0.003
lb/week-10^3 gal transported	2.7	1.3	0.7	0.005	0.005	0.00003

[a] Factors are for a dispensed product of 16°C (60°F). ND = no data.
[b] Factors represent VOC as well as total organic emissions, because methane and ethane constitute a negligible fraction of gasoline evaporative emissions. All products other than crude oil can be assumed to have VOC factors equal to total organic factors. The example gasoline has an RVP of 69 kPa (10 psia).
[c] VOC emission factors for a typical crude oil are 15% lower than the total organic factors shown, in order to account for methane and ethane. The example crude oil has an RVP of 34 kPa (5 psia).
[d] See Table 5.2-2 for these factors.
[e] See Table 5.2-4 for these factors.

Emissions from underground tank filling operations at service stations can be reduced by the use of a vapor balance system such as in Figure 5.2-5 (termed Stage I vapor control). The vapor balance system employs a hose that returns gasoline vapors displaced from the underground tank to the tank truck cargo compartments being emptied. The control efficiency of the balance system ranges from 93 to 100 percent. Organic emissions from underground tank filling operations at a service station employing a vapor balance system and submerged filling are not expected to exceed 40 mg/L (0.3 lb/1000 gal) of transferred gasoline.

Table 5.2-7 (Metric And English Units). EVAPORATIVE EMISSIONS FROM GASOLINE SERVICE STATION OPERATIONS[a]

Emission Source	Emission Rate	
	mg/L Throughput	$lb/10^3$ gal Throughput
Filling underground tank (Stage I)		
Submerged filling	880	7.3
Splash filling	1,380	11.5
Balanced submerged filling	40	0.3
Underground tank breathing and emptying[b]	120	1.0
Vehicle refueling operations (Stage II)		
Displacement losses (uncontrolled)[c]	1,320	11.0
Displacement losses (controlled)	132	1.1
Spillage	80	0.7

[a] Factors are for VOC as well as total organic emissions, because of the methane and ethane content of gasoline evaporative emissions is negligible.
[b] Includes any vapor loss between underground tank and gas pump.
[c] Based on Equation 6, using average conditions.

A second source of vapor emissions from service stations is underground tank breathing. Breathing losses occur daily and are attributable to gasoline evaporation and barometric pressure changes. The frequency with which gasoline is withdrawn from the tank, allowing fresh air to enter to enhance evaporation, also has a major effect on the quantity of these emissions. An average breathing emission rate is 120 mg/L (1.0 lb/1000 gal) of throughput.

5.2.2.3 Motor Vehicle Refueling -

Service station vehicle refueling activity also produces evaporative emissions. Vehicle refueling emissions come from vapors displaced from the automobile tank by dispensed gasoline and from spillage. The quantity of displaced vapors depends on gasoline temperature, auto tank temperature, gasoline RVP, and dispensing rate. Equation 6 can be used to estimate uncontrolled displacement losses from vehicle refueling for a particular set of conditions.[14]

$$E_R = 264.2\ [(-5.909) - 0.0949\ (\Delta T) + 0.0884\ (T_D) + 0.485\ (RVP)] \qquad (6)$$

where:

E_R = refueling emissions, mg/L
ΔT = difference between temperature of fuel in vehicle tank and temperature of dispensed fuel, °F
T_D = temperature of dispensed fuel, °F
RVP = Reid vapor pressure, psia

Note that this equation and the spillage loss factor are incorporated into the *MOBILE* model. The *MOBILE* model allows for disabling of this calculation if it is desired to include these emissions in the stationary area source portion of an inventory rather than in the mobile source portion. It is estimated that the uncontrolled emissions from vapors displaced during vehicle refueling average 1320 mg/L (11.0 lb/1000 gal) of dispensed gasoline.[5,13]

Spillage loss is made up of contributions from prefill and postfill nozzle drip and from spit-back and overflow from the vehicles's fuel tank filler pipe during filling. The amount of spillage loss can depend on several variables, including service station business characteristics, tank configuration, and operator techniques. An average spillage loss is 80 mg/L (0.7 lb/1000 gal) of dispensed gasoline.[5,13]

Control methods for vehicle refueling emissions are based on conveying the vapors displaced from the vehicle fuel tank to the underground storage tank vapor space through the use of a special hose and nozzle, as depicted in Figure 5.2-7 (termed Stage II vapor control). In "balance" vapor control systems, the vapors are conveyed by natural pressure differentials established during refueling. In "vacuum assist" systems, the conveyance of vapors from the auto fuel tank to the underground storage tank is assisted by a vacuum pump. Tests on a few systems have indicated overall systems control efficiencies in the range of 88 to 92 percent.[5,13] When inventorying these emissions as an area source, rule penetration and rule effectiveness should also be taken into account. *Procedures For Emission Inventory Preparation, Volume IV: Mobile Sources*, EPA-450/4-81-026d, provides more detail on this.

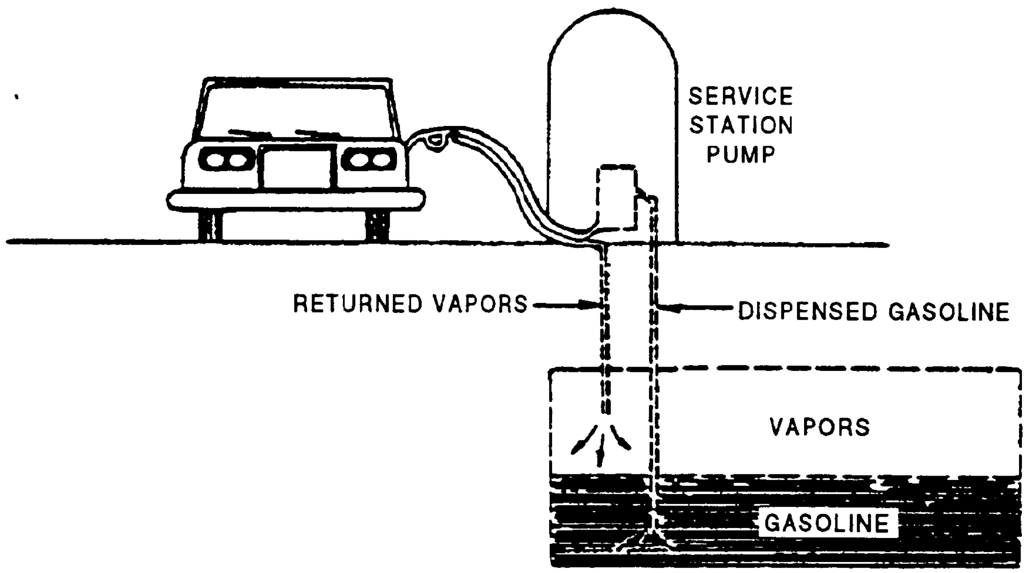

Figure 5.2-7. Automobile refueling vapor recovery system.

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13.2.2 Unpaved Roads

13.2.2.1 General

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The particulate emission factors presented in the previous draft version of this section of AP-42, dated October 2001, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material[25]. EPA included these sources in the emission factor equation for unpaved public roads (equation 1b in this section) since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the unpaved public road emission factor equation only estimates particulate emissions from resuspended road surface material [23, 26]. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOBILE6.2 [24]. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOBILE6.2 to estimate particulate emissions from vehicle traffic on unpaved public roads. It also incorporates the decrease in exhaust emissions that has occurred since the unpaved public road emission factor equation was developed. The previous version of the unpaved public road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.2.2 Emissions Calculation And Correction Parameters[1-6]

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic. Characterization of these source parameters allow for "correction" of emission estimates to specific road and traffic conditions present on public and industrial roadways.

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers [μm] in diameter) in the road surface materials.[1] The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200-mesh screen, using the ASTM-C-136 method. A summary of this method is contained in Appendix C of AP-42. Table 13.2.2-1 summarizes measured silt values for industrial unpaved roads. Table 13.2.2-2 summarizes measured silt values for public unpaved roads. It should be noted that the ranges of silt content vary over two orders of magnitude. Therefore, the use of data from this table can potentially introduce considerable error. Use of this data is strongly discouraged when it is feasible to obtain locally gathered data.

Since the silt content of a rural dirt road will vary with geographic location, it should be measured for use in projecting emissions. As a conservative approximation, the silt content of the parent soil in the area can be used. Tests, however, show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Other variables are important in addition to the silt content of the road surface material. For example, at industrial sites, where haul trucks and other heavy equipment are common, emissions are highly correlated with vehicle weight. On the other hand, there is far less variability in the weights of cars and pickup trucks that commonly travel publicly accessible unpaved roads throughout the United States. For those roads, the moisture content of the road surface material may be more dominant in determining differences in emission levels between, for example a hot, desert environment and a cool, moist location.

The PM-10 and TSP emission factors presented below are the outcomes from stepwise linear regressions of field emission test results of vehicles traveling over unpaved surfaces. Due to a limited amount of information available for PM-2.5, the expression for that particle size range has been scaled against the result for PM-10. Consequently, the quality rating for the PM-2.5 factor is lower than that for the PM-10 expression.

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS[a]

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

[a]References 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

$$E = k\ (s/12)^a (W/3)^b \tag{1a}$$

and, for vehicles traveling on publicly accessible roads, dominated by light duty vehicles, emissions may be estimated from the following:

$$E = \frac{k\ (s/12)^a (S/30)^d}{(M/0.5)^c} - C \tag{1b}$$

where k, a, b, c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

The source characteristics s, W and M are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

1 lb/VMT = 281.9 g/VKT

The constants for Equations 1a and 1b based on the stated aerodynamic particle sizes are shown in Tables 13.2.2-2 and 13.2.2-4. The PM-2.5 particle size multipliers (k-factors) are taken from Reference 27.

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a AND 1b

Constant	Industrial Roads (Equation 1a)			Public Roads (Equation 1b)		
	PM-2.5	PM-10	PM-30*	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9	0.18	1.8	6.0
a	0.9	0.9	0.7	1	1	1
b	0.45	0.45	0.45	-	-	-
c	-	-	-	0.2	0.2	0.3
d	-	-	-	0.5	0.5	0.3
Quality Rating	B	B	B	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)
"-" = not used in the emission factor equation

Table 13.2.2-2 also contains the quality ratings for the various size-specific versions of Equation 1a and 1b. The equation retains the assigned quality rating, if applied within the ranges of source conditions, shown in Table 13.2.2-3, that were tested in developing the equation:

Table 13.2.2-3. RANGE OF SOURCE CONDITIONS USED IN DEVELOPING EQUATION 1a AND 1b

Emission Factor	Surface Silt Content, %	Mean Vehicle Weight		Mean Vehicle Speed		Mean No. of Wheels	Surface Moisture Content, %
		Mg	ton	km/hr	mph		
Industrial Roads (Equation 1a)	1.8-25.2	1.8-260	2-290	8-69	5-43	4-17[a]	0.03-13
Public Roads (Equation 1b)	1.8-35	1.4-2.7	1.5-3	16-88	10-55	4-4.8	0.03-13

[a] See discussion in text.

As noted earlier, the models presented as Equations 1a and 1b were developed from tests of traffic on unpaved surfaces. Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall or watering, because of traffic-enhanced natural evaporation. (Factors influencing how fast a road dries are discussed in Section 13.2.2.3, below.) The quality ratings given above pertain to the mid-range of the measured source conditions for the equation. A higher mean vehicle weight and a higher than normal traffic rate may be justified when performing a worst-case analysis of emissions from unpaved roads.

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (*C*) was obtained from EPA's MOBILE6.2 model [23]. The emission factor also varies with aerodynamic size range as shown in Table 13.2.2-4

Table 13.2.2-4. EMISSION FACTOR FOR 1980'S VEHICLE FLEET EXHAUST, BRAKE WEAR AND TIRE WEAR

Particle Size Range[a]	*C*, Emission Factor for Exhaust, Brake Wear and Tire Wear[b] lb/VMT
$PM_{2.5}$	0.00036
PM_{10}	0.00047
PM_{30}[c]	0.00047

[a] Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers.
[b] Units shown are pounds per vehicle mile traveled (lb/VMT).
[c] PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. For example, if 98 percent of traffic on the road are 2-ton cars and trucks while the remaining 2 percent consists of 20-ton trucks, then the mean weight is 2.4 tons. More specifically, Equations 1a and 1b are *not* intended to be used to calculate a separate emission factor for each vehicle class within a mix of traffic on a given unpaved road. That is, in the example, one should *not* determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks. Instead, only one emission factor should be calculated that represents the "fleet" average of 2.4 tons for all vehicles traveling the road.

Moreover, to retain the quality ratings when addressing a group of unpaved roads, it is necessary that reliable correction parameter values be determined for the road in question. The field and laboratory procedures for determining road surface silt and moisture contents are given in AP-42 Appendices C.1 and C.2. Vehicle-related parameters should be developed by recording visual observations of traffic. In some cases, vehicle parameters for industrial unpaved roads can be determined by reviewing maintenance records or other information sources at the facility.

In the event that site-specific values for correction parameters cannot be obtained, then default values may be used.In the absence of site-specific silt content information, an appropriate mean value from Table 13.2.2-1 may be used as a default value, but the quality rating of the equation is reduced by two letters. Because of significant differences found between different types of road surfaces and between different areas of the country, use of the default moisture content value of 0.5 percent in Equation 1b is discouraged. The quality rating should be downgraded two letters when the default moisture content value is used. (It is assumed that readers addressing industrial roads have access to the information needed to develop average vehicle information in Equation 1a for their facility.)

The effect of routine watering to control emissions from unpaved roads is discussed below in Section 13.2.2.3, “Controls”. However, all roads are subject to some natural mitigation because of rainfall and other precipitation. The Equation 1a and 1b emission factors can be extrapolated to annual average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

$$E_{ext} = E\ [(365 - P)/365] \tag{2}$$

where:

E_{ext} = annual size-specific emission factor extrapolated for natural mitigation, lb/VMT

E = emission factor from Equation 1a or 1b

P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation (see below)

Figure 13.2.2-1 gives the geographical distribution for the mean annual number of "wet" days for the United States.

