



1999 Broadway, Suite 820 / P 410-903-0750 / trinityconsultants.com

VIA E-MAIL: R6AirPermits@epa.gov & ledoux.eric@epa.gov & Layton.mary@epa.gov

February 13, 2025

Air Permits Section (ARPE)
Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas, TX 75270

RE: *Targa Northern Delaware, LLC. -Cadillac Compressor Station
Operating Permit Application Number P-305
TEMP/Idea ID Number 38618-PRT20240001*

Dear Madam/Sir:

Pursuant to 20.2.70.300.B(1) of the New Mexico Administrative Code, we are submitting an initial Title V for Targa Northern Delaware, LLC., Cadillac Compressor Station.

The initial Title V application was declared complete on February 10, 2025 by the New Mexico Environment Department (NMED). The attached complete permit application is being submitted to EPA Region-6 within five (5) days of the receipt of the determination letter from the NMED.

This application submittal contains the initial Title V application and transmittal form for Targa Northern Delaware, LLC., Cadillac Compressor Station Permit Number P305. As requested, the file is in word-searchable PDF format.

If you have any questions, or require additional information, please do not hesitate to contact me at (410) 903-0750.

Sincerely,

Jaimy Karacaoglu
Senior Consultant

Cc: Robert Andries (Targa Northern Delaware, LLC) – randries@targaresources.com
Jaimy Karacaoglu (Trinity) – jaimy.karacaoglu@trinityconsultants.com
McKenna Hedgepeth (NMED) – mckenna.hedgepeth@env.nm.gov

Trinity Project File: 243201.0017

HEADQUARTERS

12700 Park Central Dr, Ste 2100, Dallas, TX 75251 / P 800.229.6655 / P 972.661.8100 / F 972.385.9203

New Mexico Environmental Department
Completeness Letter with Permit
Transmittal Form



MICHELLE LUJAN GRISHAM
GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

February 10, 2025

Sent by Certified Mail

Robert Andries
Environmental Specialist
Targa Northern Delaware LLC
811 Louisiana St.
Houston, TX 77002

Re: Air Quality Operating Permit Application Number P305
Agency Interest Number 38618 - PRT20240001
Cadillac Compressor Station

Dear Robert Andries:

This letter acknowledges the receipt of your operating permit application for the Cadillac Compressor Station near Malaga, New Mexico. The Department received this application on April 12, 2024 and assigned it number P305.

The Department has determined that the information submitted in the application is sufficient to process the requested operating permit. Therefore, this application is ruled complete on February 10, 2025.

Regardless of whether or not an application has been deemed to be complete, if the Department determines that additional information is necessary to evaluate the application or to take final action, it may request such information in writing and set a reasonable deadline for a response.

20.2.70 NMAC Section 401 requires the Department to provide thirty (30) days for public and affected programs comment. When the draft permit becomes available, the Department will publish a legal notice in a regional daily newspaper and mail letters to concerned citizens and affected programs to accomplish this purpose. The Department may hold a public hearing. The Department will determine the time, date, and place of any hearing and will give notice of the hearing to the applicant and the public.

Application Submittals to EPA

In accordance with 20.2.70 NMAC, Section 402.A.1, within five (5) days from the date of receipt of this letter, the applicant shall provide a copy of the complete permit application (including the compliance plan and all additional materials submitted to the Department) directly to EPA.

- EPA Region 6 has requested that all applications, including any updates, be submitted to EPA through electronic mail (email) and in electronic format.
- In the subject line of the email, include the Operating Permit Application Number shown in this letter, the facility name, and permittee name.
- Preferred formats are Microsoft Word for text, Excel for spreadsheets, and a searchable Adobe Acrobat (pdf) files.
- Do not submit any compressed or zip files, files with an “.exe” extension or files that contain any confidential information.
- Do not submit any files larger than 10 megabytes via email and the total size of all attachments cannot exceed 25 megabytes per email. If file size limitations are a problem, documents can be sent in separate emails or by regular mail to the address below on a readable media (CD, flash drive, etc.).

Applications, updates to applications, and compliance plans should be submitted via email to EPA at: R6AirPermits@epa.gov and to Erica Le Doux (ledoux.eric@epa.gov) and Elizabeth Layton (Layton.mary@epa.gov). Please contact Elizabeth Layton, EPA Region 6 at (214) 665-2136 if you have any questions pertaining to electronic submittals. Applications or updates containing **confidential business information** (CBI) must be submitted by regular mail to EPA at the address below in hard copy or on a readable media such as CD, DVD, or flash drive. Mail CBI information to:

Air Permits Section (ARPE)
Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas, Texas 75270

Please note that the Air Quality Bureau will not issue your operating permit until you inform the Department that you have sent the application package to EPA.

If you have any questions, please call me in Santa Fe at 505-690-0756.

Sincerely,

McKenna Hedgepeth
Air Permitting Specialist
Permits Section
Air Quality Bureau

Enclosure: 'Application Transmittal Form'
cc via email: US EPA Region-6, 6PD-R (**email PDF copy to r6airpermits@epa.gov**)

Operating Permit Application Transmittal Form

New Mexico Environment Department

~ Air Quality Bureau ~

(Attach this form to your emailed application submittal to EPA: R6AirPermits@epa.gov, Erica Le Doux (ledoux.eric@epa.gov) and Elizabeth Layton (Layton.mary@epa.gov))

Part A - Administrative Information

General Information:

Transmittal Date: February 10, 2025

Air Quality Bureau Permit Specialist: McKenna Hedgepeth

Facility Name: Cadillac Compressor Station

Facility Location - City: The facility is 5.2 miles Southeast of Malaga, NM 88263 in Eddy County. 32.149972, -104.048467

Facility Location - County: Eddy

Facility Location - State: New Mexico, 88263

State Operating Permit Number: P305

Facility Primary SIC Code: 1311: Crude petroleum and natural gas, O&G-Compressor Station

Air Permit Contact Person: Robert Andries

Air Permit Contact - Telephone: 713-584-1360

Air Permit Contact E-mail address: randries@targaresources.com

Company Name: Targa Northern Delaware LLC

Company Address: PO Box 1689
Lovington, NM 88260

Distance from Facility to Nearest Class I Area: 30 Km from Carlsbad Caverns

Is the Facility Within 50 Miles (80.467 km) of a Class I Area? Yes

Is the Facility Within 50 Miles of Indian Land? No

Transmittal Description

X	New Permit
	Renewal
	Modification
	Acid Rain Source (TIV)

Part B - Technical Information

TV Regulated Pollutants

X	CO Source (COS)
	TSP/PM-10 Source (PM ₁₀)
X	VOC Source (VOC)
X	112(b) Pollutants (112B)
	NO _x Source (NO _x)
	SO ₂ Source (SO ₂)
	Lead Source (Lead)
X	Green House Gases (GHG)

Source Description

	PSD (PSD)
	Nonattainment Area (NNSR)
	Acid Rain Source (TIV)
	Chlorofluorocarbons (CFC)
	Compliance Schedule (CSS)
	Federal Facility (FED)
X	Combustion Source (CMBS)

Regulatory Specifications

Air Quality Operating Permit Number P305

Units Subject to Enhanced Monitoring (40 CFR 64) (Number): N/A
Applicable NSPS (60): A, OOOOa, OOOOb, JJJJ
Applicable NESHAP (61):N/A
Applicable MACT (63): A, HH, DDDDD, ZZZZ

Complete Permit Application Submitted to New Mexico Environmental Department

April 11, 2024

FedEx: 7759 1729 4360

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

RE: *Application for an initial Title V Operating Permit
Cadillac Compressor Station (AI: 38618)
Eddy County, New Mexico
Targa Northern Delaware, LLC*

Dear Programs Manager:

Targa Northern Delaware LLC (Targa) is submitting this application for an initial Title V Operating Permit pursuant to 20.2.70.300.B.(1) NMAC, which requires an initial Title V Permit application be submitted within twelve (12) months after the source commences operation as a Part 70 source. Over the last year, Targa has been reporting activities and findings associated with its voluntary audit under New Mexico Environmental Department's (NMED) Environmental Disclosure Policy in accordance with NMED's October 26, 2022 memorandum, including findings associated with the Cadillac Compressor Station. On March 21, 2024, Targa submitted a New Source Review (NSR) Permit Application per NMAC 20.2.72.200.A.(2) to correct specific audit findings at the Cadillac Compressor Station. At that time, after reviewing the new potential to emit (PTE) for the Cadillac Compressor Station, Targa discovered that a Title V Operating Permit Application would have been required to be submitted to the NMED by March 2, 2024, twelve months after the start of operation of Unit No. ENG-8 (March 2, 2023). Even though actual emissions from the site fall below Title V thresholds, Unit No. ENG-8's start of operation on March 2, 2023, was the triggering event for the Cadillac Compressor Station's PTE for VOC to exceed 100 tons per year (tpy).

Therefore, on the NMED Air Permit Application Compliance History Disclosure Form for this application, Targa answered "Yes" on lines 5a and 5b. Targa applied for a Title V Operating Permit within 30 calendar days of discovering that the permit was required.

The format and content of this application are consistent with the Bureau's current policy regarding Title V applications: it is a complete application package using the most current application forms. Enclosed is one hard copy and one working copy of the application, including the original certification page. Electronic files can be provided to the state after the application is assigned to a permit reviewer.

If you have any questions or comments about the information presented in this registration, please do not hesitate to contact the air permit contact, Robert Andries, by phone at (713) 584-1360 or by e-mail at randries@targaresources.com.

Sincerely,

Targa Northern Delaware LLC



Robert Andries
Senior Environmental Specialist

**APPLICATION FOR
TITLE V OPERATING PERMIT
FOR NSR PERMIT NO. 7995-M3
CADILLAC COMPRESSOR STATION
EDDY COUNTY, NM**

APRIL 2024

Submitted to:
New Mexico Environment Department
Air Quality Bureau, Permits Section
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

Prepared for:
Targa Northern Delaware, LLC
811 Louisiana Suite 2100,
Houston, TX 7700-1400
575-631-7093

Prepared by:
Altamira-US, LLC
525 Central Park Dr., Suite 500
Oklahoma City, OK 73105
405-702-1618

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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		April 12, 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 5b(b)
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. 5b(b) – See explanation on cover letter.	

Mail Application To: 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		For Department use only:
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Universal Air Quality Permit Application

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

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

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.:
- ☒ 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: 38618	Updating Permit/NOI #: 7995-M3
1	Facility Name: Cadillac Compressor Station	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits): 211130	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): From the United States Postal Service in Malaga, NM, head south on Hwy 285 and continue south for 4.1 miles, then turn left onto service road and continue east for 1.3 miles, then turn right and continue south for 1.14 miles and the facility will be on the right.		

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: Laura Worthen Lodes	Phone/Fax: (405) 919-4129
a	Mailing Address: 525 Central Park Dr Suite 500	E-mail: Laura.Worthen-Lodes@Altamira-US.com
6	Plant Operator Contact: Jason Fuentes	Phone/Fax: (405) 919-4129
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: 7995-M3
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: 4.167 MMscf/hr	Daily: 100 MMscf/day	Annually: 36,500 MMscf/yr
b	Proposed	Hourly: 4.167 MMscf/hr	Daily: 100 MMscf/day	Annually: 36,500 MMscf/yr
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: 4.167 MMscf/hr	Daily: 100 MMscf/day	Annually: 36,500 MMscf/yr
b	Proposed	Hourly: 4.167 MMscf/hr	Daily: 100 MMscf/day	Annually: 36,500 MMscf/yr

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 32.149885°	Longitude (decimal degrees): -104.048548°	County: Eddy	Elevation (ft): 2944
2	UTM Zone: ☐ 12 or ☒ 13		Datum: ☐ NAD 83 ☒ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 589,725		UTM N (in meters, to nearest 10 meters): 3,557,446	
3	Name and zip code of nearest New Mexico town: Malaga, NM 88263			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From the United States Postal Service in Malaga, NM, head south on Hwy 285 and continue south for 4.1 miles, then turn left onto service road and continue east for 1.3 miles, then turn right and continue south for 1.14 miles and the facility will be on the right.			
5	The facility is 5.0 miles south-southeast of Malaga, 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: Malaga, NM, Loving, NM, 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: Carlsbad Caverns National Park ~30.5 km			
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): 30,575 m			
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: 8390 m			
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 ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: N/A		☐ AM ☐ PM	End: N/A ☐ AM ☐ PM
3	Month and year of anticipated start of construction: N/A			
4	Month and year of anticipated construction completion: N/A			
5	Month and year of anticipated startup of new or modified facility: June 2023			
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: Enforcement discretion		
a	If yes, NOV date or description of issue: Failure to comply with the air pneumatic requirements under 20.2.50.122 NMAC	NOV Tracking No: TAR-Various-23012301-ED	
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.)
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Section 1-H: Current Title V Information - Required for all applications from TV Sources

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): 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 ~16.9 km
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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: Laura Worthen Lodes

Email: Laura.Worthen-Lodes@Altamira-US.com

Phone number: (405) 919-4129.

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

- 4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.
- 5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling **summary report only** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.
- 6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
 - a. one additional CD copy for US EPA,
 - b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
 - c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.
 If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

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

- 1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.
- 2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.
- 3) It is preferred that this application form be submitted as 4 electronic files (**3 MSWord docs**: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and **1 Excel file** of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.
- 4) The **electronic file names** shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the **core permit number** (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the **section #** (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the **header information** throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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Table 2-A: Regulated Emission Sources

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

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²		Source Classi- fication Code (SCC)	For Each Piece of Equipment, Check One			RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/ Reconstruction ²	Emissions vented to Stack #						
ENG-1	Compressor Engine	Caterpillar	3516J	N6W00743	1380 hp	1380 hp	8/1/2018	Catalyst 1	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	18-0341
							TBD	ENG-1		☐ New/Additional	☐ To be Replaced			
ENG-2	Compressor Engine	Caterpillar	3606	JFE01219	1875 hp	1875 hp	12/1/2018	Catalyst 2	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	18-0246
							TBD	ENG-2		☐ New/Additional	☐ To be Replaced			
ENG-3	Compressor Engine	Caterpillar	3606	JFE01019	1875 hp	1875 hp	5/1/2018	Catalyst 3	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	18-0296
							TBD	ENG-3		☐ New/Additional	☐ To be Replaced			
ENG-4	Compressor Engine	Caterpillar	3606	JFE01118	1875 hp	1875 hp	8/1/2018	Catalyst 4	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	18-0304
							TBD	ENG-4		☐ New/Additional	☐ To be Replaced			
ENG-5	Compressor Engine	Caterpillar	3606	JFE01220	1875 hp	1875 hp	12/1/2018	Catalyst 5	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	ENG-1
							TBD	ENG-5		☐ New/Additional	☐ To be Replaced			
ENG-6	Compressor Engine	Caterpillar	3606	JFE01182	1875 hp	1875 hp	10/1/2018	Catalyst 6	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	ENG-2
							TBD	ENG-6		☐ New/Additional	☐ To be Replaced			
ENG-7	Compressor Engine	Caterpillar	3516J	JEF03405	1380 hp	1380 hp	TBD	Catalyst 7	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	18-0342
							TBD	ENG-7		☐ New/Additional	☐ To be Replaced			
ENG-8	Compressor Engine	Caterpillar	3608	XH701858	1380 hp	1380 hp	TBD	Catalyst 8	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							TBD	ENG-8		☒ To be Modified	☐ To be Replaced			
ENG-9	Compressor Engine	Caterpillar	3608	TBD	1380 hp	1380 hp	TBD	Catalyst 9	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							TBD	ENG-9		☒ To be Modified	☐ To be Replaced			
ENG-10	Compressor Engine	Caterpillar	3608	TBD	1380 hp	1380 hp	TBD	Catalyst 10	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							TBD	ENG-10		☒ To be Modified	☐ To be Replaced			
18-0246	Compressor Engine	Caterpillar	3606	JFE01182	1875 hp	1875 hp	12/1/2018	Catalyst 1	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							3/30/2019	18-0246		☐ New/Additional	☐ To be Replaced			
18-0296	Compressor Engine	Caterpillar	3606	JFE01220	1875 hp	1875 hp	1/1/2019	Catalyst 2	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							3/30/2019	18-0296		☐ New/Additional	☐ To be Replaced			
18-0304	Compressor Engine	Caterpillar	3606	JFE01220	1875 hp	1875 hp	11/1/2018	Catalyst 3	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							1/24/2019	18-0304		☐ New/Additional	☐ To be Replaced			
18-0341	Compressor Engine	Caterpillar	3516	N6W00717	1380 hp	1380 hp	TBD	Catalyst 10	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							10/31/2018	18-0341		☐ New/Additional	☐ To be Replaced			
18-0342	Compressor Engine	Caterpillar	3516	N6W00760	1380 hp	1380 hp	TBD	Catalyst 11	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							10/31/2018	18-0342		☐ New/Additional	☐ To be Replaced			
18-0345	Compressor Engine	Caterpillar	3516	N6W00705	1380 hp	1380 hp	TBD	Catalyst 12	20200254	☐ Existing (unchanged)	☒ To be Removed	☐ Replacement Unit To be Replaced	4SLB	N/A
							10/31/2018	18-0345		☐ New/Additional	☐ To be Replaced			
ENG-1	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	TBD	Catalyst 4	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							TBD	ENG-1		☐ New/Additional	☐ To be Replaced			
ENG-2	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	TBD	Catalyst 5	20200254	☐ Existing (unchanged)	☐ To be Removed	☒ Replacement Unit To be Replaced	4SLB	N/A
							TBD	ENG-2		☐ New/Additional	☐ To be Replaced			

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One		RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/ Reconstruction ²	Emissions vented to Stack #					
ENG-8	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	TBD	Catalyst 6	20200254	☐ Existing (unchanged)	☐ To be Removed	4SLB	N/A
							TBD	ENG-8		☐ New/Additional	☐ Replacement Unit		
ENG-9	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	TBD	Catalyst 7	20200254	☐ Existing (unchanged)	☐ To be Removed	4SLB	N/A
							TBD	ENG-9		☐ New/Additional	☐ Replacement Unit		
ENG-10	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	TBD	Catalyst 8	20200254	☒ To Be Modified	☐ To be Replaced	4SLB	N/A
							TBD	ENG-10		☐ Existing (unchanged)	☐ To be Removed		
ENG-11	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	TBD	Catalyst 9	20200254	☐ New/Additional	☐ Replacement Unit	4SLB	N/A
							TBD	ENG-11		☐ To Be Modified	☐ To be Replaced		
Dehy-1	Glycol Dehydrator	Jatco	16067	TBD	100 MMSCFD	100 MMSCFD	TBD	VCU-1	31000301	☐ Existing (unchanged)	☐ To be Removed	N/A	N/A
							TBD	VCU-1		☐ New/Additional	☐ Replacement Unit		
RBL-1	2.0 MMBtu/hr Reboiler w/ BTEX Condenser	FLAMCO	SB18-12	1702-779	2.0 MMBtu/hr	2.0 MMBtu/hr	TBD	N/A	31000302	☒ To Be Modified	☐ To be Replaced	N/A	N/A
							TBD	RBL-1		☐ Existing (unchanged)	☐ To be Removed		
Trailer-1	Heater Trailer	Allmand	TBD	TBD	13.8 hp	13.8 hp	TBD	N/A	31000205	☐ New/Additional	☐ Replacement Unit	N/A	N/A
							TBD	Trailer-1		☐ To Be Modified	☐ To be Replaced		
GEN-1	Air Compressor Generator	PSI	14.6L	TBD	396 hp	396 hp	TBD	N/A	20200254	☐ Existing (unchanged)	☐ To be Removed	N/A	N/A
							TBD	GEN-1		☒ New/Additional	☐ Replacement Unit		
TK-1	Atmospheric Storage Tank	Tank Partners	N/A	18263	300 bbl	300 bbl	2018	VCU-1	40400311	☐ Existing (unchanged)	☐ To be Removed	N/A	N/A
							Post 9/18/2015	VCU-1		☐ New/Additional	☐ Replacement Unit		
TK-2	Atmospheric Storage Tank	Conner Steel Products	N/A	26278	300 bbl	300 bbl	4/28/2010	VCU-1	40400311	☒ To Be Modified	☐ To be Replaced	N/A	N/A
							Post 9/18/2015	VCU-1		☐ Existing (unchanged)	☐ To be Removed		
TK-3	Atmospheric Storage Tank	TBD	TBD	TBD	300 bbl	300 bbl	TBD	VCU-1	40400311	☐ New/Additional	☐ Replacement Unit	N/A	N/A
							TBD	VCU-1		☐ To Be Modified	☐ To be Replaced		
TK-4	Atmospheric Storage Tank	TBD	TBD	TBD	300 bbl	300 bbl	TBD	N/A	40400311	☐ Existing (unchanged)	☒ To be Removed	N/A	N/A
							TBD	N/A		☐ New/Additional	☐ Replacement Unit		
VCU-1	Vapor Combustion Unit	Hero Flare	TBD	TBD	52 Mscf/day	52 Mscf/day	TBD	N/A	31000205	☐ Existing (unchanged)	☐ To be Removed	N/A	N/A
							TBD	VCU-1		☒ New/Additional	☐ Replacement Unit		
LOAD	Truck Loading	N/A	N/A	N/A	N/A	N/A	N/A	N/A	40600132	☐ Existing (unchanged)	☐ To be Removed	N/A	N/A
							N/A	N/A		☐ New/Additional	☐ Replacement Unit		
FUG	Facility-Wide Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000220	☒ To Be Modified	☐ To be Replaced	N/A	N/A
							N/A	N/A		☐ Existing (unchanged)	☐ To be Removed		
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000888	☐ New/Additional	☐ Replacement Unit	N/A	N/A
							N/A	N/A		☒ To Be Modified	☐ To be Replaced		

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 Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 20.2.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at <https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf>. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One	
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²		
N/A	Methanol Tank	TBD	TBD	100	20.2.72.202.B.5.NMAC	TBD	☒ Existing (unchanged)	☐ To be Removed
			TBD	bbl		TBD	☐ New/Additional	☐ Replacement Unit
N/A	Glycol Tanks	TBD	TBD	500	20.2.72.202.B.5.NMAC	TBD	☒ Existing (unchanged)	☐ To be Removed
			TBD	gal		TBD	☐ New/Additional	☐ Replacement Unit
N/A	Lube Oil Tanks	TBD	TBD	500	20.2.72.202.B.5.NMAC	TBD	☒ Existing (unchanged)	☐ To be Removed
			TBD	gal		TBD	☐ New/Additional	☐ Replacement Unit
N/A	Antifreeze Tanks	TBD	TBD	500	20.2.72.202.B.5.NMAC	TBD	☒ Existing (unchanged)	☐ To be Removed
			TBD	gal		TBD	☐ New/Additional	☐ Replacement Unit
HAUL	Haul Road Emissions	N/A	N/A	N/A	20.2.72.202.B.5.NMAC	N/A	☐ Existing (unchanged)	☐ To be Removed
			N/A	N/A		N/A	☒ 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
							☐ 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.

[illegible]

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 ₂ S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	1.52	6.66	9.07	39.71	4.49	19.66	0.045	0.20	0.20	0.87	0.20	0.87	-	-	1.39	6.09	-	-
ENG-2	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73	-	-
ENG-3	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73	-	-
ENG-4	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73	-	-
ENG-5	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73	-	-
ENG-6	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73	-	-
ENG-7	1.52	6.66	9.07	39.71	4.49	19.66	0.045	0.20	0.20	0.87	0.20	0.87	-	-	1.39	6.09	-	-
ENG-8	2.76	12.07	15.43	67.59	7.01	30.72	0.075	0.33	0.33	1.44	0.33	1.44	-	-	1.60	7.02	-	-
ENG-9	2.76	12.07	15.43	67.59	7.01	30.72	0.075	0.33	0.33	1.44	0.33	1.44	0.33	1.44	-	-	-	-
ENG-10	2.76	12.07	15.43	67.59	7.01	30.72	0.07	0.33	0.33	1.44	0.33	1.44	0.33	1.44	-	-	-	-
Trailer-1	0.16	0.71	0.15	0.65	8.52E-03	0.037	2.05E-03	8.98E-03	9.13E-03	0.040	9.13E-03	0.040	9.13E-03	0.040	-	-	-	-
GEN-1	0.80	3.50	1.60	6.99	0.78	3.43	0.013	0.056	0.029	0.13	0.029	0.13	0.029	0.13	-	-	-	-
Dehy-1	-	-	-	-	82.02	359.27	-	-	-	-	-	-	-	-	0.042	0.19	-	-
RBL-1	0.20	0.86	0.16	0.72	0.011	0.047	8.85E-03	0.039	0.015	0.065	0.015	0.065	0.015	0.065	-	-	-	-
TK-1	-	-	-	-	34.55	0.60	-	-	-	-	-	-	-	-	0.035	7.69E-04	-	-
TK-2	-	-	-	-	34.55	0.60	-	-	-	-	-	-	-	-	0.035	7.69E-04	-	-
TK-3	-	-	-	-	34.55	0.60	-	-	-	-	-	-	-	-	0.035	7.69E-04	-	-
VCU-1	3.16E-03	0.014	2.66E-03	0.012	1.74E-04	7.62E-04	1.43E-04	6.26E-04	2.41E-04	1.05E-03	2.41E-04	1.05E-03	2.41E-04	1.05E-03	-	-	-	-
LOAD	-	-	-	-	27.16	0.58	-	-	-	-	-	-	-	-	0.035	7.41E-06	-	-
FUG	-	-	-	-	5.02	21.98	-	-	-	-	-	-	-	-	3.64E-04	1.59E-03	-	-
Totals	22.80	99.88	118.01	516.90	272.07	621.15	0.62	2.72	2.67	11.72	2.67	11.72	0.71	3.11	9.97	43.05	-	-

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

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).

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).

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

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

[illegible]

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.

☒ 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.

[illegible]

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:

[illegible]

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		Toluene ☒ HAP or ☐ TAP		Benzene ☒ HAP or ☐ TAP		n-Hexane ☒ HAP or ☐ TAP		Xylene ☒ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	ENG-1	0.42	1.82	0.21	0.93	0.11	0.47	0.067	0.29	5.29E-03	0.023	5.70E-03	0.025	0.014	0.063	2.39E-03	0.010
ENG-2	ENG-2	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013
ENG-3	ENG-3	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013
ENG-4	ENG-4	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013
ENG-5	ENG-5	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013
ENG-6	ENG-6	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013
ENG-7	ENG-7	0.42	1.82	0.21	0.93	0.11	0.47	0.067	0.29	5.29E-03	0.023	5.70E-03	0.025	0.014	0.063	2.39E-03	0.010
ENG-8	ENG-8	0.59	2.58	0.25	1.11	0.18	0.78	0.11	0.48	8.73E-03	0.038	9.42E-03	0.041	0.024	0.10	3.94E-03	0.017
ENG-9	ENG-9	0.59	2.58	0.25	1.11	0.18	0.78	0.11	0.48	8.73E-03	0.038	9.42E-03	0.041	0.024	0.10	3.94E-03	0.017
ENG-10	ENG-10	0.59	2.58	0.25	1.11	0.18	0.78	0.11	0.48	8.73E-03	0.038	9.42E-03	0.041	0.024	0.10	3.94E-03	0.017
Trailer-1	Trailer-1	1.15E-04	2.31E-06	1.18E-03	2.36E-05	7.67E-04	1.53E-05	9.25E-05	1.85E-06	4.09E-04	8.18E-06	9.33E-04	1.87E-05	-	-	-	-
GEN-1	GEN-1	0.25	1.10	0.19	0.85	0.031	0.13	0.019	0.083	1.50E-03	6.55E-03	1.61E-03	7.07E-03	4.03E-03	0.018	6.75E-04	2.95E-03
VCU-1	Dehy-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RBL-1	RBL-1	3.69E-03	0.016	1.47E-04	6.44E-04	-	-	-	-	6.67E-06	2.92E-05	4.12E-06	1.80E-05	3.53E-03	0.015	-	-
VCU-1	TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	TK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	TK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	VCU-1	0.75	0.96	-	-	-	-	-	-	0.21	0.25	0.38	0.39	0.10	0.23	0.043	0.080
N/A	LOAD	4.80	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	FUG	0.91	3.97	-	-	-	-	-	-	0.30	1.33	0.17	0.74	0.13	0.55	0.28	1.23
N/A	SSM/M	68.87	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:		80.90	29.79	2.83	12.38	1.46	6.40	0.90	3.93	0.59	1.89	0.63	1.46	0.43	1.64	0.35	1.45

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, ...)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
ENG-1	Natural Gas	Residue Gas	1,291.29 Btu/scf	7.93 Mscf/hr	69.46 MMscf/yr	N/A	N/A
ENG-2	Natural Gas	Residue Gas	1,291.29 Btu/scf	9.89 Mscf/hr	86.67 MMscf/yr	N/A	N/A
ENG-3	Natural Gas	Residue Gas	1,291.29 Btu/scf	9.89 Mscf/hr	86.67 MMscf/yr	N/A	N/A
ENG-4	Natural Gas	Residue Gas	1,291.29 Btu/scf	9.89 Mscf/hr	86.67 MMscf/yr	N/A	N/A
ENG-5	Natural Gas	Residue Gas	1,291.29 Btu/scf	9.89 Mscf/hr	86.67 MMscf/yr	N/A	N/A
ENG-6	Natural Gas	Residue Gas	1,291.29 Btu/scf	9.89 Mscf/hr	86.67 MMscf/yr	N/A	N/A
ENG-7	Natural Gas	Residue Gas	1,291.29 Btu/scf	7.93 Mscf/hr	69.46 MMscf/yr	N/A	N/A
ENG-8	Natural Gas	Residue Gas	1,291.29 Btu/scf	13.09 Mscf/hr	114.66 MMscf/yr	N/A	N/A
ENG-9	Natural Gas	Residue Gas	1,291.29 Btu/scf	13.09 Mscf/hr	114.66 MMscf/yr	N/A	N/A
ENG-10	Natural Gas	Residue Gas	1,291.29 Btu/scf	13.09 Mscf/hr	114.66 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
GEN-1	Natural Gas	Residue Gas	1,291.29 Btu/scf	2.24 Mscf/hr	19.65 MMscf/yr	N/A	N/A
RBL-1	Natural Gas	Residue Gas	1,291.29 Btu/scf	1.55 Mscf/hr	13.57 MMscf/yr	N/A	N/A
VCU-1	Natural Gas	Residue Gas	1,291.29 Btu/scf	25.00 scf/hr	0.22 MMscf/yr	N/A	N/A

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.

[illegible]

Table 2-O: Parametric Emissions Measurement Equipment

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

[illegible]

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 ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²									Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWP _s ¹	1	298	25	22,800	footnote 3										
ENG-1	mass GHG	5,246.37	9.89E-03	0.11	-	-									5,246.49	-
	CO ₂ e	5,246.37	2.95	2.72	-	-									-	5,252.04
ENG-2	mass GHG	6,546.05	0.012	0.14	-	-									6,546.20	-
	CO ₂ e	6,546.05	3.68	3.39	-	-									-	6,553.12
ENG-3	mass GHG	6,546.05	0.012	0.14	-	-									6,546.20	-
	CO ₂ e	6,546.05	3.68	3.39	-	-									-	6,553.12
ENG-4	mass GHG	6,546.05	0.012	0.14	-	-									6,546.20	-
	CO ₂ e	6,546.05	3.68	3.39	-	-									-	6,553.12
ENG-5	mass GHG	6,546.05	0.012	0.14	-	-									6,546.20	-
	CO ₂ e	6,546.05	3.68	3.39	-	-									-	6,553.12
ENG-6	mass GHG	6,546.05	0.012	0.14	-	-									6,546.20	-
	CO ₂ e	6,546.05	3.68	3.39	-	-									-	6,553.12
ENG-7	mass GHG	5,246.37	9.89E-03	0.11	-	-									5,246.49	-
	CO ₂ e	5,246.37	2.95	2.72	-	-									-	5,252.04
ENG-8	mass GHG	8,660.18	0.016	0.18	-	-									8,660.38	-
	CO ₂ e	8,660.18	4.86	4.49	-	-									-	8,669.53
ENG-9	mass GHG	8,660.18	0.016	0.18	-	-									8,660.38	-
	CO ₂ e	8,660.18	4.86	4.49	-	-									-	8,669.53
ENG-10	mass GHG	8,660.18	0.016	0.18	-	-									8,660.38	-
	CO ₂ e	8,660.18	4.86	4.49	-	-									-	8,669.53
Trailer-1	mass GHG	3.26	2.65E-05	1.32E-04	-	-									3.26	-
	CO ₂ e	3.26	7.88E-03	3.31E-03	-	-									-	3.27
GEN-1	mass GHG	1,483.80	2.80E-03	0.031	-	-									1,483.83	-
	CO ₂ e	1,483.80	0.83	0.77	-	-									-	1,485.40
Dehy-1	mass GHG	-	-	-	-	-									-	-
	CO ₂ e	-	-	-	-	-									-	-
RBL-1	mass GHG	1,024.72	1.93E-03	0.021	-	-									1,024.74	-
	CO ₂ e	1,024.72	0.58	0.53	-	-									-	1,025.83
TK-1	mass GHG	-	-	-	-	-									-	-
	CO ₂ e	-	-	-	-	-									-	-
TK-2	mass GHG	-	-	-	-	-									-	-
	CO ₂ e	-	-	-	-	-									-	-
TK-3	mass GHG	-	-	-	-	-									-	-
	CO ₂ e	-	-	-	-	-									-	-
VCU-1	mass GHG	2,642.25	4.98E-03	0.055	-	-									2,642.31	-
	CO ₂ e	2,642.25	1.48	1.37	-	-									-	2,645.10
LOAD	mass GHG	9.16E-03	-	6.21E-03	-	-									0.015	-
	CO ₂ e	9.16E-03	-	0.16	-	-									-	0.16

		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²									Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWP _s ¹	1	298	25	22,800	footnote 3										
FUG	mass GHG	26.81	-	37.45	-	-									64.26	-
	CO ₂ e	26.81	-	936.20	-	-									-	963.01
SSM/M	mass GHG	0.15	-	17.65	-	-									17.80	-
	CO ₂ e	0.15	-	441.25	-	-									-	441.41
Total	mass GHG	74,384.54	0.14	56.65	-	-									74,441.33	-
	CO ₂ e	74,384.54	41.77	1,416.15	-	-									-	75,842.46

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 CO₂e 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 this application for a Title V Operating permit pursuant to 20.2.70.300.B.2. NMAC for their Cadillac Compressor Station (Cadillac). Previously, Targa had submitted a significant revision to NSR Permit No. 7995-M3 pursuant to 20.2.72.219.D.(1)(a) NMAC. It was determined that the facility would now qualify as a Title V facility. The facility is located in Eddy County, New Mexico.

Low pressure field gas is gathered from various wells in the area and sent to an inlet separator. The gas from the separator is compressed by ten (10) natural gas driven compressor engines (units ENG-1 through ENG-10). Once the gas is compressed, it is treated using a glycol dehydration system (unit Dehy-1) to remove entrained water. The dry gas is then sent off site via pipeline for further processing.

The glycol dehydration unit incorporates three distinct sources of air emissions: (1) flash tank, (2) BTEX condenser still vent, and a (3) natural gas fired reboiler (unit RBL-1). Flash tank emissions are recycled to the inlet, however, during periods where the inlet pressure is too high, the emissions are routed to the storage tanks (units TK-1 through TK-3). The BTEX condenser still vent emissions are routed to the reboiler as fuel, however, during periods in which the reboiler does not call for fuel, the emission are routed to the tanks.

Liquids from the inlet separator, as well as from compressor interstage knockout are sent to three (3) atmospheric storage tanks (units TK-1 through TK-3). Flash, working, and breathing emissions as well as dehy flash gas (during high inlet pressure periods) and BTEX condenser still vent (during periods in which the reboiler does not call for fuel) are controlled with a vapor combustion unit (unit VCU) with a 100% capture efficiency and a 98% DRE. While liquids may be transported offsite via pipeline, loading emissions (unit LOAD) are represented for the entire facility throughput for liquids along with associated haul road emissions (unit HAUL), the latter of which is exempt pursuant to 20.2.72.202.B.(5) NMAC.