Equation 2 provides an estimate that accounts for precipitation on an annual average basis for the purpose of inventorying emissions. It should be noted that Equation 2 does not account for differences in the temporal distributions of the rain events, the quantity of rain during any event, or the potential for the rain to evaporate from the road surface. In the event that a finer temporal and spatial resolution is desired for inventories of public unpaved roads, estimates can be based on a more complex set of assumptions. These assumptions include:

1. The moisture content of the road surface material is increased in proportion to the quantity of water added;
2. The moisture content of the road surface material is reduced in proportion to the Class A pan evaporation rate;
3. The moisture content of the road surface material is reduced in proportion to the traffic volume; and
4. The moisture content of the road surface material varies between the extremes observed in the area. The CHIEF Web site (http://www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-2.html) has a file which contains a spreadsheet program for calculating emission factors which are temporally and spatially resolved. Information required for use of the spreadsheet program includes monthly Class A pan evaporation values, hourly meteorological data for precipitation, humidity and snow cover, vehicle traffic information, and road surface material information.

It is emphasized that <u>the simple assumption underlying Equation 2 and the more complex set of assumptions underlying the use of the procedure which produces a finer temporal and spatial resolution</u> have not been verified in any rigorous manner. For this reason, the quality ratings for either approach should be downgraded one letter from the rating that would be applied to Equation 1.

13.2.2.3 Controls[18-22]

A wide variety of options exist to control emissions from unpaved roads. Options fall into the following three groupings:

1. <u>Vehicle restrictions</u> that limit the speed, weight or number of vehicles on the road;

2. Surface improvement, by measures such as (a) paving or (b) adding gravel or slag to a dirt road; and

3. Surface treatment, such as watering or treatment with chemical dust suppressants.

Available control options span broad ranges in terms of cost, efficiency, and applicability. For example, traffic controls provide moderate emission reductions (often at little cost) but are difficult to enforce. Although paving is highly effective, its high initial cost is often prohibitive. Furthermore, paving is not feasible for industrial roads subject to very heavy vehicles and/or spillage of material in transport. Watering and chemical suppressants, on the other hand, are potentially applicable to most industrial roads at moderate to low costs. However, these require frequent reapplication to maintain an acceptable level of control. Chemical suppressants are generally more cost-effective than water but not in cases of temporary roads (which are common at mines, landfills, and construction sites). In summary, then, one needs to consider not only the type and volume of traffic on the road but also how long the road will be in service when developing control plans.

Vehicle restrictions. These measures seek to limit the amount and type of traffic present on the road or to lower the mean vehicle speed. For example, many industrial plants have restricted employees from driving on plant property and have instead instituted bussing programs. This eliminates emissions due to employees traveling to/from their worksites. Although the heavier average vehicle weight of the busses increases the base emission factor, the decrease in vehicle-miles-traveled results in a lower overall emission rate.

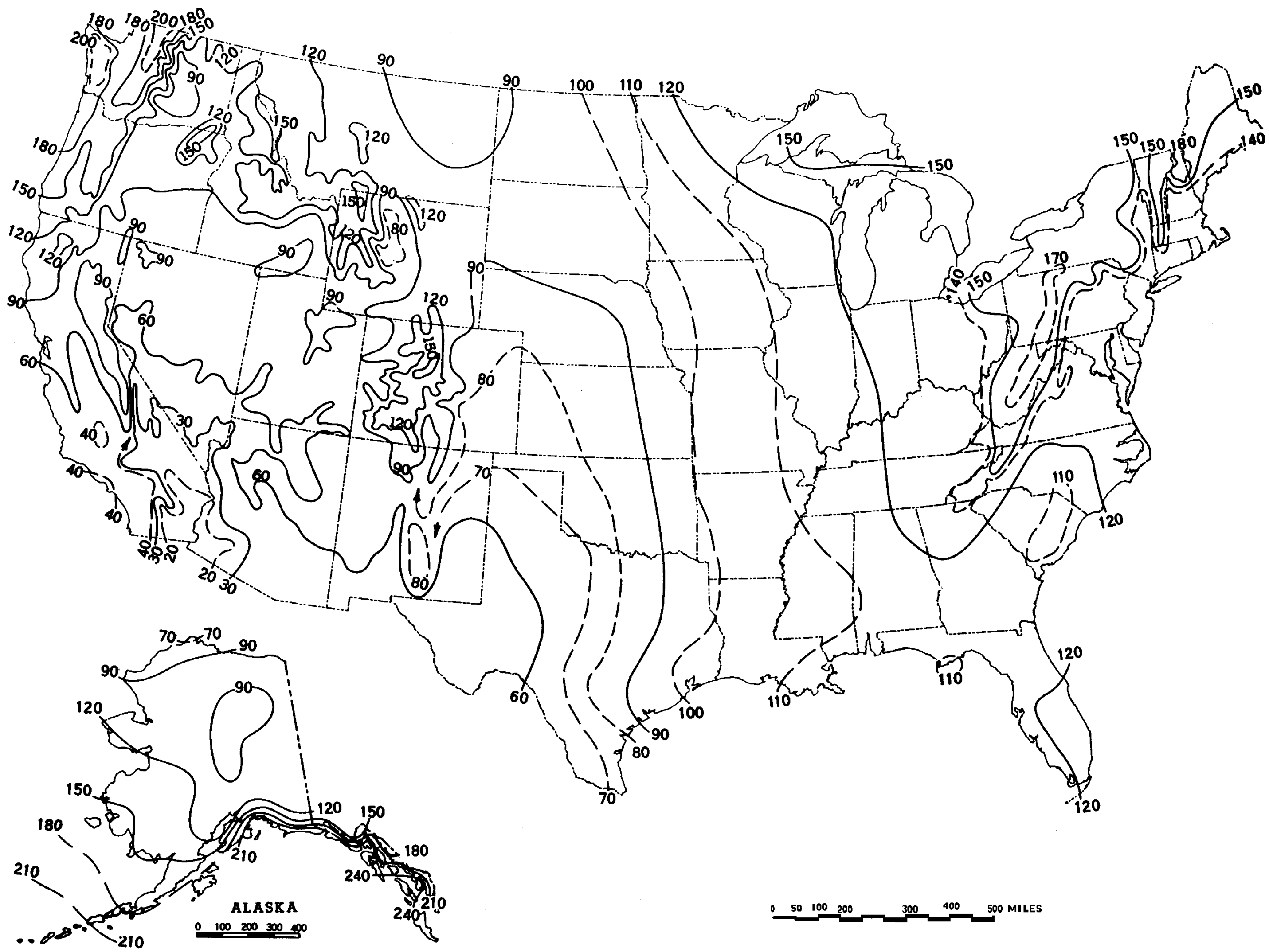

Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Surface improvements. Control options in this category alter the road surface. As opposed to the "surface treatments" discussed below, improvements are relatively "permanent" and do not require periodic retreatment.

The most obvious surface improvement is paving an unpaved road. This option is quite expensive and is probably most applicable to relatively short stretches of unpaved road with at least several hundred vehicle passes per day. Furthermore, if the newly paved road is located near unpaved areas or is used to transport material, it is essential that the control plan address routine cleaning of the newly paved road surface.

The control efficiencies achievable by paving can be estimated by comparing emission factors for unpaved and paved road conditions. The predictive emission factor equation for paved roads, given in Section 13.2.1, requires estimation of the silt loading on the traveled portion of the paved surface, which in turn depends on whether the pavement is periodically cleaned. Unless curbing is to be installed, the effects of vehicle excursion onto unpaved shoulders (berms) also must be taken into account in estimating the control efficiency of paving.

Other improvement methods cover the road surface with another material that has a lower silt content. Examples include placing gravel or slag on a dirt road. Control efficiency can be estimated by comparing the emission factors obtained using the silt contents before and after improvement. The silt content of the road surface should be determined after 3 to 6 months rather than immediately following placement. Control plans should address regular maintenance practices, such as grading, to retain larger aggregate on the traveled portion of the road.

Surface treatments refer to control options which require periodic reapplication. Treatments fall into the two main categories of (a) "wet suppression" (i. e., watering, possibly with surfactants or other additives), which keeps the road surface wet to control emissions and (b) "chemical stabilization/ treatment", which attempts to change the physical characteristics of the surface. The necessary reapplication frequency varies from several minutes for plain water under summertime conditions to several weeks or months for chemical dust suppressants.

Watering increases the moisture content, which conglomerates particles and reduces their likelihood to become suspended when vehicles pass over the surface. The control efficiency depends on how fast the road dries after water is added. This in turn depends on (a) the amount (per unit road surface area) of water added during each application; (b) the period of time between applications; (c) the weight, speed and number of vehicles traveling over the watered road during the period between applications; and (d) meteorological conditions (temperature, wind speed, cloud cover, etc.) that affect evaporation during the period.

Figure 13.2.2-2 presents a simple bilinear relationship between the instantaneous control efficiency due to watering and the resulting increase in surface moisture. The moisture ratio "M" (i.e., the x-axis in Figure 13.2.2-2) is found by dividing the surface moisture content of the watered road by the surface moisture content of the uncontrolled road. As the watered road surface dries, both the ratio M and the predicted instantaneous control efficiency (i.e., the y-axis in the figure) decrease. The figure shows that between the uncontrolled moisture content and a value twice as large, a small increase in moisture content results in a large increase in control efficiency. Beyond that, control efficiency grows slowly with increased moisture content.

Given the complicated nature of how the road dries, characterization of emissions from watered roadways is best done by collecting road surface material samples at various times between water truck passes. (Appendices C.1 and C.2 present the sampling and analysis procedures.) The moisture content measured can then be associated with a control efficiency by use of Figure 13.2.2-2. Samples that reflect average conditions during the watering cycle can take the form of either a series of samples between water applications or a single sample at the midpoint. It is essential that samples be collected during periods with active traffic on the road. Finally, because of different evaporation rates, it is recommended that samples be collected at various times during the year. If only one set of samples is to be collected, these must be collected during hot, summertime conditions.

When developing watering control plans for roads that do not yet exist, it is strongly recommended that the moisture cycle be established by sampling similar roads in the same geographic area. If the moisture cycle cannot be established by similar roads using established watering control plans, the more complex methodology used to estimate the mitigation of rainfall and other precipitation can be used to estimate the control provided by routine watering. An estimate of the maximum daytime Class A pan evaporation (based upon daily evaporation data published in the monthly Climatological Data for the state by the National Climatic Data Center) should be used to insure that adequate watering capability is available during periods of highest evaporation. The hourly precipitation values in the spreadsheet should be replaced with the equivalent inches of precipitation (where the equivalent of 1 inch of precipitation is provided by an application of 5.6 gallons of water per square yard of road). Information on the long term average annual evaporation and on the percentage that occurs between May and October was published in the Climatic Atlas (Reference 16). Figure 13.2.2-3 presents the geographical distribution for "Class A pan evaporation" throughout the United States. Figure 13.2.2-4 presents the geographical distribution of the percentage of this evaporation that occurs between May and October. The U. S. Weather Bureau Class A evaporation pan is a cylindrical metal container with a depth of 10 inches and a diameter of 48 inches. Periodic measurements are made of the changes of the water level.

The above methodology should be used <u>only for prospective analyses</u> and for designing watering programs for existing roadways. The quality rating of an emission factor for a watered road that is based on this methodology should be downgraded two letters. Periodic road surface samples should be collected and analyzed to verify the efficiency of the watering program.

As opposed to watering, chemical dust suppressants have much less frequent reapplication requirements. These materials suppress emissions by changing the physical characteristics of the existing road surface material. Many chemical unpaved road dust suppressants form a hardened surface that binds particles together. After several applications, a treated road often resembles a paved road except that the surface is not uniformly flat. Because the improved surface results in more grinding of small particles, the silt content of loose material on a highly controlled surface may be substantially higher than when the surface was uncontrolled. For this reason, the models presented as Equations 1a and 1b cannot be used to estimate emissions from chemically stabilized roads. Should the road be allowed to return to an uncontrolled state with no visible signs of large-scale cementing of material, the Equation 1a and 1b emission factors could then be used to obtain conservatively high emission estimates.

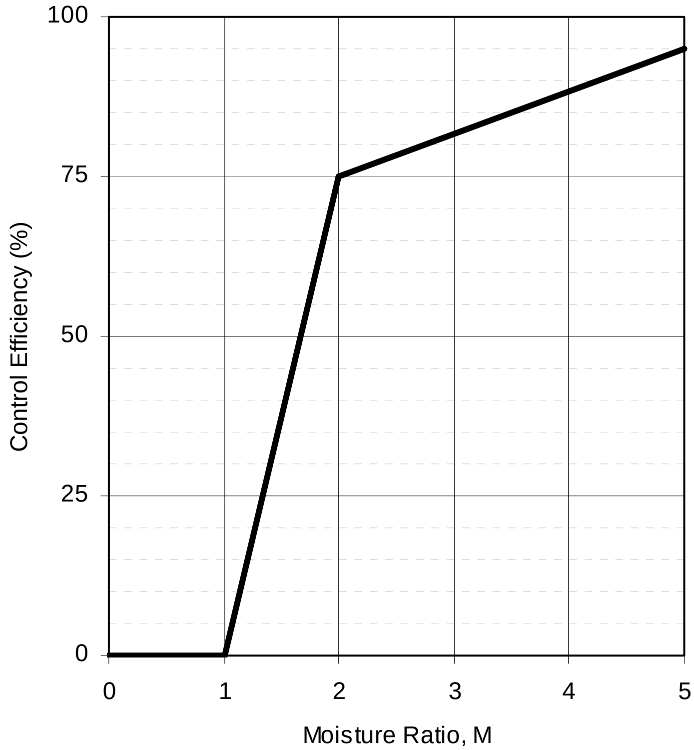

Figure 13.2.2-2. Watering control effectiveness for unpaved travel surfaces

The control effectiveness of chemical dust suppressants appears to depend on (a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period. Other factors that affect the performance of dust suppressants include other traffic characteristics (e. g., cornering, track-on from unpaved areas) and road characteristics (e. g., bearing strength, grade). The variabilities in the above factors and differences between individual dust control products make the control efficiencies of chemical dust suppressants difficult to estimate. Past field testing of emissions from controlled unpaved roads has shown that chemical dust suppressants provide a PM-10 control efficiency of about 80 percent when applied at regular intervals of 2 weeks to 1 month.