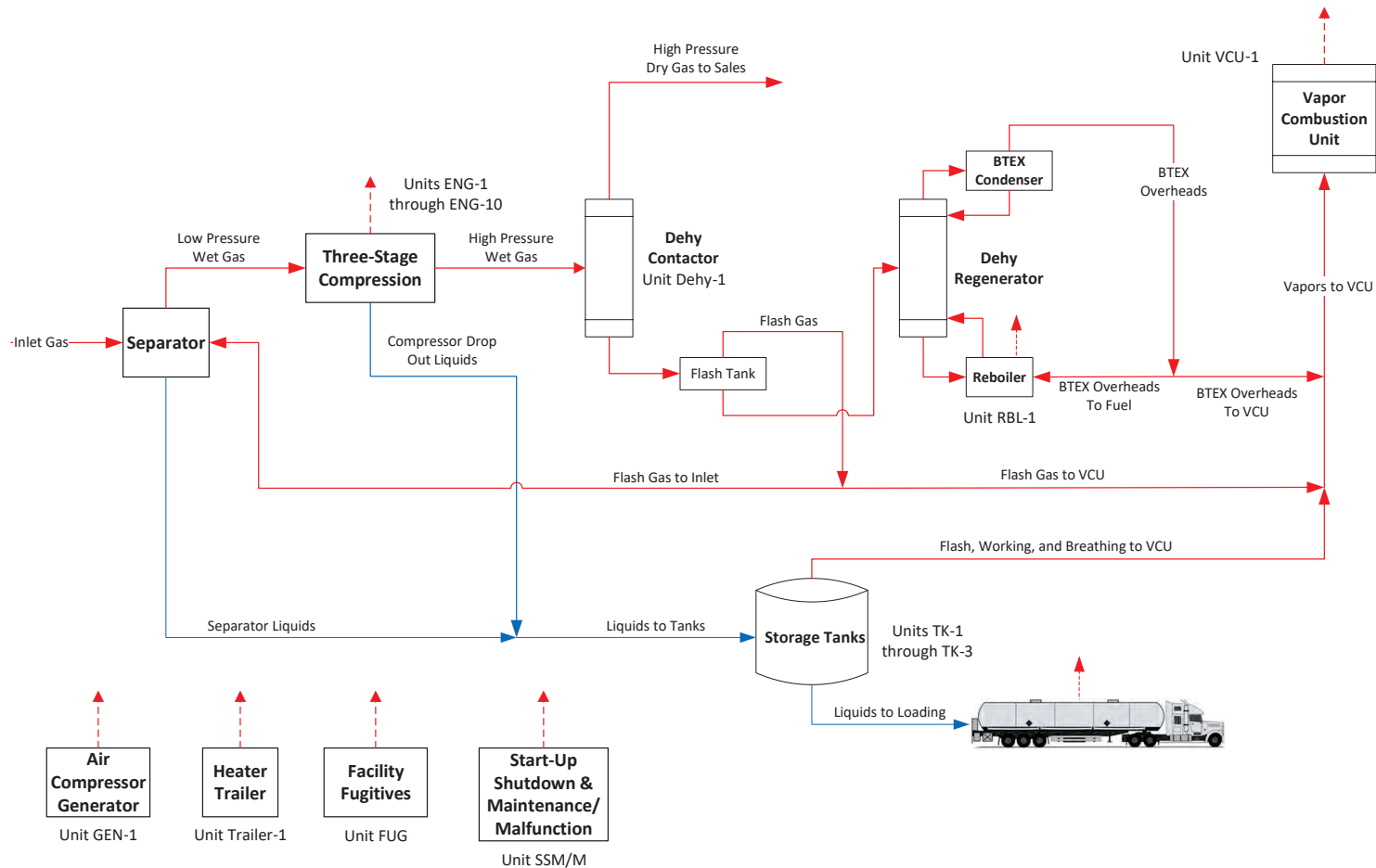
During the winter months, a diesel fired heater trailer (unit Trailer-1) is used to help start up cold engines. A natural gas fired air compressor generator (unit GEN-1) is also used for pneumatics. Startup, shutdown, maintenance /malfunction emissions (SSM/M) include compressor blowdowns, dehydrator blowdowns, filter coalescer blowdowns, scrubber blowdowns, pump blowdowns, reboiler maintenance, pigging, pipeline blowdowns, and tank maintenance. Scrubber blowdowns will not occur at the same time as any other SSM activity. Details regarding the number of events and gas volumes associated with these activities can be found in the provided calculations.

Section 4

Process Flow Sheet

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

Process flow diagram is attached on the following page.

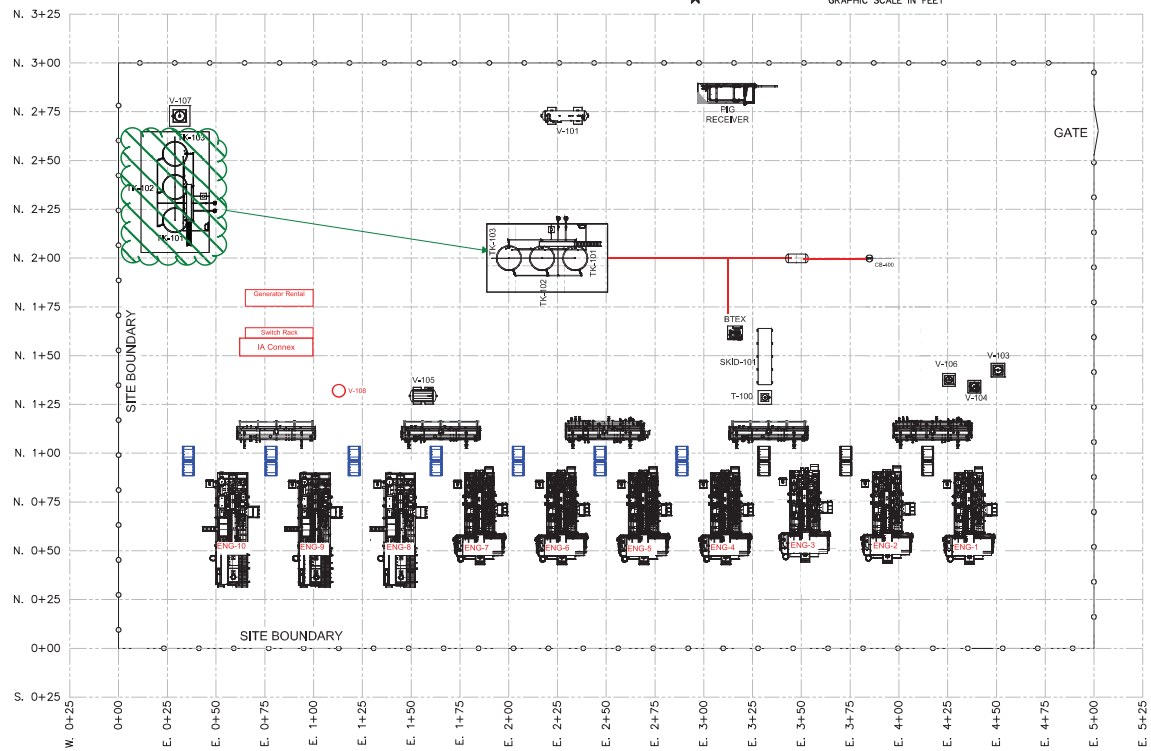


Section 5

Plot Plan Drawn to Scale

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

A plot plan is attached on the following page.



EQUIPMENT LIST	
ITEM	DESCRIPTION
ENG-1	35161 COMPRESSOR
ENG-2	3606 COMPRESSOR
ENG-3	3606 COMPRESSOR
ENG-4	3606 COMPRESSOR
ENG-5	3606 COMPRESSOR
ENG-6	3606 COMPRESSOR
ENG-7	35161 COMPRESSOR
ENG-8	3606 COMPRESSOR
ENG-9	3606 COMPRESSOR
ENG-10	3606 COMPRESSOR
V-101	LP INLET SEPARATOR
V-102	3 PHASE SEPARATOR
V-104	BLOWCASE
V-105	3 PHASE SEPARATOR
V-106	FUEL GAS SCRUBBER
V-107	VENT SEPARATOR
T-100	GLYCOL CONDENSATOR
SKIP-101	GLYCOL REGENERATION UNIT
TK-101	CONDENSATE TANK
TK-102	CONDENSATE TANK
TK-103	CONDENSATE TANK
TK-104	CONDENSATE TANK

NOTES:

[illegible]

DRAWN BY SSH	DATE 09/2016
CHECKED BY JJ	DATE 09/2016
ENGINEERED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

PLOT PLAN
CADILLAC COMPRESSOR STATION
EDDY COUNTY, NEW MEXICO

CLIENT NUMBER AFF #180083	SCHOOL GRAPHIC	DRAWING NUMBER 1807-450
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Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

- A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.
- B. At least 5 significant figures shall be retained in all intermediate calculations.
- C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

- (1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;
- (2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**
- (3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.
- (4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Caterpillar Engines (Units ENG-1 through ENG-10)

NO_x, CO, VOC, and formaldehyde emissions are calculated using manufacturer specifications. SO₂ emissions are based on a conservative fuel sulfur content estimated of 2 gr S/100 scf and 100% conversion of elemental sulfur to SO₂. Particulate (PM, PM_{2.5}, and PM₁₀) 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.

Heater Trailer (Unit Trailer-1)

NO_x, CO, VOC, and PM emission are calculated using NSPS IIII Tier IV Final Emission Factors. SO₂ and HAP emissions are calculated using AP-42 Table 3.3-1 and 3.3-2 emission factors. 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-1)

NO_x, CO, and VOC emissions are calculated using a Certification of Conformity with the Clean Air Act dated 2021. SO₂ emissions are based on a conservative fuel sulfur content estimated of 2 gr S/100 scf and 100% conversion of elemental sulfur to SO₂. Particulate (PM, PM_{2.5}, and PM₁₀) 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 Dehydrator (Unit Dehy-1)

Glycol dehydration emissions are calculated using BR&E ProMax and an extended inlet gas analysis. VOC and HAP emissions from the regenerator are controlled with a BTEX condenser. Flash tank emission are normally recycled back to the inlet, however, during periods in which the inlet gas is too high, flash tank emissions are routed to the storage tanks. The BTEX condenser overheads are normally routed to the reboiler for fuel, however, when the reboiler does not call for fuel, the BTEX condenser overheads are routed to the storage tanks. The storage tanks are controlled by the VCU with a 100% capture efficiency and a 98% DRE.

Glycol Reboiler (Unit RBL-1)

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.

Atmospheric Storage Tanks (Units TK-1 through TK-3)

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. Flash, working, and breathing emissions are routed to the VCU with a 100% capture efficiency and a 98% DRE.

Vapor Combustion Unit (Unit VCU-1)

Emissions for NO_x, CO, and PM are calculated using AP-42 Tables 1.4-1 & 2 emission factors. Pilot SO₂ emissions are based on a conservative fuel sulfur content of 2 gr S/100 scf and a 100% conversion of elemental sulfur to SO₂. SO₂ emissions were calculated based on a 98% DRE, based on the manufacturer specification sheet, and conversion to SO₂. VOC, H₂S, and HAPs are calculated based on BR&E ProMax for the dehydrator flash tank, BTEX condenser overheads, and the flash, working, and breathing emissions from the atmospheric storage tanks. For the H₂S, it was assumed 98% was combusted and 100% of the combusted H₂S was converted to SO₂. Greenhouse gas emissions are estimated using emission factors from 40 CFR 98 Subpart C Tables C-1 and C-2.

Loading Emissions (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.

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.

Haul Road Emissions (Unit HAUL)

Emissions are calculated using Equation 2 of AP-42 Section 13.2.2. Haul road emissions at this facility are exempt pursuant to 202.2.82.202.B.(5) NMAC. Emissions calculations are included in the application reference.

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***Targa Northern Delaware, LLC - Cadillac Compressor Station***Emissions Summary**

Unit		Uncontrolled Emissions																Total HAPs	
		NO _x		CO		VOC		SO ₂		PM ₁₀		PM _{2.5}		H ₂ S					
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy		
ENG-1	CAT 3516J 1380 hp Comp Eng	1.52	6.66	9.07	39.71	4.49	19.66	0.045	0.20	0.20	0.87	0.20	0.87	-	-	1.39	6.09		
ENG-2	CAT 3606 1875 hp Comp Eng	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73		
ENG-3	CAT 3606 1875 hp Comp Eng	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73		
ENG-4	CAT 3606 1875 hp Comp Eng	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73		
ENG-5	CAT 3606 1875 hp Comp Eng	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73		
ENG-6	CAT 3606 1875 hp Comp Eng	2.07	9.05	10.33	45.26	4.68	20.51	0.057	0.25	0.25	1.09	0.25	1.09	-	-	1.08	4.73		
ENG-7	CAT 3516J 1380 hp Comp Eng	1.52	6.66	9.07	39.71	4.49	19.66	0.045	0.20	0.20	0.87	0.20	0.87	-	-	1.39	6.09		
ENG-8	CAT 3608 2500 hp Comp Eng	2.76	12.07	15.43	67.59	7.01	30.72	0.075	0.33	0.33	1.44	0.33	1.44	-	-	1.60	7.02		
ENG-9	CAT 3608 2500 hp Comp Eng	2.76	12.07	15.43	67.59	7.01	30.72	0.075	0.33	0.33	1.44	0.33	1.44	-	-	1.60	7.02		
ENG-10	CAT 3608 2500 hp Comp Eng	2.76	12.07	15.43	67.59	7.01	30.72	0.075	0.33	0.33	1.44	0.33	1.44	-	-	1.60	7.02		
Trailer-1	Diesel-fired Heater Trailer	0.16	0.71	0.15	0.65	8.52E-03	0.037	2.05E-03	8.98E-03	9.13E-03	0.040	9.13E-03	0.040	-	-	3.79E-03	0.017		
GEN-1	Air Compressor Generator	0.80	3.50	1.60	6.99	0.78	3.43	0.013	0.056	0.029	0.13	0.029	0.13	-	-	0.25	1.10		
Dehy-1	Glycol Dehydrator	-	-	-	-	82.02	359.27	-	-	-	-	-	-	0.042	0.19	10.95	47.97		
RBL-1	2.0 MMbtu/hr Reboiler	0.20	0.86	0.16	0.72	0.011	0.047	8.85E-03	0.039	0.015	0.065	0.015	0.065	-	-	3.69E-03	0.016		
TK-1	Atmospheric Storage Tank	-	-	-	-	34.55	0.60	-	-	-	-	-	-	0.035	7.69E-04	1.47	0.022		
TK-2	Atmospheric Storage Tank	-	-	-	-	34.55	0.60	-	-	-	-	-	-	0.035	7.69E-04	1.47	0.022		
TK-3	Atmospheric Storage Tank	-	-	-	-	34.55	0.60	-	-	-	-	-	-	0.035	7.69E-04	1.47	0.022		
VCU-1	Tank Vapor Combustion Unit	3.16E-03	0.014	2.66E-03	0.012	1.74E-04	7.62E-04	1.43E-04	6.26E-04	2.41E-04	1.05E-03	2.41E-04	1.05E-03	-	-	-	-		
LOAD	Truck Loading	-	-	-	-	27.16	0.58	-	-	-	-	-	-	0.035	7.41E-06	4.80	0.10		
FUG	Facility-wide Fugitive Emissions	-	-	-	-	5.02	21.98	-	-	-	-	-	-	3.64E-04	1.59E-03	0.91	3.97		
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	-	-	-	-	1,720.50	7.87	-	-	-	-	-	-	0.16	7.28E-04	68.87	0.37		
Total		22.80	99.88	118.01	516.90	1,992.57	629.02	0.62	2.72	2.67	11.72	2.67	11.72	0.34	0.19	103.18	110.50		

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

Emissions Summary

		Controlled Emissions															
Unit		NO _x		CO		VOC		SO ₂		PM ₁₀		PM _{2.5}		H ₂ S		Total HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	CAT 35163 1380 hp Comp Eng	1.52	6.66	1.52	6.66	1.84	8.07	0.045	0.20	0.20	0.87	0.20	0.87	-	-	0.42	1.82
ENG-2	CAT 3606 1875 hp Comp Eng	2.07	9.05	2.07	9.05	2.49	10.91	0.057	0.25	0.25	1.09	0.25	1.09	-	-	0.54	2.38
ENG-3	CAT 3606 1875 hp Comp Eng	2.07	9.05	2.07	9.05	2.49	10.91	0.057	0.25	0.25	1.09	0.25	1.09	-	-	0.54	2.38
ENG-4	CAT 3606 1875 hp Comp Eng	2.07	9.05	2.07	9.05	2.49	10.91	0.057	0.25	0.25	1.09	0.25	1.09	-	-	0.54	2.38
ENG-5	CAT 3606 1875 hp Comp Eng	2.07	9.05	2.07	9.05	2.49	10.91	0.057	0.25	0.25	1.09	0.25	1.09	-	-	0.54	2.38
ENG-6	CAT 3606 1875 hp Comp Eng	2.07	9.05	2.07	9.05	2.49	10.91	0.057	0.25	0.25	1.09	0.25	1.09	-	-	0.54	2.38
ENG-7	CAT 35163 1380 hp Comp Eng	1.52	6.66	1.52	6.66	1.84	8.07	0.045	0.20	0.20	0.87	0.20	0.87	-	-	0.42	1.82
ENG-8	CAT 3608 2500 hp Comp Eng	2.76	12.07	3.79	16.58	4.29	18.79	0.075	0.33	0.33	1.44	0.33	1.44	-	-	0.59	2.58
ENG-9	CAT 3608 2500 hp Comp Eng	2.76	12.07	3.79	16.58	4.29	18.79	0.075	0.33	0.33	1.44	0.33	1.44	-	-	0.59	2.58
ENG-10	CAT 3608 2500 hp Comp Eng	2.76	12.07	3.79	16.58	4.29	18.79	0.075	0.33	0.33	1.44	0.33	1.44	-	-	0.59	2.58
Trailer-1	Diesel-fired Heater Trailer	0.16	3.24E-03	0.15	2.98E-03	8.52E-03	1.70E-04	0.29	5.80E-03	9.13E-03	1.83E-04	9.13E-03	1.83E-04	-	-	1.15E-04	2.31E-06
GEN-1	Air Compressor Generator	0.80	3.50	1.60	6.99	0.78	3.43	0.013	0.056	0.029	0.13	0.029	0.13	-	-	0.25	1.10
Dehy-1 ¹	Glycol Dehydrator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RBL-1	2.0 MMBtu/hr Reboiler	0.20	0.86	0.16	0.72	0.011	0.047	8.85E-03	0.039	0.015	0.065	0.015	0.065	-	-	3.69E-03	0.016
TK-1 ²	Atmospheric Storage Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-2 ²	Atmospheric Storage Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-3 ²	Atmospheric Storage Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	Tank Vapor Combustion Unit	0.51	1.41	0.42	1.18	3.58	7.12	0.079	0.35	0.038	0.11	0.038	0.11	8.55E-04	3.79E-03	0.75	0.96
LOAD	Truck Loading	-	-	-	-	27.16	0.58	-	-	-	-	-	-	0.035	7.41E-06	4.80	0.10
FUG	Facility-wide Fugitive Emissions	-	-	-	-	5.02	21.98	-	-	-	-	-	-	3.64E-04	1.59E-03	0.91	3.97
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	-	-	-	-	1,720.50	7.87	-	-	-	-	-	-	0.16	7.28E-04	68.87	0.37
Total		23.31	100.56	27.07	117.22	1,786.08	168.10	0.99	3.07	2.71	11.78	2.71	11.78	0.20	6.12E-03	80.90	29.79

		Controlled HAP and GHG Emissions																			
Unit		Total HAPs		Formaldehyde		Acetaldehyde		Acrolein		Toluene		Benzene		n-Hexane		Xylene		CO ₂	N ₂ O	CH ₄	CO ₂ e
		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
ENG-1	CAT 3606 1875 hp Comp Eng	0.42	1.82	0.21	0.93	0.11	0.47	0.067	0.29	5.29E-03	0.023	5.70E-03	0.025	0.014	0.063	2.39E-03	0.010	5,246.37	9.89E-03	0.11	5,252.04
ENG-2	CAT 3606 1875 hp Comp Eng	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013	6,546.05	0.012	0.14	6,553.12
ENG-3	CAT 3606 1875 hp Comp Eng	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013	6,546.05	0.012	0.14	6,553.12
ENG-4	CAT 3606 1875 hp Comp Eng	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013	6,546.05	0.012	0.14	6,553.12
ENG-5	CAT 3606 1875 hp Comp Eng	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013	6,546.05	0.012	0.14	6,553.12
ENG-6	CAT 35163 1380 hp Comp Eng	0.54	2.38	0.29	1.27	0.14	0.59	0.083	0.36	6.60E-03	0.029	7.12E-03	0.031	0.018	0.079	2.98E-03	0.013	6,546.05	0.012	0.14	6,553.12
ENG-7	CAT 3608 2500 hp Comp Eng	0.42	1.82	0.21	0.93	0.11	0.47	0.067	0.29	5.29E-03	0.023	5.70E-03	0.025	0.014	0.063	2.39E-03	0.010	5,246.37	9.89E-03	0.11	5,252.04
ENG-8	CAT 3608 2500 hp Comp Eng	0.59	2.58	0.25	1.11	0.18	0.78	0.11	0.48	8.73E-03	0.038	9.42E-03	0.041	0.024	0.10	3.94E-03	0.017	8,660.18	0.016	0.18	8,669.53
ENG-9	CAT 3608 2500 hp Comp Eng	0.59	2.58	0.25	1.11	0.18	0.78	0.11	0.48	8.73E-03	0.038	9.42E-03	0.041	0.024	0.10	3.94E-03	0.017	8,660.18	0.016	0.18	8,669.53
ENG-10	Diesel-fired Heater Trailer	0.59	2.58	0.25	1.11	0.18	0.78	0.11	0.48	8.73E-03	0.038	9.42E-03	0.041	0.024	0.10	3.94E-03	0.017	8,660.18	0.016	0.18	8,669.53
Trailer-1	Diesel-fired Heater Trailer	1.15E-04	2.31E-06	1.18E-03	2.36E-05	7.67E-04	1.53E-05	9.25E-05	1.85E-06	4.09E-04	8.18E-06	9.33E-04	1.87E-05	-	-	-	-	3.26	2.65E-05	1.32E-04	3.27
GEN-1	Air Compressor Generator	0.25	1.10	0.19	0.85	0.031	0.13	0.019	0.083	1.50E-03	6.55E-03	1.61E-03	7.07E-03	4.03E-03	0.018	6.75E-04	2.95E-03	1,483.80	2.80E-03	0.031	1,485.40
Dehy-1 ¹	Glycol Dehydrator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RBL-1	2.0 MMBtu/hr Reboiler	3.69E-03	0.016	1.47E-04	6.44E-04	-	-	-	-	6.67E-06	2.92E-05	4.12E-06	1.80E-05	3.53E-03	0.015	-	-	1,024.72	1.93E-03	0.021	1,025.83
TK-1 ²	Atmospheric Storage Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-2 ²	Atmospheric Storage Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-3 ²	Atmospheric Storage Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	Tank Vapor Combustion Unit	0.75	0.96	-	-	-	-	-	-	0.21	0.25	0.38	0.39	0.10	0.23	0.043	0.080	2,642.25	4.98E-03	0.055	2,645.10
LOAD	Truck Loading	4.80	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.16E-03	-	6.21E-03	0.16
FUG	Facility-wide Fugitive Emissions	0.91	3.97	-	-	-	-	-	-	0.30	1.33	0.17	0.74	0.13	0.55	0.28	1.23	26.81	-	37.45	963.01
SSM/M	Startup, Shutdown, Maintenance, and Malfunction	68.87	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	-	17.65	441.41
Total		80.90	29.79	2.83	12.38	1.46	6.40	0.90	3.93	0.59	1.89	0.63	1.46	0.43	1.64	0.35	1.45	74,384.54	0.14	56.65	75,842.46

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

*- Indicates emissions of this pollutant are not expected.

¹ Dehy flash gas and BTEX condenser overheads are represented at the VCU for a worst-case scenario. Emissions are routed with a 100% capture efficiency and a 98% DRE.² Tank flash, working, and breathing emission are routed to the VCU with a 100% capture efficiency and a 98% DRE.

**TARGA***Targa Northern Delaware, LLC - Cadillac Compressor Station***Emissions Summary**

Site-Wide		
Description	Value	Unit
Gas Throughput	100	MMSCFD
Annual Operating Hours	8,760	hr
Daily Operating Hours	24	hr
Site Location	32.149972	-104.048467
Site Elevation	2,944	ft MSL

Fuel Gas			
Parameter	Value	Unit	Notes
Fuel Heat Value	1,291.29	Btu/scf	Inlet Gas Analysis
Fuel Sulfur Content	2.0	gr S / 100 scf	Engineering Estimate

Engine Input Information			
Parameter	Value	Unit	Notes
Unit:	ENG-1 & ENG-7		
Description:	Caterpillar G3516J Compressor Engines		
Rating:	1380	hp	
Fuel Usage:	7929.7	scf/hr	
Unit:	ENG-2 through ENG-6		
Description:	Caterpillar G3606 Compressor Engines		
Rating:	1875	hp	
Fuel Usage:	9894.2	scf/hr	
Unit:	ENG-8 through ENG-10		
Description:	Caterpillar G3608 Compressor Engines		
Rating:	2500	hp	
Fuel Usage:	13089.6	scf/hr	

Atmospheric Storage Tanks			
Parameter	Value	Unit	Notes
Unit ID	TK-1 through TK-3		
Number of Tanks	3	units	Facility Design
Volume	300	bbl	Facility Design
Tank Diameter	12	ft	
Tank Height	15	ft	
Capture Efficiency	100%	%	Routed to VCU
Control Efficiency	N/A	%	
Hourly Throughput	307.79	bbl/hr	
Annual Throughput	8642.42	bbl/yr	

Vapor Combustion Unit			
Parameter	Value	Unit	Notes
Unit ID	VCU		
Controlled Units	TK-1 through TK-3, Dehy-1		
Pilot Flow Rate	25	scf/hr	Mfg. spec sheet
Capacity	0.052	MMscfd	Mfg. spec sheet
DRE	98%		Mfg. spec sheet



Targa Northern Delaware, LLC - Cadillac Compressor Station
Caterpillar G3516J Compressor Engines

Emission Unit: ENG-1 & ENG-7
Source Description: Caterpillar G3516J Compressor Engines
Manufacturer: Caterpillar
Model: G3516J
Type: 4SLB

Fuel Consumption

Site horsepower	1380 hp	Manufacturer Rating
Fuel heat value	1291.29 Btu/scf	Inlet Gas Analysis
Heat input	10.24 MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	7.93 Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760 hrs/yr	
Annual fuel usage	69.46 MMsct/yr	8760 hrs/yr operation
Fuel Consumption	7420 Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

<i>Uncontrolled</i>	NO _x	CO	VOC	SO ₂ ²	HCHO	PM ₁₀ ⁴	PM _{2.5} ⁴	Total HAPs ³	Units	Notes
Emission Factors	0.50	2.98	1.05		0.39	1.94E-02	1.94E-02		g/hp-hr lb/MMBtu gr/scf	Catalyst Data AP-42 Table 3.2-2 Engineering Estimate
	1.52	9.07	4.49	0.045	1.19	0.20	0.20	1.39	lb/hr	
	6.66	39.71	19.66	0.20	5.20	0.87	0.87	6.09	tpy	

<i>Controlled</i>	NO _x	CO	VOC ¹	SO ₂ ²	HCHO	PM ₁₀ ⁴	PM _{2.5} ⁴	Total HAPs ³	Units	Notes
Emission Factors	0.50	0.50	0.50		0.07				g/hp-hr	Catalyst Guarantee % Reduction
	0%	83%	59%		82%	1.94E-02	1.94E-02		lb/MMBtu	AP-42 Table 3.2-2
	1.52	1.52	1.84	0.045	0.21	0.20	0.20	0.42	lb/hr	
	6.66	6.66	8.07	0.20	0.93	0.87	0.87	1.82	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
1.06E-02	6.51E-03	1.41E-03	5.57E-04	5.17E-04	5.03E-05	2.33E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.11	0.067	0.014	5.70E-03	5.29E-03	5.15E-04	2.39E-03	lb/hr	
0.47	0.29	0.063	0.025	0.023	2.25E-03	0.010	tpy	

NOTES

¹ VOC emission factor is calculated by adding aldehyde emissions.

² SO₂ 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 SO₂/ 32 lb-mol S = lb/hr SO₂

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) = PM₁₀ = PM_{2.5}

⁵ AP-42 Table 3.2-2 & adjusted for 1291.29 Btu/scf

<i>Green House Gas Emissions</i>	CO ₂ ⁶	CH ₄ ⁶	N ₂ O ⁶	CO ₂ e 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
	5246.37	0.11	9.89E-03	-	tpy	
	5246.37	2.72	2.95	5252.04	tpy CO ₂ e	

⁶ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



Targa Northern Delaware, LLC - Cadillac Compressor Station
Caterpillar G3606 Compressor Engines

Emission Unit: ENG-2 through ENG-6
Source Description: Caterpillar G3606 Compressor Engines
Manufacturer: Caterpillar
Model: G3606
Type: 4SLB

Fuel Consumption

Site horsepower	1875 hp	Manufacturer Rating
Fuel heat value	1291.29 Btu/scf	Inlet Gas Analysis
Heat input	12.78 MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	9.89 Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760 hrs/yr	
Annual fuel usage	86.67 MMsct/yr	8760 hrs/yr operation
Fuel Consumption	6814 Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	NO_x	CO	VOC	SO₂²	HCHO	PM₁₀⁴	PM_{2.5}⁴	Total HAPs³	Units	Notes
Emission Factors	0.50	2.50	0.90		0.20	1.94E-02	1.94E-02		g/hp-hr lb/MMBtu gr/scf	Catalyst Data AP-42 Table 3.2-3 Engineering Estimate
	2.07	10.33	4.68	0.057	0.83	0.25	0.25	1.08	lb/hr	
	9.05	45.26	20.51	0.25	3.62	1.09	1.09	4.73	tpy	

Controlled	NO_x	CO	VOC²	SO₂²	HCHO	PM₁₀⁴	PM_{2.5}⁴	Total HAPs³	Units	Notes
Emission Factors	0.50 0%	0.50 80%	0.50 47%		0.07 65%	1.94E-02	1.94E-02		g/hp-hr lb/MMBtu	Catalyst Guarantee % Reduction AP-42 Table 3.2-3
	2.07	2.07	2.49	0.057	0.29	0.25	0.25	0.54	lb/hr	
	9.05	9.05	10.91	0.25	1.27	1.09	1.09	2.38	tpy	

Acetaldehyde⁵	Acrolein⁵	n-Hexane⁵	Benzene⁵	Toluene⁵	E-Benzene⁵	Xylene⁵	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
1.06E-02	6.51E-03	1.41E-03	5.57E-04	5.17E-04	5.03E-05	2.33E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.14	0.083	0.018	7.12E-03	6.60E-03	6.42E-04	2.98E-03	lb/hr	
0.59	0.36	0.079	0.031	0.029	2.81E-03	0.013	tpy	

NOTES

- ¹ VOC emission factor is calculated by adding aldehyde emissions.
² SO₂ 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 SO₂/ 32 lb-mol S = lb/hr SO₂
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) = PM₁₀ = PM_{2.5}
⁵ AP-42 Table 3.2-2 & adjusted for 1291.29 Btu/scf

Green House Gas Emissions	CO₂⁶	CH₄⁶	N₂O⁶	CO₂e⁶	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
	6546.05	0.14	0.012	-	tpy	
	6546.05	3.39	3.68	6553.12	tpy CO ₂ e	

- ⁶ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)
CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



Targa Northern Delaware, LLC - Cadillac Compressor Station
Caterpillar G3608 Compressor Engines

Emission Unit: ENG-8 through ENG-10
Source Description: Caterpillar G3608 Compressor Engines
Manufacturer: Caterpillar
Model: G3608
Type: 4SLB

Fuel Consumption

Site horsepower	2500 hp	Manufacturer Rating
Fuel heat value	1291.29 Btu/scf	Inlet Gas Analysis
Heat input	16.90 MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	13.09 Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760 hrs/yr	
Annual fuel usage	114.66 MMScf/yr	8760 hrs/yr operation
Fuel Consumption	6761 Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

<i>Uncontrolled</i>	NO _x	CO	VOC	SO ₂ ²	HCHO	PM ₁₀ ⁴	PM _{2.5} ⁴	Total HAPs ³	Units	Notes
Emission Factors	0.50	2.80	1.01		0.23	1.94E-02	1.94E-02		g/hp-hr lb/MMBtu gr/scf	Catalyst Data AP-42 Table 3.2-2 Engineering Estimate
	2.76	15.43	7.01	0.075	1.27	0.33	0.33	1.60	lb/hr	
	12.07	67.59	30.72	0.33	5.55	1.44	1.44	7.02	tpy	

<i>Controlled</i>	NO _x	CO	VOC ¹	SO ₂ ²	HCHO	PM ₁₀ ⁴	PM _{2.5} ⁴	Total HAPs ³	Units	Notes
Emission Factors	0.50	0.69	0.70		0.046				g/hp-hr	Catalyst Guarantee % Reduction
	0%	75%	39%		80%	1.94E-02	1.94E-02		lb/MMBtu	AP-42 Table 3.2-2
	2.76	3.79	4.29	0.075	0.25	0.33	0.33	0.59	lb/hr	
	12.07	16.58	18.79	0.33	1.11	1.44	1.44	2.58	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
1.06E-02	6.51E-03	1.41E-03	5.57E-04	5.17E-04	5.03E-05	2.33E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.18	0.11	0.024	9.42E-03	8.73E-03	8.50E-04	9.94E-03	lb/hr	
0.78	0.48	0.10	0.041	0.038	3.72E-03	0.017	tpy	

NOTES

¹ VOC emission factor is calculated by adding aldehyde emissions.

² SO₂ 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 SO₂/ 32 lb-mol S = lb/hr SO₂

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) = PM₁₀ = PM_{2.5}

⁵ AP-42 Table 3.2-2 & adjusted for 1291.29 Btu/scf

<i>Green House Gas Emissions</i>	CO ₂ ⁶	CH ₄ ⁶	N ₂ O ⁶	CO ₂ e 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
	8660.18	0.18	0.016	-	tpy	
	8660.18	4.49	4.86	8669.53	tpy CO ₂ e	

⁶ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



TARGA

Targa Northern Delaware, LLC - Cadillac Compressor Station

Heater Trailer Emission

Unit:	Trailer-1		
Description:	Diesel-fired Heater Trailer		
Rating:	10.29	kW	
Horsepower:	13.8	hp	Manufacturer Specs
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 ¹	CO	VOC ¹	SO ₂ ²	PM	HAP ¹	Unit	Notes
Emission Factors	5.32	4.9	0.28	2.05E-03	0.3	3.79E-03	g/bhp-hr lb/hp-hr lb/MMBtu	NSPS IIII Tier IV Final Emission Factors AP-42 Table 3.3-1 AP-42 Table 3.3-2
Emissions	0.16 0.71	0.15 0.65	8.52E-03 0.037	2.05E-03 8.98E-03	9.13E-03 0.040	3.79E-03 0.017	lb/hr tpy	Emissions based on 8760 hr/yr

Controlled	NO _x ¹	CO	VOC ¹	SO ₂ ²	PM	HAP ¹	Unit	Notes
Emission Factors	5.32	4.9	0.28	0.29	0.3	3.79E-03	g/bhp-hr lb/MMBtu lb/MMBtu	NSPS IIII Tier IV Final Emission Factors AP-42 Table 3.3-1 AP-42 Table 3.3-2
Emissions	0.16 3.24E-03	0.15 2.98E-03	8.52E-03 1.70E-04	0.29 5.80E-03	9.13E-03 1.83E-04	1.15E-04 2.31E-06	lb/hr lb/hr	Emissions based on 40 hr/yr

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	

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%, respectively.