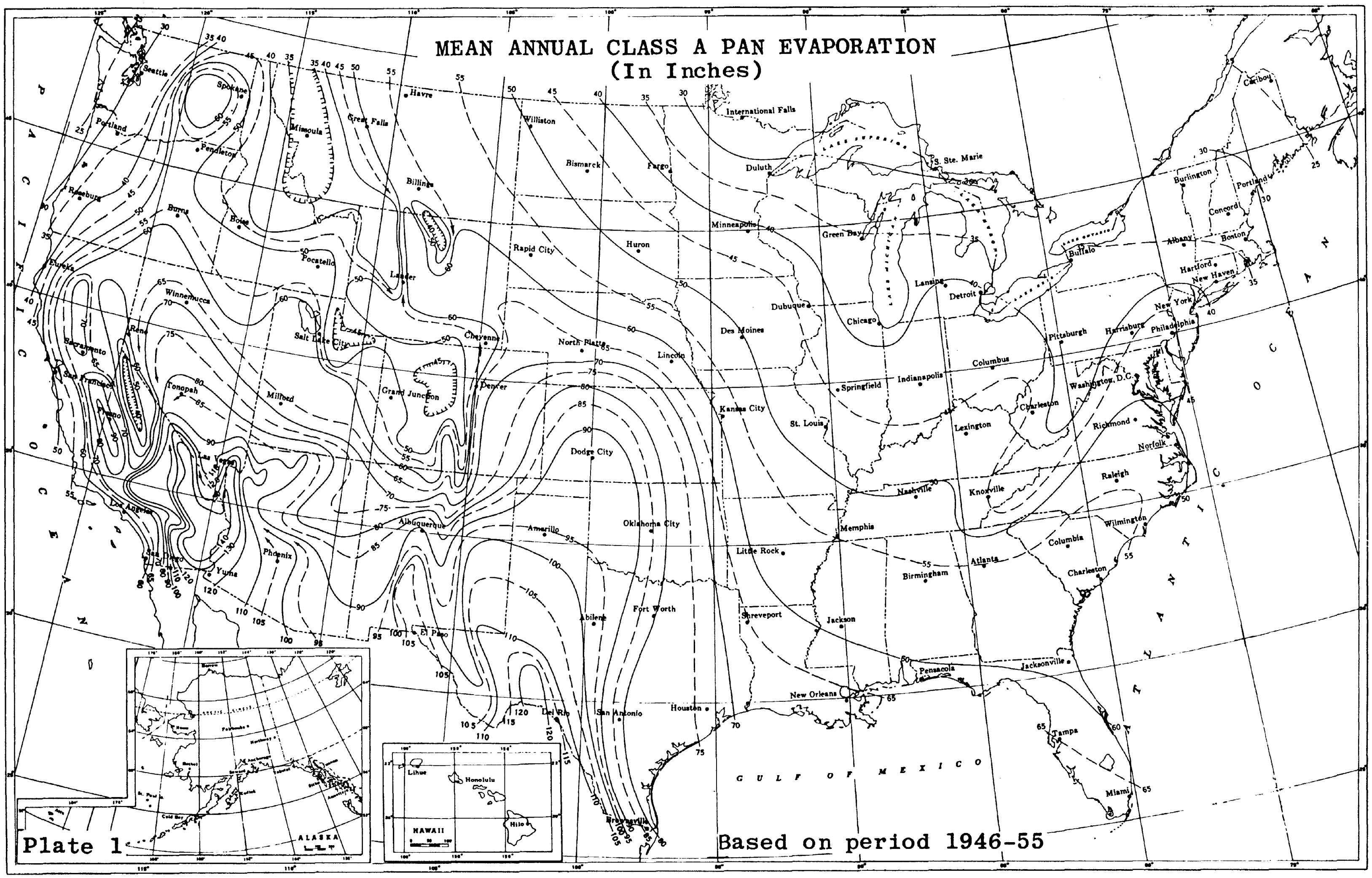

Figure 13.2.2-3. Annual evaporation data.

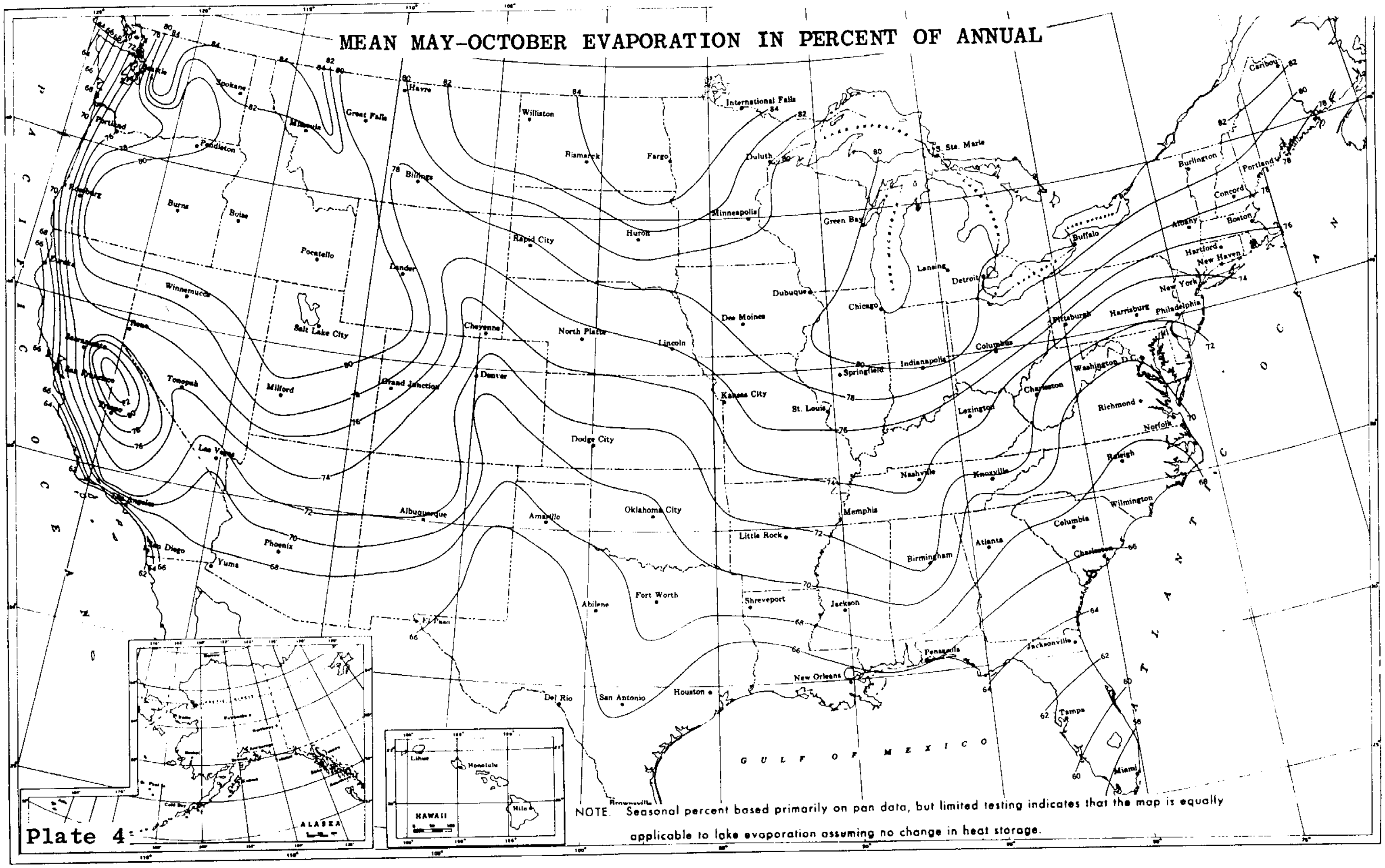

Figure 13.2.2-4. Geographical distribution of the percentage of evaporation occurring between May and October.

Petroleum resin products historically have been the dust suppressants (besides water) most widely used on industrial unpaved roads. Figure 13.2.2-5 presents a method to estimate average control efficiencies associated with petroleum resins applied to unpaved roads.[20] Several items should be noted:

1. The term "ground inventory" represents the total volume (per unit area) of petroleum resin concentrate (*not solution*) applied since the start of the dust control season.

2. Because petroleum resin products must be periodically reapplied to unpaved roads, the use of a time-averaged control efficiency value is appropriate. Figure 13.2.2-5 presents control efficiency values averaged over two common application intervals, 2 weeks and 1 month. Other application intervals will require interpolation.

3. Note that zero efficiency is assigned until the ground inventory reaches 0.05 gallon per square yard (gal/yd^2). Requiring a minimum ground inventory ensures that one must apply a reasonable amount of chemical dust suppressant to a road before claiming credit for emission control. Recall that the ground inventory refers to the amount of petroleum resin concentrate rather than the total solution.

As an example of the application of Figure 13.2.2-5, suppose that Equation 1a was used to estimate an emission factor of 7.1 lb/VMT for PM-10 from a particular road. Also, suppose that, starting on May 1, the road is treated with 0.221 gal/yd^2 of a solution (1 part petroleum resin to 5 parts water) on the first of each month through September. Then, the average controlled emission factors, shown in Table 13.2.2-5, are found.

Table 13.2-2-5. EXAMPLE OF AVERAGE CONTROLLED EMISSION FACTORS FOR SPECIFIC CONDITIONS

Period	Ground Inventory, gal/yd^2	Average Control Efficiency, %[a]	Average Controlled Emission Factor, lb/VMT
May	0.037	0	7.1
June	0.073	62	2.7
July	0.11	68	2.3
August	0.15	74	1.8
September	0.18	80	1.4

[a] From Figure 13.2.2-5, $\leq$10 µm. Zero efficiency assigned if ground inventory is less than 0.05 gal/yd^2.
1 lb/VMT = 281.9 g/VKT. 1 gal/yd^2 = 4.531 L/m^2.

Besides petroleum resins, other newer dust suppressants have also been successful in controlling emissions from unpaved roads. Specific test results for those chemicals, as well as for petroleum resins and watering, are provided in References 18 through 21.

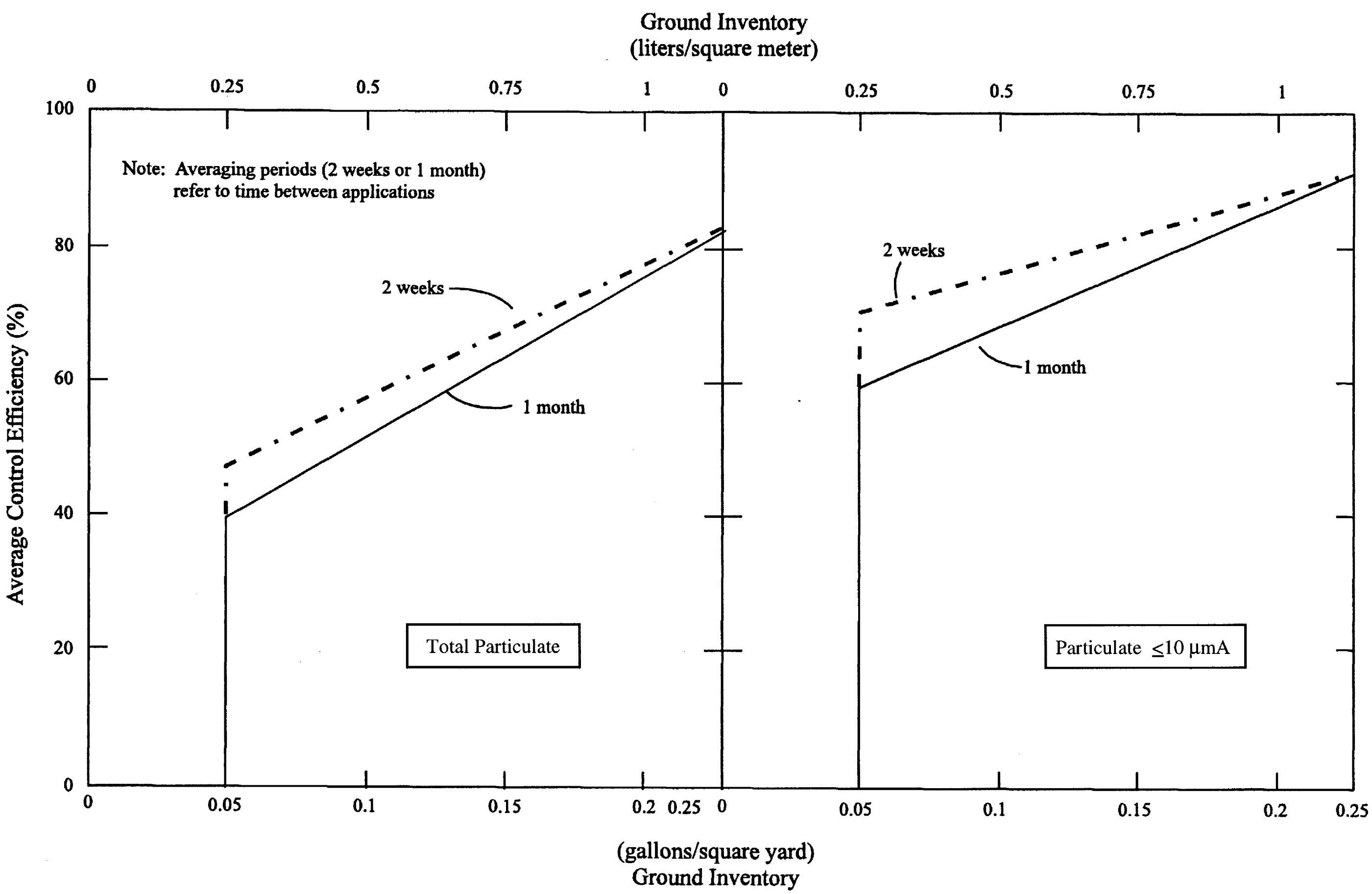

Figure 13.2.2-5. Average control efficiencies over common application intervals.

13.2.2.4 Updates Since The Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the background report for this section (Reference 6).

October 1998 (Supplement E)– This was a major revision of this section. Significant changes to the text and the emission factor equations were made.

October 2001 – Separate emission factors for unpaved surfaces at industrial sites and publicly accessible roads were introduced. Figure 13.2.2-2 was included to provide control effectiveness estimates for watered roads.

December 2003 – The public road emission factor equation (equation 1b) was adjusted to remove the component of particulate emissions from exhaust, brake wear, and tire wear. The parameter C in the new equation varies with aerodynamic size range of the particulate matter. Table 13.2.2-4 was added to present the new coefficients.