² SO₂ and total HAPs were calculated using AP-42 emissions factors for Diesel Industrial Engines (Table 3.3-1 & 3.3-2).

Green House Gas Emissions	CO ₂ ³	CH ₄ ³	N ₂ O ³	CO ₂ e ³	Units	Notes
Emission Factors	73.96 1	3.00E-03 25	6.00E-04 298	- -	kg/MMBtu GWP	40 CFR 98 Subpart C Tables C-1 & C-2 40 CFR 98 Subpart A Table A-1
	3.26 3.26	1.32E-04 3.31E-03	2.65E-05 7.88E-03	- 3.27	tpy tpy CO ₂ e	

³ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)
CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



Targa Northern Delaware, LLC - Cadillac Compressor Station

Air Compressor Generator

Emission Unit: GEN-1
Source Description: Natural Gas Fired Generator
Manufacturer: PSI
Model: 14.6LTCAC
Type: 4 Stroke Lean Burn

Fuel Consumption

Site horsepower	362 hp	Maximum horsepower of generator
Fuel heat value	1291.29 Btu/scf	Inlet Gas Analysis
Heat input	2.90 MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	2.24 Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760 hrs/yr	
Annual fuel usage	19.65 MMscf/yr	8760 hrs/yr operation
Fuel Consumption	8000 Btu/hp-hr	Engineering Estimate

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		6.68E-02	9.99E-03	9.99E-03	
0.80	1.60	0.78	0.013	0.19	0.029	0.029	0.25
3.50	6.99	3.43	0.056	0.85	0.13	0.13	1.10

g/hp-hr
lb/MMBtu
lb/hr
tpy

Table 1 to Subpart JJJJ of Part 60, Title 40
AP-42 Table 3.2-2

Acetaldehyde ⁵	Acrolein ⁵	Benzene ⁵	E-Benzene ⁵	n-Hexane ⁵	Toluene ⁵	Xylene ⁵
1.06E-02	6.51E-03	5.57E-04	5.03E-05	1.39E-03	5.17E-04	2.33E-04
0.031	0.019	1.61E-03	1.46E-04	4.03E-03	1.50E-03	6.75E-04
0.13	0.08	7.07E-03	6.38E-04	0.02	6.55E-03	2.95E-03

lb/MMBtu
lb/hr
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		6.68E-02	9.99E-03	9.99E-03	
0.0%	0%	0%					
0.80	1.60	0.78	0.013	0.19	0.029	0.029	0.25
3.50	6.99	3.43	0.056	0.85	0.13	0.13	1.10

g/hp-hr
lb/MMBtu
lb/hr
tpy

Table 1 to Subpart JJJJ of Part 60, Title 40
% Reduction
AP-42 Table 3.2-2

NOTES

- ¹ NO_x, CO, and VOC emission factors are referenced from Table 1 to Subpart JJJJ of Part 60, Title 40.
- ² SO₂ 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 SO₂/ 32 lb-mol S = lb/hr SO₂
- ³ HAPs emissions factors are referenced from AP-42 Table 3.2-2.
- ⁴ Assumes PM (Filterable + Condensable) = PM₁₀ = PM_{2.5}
- ⁵ AP-42 Table 3.2-2 & adjusted for 1291.3 Btu/scf

Green House Gas Emissions	CO ₂ ⁶	CH ₄ ⁶	N ₂ O ⁶	CO ₂ e 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
	1,483.80	0.031	2.80E-03	-	tpy	
	1,483.80	0.77	0.83	1,485.40	tpy CO ₂ e	

- ⁶ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)
CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



Targa Northern Delaware, LLC - Cadillac Compressor Station

Glycol Dehydrator

Emission Unit: Dehy-1
Source Description: Glycol Dehydrator
Operating Hours: 8,760 hrs/yr
Throughput: 100 MMSCFD

Uncontrolled ¹	VOC		H ₂ S		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	44.83	196.34	0.01	0.06	2.06	9.03	1.27	5.58	0.35	1.53	0.28	1.24	0.015	0.07	0.14	0.62
Uncontrolled Condenser Overheads	37.20	162.92	0.03	0.13	8.89	38.93	1.40	6.13	4.09	17.93	2.57	11.24	0.08	0.35	0.75	3.28
Uncontrolled Emissions Per Unit	82.02	359.27	0.04	0.19	10.95	47.97	2.67	11.70	4.44	19.47	2.85	12.48	0.10	0.42	0.89	3.90

Controlled ²	VOC		H ₂ S		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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Controlled Condenser Overheads	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Controlled Emissions Per Unit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Emissions estimated using BR&E ProMax.

² Flash tank emissions are normally routed recycled to the inlet, however, if the inlet pressure is too high, the emissions are sent to the tanks. The BTEX condenser overheads are normally routed to the reboiler as fuel, however, when the reboiler doesn't call for fuel, the emission are sent to the tanks. The tanks are controlled by a vapor combustion unit (VCU) with a 100% capture efficiency and a 98% DRE. As a worst case scenario, emissions from the flash tank and the BTEX condenser overheads are represented at the VCU.



Targa Northern Delaware, LLC - Cadillac Compressor Station

Dehy Reboiler

Unit: RBL-1
Heat Input: 2.0 MMBTU/hr
Fuel Heat Value: 1291.29 BTU/scf
Fuel Sulfur Content: 2 gr/100 scf
Operating Hours: 8,760 hours/yr
Fuel Usage: 1548.84 scf/hr

Criteria Pollutant Emission Rates per Unit						
	NO _x	CO	VOC	SO ₂ ¹	PM ²	Units
Emission Factors	100	84	5.5	-	7.6	lb/MMscf
	126.60	106.34	6.96	-	9.62	lb/MMscf
	-	-	-	2	-	gr / 100 scf
Emissions	0.196	0.165	0.01	8.85E-03	0.01	lb/hr ³
	0.86	0.72	0.047	0.04	0.065	tons/year ⁴

HAP Emission Rates per Unit						
	n-Hexane	Benzene	Toluene	HCHO	Total HAPs ⁵	Units
Emission Factors	1.8E+00	2.1E-03	3.4E-03	7.5E-02	-	lb/MMscf
	2.28E+00	2.66E-03	4.30E-03	9.49E-02	-	lb/MMscf
	-	-	-	-	-	Adjusted EF, per footnote a in Table 1.4-3
Emissions	3.53E-03	4.12E-06	6.67E-06	1.47E-04	3.69E-03	lb/hr ³
	0.02	1.80E-05	2.92E-05	6.44E-04	0.02	tons/year ⁴

Notes:

¹ SO₂ emissions based on fuel sulfur (gr/100 scf)

² Assumes PM₁₀ = 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.

Green House Gas Emissions	CO ₂ ⁶	CH ₄ ⁶	N ₂ O ⁶	CO ₂ e 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
	1024.72	0.02	1.93E-03	-	tpy	
	1024.72	0.53	0.58	1025.83	tpy CO ₂ e	

⁶ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)

CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

Atmospheric Storage Tanks

Emission unit number(s): TK-1 through TK-3
 Source description: 300 bbl Condensate Tanks

Annual Operating Hours: 8,760
 Number of Tanks: 3
 Capacity of Tanks: 300 bbl
 Hourly Throughput: 307.79 bbl/hr
 Daily Throughput: 23.68 bbl/d
 Annual Throughput: 8,642.42 bbl/yr

6961.291391

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)
H ₂ S	-	1.04E-01	3.48E-02	-	5.27E-04	7.69E-04
Nitrogen	-	-	-	-	-	-
Carbon Dioxide	-	2.07E+00	6.90E-01	-	6.51E-03	9.51E-03
Methane	-	1.38E+00	4.60E-01	-	4.42E-03	6.45E-03
Ethane	-	1.20E+01	3.99E+00	-	5.90E-02	8.61E-02
Propane	-	1.96E+01	6.53E+00	-	9.53E-02	1.39E-01
i-Butane	-	4.58E+00	1.53E+00	-	2.07E-02	3.03E-02
n-Butane	-	1.78E+01	5.95E+00	-	7.77E-02	1.13E-01
i-Pentane	-	6.56E+00	2.19E+00	-	2.62E-02	3.83E-02
n-Pentane	-	8.69E+00	2.90E+00	-	3.37E-02	4.91E-02
2,2-Dimethylbutane	-	1.48E-01	4.92E-02	-	5.59E-04	8.16E-04
Cyclopentane	-	2.92E+00	9.73E-01	-	1.09E-02	1.59E-02
2-Methylpentane	-	2.47E+00	8.25E-01	-	9.04E-03	1.32E-02
3-Methylpentane	-	1.57E+00	5.24E-01	-	5.67E-03	8.28E-03
n-Hexane	-	3.46E+00	1.15E+00	-	1.21E-02	1.76E-02
Methylcyclopentane	-	4.89E+00	1.63E+00	-	1.74E-02	2.54E-02
Benzene	-	1.05E+01	3.51E+00	-	3.60E-02	5.25E-02
Cyclohexane	-	4.64E+00	1.55E+00	-	1.59E-02	2.32E-02
2-Methylhexane	-	4.74E-01	1.58E-01	-	1.58E-03	2.30E-03
3-Methylhexane	-	7.51E-01	2.50E-01	-	2.45E-03	3.58E-03
1,1-Dimethylcyclopentane	-	6.91E-01	2.30E-01	-	2.31E-03	3.38E-03
Heptane	-	1.20E+00	3.99E-01	-	3.80E-03	5.55E-03
Methylcyclohexane	-	3.50E+00	1.17E+00	-	1.12E-02	1.64E-02
1,1,2-Trimethylcyclopentane	-	-	-	-	-	-
Toluene	-	6.21E+00	2.07E+00	-	1.92E-02	2.80E-02
2-Methylheptane	-	2.20E-01	7.32E-02	-	6.53E-04	9.53E-04
3-Methylheptane	-	-	-	-	-	-
2,5-Dimethylhexane	-	2.16E-02	7.20E-03	-	6.64E-05	9.70E-05
Octane	-	6.52E-01	2.17E-01	-	1.87E-03	2.73E-03
Ethylbenzene	-	1.81E-01	6.03E-02	-	5.01E-04	7.31E-04
p-Xylene	-	1.38E+00	4.60E-01	-	3.86E-03	5.63E-03
o-Xylene	-	3.16E-01	1.05E-01	-	8.74E-04	1.28E-03
Nonane	-	1.24E-01	4.14E-02	-	3.23E-04	4.71E-04
Decane	-	2.61E-02	8.70E-03	-	6.17E-05	9.01E-05
Undecane	-	-	-	-	-	-
Water	-	4.27E+00	1.42E+00	-	1.16E-02	1.69E-02
TEG	-	1.86E-10	6.21E-11	-	9.70E-14	1.42E-13
VOC	-	103.64	34.55	-	0.41	0.60
Total HAPS	-	4.40	1.47	-	0.015	0.022
Total H₂S	-	0.10	0.03	-	5.267E-04	7.69E-04

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

² Emissions are sent to the combustor (VCU) with a 100% capture efficiency and a 98% DRE.

**TARGA****Targa Northern Delaware, LLC - Cadillac Compressor Station
Vapor Combustion Unit**

Emission Unit: VCU
Source Description: Tank Vapor Combustion Unit
Destruction Efficiency: 98%
Operating Hours (hr/yr): 8760

Input Information				
Activity	Parameters	Value	Unit	Notes
Pilot	Hourly Volume Flow Rate	25	scf/hr	Manufacturer specification sheet
	Natural Gas Heat Value	1291.29	Btu/scf	Inlet Gas Analysis
	Annual Volume Flow Rate	0.22	MMscf/yr	scf/hr * 8760 hr/yr / 10 ⁶
	Hourly Heat Rate	0.032	MMBtu/hr	scf/hr * Btu/scf / 10 ⁶
	Annual Heat Rate	282.79	MMBtu/yr	MMBtu/hr * 8760 hr/yr
Process Emission Stream	Hourly Tank Flow Rate	903.14	scf/hr	Worst-case flashing losses and Short-term working losses streams from ProMax
	Hourly Dehy Flow Rate	1542.35	scf/hr	Flash gas and Condenser Overhead streams from ProMax.
	Total Hourly Volume Flow Rate	2445.48	scf/hr	
	Annual Tank Flow Rate	0.032	MMscf/yr	Flash, working, and breathing streams from ProMax.
	Annual Dehy Flow Rate	13.51	MMscf/yr	Flash gas and Condenser Overhead streams from ProMax.
	Total Annual Volume Flow Rate	13.54	MMscf/yr	
	Hourly Heating Value	2095.59	Btu/scf	Total Hourly to VCU stream from ProMax
	Annual Heating Value	1867.68	Btu/scf	Total Annual to VCU stream from Promax
	Hourly Heat Rate	5.12	MMBtu/hr	Hourly flow rate (scf/hr) * Hourly weighted heating value (Btu/scf) / (10 ⁶ Btu/MMBtu)
	Annual Heat Rate	25293.48	MMBtu/yr	Annual flow rate (MMscf/yr) * Annual weighted heating value (Btu/scf)
	Hourly VOC	179.21	lb/hr VOC	Total Hourly to VCU stream from ProMax
	Annual VOC	356.05	tpy VOC	Total Annual to VCU stream from Promax
	Hourly HAP	37.34	lb/hr HAP	Total Hourly to VCU stream from ProMax
	Annual HAP	47.83	tpy HAP	Total Annual to VCU stream from Promax
	Hourly H ₂ S	0.04	lb/hr H ₂ S	Total Hourly to VCU stream from ProMax
	Annual H ₂ S	0.19	tpy H ₂ S	Total Annual to VCU stream from Promax

Emission Calculation									
Description	NO _x ¹	CO ¹	VOC ^{1,2}	SO ₂ ¹	PM ¹	H ₂ S ^{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 1.4-1 & 1.4-2
	126.6	106.3	6.96	-	9.6	-	-	lb/MMscf	Emission Factor adjusted for pilot gas heat value
	205.5	172.6	-	-	15.6	-	-	lb/MMscf	Emission Factor adjusted for process emission heat value
Fuel Sulfur Content	-	-	-	2.0	-	-	-	gr S/100scf	Fuel sulfur content (gr/100scf)
	-	-	-	0.0029	-	-	-	lb S/ Mscf	gr S/100 scf * (1 lb/2000 gr) * (1000scf/Mscf)
Pilot Emissions	3.16E-03	2.66E-03	1.74E-04	1.43E-04	2.41E-04	-	-	lb/hr	EF (lb/MMscf) * Hourly flow (scf/hr) / (10 ⁶ Btu/MMBtu)
	0.014	0.012	7.62E-04	6.26E-04	1.05E-03	-	-	tpy	Hourly emission rate (lb/hr) / (2000 lb/ton) * (8760 hr/yr)
Process Emissions	0.50	0.42	3.58	0.079	0.038	8.55E-04	0.75	lb/hr	Total Hourly to VCU stream from ProMax
	1.39	1.17	7.12	0.35	0.11	3.79E-03	0.96	tpy	Total Annual to VCU stream from Promax
Total Emissions	0.51	0.42	3.58	0.079	0.038	8.55E-04	0.75	lb/hr	Total emission includes process and pilot emissions.
	1.41	1.18	7.12	0.35	0.11	3.79E-03	0.96	tpy	

Notes:(1) VCU 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 SO₂ Emissions (lb/hr) = Pilot Gas Flow (scf/hr) * Fuel Gas Sulfur Content (lb/ Mscf) * (64 lb/lbmol SO₂ / 32 lb/lbmol S) * (1000 scf/Mscf)Process SO₂ Emissions (lb/hr) = H₂S Mass Flow Rate (lb/hr) * DRE * (64 lb/lbmol SO₂ / 34 lb/lbmol H₂S)Process SO₂ Emissions (tpy) = H₂S Mass Flow Rate (tpy) * DRE * (64 lb/lbmol SO₂ / 34 lb/lbmol H₂S)(2) Process VOC, HAP and H₂S emissions estimated based on event stream routed to combustor and 98% efficiency.

Green House Gas Emission	CO ₂ ³	CH ₄ ³	N ₂ O ⁴	CO ₂ e ⁵	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
	2642.25	0.055	4.98E-03	-	tpy	
	2642.25	1.37	1.48	2645.10	tpy CO ₂ e	

³ N₂O, CH₄, and CO₂ tpy Emission Rate= EF (kg/MMBtu) * Fuel Usage (MMBtu/hr) * (2.20462 lb/kg) / (2000 lb/ton)CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



TARGA

Targa Northern Delaware, LLC - Cadillac Compressor Station

Truck Loading (Condensate Tanks)

Equation¹:

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

Variables¹:

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 = 1°F + 460)

															LOAD		
Unit	Material Loaded ²	Loading Method	S	P ⁶ _{max} (psia)	M ⁶ (lb/lbmol)	T ⁴ _{max} (°R)	L _L (lbs/1000 gal)	Hourly Throughput ⁵ (gal/hr)	VOC Wt %	HAP Wt %	H ₂ S Wt % ³	VOC Vapor Loading Losses (lb/hr)	HAP Vapor Loading Losses (lb/hr)	H ₂ S Vapor Loading Losses (lb/hr)	Uncontrolled Hourly VOC Emissions (lb/hr)	Uncontrolled Hourly HAP Emissions (lb/hr)	Uncontrolled Hourly H ₂ S Emissions ³ (lb/hr)
LOAD	Condensate	Submerged	0.6	6.83	45.24	535.45	4.31	7,560	83.33%	14.73%	0.11%	27.16	4.80	0.035	27.16	4.80	0.035
TOTAL												27.16	4.80	0.035	27.16	4.80	0.035

															LOAD		
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 ₂ S Wt % ³	VOC Vapor Loading Losses (tpy)	HAP Vapor Loading Losses (tpy)	H ₂ S Vapor Loading Losses (tpy)	Uncontrolled Annual VOC Emissions (tpy)	Uncontrolled Annual HAP Emissions (tpy)	Uncontrolled Annual H ₂ S Emissions ³ (tpy)
LOAD	Condensate	Submerged	0.6	5.96	45.24	528.56	3.81	362,982	83.33%	14.73%	0.11%	0.58	0.10	7.41E-04	0.58	0.10	7.41E-06
TOTAL												0.58	0.10	7.41E-04	0.58	0.10	7.41E-06

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 H₂S content is conservatively assumed.