January 2006 – The PM-2.5 particle size multipliers (i.e., factors) in Table 13.2.2-2 were modified and the quality ratings were upgraded from C to B based on the wind tunnel studies of a variety of dust emitting surface materials.

References For Section 13.2.2

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10. *Size Specific Emission Factors For Uncontrolled Industrial And Rural Roads*, EPA Contract No. 68-02-3158, Midwest Research Institute, Kansas City, MO, September 1983.

11. C. Cowherd, Jr., and P. Englehart, *Size Specific Particulate Emission Factors For Industrial And Rural Roads*, EPA-600/7-85-038, U. S. Environmental Protection Agency, Cincinnati, OH, September 1985.

12. *PM-10 Emission Inventory Of Landfills In The Lake Calumet Area*, EPA Contract 68-02-3891, Work Assignment 30, Midwest Research Institute, Kansas City, MO, September 1987.

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14. *PM-10 Emissions Inventory Data For The Maricopa And Pima Planning Areas*, EPA Contract No. 68-02-3888, Engineering-Science, Pasadena, CA, January 1987.

15. *Oregon Fugitive Dust Emission Inventory*, EPA Contract 68-D0-0123, Midwest Research Institute, Kansas City, MO, January 1992.

16. *Climatic Atlas Of The United States*, U. S. Department Of Commerce, Washington, DC, June 1968.

17. National Climatic Data Center, *Solar And Meteorological Surface Observation Network 1961-1990*; 3 Volume CD-ROM. Asheville, NC, 1993.

18. C. Cowherd, Jr. *et al.*, *Control Of Open Fugitive Dust Sources*, EPA-450/3-88-008, U. S. Environmental Protection Agency, Research Triangle Park, NC, September 1988.

19. G. E. Muleski, *et al.*, *Extended Evaluation Of Unpaved Road Dust Suppressants In The Iron And Steel Industry*, EPA-600/2-84-027, U. S. Environmental Protection Agency, Cincinnati, OH, February 1984.

20. C. Cowherd, Jr., and J. S. Kinsey, *Identification, Assessment And Control Of Fugitive Particulate Emissions*, EPA-600/8-86-023, U. S. Environmental Protection Agency, Cincinnati, OH, August 1986.

21. G. E. Muleski and C. Cowherd, Jr., *Evaluation Of The Effectiveness Of Chemical Dust Suppressants On Unpaved Roads*, EPA-600/2-87-102, U. S. Environmental Protection Agency, Cincinnati, OH, November 1986.

22. *Fugitive Dust Background Document And Technical Information Document For Best Available Control Measures*, EPA-450/2-92-004, Office Of Air Quality Planning And Standards, U. S. Environmental Protection Agency, Research Triangle Park, NC, September 1992.

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24. MOBILE6 User Guide, United States Environmental Protection Agency, Office of Transportation and Air Quality. EPA420-R-02-028, October 2002.

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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

EPA-453/R-95-017

1995 Protocol for Equipment Leak Emission Estimates

Emission Standards Division

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

November 1995

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

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

[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.

Displaying title 40, up to date as of 8/24/2023. Title 40 was last amended 8/24/2023.

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 98 —Mandatory Greenhouse Gas Reporting
Subpart C —General Stationary Fuel Combustion Sources

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
Used Oil	0.138	74.00

Fuel type	Default high heat value	Default CO_2 emission factor
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
Crude Oil	0.138	74.54
Petroleum products—solid	mmBtu/short ton	kg CO_2/mmBtu.
Petroleum Coke	30.00	102.41.

Fuel type	Default high heat value	Default CO_2 emission factor
Petroleum products—gaseous	mmBtu/scf	kg CO_2/mmBtu.
Propane Gas	2.516×10^{-3}	61.46.
Other fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Municipal Solid Waste	9.95[3]	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Other fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Blast Furnace Gas	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Fuel Gas[4]	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Wood and Wood Residuals (dry basis)[5]	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Landfill Gas	0.485×10^{-3}	52.07
Other Biomass Gases	0.655×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO_2/mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

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

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

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

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

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

[78 FR 71950, Nov. 29, 2013, as amended at 81 FR 89252, Dec. 9, 2016]

Displaying title 40, up to date as of 8/24/2023. Title 40 was last amended 8/24/2023.

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 98 —Mandatory Greenhouse Gas Reporting
Subpart C —General Stationary Fuel Combustion Sources

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

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Coal and Coke (All fuel types in Table C–1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum Products (All fuel types in Table C–1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
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.

[78 FR 71952, Nov. 29, 2013, as amended at 81 FR 89252, Dec. 9, 2016]

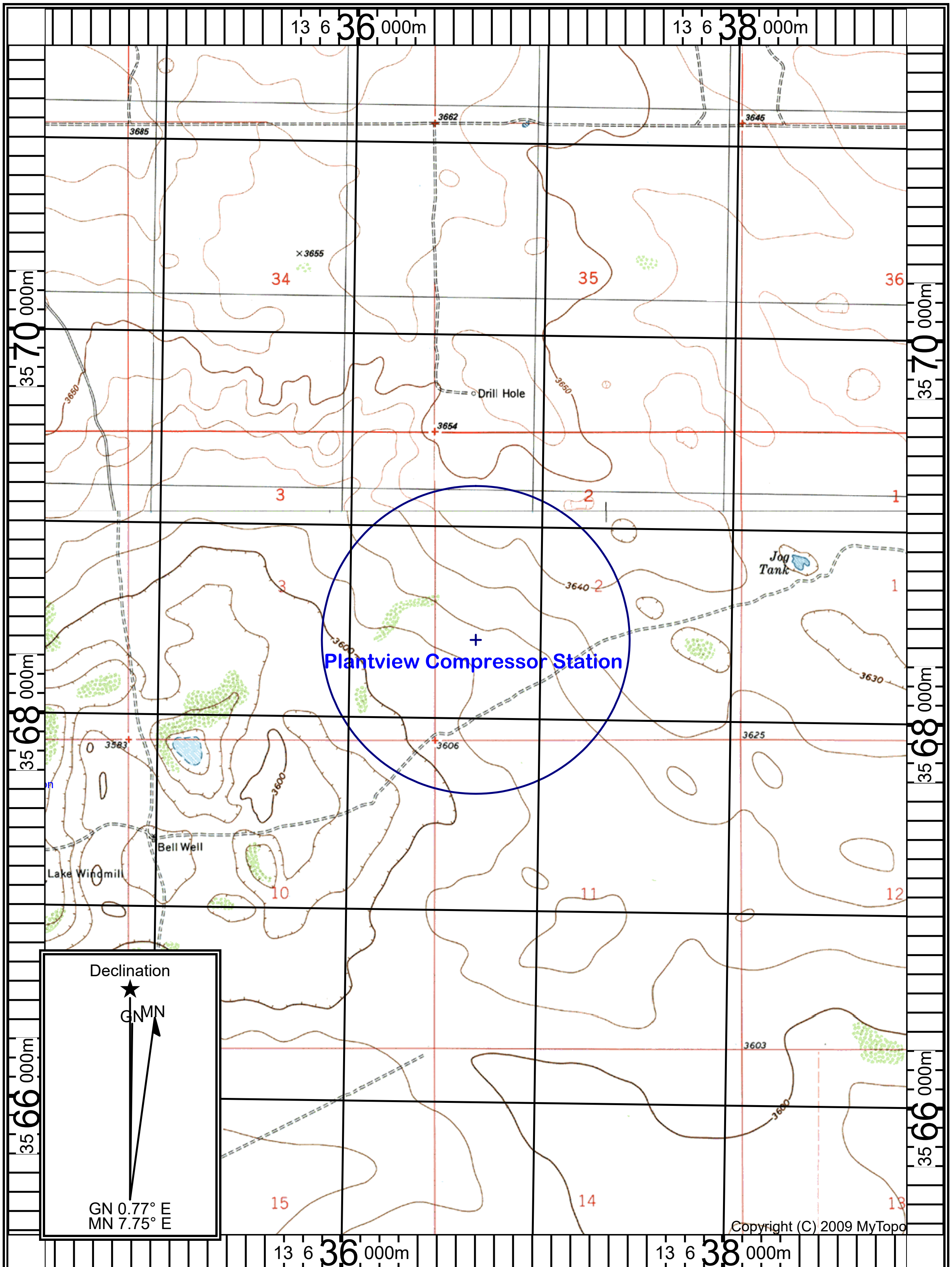
Section 8

Map(s)

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

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

A map of the facility has been attached on the following page.



Map Name: BELL LAKE (NM) Scale: 1 inch = 2,500 ft. Horizontal Datum: WGS84
Print Date: 05/15/24 Map Center: 13 0636660 E 3568410 N

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

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

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

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

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

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

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

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Street & Apt. No., or PO Box No.: 100 N. Main Ave., suite 4
City, State, ZIP+4: Lovington, NM 88260

PS Form 3800, July 2014 See Reverse for Instructions

7014 2870 0001 4722 6322

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

$0.00
US POSTAGE
5/21/2024
062S12395454
87113
000030507

Sent To: NGL Water Solutions Permian LLC
Street & Apt. No., or PO Box No.: 865 Albion St. Suite 400
City, State, ZIP+4: Denver, CO 80220

PS Form 3800, July 2014 See Reverse for Instructions

<u>May 20, 2024</u>

CERTIFIED MAIL 7014 2870 001 4722 6278
RETURN RECEIPT REQUESTED (certified mail is required, return receipt is optional)

Dear **Neighbor,**
Targa Northern Delaware, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its compressor station plan known as **Plantview Compressor Station.** The expected date of application submittal to the Air Quality Bureau is **May 15, 2024.**

The exact location for the facility known as **Plantview Compressor Station**, is at latitude **32.244011°** and longitude **-103.549392°**. The approximate location of this facility is **22.9** miles **west-northwest** of **Jal, NM** in **Lea** County.

The proposed **modification** consists of updating various emission rates, adding a heater trailer, air compressor generator, enclosed combustion unit, replacing an existing thermal oxidizer with a flare, and to modify all other units based on a recent inlet gas analysis.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	5	20
PM_{10}	5	19
$PM_{2.5}$	5	19
Sulfur Dioxide (SO_2)	5	21
Nitrogen Oxides (NO_x)	485	953
Carbon Monoxide (CO)	97	230
Volatile Organic Compounds (VOC)	16	78
Total sum of all Hazardous Air Pollutants (HAPs)	2	12
Green House Gas Emissions as Total CO_2e	n/a	301,000

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.

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,
Targa Northern Delaware, LLC
811 Lousianna St, Ste 2100
Houston, TX 77002

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.

General Posting of Notices – Certification

I, ________Cody McArthur____________, the undersigned, certify that on **5/20/2024,** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **Town** of **Jal, Lea** County, State of New Mexico on the following dates:

1. Facility entrance 5/20/2024
2. Woolword Community Library, 100 E. Utah Ave, Jal, NM 88252 5/20/2024
3. Jal City Hall, 309 South Main Street, Jal, NM 88252 5/20/2024
4. Jal United States Post Office, 111 South 4th Street, Jal, NM 88252 5/20/2024

Signed this __20__ day of ___May___, __2004__,

____ (signature)
Signature

__05/20/2024__________
Date

___Cody McArthur____________________
Printed Name

_____Safety Supervisor____________________________
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}


TARGA
Plant View
Compressor Station
EMERGENCY # 575.748.4555
Latitude
32.24414
Longitude
-103.54898
NOTICE


NOTICE
Delaware G&P, LLC announces its application to the New Mexico Environment Department for an air quality permit for the modification of its oil and gas facility. The expected date of application submittal to the Air Quality Bureau is May 2024.
The exact location for the proposed facility, known as Horned Frog Compressor Station, is located at latitude 32.083086 dec deg North and longitude -103.588061 dec deg West. The approximate location of this facility is 23.5 miles West of Jal in Lea County.
The proposed modification consists of nine compressor engines, two generator engines, six condensate tanks, two produced water tanks, one gunbarrel separator, two glycol reboilers, two TEG dehydrators, condensate loadout, produced water loadout, one combustor, haul road fugitives, facility piping fugitives, and startup, shutdown, maintenance emissions.
The estimated maximum quantities of any regulated air contaminants will be as follows in pounds 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
PM 10 3.5 pph 11.5 tpy
PM 2.5 3.0 pph 11.0 tpy
Sulfur Dioxide (SO2) 1.0 pph 4.0 tpy
Nitrogen Oxides (NOx) 20.0 pph 82.0 tpy
Carbon Monoxide (CO) 25.0 pph 106.5 tpy
Volatile Organic Compounds (VOC) 1798.0 pph 128.5 tpy
Total sum of all Hazardous Air Pollutants (HAPs) 60.5 pph 20.0 tpy
Green House Gas Emissions as Total CO2e n/a 296,463.0 tpy
The standard and maximum operating schedules of the facility will be from 12:00 a.m. to 11:59 p.m. 7 days a week and a maximum of 52 weeks per year.
The owner and/or operator of the Facility is: Delaware G&P, LLC; 1722 Routh Street, Suite 1300, Dallas, TX 75201
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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discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI
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.
NOTICE
Targa Northern Delaware, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its compressor station facility. The expected date of application submittal to the Air Quality Bureau is May 15, 2024.
Pollutant: Pounds per hour Tons per year
Sulfur Dioxide (SO2) 11 43
Nitrogen Oxides (NOx) 29 114
Carbon Monoxide (CO) 35 143
Volatile Organic Compounds (VOC) 6077 109
Hydrogen Sulfide (H2S) 1 1
Total sum of all Hazardous Air Pollutants (HAPs) 173 24.9
Toxic Air Pollutant (TAP) N/A N/A
Green House Gas Emissions as Total CO2e N/A 1,034,528
The standard operating schedule of the facility will be 24 hours a day, 7 days a week, and 52 weeks per year.
The owner and/or operator of the Facility is:
Targa Northern Delaware, LLC
811 Louisiana St, Ste 2100
Houston, TX 77002

2021 that complies with guidance set forth by the Child Internet Protection Act (CIPA).

(A copy of the Policy is attached)

The library respects the freedom of access to information but adheres to certain restrictions as demonstrated in the CIPA in order to protect children.

NOTICE

Targa Northern Delaware, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **compressor station** facility. The expected date of application submittal to the Air Quality Bureau is **May 15, 2024.**

The exact location for the proposed facility known as, **Plantview Compressor Station**, is at **32.244011°, -103.549392°.** The approximate location of this facility is **22.9** miles **west-northwest** of **Jal, NM** in **Lea** county.

The proposed **modification** consists of updating various emission rates, adding a heater trailer, air compressor generator, enclosed combustion unit, replacing an existing thermal oxidizer with a flare, and to modify all other units based on a recent inlet gas analysis.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	7	8
$PM_{2.5}$	3	8
Sulfur Dioxide (SO_2)	11	43
Nitrogen Oxides (NO_x)	29	114
Carbon Monoxide (CO)	35	143
Volatile Organic Compounds (VOC)	6077	109
Hydrogen Sulfide (H_2S)	1	1
Total sum of all Hazardous Air Pollutants (HAPs)	173	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO_2e	N/A	1,034,528

The standard operating schedule of the facility will be 24 hours a day, 7 days a week, and 52 weeks per year.

The owner and/or operator of the Facility is:
Targa Northern Delaware, LLC
811 Lousianna St, Ste 2100
Houston, TX 77002

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Please refer to the company name and site 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

Volatile Organic Compounds (VOC)	1768.0 pph	128.5 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	60.5 pph	20.0 tpy
Green House Gas Emissions as Total CO_2e	n/a	296,463.0 tpy

The standard and maximum operating schedules of the facility will be from 12:00 a.m. to 11:59 p.m. 7 days a week and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is: **Delaware G&P, LLC; 1722 Routh Street, Suite 1300, Dallas, TX 75201**

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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Nitrogen Oxides (NO_x)	29	114
Carbon Monoxide (CO)	35	143
Volatile Organic Compounds (VOC)	6077	109
Hydrogen Sulfide (H_2S)	1	1
Total sum of all Hazardous Air Pollutants (HAPs)	173	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO_2e	N/A	1,034,528

The sta[illegible]d operating schedule of the facility will be 24 hours a day, 7 days a week, and 52 weeks per year.

The own[illegible]nd/or operator of the Facility is:
Targa N[illegible]ern Delaware, LLC
811 Lou[illegible]a St, Ste 2100
Housto[illegible] 77002

If you [illegible] 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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JAL NEW MEXICO small town, big heart

CITY OF JAL COUNCIL REGULAR MEETING AGENDA

Monday May 20th, 2024 – 5:30 pm
Council Chambers, City Hall, 710 W. Wyoming – Jal, NM

I. COUNCIL CONVENES
- a. CALL TO ORDER
- b. ROLL CALL
- c. PLEDGE OF ALLEGIANCE
- d. INVOCATION
- e. MAYORS COMMENTS
- f. APPROVAL OF AGENDA
- g. APPROVAL OF APRIL 22ND, 2024 REGULAR MEETING MINUTES

II. PUBLIC COMMENT (Limit to 3 minutes)

III. DEPARTMENT HEAD REPORTS
- a. Public Works (Van Myrick, Director)
- b. Community Service (Chuck Miller, Director)
- c. Police Department (Mauricio Valeriano, Chief)
- d. Fire Department (Nick Moody, Chief)
- e. Emergency Medical Services (Whitney Moody, Chief)
- f. Senior Center (Adela Rodriguez)

IV. TREASURER REPORTS
- a. Accounts Receivable
- b. Accounts Payable
- c. GRT Monthly Tax Report
- d. Target/CED Lease Reports

V. CITY MANAGER REPORT

VI. NEW BUSINESS
- a. Discussion and/or action on councilors appointing members to an event committee
- b. Discussion and/or action on City Infrastructure: Police Department/Dispatch/Courts Building
- c. Discussion and/or action on Spillman Flex Modules for Jal Police Department

VII. COUNCIL ADJOURNS AS CITY COUNCIL AND RECONVENES AS PLANNING AND ZONING COMMISSION

CONSIDERATION OF PROPERTY VARIANCE:

Submittal of Public Service Announcement – Certification

I, ___Beth Morley___, the undersigned, certify that on **May 20, 2024**, submitted a public service announcement to **1 Radio Square** that serves the City of **Loving, Lea** County, New Mexico, in which the source is or is proposed to be located and that **1 Radio Square Radio DID NOT RESPOND.**

Signed this _20_ day of __May__, __2024_,

______________________________   ___05/20/2024_____
Signature   Date

___Beth Morley__________________
Printed Name

___________Consultant__________________________
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

From:	Beth Morley
To:	dawn@1radiosquare.com
Cc:	Daniel Dolce
Subject:	Plantview Compressor Station - PSA Request
Date:	Monday, May 20, 2024 5:53:53 PM
Attachments:	image001.png

Dear Dawn,

Per New Mexico Administrative Code 20.2.72.203.B 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 request must contain the following information about the facility or proposed facility (20.2.72.203.D NMAC).

a. The name: **Plantview Compressor Station**, location: **32.244011°, -103.549392.** and type of business: **Compressor Station.**
b. The name and principal owner or operator: **Targa Northern Delaware, LLC – owner and operator.**
c. The type of process or change for which the permit is sought: **NSR Significant Revision – consists of updating various emission rates, adding a heater trailer, air compressor generator, enclosed combustion unit, replacing an existing thermal oxidizer with a flare, and to modify all other units based on a recent inlet gas analysis.**
d. Locations where the notices have been posted in Loving, NM 88256: **(1) Plantview Compressor Station Facility Entrance, (2) Woolword Community Library, 100 E. Utah Ave, Jal, NM 88252, (3) Jal City Hall, 309 South Main Street, Jal, NM 88252, and (4) Jal United States Post Office, 111 South 4th Street, Jal, NM 88252.**
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.**

Thank you,

Beth Morley
Associate Consultant

P 505.266.6611
Email: Beth.Morley@Trinityconsultants.com
9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
May 16, 2024
and ending with the issue dated
May 16, 2024.

Publisher

Sworn and subscribed to before me this 16th day of May 2024.

Business Manager

My commission expires
January 29, 2027
(Seal)

STATE OF NEW MEXICO
NOTARY PUBLIC
GUSSIE RUTH BLACK
COMMISSION # 1087526
COMMISSION EXPIRES 01/29/2027

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said publication has been made.

LEGAL NOTICE
May 16, 2024

NOTICE OF AIR QUALITY PERMIT APPLICATION

Targa Northern Delaware, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **compressor station** facility. The expected date of application submittal to the Air Quality Bureau is **May 15, 2024.**

The exact location for the proposed facility known as, **Plantview Compressor Station,** is at **32.244011°, -103.549392°**. The approximate location of this facility is **22.9** miles **west-northwest** of **Jal, NM** in **Lea** county.

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Volatile Organic Compounds (VOC)	6077.	109
Hydrogen Sulfide (H_2S)	1	1
Total sum of all Hazardous Air Pollutants (HAPs)	173	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
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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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#00290408

01100104 00290408

TRACY POWELL
TRINITY CONSULTANTS
12700 PARK CENTRAL DR., STE. 600
DALLAS, TX 75251

Affidavit of Publicatio

STATE OF NEW MEXICO
COUNTY OF LEA

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Beginning with the issue dated
May 16, 2024
and ending with the issue dated
May 16, 2024.

Dan Russell

Publisher

Sworn and subscribed to before me this 16th day of May 2024.

Gussie Ruth Black

Business Manager

My commission expires
January 29, 2027
(Seal)

STATE OF NEW MEXICO
NOTARY PUBLIC
GUSSIE RUTH BLACK
COMMISSION # 1087526
COMMISSION EXPIRES 01/29/2027

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Targa Northern Delaware, LLC announces its application su
Department for an air quality permit for the **modification** o
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The exact location for the proposed facility known as, **Plant**
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The proposed **modification** consists of updating various em
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(pph) and tons per year (tpy) and could change slightly duri

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Hydrogen Sulfide (H_2S)	1
Total sum of all Hazardous Air Pollutants (HAPs)	173
Toxic Air Pollutant (TAP)	N/A
Green House Gas Emissions as Total CO_2e	N/A

The standard operating schedule of the facility will be 24 h

The owner and/or operator of the Facility is:
Targa Northern Delaware, LLC
811 Lousianna St, Ste 2100
Houston, TX 77002

If you have any comments about the construction or operat
be made as part of the permit review process, you must sub
Permit Programs Manager; New Mexico Environment Depa
Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Othe
verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and site name, or send a
since the Department may have not yet received the permit
mailing address with your comments. Once the Departmen
application and its air quality impacts, the Department's not
newspaper circulated near the facility location.

General information about air quality and the permitting pr
the Air Quality Bureau's website: www.env.nm.gov/air-quali
dealing with public participation in the permit review proces

Atención
Este es un aviso de la oficina de Calidad del Aire del Departa
acerca de las emisiones producidas por un establecimiento e
español, por favor comuníquese con esa oficina al teléfono

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, nati
administration of its programs or activiti

ITTS

RN LOSER

ACROSS
— Francis Drake
Prized violin
Old British rule in India
Guitar kin
Church singers
Big bird
Soak flax
— — lunch
Turf
Bad result
Rubber gasket (hyph.)
Infirmary item
Mooch
Cook in water
Japanese city
Barley bristle
— -Wan Kenobi
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Plantview Compressor Station Neighboring Landowners

Area of Interest (AOI) Information

Area : 665.89 acres

May 13 2024 16:17:37 Mountain Daylight Time

Esri Community Maps Contributors, New Mexico State University, Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Parcels

#	Parcel Code	Name	Mailing Address 1	Mailing City	Mailing State	Mailing Zipcode	Area(acres)
1	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	50.74
2	4000516950001	NGL WATER SOLUTIONS PERMIAN LLC	865 ALBION ST STE 400	DENVER	CO	80220	104.19
3	4000000010001	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	186.00
4	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	324.95

Section 10

Written Description of the Routine Operations of the Facility

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

The Plantview natural gas compressor station is part of a localized gas gathering system that gathers sweet field gas from multiple wells in the area. The SIC code for the facility is 1311. The facility is located in Section 002, Township 24 South, Range 33 East in Lea County.

Each compressor engine at the site will be individually authorized to operate continuously at the design maximum capacity horsepower listed in the application. These engines will provide a maximum production capacity that is dependent upon the suction and discharge pressures at the facility, the number of wells connected to the facility, and the gas deliverability that each well provides the site. Per standard NMED permitting procedures, natural gas combustion in internal combustion compressor engines is considered to generate emissions of NO_x, CO, and VOC. All of the units are equipped with oxidative catalysts to control CO, HCHO and VOC emissions.

A natural gas air compressor generator will be installed at the facility. Per standard NMED permitting procedures, natural gas combustion in internal combustion compressor engines is considered to generate emissions of NO_x, CO, and VOC.

An amine unit is installed at the facility to reduce H_2S in wet gas stream. Vent gas generated by the flash tank and regenerator will be controlled with a DRE of 98% by a flare. Two glycol dehydrators are installed at the facility. The emissions from the flash tanks are recycled back to the facility inlet and the emissions from the BTEX condensers are controlled with a 98% DRE by the dehydrator reboilers.

A blowdown vent is installed at the site to vent gas as necessary during certain shutdown and maintenance activities. These events will be permitted under unit SSM/M. During blowdowns, the gas lines at the facility on either the suction side of the compressors, the discharge side of the compressors, or both, are cleared prior to any maintenance that requires the disassembly or depressurization of the lines. Blowdown events are typically less than five minutes in duration and are expected to take place approximately once per month. Piping at the facility generally will be pressure rated to allow the field gas to be “shut in” at the wells for extended periods of time. Therefore, gas will not normally be released at the site during shutdown or upset conditions resulting from compressor malfunction or power loss.

The facility is authorized to operate continuously (8,760 hours per year) at design maximum capacity processing rates. Targa will minimize startup and shutdown activities at the facility in accordance with good operating principles and business objectives. This practice will serve to minimize total annual excess emissions from the facility due to startup, shutdown, and maintenance activities.

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)**:**
Please see Table 2-A for an exhaustive list of sources that are evaluated in this section.

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

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

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

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

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

This application is for an NSR Significant modification.

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

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

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

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 State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide
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	Facility	This regulation does not apply because this application is not for a Notice of Intent.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This facility does not have any gas burning equipment having a heat input of 1,000,000 million British Thermal Units per year per unit.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This facility does not have oil burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	This regulation establishes sulfur emission standards for natural gas processing plants. This facility is a compressor station and not a natural gas process plant. Therefore, this regulation does not apply.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	No	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	No	N/A	This facility does not have any containers with a capacity of 20,000 gallons or a throughput of 30,000 gallons/week.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	This facility is not a sulfur recovery plant; therefore, this regulation does not apply.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	Units C-1 through C-10, Reboil-3	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: Check the box for the subparts that are applicable: ☒113 – Engines and Turbines ☒114 – Compressor Seals ☒115 – Control Devices and Closed Vent Systems ☒116 – Equipment Leaks and Fugitive Emissions ☐ 117 – Natural Gas Well Liquid Unloading ☐ 118 – Glycol Dehydrators ☐ 119 – Heaters ☒ 120 – Hydrocarbon Liquid Transfers ☐121 – Pig Launching and Receiving ☒122 – Pneumatic Controllers and Pumps ☐ 123 – Storage Vessels ☐124 – Well Workovers ☐ 125 – Small Business Facilities ☐126 – Produced Water Management Unit ☐127 – Flowback Vessels and Preproduction Operations 113 – Engine units C-1 through C-10 are existing natural gas-fired spark ignition engines rated >1000 hp and are therefore subject to the requirements of this

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.)
				subpart. GEN-3 is a new natural gas-fired spark ignition engine rated <500 hp. Trailer-1 is a diesel fired engine. Therefore, GEN-3 and Trailer-1 are not subject to the requirements of this subpart. 114 – Engine units C-1 through C-10 are reciprocating compressors located at a gathering and boosting station and are therefore subject to the requirements of this subpart. Trailer-1 and GEN-3 are not compressor engines and are therefore not subject to the requirements of this subpart. 115 – The ECD at this facility is used to control LOAD-1 to comply with this regulation and is therefore subject to the requirements of this subpart. 116 – This facility is a gathering and boosting station and is therefore subject to the requirements of this subpart. 117 – N/A – There are no natural gas wells located at this facility; therefore, this subpart does not apply. 118 – N/A – Dehy-1 and Dehy-2 do not have a PTE > 2 tpy VOC; therefore, this subpart does not apply. 119 – N/A – Reboil-3 is a natural gas-fired heater with a rated heat input > 20 MMBtu/hr and is therefore subject to the requirements of this subpart. Reboil-1, Reboiler-2 do not have a rated heat input >20 MMBtu/hr; therefore, Reboil-1 and Reboiler-2 are not subject to the requirements of this subpart. 120 – This facility is a gathering and boosting station with one or more controlled storage vessels and performs hydrocarbon liquid transfers and is therefore subject to the requirements of this subpart. 121 – N/A – The pipeline pigging operations at this facility have a PTE < 1 tpy; therefore, this subpart does not apply. 122 – The pneumatic controllers at this facility are subject to the requirements of this subpart. 123 – N/A – T-1 and T-2 are existing storage tanks located at a multi-tank battery, but do not have a PTE > 3 tpy VOC; therefore ,this subpart does not apply. 124 – N/A – There are no oil or natural gas wells located at this facility; therefore, this subpart does not apply. 125 – N/A – This facility does not qualify as a small business; therefore, this subpart does not apply. 126 – N/A – There are no produced water managements units located at this facility; therefore, this subpart does not apply. 127 – N/A – There are no wells located at this facility; therefore, this subpart does not apply.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Units C-1 through C-10, GEN-3, Trailer-1, FL-1, Reboil-1, Reboil-2, Reboil-3, ECD-1	This regulation establishes controls on smoke and visible emissions from certain sources, including stationary combustion equipment such as engines, boilers, and flares. The compressor engines (C-1 through C-10), engines (GEN-3 & Trailer-1), glycol reboilers (Reboiler-1 & Reboil-2), amine reboiler (Reboil-3), flare (FL-1), and enclosed combustion device (ECD-1) are subject to this regulation.
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation establishes requirements for obtaining an operating permit. This facility is a major source with respect to Title V. The facility will comply with all operating permit conditions as applicable.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. The facility is subject to 20.2.70 NMAC and is therefore subject to requirements of this regulation.