⁴ Worst case scenario temperature is 95° F and the average temperature is 75.8° 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 ⁸	CH ₄ ⁸	N ₂ O ⁸	CO ₂ e ⁸	Units	Notes
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	9.16E-03	6.21E-03	-	-	tpy	
	9.16E-03	0.16	-	0.16	tpy CO ₂ e	

⁸ CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor



TARGA

Targa Northern Delaware, LLC - Cadillac Compressor Station

Fugitive Emissions

Emission unit number: FUG

Source description: Facility-wide Fugitive Emissions

Total Operating Hours: 8,760

Component		Emission factor ¹	VOC Content ²	HAP Content ²	H ₂ S Content ²	Hexane Content ²	Benzene Content ²	Toluene Content ²	Ethylbenzene Content ²	Xylene Content ²	CO ₂ Content ²	Methane Content ²	Subcomponent Count ³
		(lb/hr/source)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	(wt%)	
Valves	Inlet Gas	9.92E-03	25.11%	0.94%	0.00%	0.63%	0.10%	0.11%	0.0098%	0.093%	49.691%	57.260%	900
	Residue Gas	9.92E-03	24.49%	0.83%	0.00%	0.60%	0.09%	0.09%	0.0060%	0.055%	0.500%	57.734%	200
	Light Liquid	5.51E-03	26.10%	15.55%	0.00%	0.66%	3.11%	5.82%	0.56%	5.40%	0.00%	0.00%	600
Connectors	Inlet Gas	4.41E-04	25.11%	0.94%	0.00%	0.63%	0.10%	0.11%	0.0098%	0.093%	49.691%	57.260%	2600
	Residue Gas	4.41E-04	24.49%	0.83%	0.00%	0.60%	0.09%	0.09%	0.0060%	0.055%	0.500%	57.734%	800
	Light Liquid	4.63E-04	26.10%	15.55%	0.00%	0.66%	3.11%	5.82%	0.56%	5.40%	0.00%	0.00%	2400
Flanges	Inlet Gas	8.60E-04	25.11%	0.94%	0.00%	0.63%	0.10%	0.11%	0.0098%	0.093%	49.691%	57.260%	1000
	Residue Gas	8.60E-04	24.49%	0.83%	0.00%	0.60%	0.09%	0.09%	0.0060%	0.055%	0.500%	57.734%	100
	Light Liquid	2.43E-04	26.10%	15.55%	0.00%	0.66%	3.11%	5.82%	0.56%	5.40%	0.00%	0.00%	300
Pump Seals	Inlet Gas	5.29E-03	25.11%	0.94%	0.00%	0.63%	0.10%	0.11%	0.0098%	0.093%	49.691%	57.260%	0
	Residue Gas	5.29E-03	24.49%	0.83%	0.00%	0.60%	0.09%	0.09%	0.0060%	0.055%	0.500%	57.734%	0
	Light Liquid	2.87E-02	26.10%	15.55%	0.00%	0.66%	3.11%	5.82%	0.56%	5.40%	0.00%	0.00%	10
Other	Inlet Gas	1.94E-02	25.11%	0.94%	0.00%	0.63%	0.10%	0.11%	0.0098%	0.093%	49.691%	57.260%	70
	Residue Gas	1.94E-02	24.49%	0.83%	0.00%	0.60%	0.09%	0.09%	0.0060%	0.055%	0.500%	57.734%	10
	Light Liquid	1.65E-02	26.10%	15.55%	0.00%	0.66%	3.11%	5.82%	0.56%	5.40%	0.00%	0.00%	10
Total (lb/hr):		5.02	0.91	3.64E-04	0.125	0.17	0.30	0.029	0.280	6.12	8.55		
Total (tpy):		21.98	3.97	1.59E-03	0.55	0.74	1.33	0.13	1.23	26.81	37.45		

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 ⁵	CH ₄ ⁵	N ₂ O ⁵	CO ₂ e ⁵	Units	Notes
	1	25	298	-	GWP	40 CFR 98 Subpart A Table A-1
	26.81	37.45	-	-	tpy	
	26.81	936.20	-	963.01	tpy CO ₂ e	

⁶ CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor + CH₄ Emission Rate*GWP Factor

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

Analysis Summary**Inlet Gas Analysis**

Component	Mol %	Wt. %
H2S	0.0015	0.0024
Nitrogen	0.9472	1.2226
Carbon Dioxide	0.2451	0.4969
Methane	77.4690	57.2605
Ethane	11.4828	15.9083
Propane	5.4273	11.0265
i-Butane	0.7652	2.0491
n-Butane	1.7544	4.6982
i-Pentane	0.4401	1.4630
n-Pentane	0.4961	1.6492
2,2-Dimethylbutane	0.0070	0.0278
Cyclopentane	0.0340	0.1099
2-Methylpentane	0.1110	0.4408
3-Methylpentane	0.0590	0.2343
n-Hexane	0.1580	0.6275
Methylcyclopentane	0.0660	0.2560
Benzene	0.0280	0.1008
Cyclohexane	0.0780	0.3025
2-Methylhexane	0.0250	0.1154
3-Methylhexane	0.0350	0.1616
1,1-Dimethylcyclopentane	0.0110	0.0498
Heptane	0.0690	0.3186
Methylcyclohexane	0.0890	0.4027
1,1,2-Trimethylcyclopentane	0.0000	0.0000
Toluene	0.0260	0.1104
2-Methylheptane	0.0200	0.1053
3-Methylheptane	0.0000	0.0000
2,5-Dimethylhexane	0.0020	0.0105
Octane	0.0750	0.3948
Ethylbenzene	0.0020	0.0098
p-Xylene	0.0160	0.0783
o-Xylene	0.0030	0.0147
Nonane	0.0340	0.2010
Decane	0.0230	0.1508
Undecane	0.0000	0.0000
Water	0.0000	0.0000
TEG	0.0000	0.0000
Total	100.0000	100.0000
Total VOC	9.8544	25.1094
Total HAP	0.2331	0.9414
Total H2S	0.0015	0.0024

Residue Gas Analysis (Dry Gas from Dehy)

Component	Mol %	Wt. %
H2S	0.0015	0.0024
Nitrogen	0.9492	1.2329
Carbon Dioxide	0.2451	0.5001
Methane	77.6137	57.7343
Ethane	11.4950	16.0271
Propane	5.4226	11.0874
i-Butane	0.7622	2.0543
n-Butane	1.7430	4.6975
i-Pentane	0.4331	1.4491
n-Pentane	0.4860	1.6257
2,2-Dimethylbutane	0.0068	0.0271
Cyclopentane	0.0327	0.1064
2-Methylpentane	0.1062	0.4243
3-Methylpentane	0.0561	0.2243
n-Hexane	0.1490	0.5954
Methylcyclopentane	0.0617	0.2407
Benzene	0.0248	0.0898
Cyclohexane	0.0715	0.2791
2-Methylhexane	0.0225	0.1045
3-Methylhexane	0.0312	0.1450
1,1-Dimethylcyclopentane	0.0099	0.0451
Heptane	0.0600	0.2787
Methylcyclohexane	0.0767	0.3491
1,1,2-Trimethylcyclopentane	0.0000	0.0000
Toluene	0.0201	0.0859
2-Methylheptane	0.0155	0.0823
3-Methylheptane	0.0000	0.0000
2,5-Dimethylhexane	0.0017	0.0088
Octane	0.0540	0.2862
Ethylbenzene	0.0012	0.0060
p-Xylene	0.0096	0.0472
o-Xylene	0.0016	0.0081
Nonane	0.0169	0.1006
Decane	0.0066	0.0434
Undecane	0.0000	0.0000
Water	0.0120	0.0101
TEG	0.0002	0.0012
Total	100.0000	100.0000
Total VOC	9.6833	24.4920
Total HAP	0.2064	0.8324
Total H2S	0.0015	0.0024

Liquid Analysis

Component	Mol %	Wt. %
H2S	0.0002	0.0003
Nitrogen	0.0000	0.0000
Carbon Dioxide	0.0005	0.0011
Methane	0.0002	0.0001
Ethane	0.0003	0.0004
Propane	0.0346	0.0669
i-Butane	0.0169	0.0432
n-Butane	0.1102	0.2807
i-Pentane	0.0937	0.2964
n-Pentane	0.1666	0.5268
2,2-Dimethylbutane	0.0037	0.0138
Cyclopentane	0.1026	0.3154
2-Methylpentane	0.0886	0.3348
3-Methylpentane	0.0644	0.2434
n-Hexane	0.1744	0.6586
Methylcyclopentane	0.2788	1.0284
Benzene	0.9085	3.1107
Cyclohexane	0.3777	1.3935
2-Methylhexane	0.0410	0.1801
3-Methylhexane	0.0740	0.3248
1,1-Dimethylcyclopentane	0.0615	0.2649
Heptane	0.1544	0.6783
Methylcyclohexane	0.4874	2.0979
1,1,2-Trimethylcyclopentane	0.0000	0.0000
Toluene	1.4401	5.8162
2-Methylheptane	0.0538	0.2695
3-Methylheptane	0.0000	0.0000
2,5-Dimethylhexane	0.0036	0.0179
Octane	0.2323	1.1634
Ethylbenzene	0.1208	0.5622
p-Xylene	0.9289	4.3230
o-Xylene	0.2311	1.0755
Nonane	0.1112	0.6250
Decane	0.0626	0.3903
Undecane	0.0000	0.0000
Water	93.5754	73.8964
TEG	0.0000	0.0002
Total	100.0000	100.0000
Total VOC	6.4234	26.1017
Total HAP	3.8038	15.5463
Total H2S	0.0002	0.0003

H₂S Concentration:

1500 ppm

**TARGA***Targa Northern Delaware, LLC - Cadillac Compressor Station***Haul Road**

Unit: HAUL
Description: Haul Road Emissions
Control Equipment: N/A

Input Data

Empty vehicle weight ¹	16	tons
Load weight ²	29.5	tons
Loaded vehicle ³	45.5	tons
Mean vehicle weight ⁴	30.7	tons
Daily Oil Throughput	23.7	bbls
Vehicle frequency	0.5	trips/hour
Round-trip distance	0.10	mile/trip
Round-trip distance	4.80	miles/yr
Operating hours	8760	hours/yr
Surface silt content ⁵	4.8	%
Annual wet days ⁶	70	days/yr
Vehicle miles traveled ⁷	0.05	mile/hr
Control percentage	0%	nominal, base course chemical treatment

Emission Factors and Constants

Parameter	PM ₃₀	PM ₁₀	PM _{2.5}
k, lb/VTM ⁸	4.9	1.5	0.15
a, lb/VTM ⁸	0.70	0.90	0.90
b, lb/VTM ⁸	0.45	0.45	0.45
Hourly EF, lb/VTM ⁹	7.35	1.87	0.19
Annual EF, lb/VTM ¹⁰	5.94	1.51	0.15

Uncontrolled Emissions

	PM ₃₀	PM ₁₀	PM _{2.5}
	0.37	0.094	9.37E-03 lb/hr ¹¹
	0.014	3.64E-03	3.64E-04 ton/yr ¹²

Notes

- ¹ Empty vehicle weight includes driver and occupants and full fuel load.
² Cargo, transported materials, etc. (Liquid density (lb/ft³) / 7.481 gal/ft³ * lb/gal RVP5 * 7560 gal truck/ 2000lb/ton)
³ Loaded vehicle weight = Empty + Load Size
⁴ Mean Vehicle weight = (Loaded Weight + Empty Weight) / 2
⁵ AP-42 Table 13.2.2-1, Sand and gravel processing
⁶ AP-42 Figure 13.2.2-1
⁷ VMT/hr = Vehicle Miles Traveled per hour = Trips per hour * Segment Length
⁸ Table 13.2.2-2, Industrial Roads
⁹ AP-42 13.2.2, Equation 1a
¹⁰ AP-42 13.2.2, Equation 2
¹¹ lb/hr = Hourly EF (lb/VTM) * VMT (mile/hr)
¹² ton/yr = Annual EF (lb/VTM) * Truck/day * Mile/truck * 365day/yr * 1ton/2000lb
¹³ Uncontrolled emissions * (1 - Control%)

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

Emission Calculation Inputs**Compressor Blowdowns**

Compressor Name	Quantity of Compressors (#)	Quantity or Compressors Simultaneously (#)	Total Volume (scf/event) ¹	Hours / Blowdown (hr/event)	Number of Events/yr
RC-1 and RC-7 (CAT 3516)	2	1	4285.9	1	12
RC-2 through RC-6 (CAT 3606)	5	1	4272.7	1	12
RC-8 through RC-10 (CAT 3608)	3	1	6184.9	1	12

¹ Blowdown volumes provided by Targa.**Dehydrator Blowdowns**

Dehydrator/Amine	Volume of Gas per Blowdown (scf/event)	# Blowdowns / year (# /year)	Hours / Blowdown (hr/event)	Number of Units (#)
60"x30" Contactor	39,821	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	1	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	5	

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	1	-
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 - Southern Comfort	87	scf/event
Unit #2 Volume Vented - Illustrated Man Fee	87	scf/event
Unit #3 Volume Vented - Oxy Bow Lateral Extension Phase 2	212	scf/event
Unit #4 Volume Vented - Rick Deckard Flow	87	scf/event
Unit #5 Volume Vented - Corral Canyon Lateral	346	scf/event
Unit #6 Volume Vented - Cadillac Discharge	2336	scf/event
Maximum hourly number of pigging events	1	events/hr
Unit #1 Annual Number of Events	12	events/yr
Unit #2 Annual Number of Events	12	events/yr
Unit #3 Annual Number of Events	12	events/yr
Unit #4 Annual Number of Events	12	events/yr
Unit #5 Annual Number of Events	12	events/yr
Unit #6 Annual Number of Events	12	events/yr
Actual Pressure	30	psig
Maximum Temperature	100	°F
Annual Temperature	80	°F

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

Input Data	Value	Units
Pipeline Diameter - Southern Comfort	8	inches
Pipeline Length - Southern Comfort	14051	ft
Pipeline Diameter - Illustrated Man Fee	8	inches
Pipeline Length - Illustrated Man Fee	15500	ft
Pipeline Diameter - Oxy Bow Lateral Extension Phase 2	12	inches
Pipeline Length - Oxy Bow Lateral Extension Phase 2	8398.96	ft
Pipeline Diameter - Rick Deckard Flow	8	inches
Pipeline Length - Rick Deckard Flow	13040.26	ft
Pipeline Diameter - Corral Canyon Lateral	16	inches
Pipeline Length - Corral Canyon Lateral	11985	ft
Pipeline Diameter - Cadillac Discharge	12	inches
Pipeline Length - Cadillac Discharge	27456	ft
Total Pipeline Volume	59761.79	ft ³
Duration of Event	0.25	hr/event
Maintenance events per year	1	events/yr
Actual Pressure	100	psia
Maximum Temperature	100	°F
Annual Temperature	80	°F
Pipeline volume vented	377590	scf/event

Tank Maintenance

Input Data	Value	Units
Number of tanks	3	Units
Molecular Weight of Vapors	70.00	lb/lb-mol
Duration of tank purging/degassing	24	hr/event
Volume of gas released during degassing event	1696.50	scf/event
Tank Height	15	ft
Tank Diameter	12	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 Northern Delaware, LLC - Cadillac Compressor Station

SSM Summary

Description	NO _x		CO		VOC		PM		PM ₁₀		PM _{2.5}		SO ₂		H ₂ S		Total HAPs		CO ₂	CH ₄	N ₂ O	CO ₂ e
	(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)
Compressor Blowdowns	-	-	-	-	211.72	4.18	-	-	-	-	-	-	-	-	0.020	<0.01	7.94	0.16	0.083	9.53	-	238.28
Dehydrator Blowdowns	-	-	-	-	571.85	0.29	-	-	-	-	-	-	-	-	0.054	<0.01	21.44	0.011	<0.011	0.65	-	16.31
Filter Coalescer Blowdowns	-	-	-	-	99.09	0.050	-	-	-	-	-	-	-	-	<0.01	<0.01	3.72	<0.01	<0.01	0.11	-	2.83
Scrubber Blowdowns	-	-	-	-	485.38	0.24	-	-	-	-	-	-	-	-	0.046	<0.01	18.20	<0.01	<0.001	0.55	-	13.84
Pump Blowdowns	-	-	-	-	0.46	<0.01	-	-	-	-	-	-	-	-	<0.01	<0.01	0.017	<0.01	<0.01	<0.01	-	<0.01
Reboiler Maintenance	-	-	-	-	0.93	<0.01	-	-	-	-	-	-	-	-	<0.01	<0.01	0.035	<0.01	<0.01	<0.01	-	0.03
Pigging	-	-	-	-	33.55	0.27	-	-	-	-	-	-	-	-	<0.01	<0.01	1.26	0.010	<0.01	0.62	-	15.50
Pipeline Blowdowns	-	-	-	-	309.67	2.71	-	-	-	-	-	-	-	-	0.029	<0.01	11.61	0.10	0.054	6.18	-	154.62
Tank Maintenance	-	-	-	-	7.85	0.13	-	-	-	-	-	-	-	-	<0.01	<0.01	4.66	0.08	<0.01	<0.01	-	<0.01
Total	-	-	-	-	1,729.50	7.87	-	-	-	-	-	-	-	-	0.16	<0.01	68.87	0.37	0.15	17.65	-	441.41

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station
RC-1 and RC-7 (CAT 3615) 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 [# compressors blowdown 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 blowdown at site (units)] x [frequency of events (events/yr/unit)] / [379.5 (scf/lb-mol)] / [2,000 (lb/ton)]

Compressor BlowDown Emissions

Estimated Gas Ventd per BlowDown Event ¹ =	4,286	scf/event
Compressors at Site =	2	units
Compressors Blowdown Simultaneously =	1	units
Assumed BlowDown Duration =	1	hrs/event
Compressor BlowDowns in One Year =	12	events/yr
Molecular Weight of Stream =	22	lb/lb-mol
Control Type =	None	