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.)
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. The facility is subject to 20.2.70 NMAC and is therefore subject to requirements of this regulation.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet all applicable reporting requirements under 20.2.73.300.B.1 NMAC.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	This regulation establishes requirements for obtaining a prevention of significant deterioration permit. This facility is not a PSD major source. Therefore, this regulation does not apply.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. This facility is subject to 20.2.72 NMAC and in turn subject to 20.2.75 NMAC. The facility is exempt from annual fees under this part (20.2.75.11.E NMAC) as it is subject to fees pursuant to 20.2.71 NMAC.
20.2.77 NMAC	New Source Performance	Yes	Units C-1 through C-10, GEN-3, Amine-1, FUG-1	This is a stationary source which is subject to the requirements of 40 CFR Part 60.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61. However, there are no units subject to 40 CFR Part 61; therefore, this regulation does not apply.
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This regulation establishes the requirements for obtaining a nonattainment area permit. The facility is not located in a non-attainment area and therefore is not subject to this regulation.
20.2.80 NMAC	Stack Heights	No	N/A	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. 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	Units C-1 through C-10, GEN-3, Dehy-1, Dehy-2	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63.

Table for Applicable Federal Regulations:

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	No	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	Units C-1 through C-10, GEN-3, Amine-1, FUG-1	This regulation is applicable as 40 CFR 60 subparts JJJJ and OOOOa are applicable to sources located at the facility.

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 regulation establishes standards of performance for fossil-fuel-fired stream generators. This regulation does not apply as the facility does not have any fossil fuel-fired steam generating units with a heat input rate of 250 MMBtu/hr [60.40(a)(1)].
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No	N/A	This regulation establishes standards of performance for electric utility steam generating units. This regulation does not apply because the facility does not operate any electric utility steam generating units.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No	N/A	This regulation does not apply as there are no small industrial commercial instructional steam generating units at this facility.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No	N/A	This facility does not operate storage vessels constructed between May 18, 1978 and July 23, 1984. Therefore, this subpart 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	This facility does not have storage vessels with design capacities > 75m^3.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No	N/A	This Facility does not operate stationary gas turbines with a heat input equal to or greater than 10 million Btu per hour. Therefore, this regulation does not apply.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	No	N/A	The facility was constructed after the applicability date of 40 CFR 60 Subpart KKK (August 23, 2011).
NSPS	Standards of Performance for **Onshore Natural**	No	N/A	The facility was constructed after the applicability date of 40 CFR 60 Subpart LLL (August 23, 2011).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR Part 60 Subpart LLL	**Gas Processing**: SO_2 Emissions			
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 regulation is applicable to onshore affected facilities listed in paragraphs (a) through (g) of this section constructed after August 23, 2011, and on or before September 18, 2015. The facility is not subject to this regulation.
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 and before December 6, 2022	No	Units C-1 through C-10, FUG-1	This regulation establishes standards of performance for crude oil and natural gas production, transmission, and distribution. The compressors associated with C-1 through C-10 are subject to this regulation. Fugitive emissions (FUG-1) are subject to the leak detection requirements of this regulation.
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	Amine-1, FUG-1	This regulation establishes standards of performance for crude oil and natural gas production, transmission, and distribution. If the compressors associated with C-1 through C-10 were installed after December 6, 2022, the units will be subject to this subpart and Targa will comply with all applicable requirements. The amine sweetening unit (Amine-1) will be subject to this regulation once it is installed at the facility. Fugitive emissions (FUG-1) will be subject once Amine-1 is installed at the facility. The amine sweetening unit (Amine-1) is subject to this regulation. Facility wide LDAR monitoring will be conducted by using optical gas imaging for the compressor station. Storage tanks T-1 and T-2 have a PTE of less than 6 tpy of VOC and are therefore not subject to this regulation.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation establishes standards of performance for stationary compression ignition internal combustion engines. This rule applies to IC engines (diesel engines) that commenced construction after July 11, 2005. Trailer-1 is a diesel fired compression ignition engine, however, Trailer-1 will not be stationary for more than 12 months; therefore, this regulation does not apply.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	C-1 through C-10, GEN-3	Engines C-1 through C-10 ,and GEN-3 are stationary spark ignition engines and are subject to NSPS JJJJ pursuant to 40 CFR 60.4233(e).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
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 steam generating units; therefore, the facility is not subject to this regulation.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	N/A	This facility does not generate electricity; therefore, 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 is not a landfill; therefore, this regulation does not apply.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	NSPS 40 CFR 61 does not apply to the facility because the facility does not emit or have the triggering substances on site and/or the facility is not involved in the triggering activity. The facility is not subject to this regulation. None of the subparts of Part 61 apply to the facility.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No	N/A	The provisions of this subpart are applicable to those 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. Therefore, this subpart does not apply.
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No	N/A	Not applicable as the facility equipment does not operate in VHAP service. VHAP service is a piece of equipment, which contains or encounters a fluid that is at least 10% weight of VHAP. VHAP is a substance regulated under this subpart for which a standard for equipment leaks of VHAPs has been promulgated.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	C-1 through C-10, GEN-3, Dehy-1, Dehy-2	This regulation contains the general provisions and requirements for source categories subject to national emission standards for hazardous air pollutants (NESHAP). It applies if any other subpart applies. Subparts HH and ZZZZ apply, and therefore this subpart applies.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	Yes	Dehy-1, Dehy-2	This subpart applies to owners and operators of emissions points including glycol dehydration units, and storage vessels with the potential for flash emissions. This facility is subject to the requirements of 40 CFR 63 Subpart HH, which includes requirements applicable to area sources with TEG Dehydrators. The site is not a major source of HAPs, but an area source of HAPs and is therefore subject to this subpart. The dehydrators have the potential to emit less than 1 tpy (0.90 megagram per year) of benzene, and are therefore exempt to the requirements of §63.764(d) pursuant to §63.764(e)(1)(ii).
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This facility is not a natural gas transmission or storage facility. Thus this subpart does not apply.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This regulation establishes the national emissions standards for hazardous air pollutants for major industrial, commercial, and institutional boilers and process heaters. This facility operates a glycol reboiler which meets the definition of a process heater as defined in § 63.7575 but it is not located at a major source of HAPs and is therefore subject not to the requirements of this regulation.
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 subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from coal- and oil-fired electric utility steam generating units (EGUs) as defined in §63.10042 of this subpart. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations. This facility does not contain the affected units and is therefore not subject to this regulation.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	Units C-1 through C-10, GEN-3	This regulation defines national emissions standards for HAPs from stationary reciprocating Internal Combustion Engines. Engines C-1 through C-10 are subject to MACT ZZZZ and comply by following the requirements of NSPS JJJJ. GEN-3 is subject to MACT ZZZZ and complies by following the requirements of NSPS JJJJ.
40 CFR 64	**Compliance Assurance Monitoring**	No	N/A	This regulation establishes requirements for a Compliance Assurance Monitoring (CAM) plan for pollutant-specific emissions units at a major source required for part 70 or 71 permitting. This application is being submitted under part 72 and is therefore not subject to this regulation.
40 CFR 68	**Chemical Accident Prevention**	No	N/A	This facility does not have any sources listed in this subpart. Therefore, this regulation does not apply.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No	N/A	Not applicable as this facility is not an acid rain source.
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No	N/A	Not applicable as this facility is not an acid rain source.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No	N/A	Not applicable as this facility does not generate commercial electric power or electric power for sale.
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No	N/A	Not applicable as this facility is not an acid rain source.
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	No	N/A	Not applicable as the facility does not service, maintain, repair class I or class II appliances nor disposes of the appliances.

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.

- To the maximum extent practicable, the air pollution control equipment, process equipment, or processes, will be maintained and operated in a manner consistent with good practice for minimizing emissions;
- Repairs will be made in an expeditious fashion when the operator becomes aware that applicable emission limitations are being exceeded;
- Off-shift labor and overtime will be utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
- Scheduled maintenance will be planned ahead to coincide with maintenance on other production equipment, or other source shutdowns, to the extent practicable;
- The amount and duration of the excess emissions (including any during bypass) periods will be minimized to the maximum extent practicable;
- All possible steps will be taken to minimize the impact of the excess emissions on ambient air quality; and,
- The facility will monitor all operations to ensure that excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

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.

There are no alternate operating scenarios at this facility.

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.

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:	Plantview Compressor Station
2	Name of company:	Targa Northern Delaware, LLC
3	Current Permit number:	6036-M5
4	Name of applicant’s modeler:	Jaimy Karacaoglu
5	Phone number of modeler:	(505) 266-6611
6	E-mail of modeler:	jaimy.karacaoglu@trinityconsultants.com

16-B: Brief			
1	Was a modeling protocol submitted and approved?	Yes☒	No☐
2	Why is the modeling being done?	Adding New Equipment	
3	Describe the permit changes relevant to the modeling.		
	Adding one (1) heater trailer (unit Trailer-1), one (1) air compressor generator (unit GEN-3), and one (1) enclosed combustion device (unit ECD-1); removing two (2) PSI 21.9L generators (units GEN-1 & GEN-2); replacing two 1340 hp engines (replacing one (1) thermal oxidizer with one (1) flare (unit FL-1); and the modification of all other units based on a recent inlet gas analysis.		
4	What geodetic datum was used in the modeling?	WGS84	
5	How long will the facility be at this location?	Longer than 1 year	

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).		
	N/A - Carlsbad Caverns National Park – 71.2 km		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
	N/A		
11	Describe any special modeling requirements, such as streamline permit requirements.		
	N/A		

16-C: Modeling History of Facility

1	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).			
	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
	CO	6036-M5	7/17/2019	
	NO_2	6036-M5	7/17/2019	
	SO_2	6036-M5	7/17/2019	
	H_2S	6036-M5	7/17/2019	
	PM2.5	6036-M5	7/17/2019	
	PM10	6036-M5	7/17/2019	
	Lead	N/A	N/A	
	Ozone (PSD only)	N/A	N/A	
	NM Toxic Air Pollutants (20.2.72.402 NMAC)	N/A	N/A	

16-D: Modeling performed for this application

1	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.

	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. N/A – No TAPs were modeled at this facility.
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☐

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	5/13/2024

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
29590E20	Original source coordinates were at **569351.587 m E, 3626398.756 m N** which is **~88 km** from the facility. Facility coordinates are **629926.12 m E, 3575371.74 m N.** Source location was updated to the facility's coordinates.
29590E21	Original source coordinates were at **569351.587 m E, 3626398.756 m N** which is **~88 km** from the facility. Facility coordinates are **629926.12 m E, 3575371.74 m N.** Source location was updated to the facility's coordinates.

	38058E18	Original source coordinates were at **568241.173 m E, 3595198.763 m N** which is **~72 km** from the facility. Facility coordinates are **622536.70 m E, 3548647.94 m N.** Source location was updated to the facilities coordinates**.**
	38058E19	Original source coordinates were at **568241.173 m E, 3595198.763 m N** which is **~72 km** from the facility. Facility coordinates are **622536.70 m E, 3548647.94 m N.** Source location was updated to the facilities coordinates**.**
	1775@1	Original source coordinates were at **66539 m N, 3644964 m N** which is **~65 km** from the facility. Facility coordinates in the comments as well as on NMED APMAP are incorrect. According to **GCP-2 0265** permit application received by NMED on October 30, 2023, the facilities coordinates are **635354 m E and 3548803 m N**. This is also similar to Source ID **1775@4**. Therefore, source location was updated to the facilities coordinates as stated on the **GCP-2 0265** permit application**.**
	30051E7	Original source coordinates were at **671488.299 m E, 3592698.753 m N**. Facility coordinates are **618983.62, 3556994.44 m N.** Source location was updated to the facilities coordinates**.**
	30051E8	Original source coordinates were at **671488.299 m E, 3592698.753 m N**. Facility coordinates are **618983.62, 3556994.44 m N.** Source location was updated to the facilities coordinates**.**

16-H: Building and structure downwash

1	How many buildings are present at the facility?	None	
2	How many above ground storage tanks are present at the facility?	Two	
3	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes☒	No☐
	N/A		
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.		
	The property is enclosed by a fence and receptors are placed starting along the fenceline.		
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
	Variable Density	Square	50	0	800	
	Variable Density	Square	100	800	3,000	
	Variable Density	Square	250	3,000	6,000	
	Variable Density	Square	500	6,000	10,000	
	Variable Density	Square	1000	10,000	50,000	

5	Describe receptor spacing along the fence line.
	25 m spacing
6	Describe the PSD Class I area receptors.
	PSD Class I modeling is not required as the nearest Class I area is over 50 km away from the facility.