Compound	Composition	Maximum Uncontrolled Hourly Emissions	Maximum Uncontrolled Annual Emissions	Control Efficiency	Maximum Controlled Hourly Emissions	Maximum Controlled Annual Emissions
	(wt %)	(lb/hr)	(tpy)	(%)	(lb/hr)	(tpy)
H ₂ S	0.0024	5.77E-03	6.93E-05	--	--	--
Nitrogen	1.2226	3.00E+00	3.60E-02	--	--	--
Carbon Dioxide	0.4969	1.22E+00	1.46E-02	--	--	--
Methane	57.2605	1.40E+02	1.68E+00	--	--	--
Ethane	15.9083	3.90E+01	4.68E-01	--	--	--
Propane	11.0265	2.70E+01	3.24E-01	--	--	--
i-Butane	2.0491	5.02E+00	6.03E-02	--	--	--
n-Butane	4.6982	1.15E+01	0.14	--	--	--
i-Pentane	1.4630	3.59E+00	4.30E-02	--	--	--
n-Pentane	1.6492	4.04E+00	4.85E-02	--	--	--
2,2-Dimethylbutane	0.0278	6.81E-02	8.18E-04	--	--	--
Cyclopentane	0.1099	2.69E-01	3.23E-03	--	--	--
2-Methylpentane	0.4408	1.08E+00	1.30E-02	--	--	--
3-Methylpentane	0.2343	5.74E-01	6.89E-03	--	--	--
n-Hexane	0.6275	1.54E+00	1.85E-02	--	--	--
Methylcyclopentane	0.2560	6.27E-01	7.53E-03	--	--	--
Benzene	0.1008	2.47E-01	2.96E-03	--	--	--
Cyclohexane	0.3025	7.42E-01	8.90E-03	--	--	--
2-Methylhexane	0.1154	2.83E-01	3.40E-03	--	--	--
3-Methylhexane	0.1616	3.96E-01	4.75E-03	--	--	--
1,1-Dimethylcyclopentane	0.0498	1.22E-01	1.46E-03	--	--	--
Heptane	0.3186	7.81E-01	9.37E-03	--	--	--
Methylcyclohexane	0.4027	9.87E-01	1.18E-02	--	--	--
1,1,2-Trimethylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.1104	2.71E-01	3.25E-03	--	--	--
2-Methylheptane	0.1053	2.58E-01	3.10E-03	--	--	--
3-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	0.0105	2.58E-02	3.10E-04	--	--	--
Octane	0.3948	9.68E-01	1.16E-02	--	--	--
Ethylbenzene	0.0098	2.40E-02	2.88E-04	--	--	--
p-Xylene	0.0783	1.92E-01	2.30E-03	--	--	--
o-Xylene	0.0147	3.60E-02	4.32E-04	--	--	--
Nonane	0.2010	4.93E-01	5.91E-03	--	--	--
Decane	0.1508	3.70E-01	4.44E-03	--	--	--
Undecane	0.0000	0.00E+00	0.00E+00	--	--	--
Water	0.0000	0.00E+00	0.00E+00	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	61.55	0.74	--	--	--
H₂S	2.36E-03	5.77E-03	6.93E-05	--	--	--
Total HAP	0.70	2.31	0.028	--	--	--
Total CO₂	0.50	1.22	0.015	--	--	--
Total CH₄	57.26	140.36	1.68	--	--	--

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

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

RC-2 through RC-6 (CAT 3606) 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 [# compressors blowdown 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 blowdown 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 = 5 units
 Compressors Blowdown Simultaneously = 1 units
 Assumed BlowDown Duration = 1 hrs/event
 Compressor BlowDowns in One Year = 12 events/yr
 Molecular Weight of Stream = 22 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)
H ₂ S	0.00	5.76E-03	1.73E-04	--	--	--
Nitrogen	1.22	2.99E+00	8.96E-02	--	--	--
Carbon Dioxide	0.50	1.21E+00	3.64E-02	--	--	--
Methane	57.26	1.40E+02	4.20E+00	--	--	--
Ethane	15.91	3.89E+01	1.17E+00	--	--	--
Propane	11.03	2.69E+01	8.08E-01	--	--	--
i-Butane	2.05	5.01E+00	1.50E-01	--	--	--
n-Butane	4.70	1.15E+01	0.34	--	--	--
i-Pentane	1.46	3.58E+00	1.07E-01	--	--	--
n-Pentane	1.65	4.03E+00	1.21E-01	--	--	--
2,2-Dimethylbutane	0.03	6.79E-02	2.04E-03	--	--	--
Cyclopentane	0.11	2.69E-01	8.06E-03	--	--	--
2-Methylpentane	0.44	1.08E+00	3.23E-02	--	--	--
3-Methylpentane	0.23	5.73E-01	1.72E-02	--	--	--
n-Hexane	0.63	1.53E+00	4.60E-02	--	--	--
Methylcyclopentane	0.26	6.26E-01	1.88E-02	--	--	--
Benzene	0.10	2.46E-01	7.39E-03	--	--	--
Cyclohexane	0.30	7.39E-01	2.22E-02	--	--	--
2-Methylhexane	0.12	2.82E-01	8.46E-03	--	--	--
3-Methylhexane	0.16	3.95E-01	1.18E-02	--	--	--
1,1-Dimethylcyclopentane	0.05	1.22E-01	3.65E-03	--	--	--
Heptane	0.32	7.79E-01	2.34E-02	--	--	--
Methylcyclohexane	0.40	9.84E-01	2.95E-02	--	--	--
1,1,2-Trimethylcyclopentane	0.00	0.00E+00	0.00E+00	--	--	--
Toluene	0.11	2.70E-01	8.09E-03	--	--	--
2-Methylheptane	0.11	2.57E-01	7.72E-03	--	--	--
3-Methylheptane	0.00	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	0.01	2.57E-02	7.72E-04	--	--	--
Octane	0.39	9.65E-01	2.89E-02	--	--	--
Ethylbenzene	0.01	2.39E-02	7.17E-04	--	--	--
p-Xylene	0.08	1.91E-01	5.74E-03	--	--	--
o-Xylene	0.01	3.59E-02	1.08E-03	--	--	--
Nonane	0.20	4.91E-01	1.47E-02	--	--	--
Decane	0.15	3.69E-01	1.11E-02	--	--	--
Undecane	0.00	0.00E+00	0.00E+00	--	--	--
Water	0.00	0.00E+00	0.00E+00	--	--	--
TEG	0.00	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	61.36	1.84	--	--	--
H₂S	2.36E-03	5.76E-03	1.73E-04	--	--	--
Total HAP	0.70	2.30	0.069	--	--	--
Total CO₂	0.50	1.21	0.036	--	--	--
Total CH₄	57.26	139.92	4.20	--	--	--

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

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

RC-8 through RC-10 (CAT 3608) 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 [# compressors blowdown 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 blowdown 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 =	3	units
Compressors Blowdown Simultaneously =	1	units
Assumed BlowDown Duration =	1	hrs/event
Compressor BlowDowns in One Year =	12	events/yr
Molecular Weight of Stream =	22	lb/lb-mol
Control Type =	None	

Compound	Composition	Maximum Uncontrolled Hourly Emissions	Maximum Uncontrolled Annual Emissions	Control Efficiency	Maximum Controlled Hourly Emissions	Maximum Controlled Annual Emissions
	(wt %)	(lb/hr)	(tpy)	(%)	(lb/hr)	(tpy)
H ₂ S	0.0024	8.33E-03	1.50E-04	--	--	--
Nitrogen	1.2226	4.32E+00	7.78E-02	--	--	--
Carbon Dioxide	0.4969	1.76E+00	3.16E-02	--	--	--
Methane	57.2605	2.03E+02	3.65E+00	--	--	--
Ethane	15.9083	5.63E+01	1.01E+00	--	--	--
Propane	11.0265	3.90E+01	7.02E-01	--	--	--
i-Butane	2.0491	7.25E+00	1.30E-01	--	--	--
n-Butane	4.6982	1.66E+01	0.30	--	--	--
i-Pentane	1.4630	5.17E+00	9.31E-02	--	--	--
n-Pentane	1.6492	5.83E+00	1.05E-01	--	--	--
2,2-Dimethylbutane	0.0278	9.83E-02	1.77E-03	--	--	--
Cyclopentane	0.1099	3.89E-01	7.00E-03	--	--	--
2-Methylpentane	0.4408	1.56E+00	2.81E-02	--	--	--
3-Methylpentane	0.2343	8.29E-01	1.49E-02	--	--	--
n-Hexane	0.6275	2.22E+00	4.00E-02	--	--	--
Methylcyclopentane	0.2560	9.05E-01	1.63E-02	--	--	--
Benzene	0.1008	3.57E-01	6.42E-03	--	--	--
Cyclohexane	0.3025	1.07E+00	1.93E-02	--	--	--
2-Methylhexane	0.1154	4.08E-01	7.35E-03	--	--	--
3-Methylhexane	0.1616	5.72E-01	1.03E-02	--	--	--
1,1-Dimethylcyclopentane	0.0498	1.76E-01	3.17E-03	--	--	--
Heptane	0.3186	1.13E+00	2.03E-02	--	--	--
Methylcyclohexane	0.4027	1.42E+00	2.56E-02	--	--	--
1,1,2-Trimethylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.1104	3.91E-01	7.03E-03	--	--	--
2-Methylheptane	0.1053	3.72E-01	6.70E-03	--	--	--
3-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	0.0105	3.72E-02	6.70E-04	--	--	--
Octane	0.3948	1.40E+00	2.51E-02	--	--	--
Ethylbenzene	0.0098	3.46E-02	6.23E-04	--	--	--
p-Xylene	0.0783	2.77E-01	4.98E-03	--	--	--
o-Xylene	0.0147	5.19E-02	9.35E-04	--	--	--
Nonane	0.2010	7.11E-01	1.28E-02	--	--	--
Decane	0.1508	5.33E-01	9.60E-03	--	--	--
Undecane	0.0000	0.00E+00	0.00E+00	--	--	--
Water	0.0000	0.00E+00	0.00E+00	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	88.82	1.60	--	--	--
H₂S	2.36E-03	8.33E-03	1.50E-04	--	--	--
Total HAP	0.70	3.33	0.060	--	--	--
Total CO₂	0.50	1.76	0.032	--	--	--
Total CH₄	57.26	202.54	3.65	--	--	--

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

**TARGA***Targa Northern Delaware, LLC - Cadillac Compressor Station***Compressor Blowdowns**

Hours per event:

1

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-1 & RC-7 (CAT 3516)	2	4285.9	12	102861.6	8571.8	22
RC-2 through RC-6 (CAT 3606)	5	4272.7	12	256362	21363.5	22
RC-8 through RC-10 (CAT 3608)	3	6184.9	12	222656.4	18554.7	22

Uncontrolled Emissions	VOC		H ₂ S		Total HAP		CO ₂ (tpy)	CH ₄ (tpy)
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy		
RC-1 & RC-7 (CAT 3516)	61.55	0.74	5.77E-03	6.93E-05	2.31	0.028	0.015	1.68
RC-2 through RC-6 (CAT 3606)	61.36	1.84	5.76E-03	1.73E-04	2.30	0.069	0.036	4.20
RC-8 through RC-10 (CAT 3608)	88.82	1.60	8.33E-03	1.50E-04	3.33	0.060	0.032	3.65
TOTAL	211.72	4.18	0.020	3.92E-04	7.94	0.16	0.083	9.53

**TARGA**

Targa Northern Delaware, LLC - Cadillac Compressor Station

Dehydrator Blowdowns**Basis of Calculation:**

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

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

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

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 = 39,821 scf/event
 Number of Units = 1 units
 Assumed Blowdown Duration = 1 hr/event
 Blowdowns Per Year = 1 event/yr
 Molecular Weight of Stream = 22 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)
H ₂ S	2.36E-03	5.37E-02	2.68E-05	--	--	--
Nitrogen	1.22E+00	2.78E+01	1.39E-02	--	--	--
Carbon Dioxide	4.97E-01	1.13E+01	5.66E-03	--	--	--
Methane	5.73E+01	1.30E+03	6.52E-01	--	--	--
Ethane	1.59E+01	3.62E+02	1.81E-01	--	--	--
Propane	1.10E+01	2.51E+02	1.26E-01	--	--	--
i-Butane	2.05E+00	4.67E+01	2.33E-02	--	--	--
n-Butane	4.70E+00	1.07E+02	5.35E-02	--	--	--
i-Pentane	1.46E+00	3.33E+01	1.67E-02	--	--	--
n-Pentane	1.65E+00	3.76E+01	1.88E-02	--	--	--
2,2-Dimethylbutane	2.78E-02	6.33E-01	3.17E-04	--	--	--
Cyclopentane	1.10E-01	2.50E+00	1.25E-03	--	--	--
2-Methylpentane	4.41E-01	1.00E+01	5.02E-03	--	--	--
3-Methylpentane	2.34E-01	5.34E+00	2.67E-03	--	--	--
n-Hexane	6.27E-01	1.43E+01	7.15E-03	--	--	--
Methylcyclopentane	2.56E-01	5.83E+00	2.91E-03	--	--	--
Benzene	1.01E-01	2.30E+00	1.15E-03	--	--	--
Cyclohexane	3.03E-01	6.89E+00	3.44E-03	--	--	--
2-Methylhexane	1.15E-01	2.63E+00	1.31E-03	--	--	--
3-Methylhexane	1.62E-01	3.68E+00	1.84E-03	--	--	--
1,1-Dimethylcyclopentane	4.98E-02	1.13E+00	5.67E-04	--	--	--
Heptane	3.19E-01	7.26E+00	3.63E-03	--	--	--
Methylcyclohexane	4.03E-01	9.17E+00	4.59E-03	--	--	--
1,1,2-Trimethylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	1.10E-01	2.51E+00	1.26E-03	--	--	--
2-Methylheptane	1.05E-01	2.40E+00	1.20E-03	--	--	--
3-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	1.05E-02	2.40E-01	1.20E-04	--	--	--
Octane	3.95E-01	8.99E+00	4.50E-03	--	--	--
Ethylbenzene	9.79E-03	2.23E-01	1.11E-04	--	--	--
p-Xylene	7.83E-02	1.78E+00	8.91E-04	--	--	--
o-Xylene	1.47E-02	3.34E-01	1.67E-04	--	--	--
Nonane	2.01E-01	4.58E+00	2.29E-03	--	--	--
Decane	1.51E-01	3.43E+00	1.72E-03	--	--	--
Undecane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Water	0.00E+00	0.00E+00	0.00E+00	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	571.85	0.29	--	--	--
H₂S	2.36E-03	0.054	2.68E-05	--	--	--
Total HAP	0.70	21.44	0.011	--	--	--
Total CO₂	0.50	11.32	5.66E-03	--	--	--
Total CH₄	57.26	1304.06	0.65	--	--	--

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

**TARGA**

Targa Northern Delaware, LLC - Cadillac 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 blowdown 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 blowdown 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 Blowdown Simultaneously = 1 units
 BlowDown Duration = 1 hrs/event
 Unit BlowDowns in One Year = 1 events/yr
 Molecular Weight of Stream = 22 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	0.0024	9.30E-03	4.65E-06	--	--	--
Nitrogen	1.2226	4.82E+00	2.41E-03	--	--	--
Carbon Dioxide	0.4969	1.96E+00	9.80E-04	--	--	--
Methane	57.2605	2.26E+02	1.13E-01	--	--	--
Ethane	15.9083	6.28E+01	3.14E-02	--	--	--
Propane	11.0265	4.35E+01	2.18E-02	--	--	--
i-Butane	2.0491	8.09E+00	4.04E-03	--	--	--
n-Butane	4.6982	1.85E+01	9.27E-03	--	--	--
i-Pentane	1.4630	5.77E+00	0.00	--	--	--
n-Pentane	1.6492	6.51E+00	3.25E-03	--	--	--
2,2-Dimethylbutane	0.0278	1.10E-01	5.49E-05	--	--	--
Cyclopentane	0.1099	4.34E-01	2.17E-04	--	--	--
2-Methylpentane	0.4408	1.74E+00	8.70E-04	--	--	--
3-Methylpentane	0.2343	9.25E-01	4.62E-04	--	--	--
n-Hexane	0.6275	2.48E+00	1.24E-03	--	--	--
Methylcyclopentane	0.2560	1.01E+00	5.05E-04	--	--	--
Benzene	0.1008	3.98E-01	1.99E-04	--	--	--
Cyclohexane	0.3025	1.19E+00	5.97E-04	--	--	--
2-Methylhexane	0.1154	4.56E-01	2.28E-04	--	--	--
3-Methylhexane	0.1616	6.38E-01	3.19E-04	--	--	--
1,1-Dimethylcyclopentane	0.0498	1.96E-01	9.82E-05	--	--	--
Heptane	0.3186	1.26E+00	6.29E-04	--	--	--
Methylcyclohexane	0.4027	1.59E+00	7.95E-04	--	--	--
1,1,2-Trimethylcyclopentan	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.1104	4.36E-01	2.18E-04	--	--	--
2-Methylheptane	0.1053	4.15E-01	2.08E-04	--	--	--
3-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	0.0105	4.15E-02	2.08E-05	--	--	--
Octane	0.3948	1.56E+00	7.79E-04	--	--	--
Ethylbenzene	0.0098	3.86E-02	1.93E-05	--	--	--
p-Xylene	0.0783	3.09E-01	1.54E-04	--	--	--
o-Xylene	0.0147	5.79E-02	2.90E-05	--	--	--
Nonane	0.2010	7.93E-01	3.97E-04	--	--	--
Decane	0.1508	5.95E-01	2.98E-04	--	--	--
Undecane	0.0000	0.00E+00	0.00E+00	--	--	--
Water	0.0000	0.00E+00	0.00E+00	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	99.09	0.050	--	--	--
H₂S	2.36E-03	9.30E-03	4.65E-06	--	--	--
Total HAP	0.70	3.72	1.86E-03	--	--	--
Total CO₂	0.50	1.96	9.80E-04	--	--	--
Total CH₄	57.26	225.96	0.11	--	--	--