16-J: 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).		
	SSM/FUG/LOAD contains the combined emissions from SSM/M (not including compressor blowdowns), facility fugitives, and liquid loading. Abrasive blasting SSM/M occurs once a year for a total of six hours and can only occur between the hours of 7 am and 7pm. This activity produces 3.36 lb/hr PM_{10} and 0.34 lb/hr $PM_{2.5}$. According to the NMED modeling guidelines: "'…[W]hen n years are modeled, the (n+1)th highest concentration over the n-year period is the design value, since this represents an average or expected exceedance rate of one per year.' (https://www.epa.gov/sites/production/files/2020-09/documents/appw_05.pdf)" Since five meteorological years were modeled, the high sixth highest concentration was used as the design value. By definition, the high sixth high means the facility can be in exceedance of the NAAQS standard a total of six days of the year. Since abrasive blasting only occurs during one day of the year, Targa will count that day towards one of the six days of exceedance. Thus SSM/FUG/LOAD were removed from the NAAQS PM_{10} and $PM_{2.5}$ 24-hr models. The high fifth high concentration for the 24-hr PM_{10} and $PM_{2.5}$ models was compared to the standards. SSM/FUG/LOAD are still included in the PM_{10} and $PM_{2.5}$ annual models. Targa also annualized the lb/hr abrasive blasting emissions for the annual models. SSM/FUG/LOAD is represented with its reduced hours of operations within the PM_{10} and $PM_{2.5}$ models.		
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: SSMFLOAD was modeled with reduced hours as shown below for PM2.5 and PM10 models only, to demonstrate that abrasive blasting and painting operations can only occur between the hours of 7am to 7pm. For H2S, the source was modeled with continuous operations.											
5	Hour of Day	Factor	Hour of Day	Factor								
	1	0	13	1								
	2	0	14	1								
	3	0	15	1								
	4	0	16	1								
	5	0	17	1								
	6	0	18	1								
	7	1	19	1								
	8	1	20	0								
	9	1	21	0								
	10	1	22	0								
	11	1	23	0								
	12	1	24	0								
	If hourly, variable emission rates were used that were not described above, describe them below.											
	N/A											

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☒	No☐
	Different lb/hr emission rates were used for Trailer-1, ECD-1, and SSM/FUG/LOAD sources. Trailer-1 only operates 40 hours each year. ECD-1 controls the tanks which have a worst-case hourly scenario and an average annual scenario. SSM/FUG/LOAD contains abrasive blasting that only occurs for 6 hours each year.		

16-K: 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.	
	The ARM2 Methodology was used with the default maximum and minimum ambient ratios	

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☐
	N/A		
4	Describe the design value used for each averaging period modeled.		
	1-hour: High eighth high Annual One Year Annual Average:		

16-L: Ozone Analysis

1	NMED has performed a generic analysis that demonstrates sources that are minor with respect to PSD do not cause or contribute to any violations of ozone NAAQS. The analysis follows. The basis of the ozone SIL is documented in *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, EPA, April 17, 2018 and associated documents. NMED accepts this SIL basis and incorporates it into this permit record by reference. Complete documentation of the ozone concentration analysis using MERPS is included in the New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines.
2	The MERP values presented in Table 10 and Table 11 of the NM AQB Modeling Guidelines that produce the highest concentrations indicate that facilities emitting no more than 250 tons/year of NO_X and no more than 250 tons/year of VOCs will cause less formation of O_3 than the O_3 significance level. $[O_3]_{8-hour} = \left(\frac{250 \frac{ton}{yr}}{340_{MERP_{NOX}}} + \frac{250 \frac{ton}{yr}}{4679_{MERP_{VOC}}} \right) \times 1.96\ \mu g/m^3$ =1.546 µg/m³, which is below the significance level of 1.96 µg/m³. Sources that produce ozone concentrations below the ozone SIL do not cause or contribute to air contaminant levels exceeding the ozone NAAQS.

3	Does the facility emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs? Sources that emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs are covered by the analysis above and require an individual analysis.	Yes☐	No☒

5	For new PSD Major Sources or PSD major modifications, if MERPs were used to account for ozone fill out the information below. If another method was used describe below.				
	NO_X (ton/yr)	$MERP_{NOX}$	VOCs (ton/yr)	$MERP_{VOC}$	$[O_3]_{8-hour}$
	N/A	N/A	N/A	N/A	N/A

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.	
	N/A	

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 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.				
	Pollutant	NO_X	SO_2		$[PM2.5]_{24-hour}$

	$MERP_{annual}$	26780	14978		0.031
	$MERP_{24\text{-}hour}$	7331	1981		$[PM2.5]_{annual}$
	Emission rate (ton/yr)	64.04	34.49		0.00094

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
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

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
	C-5	538
	C-7	539
	C-3	541
	C-1	6
	C-6	7
	C-9	9
	C-4	523
	C-2	497
	C-8	8
	C-10	10
	GEN-3	GEN3
	Trailer-1	TRAILER1
	FL-1	FL1
	Reboil-1	REBOIL1
	Reboil-2	REBOIL2
	Reboil-3	REBOIL3
	ECD-1	ECD1
	SSM/M	SSMM
	SSM/FUG/LOAD	SSMFLOAD

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☐
	N/A		
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
538	Yes	Yes	Yes	Yes
539	Yes	Yes	Yes	Yes
541	Yes	Yes	Yes	Yes
6	Yes	Yes	Yes	Yes
7	Yes	Yes	Yes	Yes
9	Yes	Yes	Yes	Yes
523	Yes	Yes	Yes	Yes
497	Yes	Yes	Yes	Yes
8	Yes	Yes	Yes	Yes
10	Yes	Yes	Yes	Yes
GEN3	Yes	Yes	Yes	Yes
TRAILER1	Yes	Yes	Yes	Yes
FL1	Yes	Yes	No	No
REBOIL1	Yes	Yes	Yes	Yes
REBOIL2	Yes	Yes	Yes	Yes
REBOIL3	Yes	Yes	Yes	Yes
ECD1	Yes	Yes	Yes	Yes
SSMM	No	No	No	No
SSMFLOAD	No	No	Yes	Yes

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	N/A	
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	42.20	909,458	0.791

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?	Yes☐	No☒

	If not please explain how increment consumption status is determined for the missing installation dates below.		
	N/A		
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	The determination of the initial lateral dimension and initial vertical dimension was completed according to the guidance set forth in Section 5.3.2 of the NMED's Air Dispersion Modeling Guidelines (Revised December 2023).		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	Instead of modeling individual volume sources for condensate loading (LOAD-1), facility fugitives (Fug-1), and startup, shutdown, and maintenance/malfunction emissions (SSM/M), the sources were grouped together as one source modeled at the center of the facility.		
4	Describe any open pits.		
	N/A		
5	Describe emission units included in each open pit.		
	N/A		

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:	For PM2.5, background concentrations were determined for the most recent three years, 2021 to 2023. The weighted annual mean concentration, averaged over the 3-year period was used, based on the methodology identified in 40 CFR 50, Appendix N.		
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	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.		
	N/A		

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
	N/A		
2	What was the source of the terrain data?		
	Terrain was incorporated into the modeling analysis through the use of AERMAP with the most recent 1/3 degree NED data currently available from https://apps.nationalmap.gov/downloader/#/		

16-U: Modeling Files

1	Describe the modeling files:		
	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
	Plantview CS_CO SIL	CO	ROI/SIA
	Plantview CS_H2S SIL	H2S	ROI/SIA
	Plantview CS_NO2 1hr SIL	NO2	ROI/SIA
	Plantview CS_NO2 24hr Ann SIL	NO2	ROI/SIA
	Plantview CS_PM25 24hr SIL	PM2.5	ROI/SIA
	Plantview CS_PM25 Ann SIL	PM2.5	ROI/SIA
	Plantview CS_PM10 24hr SIL	PM10	ROI/SIA
	Plantview CS_PM10 Ann SIL	PM10	ROI/SIA
	Plantview CS_SO2 1hr SIL	SO2	ROI/SIA
	Plantview CS_SO2 3hr 24hr SIL	SO2	ROI/SIA
	Plantview CS_SO2 Ann SIL	SO2	ROI/SIA
	Plantview CS_H2S 1hr NMAAQS	H2S	Cumulative – ½ NMAAQS
	Plantview CS_NO2 1hr NAAQS	NO2	Cumulative – 1hr NAAQS
	Plantview CS_NO2 Ann PSD Class II	NO2	Cumulative – Annual PSD Inc. Class II
	Plantview CS_PM25 24hr NAAQS	PM2.5	Cumulative – 24hr NAAQS
	Plantview CS_PM25 24hr PSD Class II	PM2.5	Cumulative – 24hr PSD Inc. Class II
	Plantview CS_PM25 Ann NAAQS	PM2.5	Cumulative – Annual NAAQS
	Plantview CS_PM25 Ann PSD Class II	PM2.5	Cumulative – Annual PSD Inc. Class II
	Plantview CS_PM10 24hr NAAQS	PM10	Cumulative – 24hr NAAQS
	Plantview CS_PM10 24hr NAAQS Culpability	PM10	Culpability Analysis – 24hr NAAQS
	Plantview CS_PM10 24hr PSD Class II	PM10	Cumulative – 24hr PSD Inc. Class II
	Plantview CS_PM10 24hr PSD Class II Culpability	PM10	Culpability Analysis – 24hr PSD Inc. Class II
	Plantview CS_SO2 1hr NAAQS	SO2	Cumulative – 1hr NAAQS
	Plantview CS_SO2 3hr PSD Class II	SO2	Cumulative – 3hr PSD Inc. Class II
	Plantview CS_SO2 24hr PSD Class II	SO2	Cumulative – 24hr PSD Inc. Class II
	Plantview CS_SO2 Ann PSD Class II	SO2	Cumulative – Annual PSD Inc. Class II

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)?	Yes☐	No☒
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	No☒

<table>
<tr><td rowspan="2">3</td><td colspan="3">Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.</td></tr>
<tr><td colspan="3">N/A</td></tr>
<tr><td rowspan="2">4</td><td colspan="3">Describe the additional impacts analysis required at 20.2.74.304 NMAC.</td></tr>
<tr><td colspan="3">N/A</td></tr>
<tr><td rowspan="2">5</td><td>If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.</td><td>Yes☐</td><td>No☒</td></tr>
<tr><td colspan="3">N/A</td></tr>
</table>

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☐
	A culpability analysis for the source was completed to demonstrate that the source is less than significance levels for PM10 cumulative and PSD Class II increment modeling. The analysis included all modeled receptors that showed NAAQS or PSD Class II Increment exceedances in the CIA model and pulled postfiles for the total cumulative modeled impact and the Plantview Compressor Station modeled impact. The culpability analysis showed that for each exceedance of the ambient standards, the Plantview Compressor station's contribution was below the PM_{10} significance levels. Thus, the Plantview Compressor Station does not cause or contribute to an exceedance of the NAAQS or PSD Class II Increment. An editable excel file is included with our modeling files as well as relevant postfiles.		
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 8-hr SIL	38.81	-	-	-	38.81	500	7.8%	636712	3568229	3613.98
CO 1-hr SIL	70.04	-	-	-	70.04	2000	3.5%	636712	3568229	3613.98
H_2S 1/2-hr SIL	110.59	-	-	-	110.59	5	Significant	636755	3568301	3614.63
NO_2 Annual SIL	4.06	-	-	-	4.06	1	Significant	636588	3568409	3615.12
NO_2 24-hr SIL	22.50	-	-	-	22.50	5	Significant	636805	3568351	3615.42
NO_2 1-hr SIL	50.69	-	-	-	50.69	7.52	Significant	636712	3568229	3613.98
$PM_{2.5}$ Annual SIL	0.56	-	-	-	0.56	0.13	Significant	636555	3568451	3616.96
$PM_{2.5}$ 24-hr SIL	20.06	-	-	-	20.06	1.2	Significant	636590	3568309	3613.58

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)
PM_{10} Annual SIL	0.97	-	-	-	0.97	1	96.7%	636589	3568359	3614.53
PM_{10} 24-hr SIL	201.17	-	-	-	201.17	5	Significant	636590	3568309	3613.58
SO_2 Annual SIL	7.39	-	-	-	7.39	1	Significant	636711	3568379	3615.42
SO_2 24-hr SIL	92.97	-	-	-	92.97	5	Significant	636711	3568379	3615.42
SO_2 3-hr SIL	130.99	-	-	-	130.99	25	Significant	636711	3568379	3615.42
SO_2 1-hr SIL	138.90	-	-	-	138.90	7.8	Significant	636711	3568379	3615.42
H_2S 1/2-hr NMAAQS	110.61	110.61	-	-	110.61	139.3	79.4%	636755	3568301	3614.63
NO_2 Annual PSD Class II Increment	4.06	-	-	9.3	13.36	25	53.4%	636588	3568409	3615.12
NO_2 Annual NMAAQS	4.06	-	-	9.3	13.36	94.02	14.2%	636588	3568409	3615.12
NO_2 1-hr NAAQS	50.69	-	-	54.5	105.19	188.03	55.9%	636711	3568351	3615.52
$PM_{2.5}$ Annual PSD Class II Increment	0.00	1.76	0.00094	-	1.76	4	43.9%	636555	3568451	3616.96
$PM_{2.5}$ Annual NAAQS	0.00	2.27	0.00094	6.6	8.87	9	98.6%	636555	3568451	3616.96
$PM_{2.5}$ 24-hr PSD Class II Increment	0.00	6.23	0.031	-	6.27	9	69.6%	636205	3568751	3616.27
$PM_{2.5}$ 24-hr NAAQS	0.00	8.15	0.031	15	23.18	35	66.2%	637305	3568501	3636.81

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)
PM_{10} 24-hr PSD Class II Increment	0.00	707.55	-	-	707.55	30	Exceeds Standards - Refer to Culpability Analysis	636605	3567801	3612.76
PM_{10} 24-hr NAAQS	0.00	602.66	-	100.7	703.36	150	Exceeds Standards - Refer to Culpability Analysis	636605	3567801	3612.76
SO_2 Annual PSD Class II Increment	7.39	7.74	-	-	7.74	20	38.7%	636711	3568379	3615.42
SO_2 24-hr PSD Class II Increment	71.03	71.07	-	-	71.07	91	78.1%	636711	3568379	3615.42
SO_2 3-hr PSD Class II Increment	129.59	129.66	-	-	129.66	512	25.3%	636711	3568379	3615.42
SO_2 1-hr NAAQS	133.80	133.89	-	-	133.89	196	68.3%	636711	3568379	3615.42

16-X: Summary/conclusions

1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	Targa has demonstrated that the proposed changes to NSR Permit 6036-M5 would neither nor cause nor contribute to an exceedance of the standards for CO, H_2S, NO_2, $PM_{2.5}$, PM_{10}, and SO_2.

AIR DISPERSION MODELING PROTOCOL
NSR Significant Revision Modeling Protocol

Targa Northern Delaware, LLC
Plantview Compressor Station

Prepared By:

Jaimy Karacaoglu – Senior Consultant

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May 2024

Project 233201.0160.0008

1. INTRODUCTION

1.1 Purpose of Modeling

Plantview Compressor Station (Plantview) is a natural gas compressor station for transport of natural gas owned and operated by Targa Northern Delaware, LLC (Targa). Gas enters the facility through an inlet separator, is compressed, then sweetened, and then dehydrated before transported offsite via pipeline. The facility collects and stores condensate generated at the inlet separator and compressors, which will be transported offsite via truck. Plantview is located approximately 22.9 miles west-northwest of Jal, NM in Lea County.

Targa is submitting an application pursuant to 20.2.72.219.D.(1)(a) NMAC for a significant revision of NSR Permit No. 6036-M5. The purpose of this revision is for: the addition of one (1) heater trailer (unit Trailer-1), one (1) air compressor generator (unit GEN-3), and one (1) enclosed combustion device (unit ECD-1); the removal of two (1) generators (units GEN-1 & GEN-2), and two (2) storage tanks (units T-3 & T-4); the replacement of one (1) thermal oxidizer with one (1) flare (unit FL-1); and the modification of all other units based on a recent inlet gas analysis (units 538, 539, 541, 274, 505, 9, 523, 497, 8, 10, Dehy-1, Dehy-2, Amine-1, Reboil-1, Reboil-2, Reboil-3, T-1, T-2, SSM/M).

Targa seeks to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS), New Mexico Ambient Air Quality Standards (NMAAQS), and PSD Increment standards as applicable for the following pollutants and averaging periods: NO_2 (1-hour and annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), H_2S (1-hour), $PM_{2.5}$ (24-hour and annual), and PM_{10} (24-hour and annual).

1.2 Facility Description and Location

The approximate UTM coordinates of the facility are 636,660 meters East and 3,568,410 meters North with WGS84 datum at an elevation of approximately 3,624 feet above mean sea level.

2. PROPOSED MODELING

2.1 Model Input Options

The latest version of the AERMOD dispersion model (version 23122) will be used for this analysis. The model will be run in regulatory mode with all default options. The ARM2 method will be used to convert NO_X to NO_2. Default minimum and maximum ambient ratios will be utilized.

Tables 1 and 2 shows the emission sources and stack parameters for the facility including the new units. Please note that emissions and stack parameters may vary throughout the development of this application.

Table 1 - Emission point sources and stack parameters to be included in the air dispersion modeling.

Unit Number	NO_x lb/hr	CO lb/hr	SO_2 lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	H_2S lb/hr	Height ft	Temp F	Velocity ft/s	Diam. ft
538	1.48	1.48	0.051	0.11	0.11	-	40.00	952	197.80	0.83
539	1.48	1.48	0.051	0.11	0.11	-	21.00	952	197.80	1.00
541	1.48	1.48	0.051	0.11	0.11	-	21.00	952	197.80	1.00
274	1.48	1.48	0.051	0.11	0.11	-	21.00	952	197.80	1.00
505	1.52	1.52	0.047	0.10	0.10	-	21.00	982	192.30	1.00
9	1.52	1.52	0.047	0.10	0.10	-	21.00	982	192.30	1.00
523	1.90	1.90	0.058	0.13	0.13	-	23.00	981	138.50	1.33
497	2.07	2.48	0.058	0.13	0.13	-	23.00	813	142.00	1.33
8	2.76	2.21	0.077	0.17	0.17	-	23.00	851	150.50	1.50
10	2.76	2.21	0.077	0.17	0.17	-	23.00	851	150.50	1.50
GEN-3	1.10	2.20	0.018	0.040	0.040	-	15.00	1382	393.52	0.33
Trailer-1	0.30	0.18	0.59	0.00011	0.00011	-	6.99	782	14.50	1.33
FL-1	1.36	5.20	7.35	-	-	0.078	20.00	1832	65.60	2.60
Reboil-1	0.15	0.12	0.030	0.011	0.011	0.00027	12.00	400	27.14	0.83
Reboil-2	0.13	0.11	0.027	0.0095	0.0095	0.00026	12.00	400	23.07	0.83
Reboil-3	0.37	1.73	0.096	0.16	0.16	-	30.00	600	36.02	2.33
ECD-1	1.99	1.67	0.263	0.00069	0.00069	0.0028	30.00	1000	26.70	4.00
SSM/M*	-	-	-	-	-	0.030	10.00	Ambient	38.98	1.00

* The SSM/M point source only contains SSM/M emissions from compressor blowdowns, which are routed to a blowdown device located on the eastern side of the facility. All other SSM/M activities are represented as a volume source located at the center of the facility.

Table 2 - Emission volume sources to be included in the air dispersion modeling.

Volume Source	Averaging Period	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	H_2S lb/hr	Release Height ft	Initial lateral Dimension ft	Initial Vertical Dimension ft
SSM/FUG/LOAD	Short Term	3.43	0.34	0.17	20.00	23.26	18.60
	Annualized*	0.089	0.0089	0.0064	20.00	23.26	18.60

*Annualized emissions contained smeared emissions.

Unit SSM/M contains a variety of startup, shutdown, maintenance, and malfunction activities, including compressor blowdowns, pipeline blowdowns, pigging, abrasive blasting, tank degassing, etc. Compressor blowdowns are routed to a blowdown vessel and are represented as a point source called SSM/M. All other blowdowns as well as facility fugitives and loading emissions are represented as a single volume source called SSM/FUG/LOAD located at the center of the facility.

Abrasive blasting SSM/M occurs once a year for a total of six hours and can only occur between the hours of 7 am and 7pm. This activity produces 3.36 lb/hr PM_{10} and 0.34 lb/hr $PM_{2.5}$. According to the NMED modeling guidelines:

> "The 24-hour NAAQS is not to be exceeded more than once per year. Use high second high and a single year of representative meteorological data. This is approximately equivalent to the high fourth high specified in the multi-year analysis. '…[W]hen n years are modeled, the (n+1)th highest concentration over the n-year period is the design value, since this represents an average or expected exceedance rate of one per year.' (https://www.epa.gov/sites/production/files/2020-09/documents/appw_05.pdf)"

Since five meteorological years are being modeled, the high sixth highest concentration would be the design value. By definition, the high sixth high means the facility can be in exceedance of the NAAQS standard a total of six days of the year. Since abrasive blasting would only occur during one day of the year, Targa proposes for that day to count towards one of the six days of exceedance and to remove SSM/FUG/LOAD from the NAAQS PM_{10} and $PM_{2.5}$ 24-hr models. The high fifth high concentration would then be the design value for the 24-hr models which would then be compared to the standard. Targa will still have to show compliance with the annual standard in which SSM/FUG/LOAD would still be included in the annual models. Targa also proposes to annualize the lb/hr abrasive blasting emissions for the annual models. The unit will be represented with its reduced hours of operations within the models.

A downwash analysis using the latest version of BPIP will be conducted and incorporated into the modeling analysis to account for potential effluent downwash due to structures at the facility.

Table 3- Circular Building Downwash Structures

Building ID	X Coordinate m	Y Coordinate m	Elevation m	Height m	Radius m	Corners
T-1	636658	3568406	1102.05	4.8768	2.3622	24
T-2	636663	3568406	1102.05	4.8768	2.3622	24

2.2 Receptor Grid Description and Elevation Data

The center point of the facility will be designated at 636,655 meters east and 3,568,301 meters north. This center point will serve as the center point for a variable density circular receptor grid. The facility fenceline will be modeled using 25-meter grid spacing. A 50-meter grid spacing will extend out to 800 meters in each direction from the facility center point for a very fine grid resolution. A 100-meter grid spacing will extend from 800 meters to 3,000 meters in each direction for a fine grid resolution. A 250-meter grid spacing will extend from 3,000 meters to 6,000 meters in each direction for a medium grid resolution. A 500-meter grid spacing will extend from 6,000 meters to 10,000 meters in each direction for a coarse grid resolution. A 1000-meter grid spacing will extend from 10,000 meters to 50,000 meters in each direction for a very coarse grid resolution. It is expected that the highest impacts from the proposed source will be at or near the facility property.

The elevations of receptors and facility sources will be determined using the most recent NED data currently available (1/3 arc-second DEM).

2.3 Meteorological Data

The Carlsbad NWS dataset will be used for five meteorological years (2017-2021) as available on the NMED website.

2.4 Significance Analysis (SIL) and Cumulative Impact Analysis (CIA)

The modeled ground-level concentrations will be compared to the corresponding significant impact levels (SILs) to determine whether any modeled ground-level concentrations at any receptor locations are greater than the SIL (i.e., "significant" receptors). If the significance analysis reveals that modeled ground-level concentrations for a particular pollutant and averaging period are greater than the applicable SIL, a Cumulative Impact Analysis (CIA) will be performed at the significant receptors. The CIA will include impacts from the facility sources and background concentrations/surround sources if applicable.

If necessary, the background concentration used for NO_2 from the Carlsbad Monitor (5ZR) will be used. The Hobbs-Jefferson Monitor (5ZS) dataset will be used for PM_{10} background concentrations. The inclusion of background concentrations will follow the guidance shown in Table 20: "Modeling the Design Value Summary (Default Modeling)" from the Modeling Guidelines[1].

Targa is requesting to use the US-Mexico Border Crossing Monitor (6ZN) dataset for $PM_{2.5}$ background concentrations because we believe it is the most representative of the area.

Based on the NMED Modeling Guidelines for SO_2 modeling, if the facility is in the Pecos-Permian Basin Intrastate AQCR (AQCR 155), it will be modeled with surrounding sources, as representative monitoring is not available for background data.

For $PM_{2.5}$ and PM_{10} modeling, the facility will be modeled with nearby sources, secondary formation (if applicable), and a background concentration. For modeling nearby sources, all sources within 10 km of the facility will be included in the model. An inventory of the surrounding sources will be obtained from the NMED MergeMaster. 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 at least 40 tons per year of 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 $PM_{2.5}$. The secondary formation of $PM_{2.5}$ will be calculated in this modeling following the NMED Modeling Guidelines.

For H_2S modeling, the only sources at the facility that produced H_2S will be the flare (FL-1), enclosed combustion unit (Unit ECD-1), loading emissions (Unit LOAD), fugitive equipment emissions (Unit Fug-1), and startup, shutdown, and maintenance/malfunction emissions (Unit SSM/M). FL-1 and ECD-1 are going to be modeled as point sources. Fugitives, SSM/M, and loading will be modeled as a single volume source at the center of the facility with dimensions determined per Section 4.3.2 of NMED's modeling guidelines. Based on the NMED Modeling Guidelines for H_2S modeling, if the facility is in the Pecos-Permian Basin Intrastate AQCR, H_2S will be modeling using the 1-hour averaging time and compared to the 1/2-hour averaging period.

[1] New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines Revised December 2023

2.5 PSD Increment Analysis

If the results of the ROI analysis for NO_X, SO_2, PM_{10}, or $PM_{2.5}$ 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 facility, plus sources emitting over 1000 pounds per hour within 50 km of the facility. The surrounding source information will be obtained from NMED MergeMaster. The predicted maximum concentrations will be compared to the appropriate Class II PSD Standard.

2.6 Class I Areas Analysis

The nearest Class I area is Carlsbad Caverns National Park at 71.2 km from the facility. Since the nearest Class I area is more than 50 km away, a Class I analysis is not required.

Daniel Dolce

From:	Daniel Dolce
Sent:	Monday, May 20, 2024 1:52 PM
To:	Mustafa, Sufi A., ENV
Cc:	Jaimy Karacaoglu; Andries, Robert L.
Subject:	Modeling Protocol for Targa's Plantview Compressor Station: NSR 6036-M5
Attachments:	Plantview CS_Modeling Protocol_v1.0_2024 0520.pdf

Hi Sufi,

Please find attached a modeling protocol for Targa's Plantview Compressor Station (**NSR 6036-M5**). Modeling is being completed as a part of a significant revision to the permit. If possible, could we please have this protocol reviewed as soon as possible? Targa would like to submit this application early this week.

Please do not hesitate to reach out with any questions you may have.

Thank you and regards,
Daniel Dolce

Daniel Dolce
Consultant

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9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122

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
C-1	Performance Evaluation Analysis (PEA) Test	3/18/2024
C-2	Performance Evaluation Analysis (PEA) Test	3/18/2024
C-3	Performance Evaluation Analysis (PEA) Test	3/21/2024
C-4	Performance Evaluation Analysis (PEA) Test	3/18/2024
C-5	Performance Evaluation Analysis (PEA) Test	3/25/2024
C-6	Performance Evaluation Analysis (PEA) Test	3/18/2024
C-7	Performance Evaluation Analysis (PEA) Test	3/25/2024
C-8	Performance Evaluation Analysis (PEA) Test	3/18/2024
C-10	Performance Evaluation Analysis (PEA) Test	3/18/2024

Section 20

Other Relevant Information

<u>Other relevant information</u>. 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.

There is no other information needed for this application.

Section 22: Certification

Company Name: Targa Northern Delaware, LLC

I, Jimmy Oxford, 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 6th day of March, 2024, upon my oath or affirmation, before a notary of the State of

Texas.

*Signature 3/6/2024
Date

Jimmy Oxford
Printed Name

Vice President of Operations
Title

Scribed and sworn before me on this 6th day of March, 2024.

My authorization as a notary of the State of Texas expires on the

8th day of February, 2025.

Neva Rogers
Notary's Signature

3/6/2024
Date

Neva Rogers
Notary's Printed Name

NOTARY PUBLIC STATE OF TEXAS
NEVA ROGERS
My Notary ID # 3743435
Expires February 8, 2025

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