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



TARGA

Targa Northern Delaware, LLC - Cadillac 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 blowdown 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 blowdown 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 Blowdown Simultaneously =	1	units
BlowDown Duration =	1	hrs/event
Unit BlowDowns in One Year =	1	events/yr
Molecular Weight of Stream =	22	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)
H ₂ S	0.0024	4.55E-02	2.28E-05	--	--	--
Nitrogen	1.2226	2.36E+01	1.18E-02	--	--	--
Carbon Dioxide	0.4969	9.61E+00	4.80E-03	--	--	--
Methane	57.2605	1.11E+03	5.53E-01	--	--	--
Ethane	15.9083	3.08E+02	1.54E-01	--	--	--
Propane	11.0265	2.13E+02	1.07E-01	--	--	--
i-Butane	2.0491	3.96E+01	1.98E-02	--	--	--
n-Butane	4.6982	9.08E+01	4.54E-02	--	--	--
i-Pentane	1.4630	2.83E+01	0.01	--	--	--
n-Pentane	1.6492	3.19E+01	1.59E-02	--	--	--
2,2-Dimethylbutane	0.0278	5.37E-01	2.69E-04	--	--	--
Cyclopentane	0.1099	2.12E+00	1.06E-03	--	--	--
2-Methylpentane	0.4408	8.52E+00	4.26E-03	--	--	--
3-Methylpentane	0.2343	4.53E+00	2.26E-03	--	--	--
n-Hexane	0.6275	1.21E+01	6.06E-03	--	--	--
Methylcyclopentane	0.2560	4.95E+00	2.47E-03	--	--	--
Benzene	0.1008	1.95E+00	9.74E-04	--	--	--
Cyclohexane	0.3025	5.85E+00	2.92E-03	--	--	--
2-Methylhexane	0.1154	2.23E+00	1.12E-03	--	--	--
3-Methylhexane	0.1616	3.12E+00	1.56E-03	--	--	--
1,1-Dimethylcyclopentane	0.0498	9.62E-01	4.81E-04	--	--	--
Heptane	0.3186	6.16E+00	3.08E-03	--	--	--
Methylcyclohexane	0.4027	7.78E+00	3.89E-03	--	--	--
1,1,2-Trimethylcyclopentane	0.0000	0.00E+00	0.00E+00	--	--	--
Toluene	0.1104	2.13E+00	1.07E-03	--	--	--
2-Methylheptane	0.1053	2.04E+00	1.02E-03	--	--	--
3-Methylheptane	0.0000	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	0.0105	2.04E-01	1.02E-04	--	--	--
Octane	0.3948	7.63E+00	3.82E-03	--	--	--
Ethylbenzene	0.0098	1.89E-01	9.46E-05	--	--	--
p-Xylene	0.0783	1.51E+00	7.57E-04	--	--	--
o-Xylene	0.0147	2.84E-01	1.42E-04	--	--	--
Nonane	0.2010	3.88E+00	1.94E-03	--	--	--
Decane	0.1508	2.92E+00	1.46E-03	--	--	--
Undecane	0.0000	0.00E+00	0.00E+00	--	--	--
Water	0.0000	0.00E+00	0.00E+00	--	--	--
TEG	0.0000	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	485.38	0.24	--	--	--
H₂S	2.36E-03	0.046	2.28E-05	--	--	--
Total HAP	0.70	18.20	9.10E-03	--	--	--
Total CO₂	0.50	9.61	4.80E-03	--	--	--
Total CH₄	57.26	1106.89	0.55	--	--	--

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

² Due to the hourly emissions of H₂S, scrubber blowdowns will not occur at the same time as any other SSM activity.

**TARGA**

Targa Northern Delaware, LLC - Cadillac 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 blowdown 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 blowdown 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 Blowdown Simultaneously =	2	units
Assumed BlowDown Duration =	1	hrs/event
Unit BlowDowns in One Year =	1	events/yr
Molecular Weight of Stream =	22	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)
H ₂ S	2.36E-03	4.31E-05	1.08E-08	--	--	--
Nitrogen	1.22E+00	2.24E-02	5.59E-06	--	--	--
Carbon Dioxide	4.97E-01	9.09E-03	2.27E-06	--	--	--
Methane	5.73E+01	1.05E+00	2.62E-04	--	--	--
Ethane	1.59E+01	2.91E-01	7.28E-05	--	--	--
Propane	1.10E+01	2.02E-01	5.04E-05	--	--	--
i-Butane	2.05E+00	3.75E-02	9.38E-06	--	--	--
n-Butane	4.70E+00	8.60E-02	2.15E-05	--	--	--
i-Pentane	1.46E+00	2.68E-02	6.69E-06	--	--	--
n-Pentane	1.65E+00	3.02E-02	7.55E-06	--	--	--
2,2-Dimethylbutane	2.78E-02	5.09E-04	1.27E-07	--	--	--
Cyclopentane	1.10E-01	2.01E-03	5.03E-07	--	--	--
2-Methylpentane	4.41E-01	8.07E-03	2.02E-06	--	--	--
3-Methylpentane	2.34E-01	4.29E-03	1.07E-06	--	--	--
n-Hexane	6.27E-01	1.15E-02	2.87E-06	--	--	--
Methylcyclopentane	2.56E-01	4.68E-03	1.17E-06	--	--	--
Benzene	1.01E-01	1.84E-03	4.61E-07	--	--	--
Cyclohexane	3.03E-01	5.54E-03	1.38E-06	--	--	--
2-Methylhexane	1.15E-01	2.11E-03	5.28E-07	--	--	--
3-Methylhexane	1.62E-01	2.96E-03	7.39E-07	--	--	--
1,1-Dimethylcyclopentane	4.98E-02	9.11E-04	2.28E-07	--	--	--
Heptane	3.19E-01	5.83E-03	1.46E-06	--	--	--
Methylcyclohexane	4.03E-01	7.37E-03	1.84E-06	--	--	--
1,1,2-Trimethylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	1.10E-01	2.02E-03	5.05E-07	--	--	--
2-Methylheptane	1.05E-01	1.93E-03	4.82E-07	--	--	--
3-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	1.05E-02	1.93E-04	4.82E-08	--	--	--
Octane	3.95E-01	7.23E-03	1.81E-06	--	--	--
Ethylbenzene	9.79E-03	1.79E-04	4.48E-08	--	--	--
p-Xylene	7.83E-02	1.43E-03	3.58E-07	--	--	--
o-Xylene	1.47E-02	2.69E-04	6.72E-08	--	--	--
Nonane	2.01E-01	3.68E-03	9.19E-07	--	--	--
Decane	1.51E-01	2.76E-03	6.90E-07	--	--	--
Undecane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Water	0.00E+00	0.00E+00	0.00E+00	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	0.46	1.15E-04	--	--	--
H₂S	2.36E-03	4.31E-05	1.08E-08	--	--	--
Total HAP	0.70	0.017	4.31E-06	--	--	--
Total CO₂	0.50	9.09E-03	2.27E-06	--	--	--
Total CH₄	57.26	1.05	2.62E-04	--	--	--

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



TARGA

Targa Northern Delaware, LLC - Cadillac 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 =	1	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 =	22	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)
H ₂ S	2.36E-03	8.76E-05	4.38E-08	--	--	--
Nitrogen	1.22E+00	4.54E-02	2.27E-05	--	--	--
Carbon Dioxide	4.97E-01	1.85E-02	9.24E-06	--	--	--
Methane	5.73E+01	2.13E+00	1.06E-03	--	--	--
Ethane	1.59E+01	5.91E-01	2.96E-04	--	--	--
Propane	1.10E+01	4.10E-01	2.05E-04	--	--	--
i-Butane	2.05E+00	7.62E-02	3.81E-05	--	--	--
n-Butane	4.70E+00	1.75E-01	8.73E-05	--	--	--
i-Pentane	1.46E+00	5.44E-02	2.72E-05	--	--	--
n-Pentane	1.65E+00	6.13E-02	3.07E-05	--	--	--
2,2-Dimethylbutane	2.78E-02	1.03E-03	5.17E-07	--	--	--
Cyclopentane	1.10E-01	4.09E-03	2.04E-06	--	--	--
2-Methylpentane	4.41E-01	1.64E-02	8.19E-06	--	--	--
3-Methylpentane	2.34E-01	8.71E-03	4.36E-06	--	--	--
n-Hexane	6.27E-01	2.33E-02	1.17E-05	--	--	--
Methylcyclopentane	2.56E-01	9.52E-03	4.76E-06	--	--	--
Benzene	1.01E-01	3.75E-03	1.87E-06	--	--	--
Cyclohexane	3.03E-01	1.12E-02	5.62E-06	--	--	--
2-Methylhexane	1.15E-01	4.29E-03	2.15E-06	--	--	--
3-Methylhexane	1.62E-01	6.01E-03	3.00E-06	--	--	--
1,1-Dimethylcyclopentane	4.98E-02	1.85E-03	9.25E-07	--	--	--
Heptane	3.19E-01	1.18E-02	5.92E-06	--	--	--
Methylcyclohexane	4.03E-01	1.50E-02	7.49E-06	--	--	--
1,1,2-Trimethylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	1.10E-01	4.10E-03	2.05E-06	--	--	--
2-Methylheptane	1.05E-01	3.91E-03	1.96E-06	--	--	--
3-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	1.05E-02	3.91E-04	1.96E-07	--	--	--
Octane	3.95E-01	1.47E-02	7.34E-06	--	--	--
Ethylbenzene	9.79E-03	3.64E-04	1.82E-07	--	--	--
p-Xylene	7.83E-02	2.91E-03	1.46E-06	--	--	--
o-Xylene	1.47E-02	5.46E-04	2.73E-07	--	--	--
Nonane	2.01E-01	7.47E-03	3.74E-06	--	--	--
Decane	1.51E-01	5.61E-03	2.80E-06	--	--	--
Undecane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Water	0.00E+00	0.00E+00	0.00E+00	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	0.93	4.67E-04	--	--	--
H₂S	2.36E-03	8.76E-05	4.38E-08	--	--	--
Total HAP	0.70	0.035	1.75E-05	--	--	--
Total CO₂	0.50	0.018	9.24E-06	--	--	--
Total CH₄	57.26	2.13	1.06E-03	--	--	--

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

**TARGA***Targa Northern Delaware, LLC - Cadillac 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 =	87	scf/event
Unit #2 - Volume Vented =	87	scf/event
Unit #3 - Volume Vented =	212	scf/event
Unit #4 - Volume Vented =	87	scf/event
Unit #5 - Volume Vented =	346	scf/event
Unit #6 - Volume Vented =	2336	scf/event
Maximum Number of Hourly Pigging/Purging Events =	1	events/hr
Unit #1 - Annual Number of Events =	12	events/yr
Unit #2 - Annual Number of Events =	12	events/yr
Unit #3 - Annual Number of Events =	12	events/yr
Unit #4 - Annual Number of Events =	12	events/yr
Unit #5 - Annual Number of Events =	12	events/yr
Unit #6 - Annual Number of Events =	12	events/yr
Pipelines Purged Simultaneously =	1	lines
Molecular Weight of Stream =	22	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)
H ₂ S	2.36E-03	3.15E-03	2.55E-05	--	--	--
Nitrogen	1.22E+00	1.63E+00	1.32E-02	--	--	--
Carbon Dioxide	4.97E-01	6.64E-01	5.38E-03	--	--	--
Methane	5.73E+01	7.65E+01	6.20E-01	--	--	--
Ethane	1.59E+01	2.13E+01	1.72E-01	--	--	--
Propane	1.10E+01	1.47E+01	1.19E-01	--	--	--
i-Butane	2.05E+00	2.74E+00	2.22E-02	--	--	--
n-Butane	4.70E+00	6.28E+00	5.09E-02	--	--	--
i-Pentane	1.46E+00	1.95E+00	1.58E-02	--	--	--
n-Pentane	1.65E+00	2.20E+00	1.79E-02	--	--	--
2,2-Dimethylbutane	2.78E-02	3.71E-02	3.01E-04	--	--	--
Cyclopentane	1.10E-01	1.47E-01	1.19E-03	--	--	--
2-Methylpentane	4.41E-01	5.89E-01	4.77E-03	--	--	--
3-Methylpentane	2.34E-01	3.13E-01	2.54E-03	--	--	--
n-Hexane	6.27E-01	8.38E-01	6.79E-03	--	--	--
Methylcyclopentane	2.56E-01	3.42E-01	2.77E-03	--	--	--
Benzene	1.01E-01	1.35E-01	1.09E-03	--	--	--
Cyclohexane	3.03E-01	4.04E-01	3.28E-03	--	--	--
2-Methylhexane	1.15E-01	1.54E-01	1.25E-03	--	--	--
3-Methylhexane	1.62E-01	2.16E-01	1.75E-03	--	--	--
1,1-Dimethylcyclopentane	4.98E-02	6.65E-02	5.39E-04	--	--	--
Heptane	3.19E-01	4.26E-01	3.45E-03	--	--	--
Methylcyclohexane	4.03E-01	5.38E-01	4.36E-03	--	--	--
1,1,2-Trimethylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	1.10E-01	1.47E-01	1.20E-03	--	--	--
2-Methylheptane	1.05E-01	1.41E-01	1.14E-03	--	--	--
3-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	1.05E-02	1.41E-02	1.14E-04	--	--	--
Octane	3.95E-01	5.27E-01	4.27E-03	--	--	--
Ethylbenzene	9.79E-03	1.31E-02	1.06E-04	--	--	--
p-Xylene	7.83E-02	1.05E-01	8.48E-04	--	--	--
o-Xylene	1.47E-02	1.96E-02	1.59E-04	--	--	--
Nonane	2.01E-01	2.68E-01	2.18E-03	--	--	--
Decane	1.51E-01	2.01E-01	1.63E-03	--	--	--
Undecane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Water	0.00E+00	0.00E+00	0.00E+00	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	33.55	0.27	--	--	--
H₂S	2.36E-03	3.15E-03	2.55E-05	--	--	--
Total HAP	0.70	1.26	0.010	--	--	--
Total CO₂	0.50	0.66	5.38E-03	--	--	--
Total CH₄	57.26	76.50	0.62	--	--	--

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

**TARGA***Targa Northern Delaware, LLC - Cadillac 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

Max Hourly Pipeline Volume Vented =

21563.89

scf/hr

Pipeline Volume Vented =

377589.65

scf/yr

Molecular Weight of Stream =

22

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)
H ₂ S	2.36E-03	2.91E-02	2.54E-04	--	--	--
Nitrogen	1.22E+00	1.51E+01	1.32E-01	--	--	--
Carbon Dioxide	4.97E-01	6.13E+00	5.37E-02	--	--	--
Methane	5.73E+01	7.06E+02	6.18E+00	--	--	--
Ethane	1.59E+01	1.96E+02	1.72E+00	--	--	--
Propane	1.10E+01	1.36E+02	1.19E+00	--	--	--
i-Butane	2.05E+00	2.53E+01	2.21E-01	--	--	--
n-Butane	4.70E+00	5.79E+01	5.07E-01	--	--	--
i-Pentane	1.46E+00	1.80E+01	1.58E-01	--	--	--
n-Pentane	1.65E+00	2.03E+01	1.78E-01	--	--	--
2,2-Dimethylbutane	2.78E-02	3.43E-01	3.00E-03	--	--	--
Cyclopentane	1.10E-01	1.36E+00	1.19E-02	--	--	--
2-Methylpentane	4.41E-01	5.44E+00	4.76E-02	--	--	--
3-Methylpentane	2.34E-01	2.89E+00	2.53E-02	--	--	--
n-Hexane	6.27E-01	7.74E+00	6.78E-02	--	--	--
Methylcyclopentane	2.56E-01	3.16E+00	0.03	--	--	--
Benzene	1.01E-01	1.24E+00	1.09E-02	--	--	--
Cyclohexane	3.03E-01	3.73E+00	3.27E-02	--	--	--
2-Methylhexane	1.15E-01	1.42E+00	1.25E-02	--	--	--
3-Methylhexane	1.62E-01	1.99E+00	1.75E-02	--	--	--
1,1-Dimethylcyclopentane	4.98E-02	6.14E-01	5.37E-03	--	--	--
Heptane	3.19E-01	3.93E+00	3.44E-02	--	--	--
Methylcyclohexane	4.03E-01	4.97E+00	4.35E-02	--	--	--
1,1,2-Trimethylcyclopentane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Toluene	1.10E-01	1.36E+00	1.19E-02	--	--	--
2-Methylheptane	1.05E-01	1.30E+00	1.14E-02	--	--	--
3-Methylheptane	0.00E+00	0.00E+00	0.00E+00	--	--	--
2,5-Dimethylhexane	1.05E-02	1.30E-01	1.14E-03	--	--	--
Octane	3.95E-01	4.87E+00	4.26E-02	--	--	--
Ethylbenzene	9.79E-03	1.21E-01	1.06E-03	--	--	--
p-Xylene	7.83E-02	9.65E-01	8.45E-03	--	--	--
o-Xylene	1.47E-02	1.81E-01	1.58E-03	--	--	--
Nonane	2.01E-01	2.48E+00	2.17E-02	--	--	--
Decane	1.51E-01	1.86E+00	1.63E-02	--	--	--
Undecane	0.00E+00	0.00E+00	0.00E+00	--	--	--
Water	0.00E+00	0.00E+00	0.00E+00	--	--	--
TEG	0.00E+00	0.00E+00	0.00E+00	--	--	--
Total VOC	14.08	309.67	2.71	--	--	--
H₂S	2.36E-03	0.029	2.54E-04	--	--	--
Total HAP	0.70	11.61	0.10	--	--	--
Total CO₂	0.50	6.13	0.054	--	--	--
Total CH₄	57.26	706.18	6.18	--	--	--

¹ This is a representative estimate of the amount of gas vented per blowdown event. The calculation assumes that maximum segment is vented in an hour and only one occurs at a time.

**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 Vent per Degassing Event =	1,697	scf/event
Number of Tanks =	3	units
Tank Degassing Events Occurring Simultaneously =	1	units
Degassing Event Duration =	24	hrs/event
Tank Degassing Events in One Year =	1	events/yr
Molecular Weight of Stream =	70	lb/lb-mol
Is Forced Ventilation used?	No	
Control Type =	None	

Clingage-to-vessel Volume

Clingage volume ¹ =	0.27	scf
Clingage thickness ² =	0.0004	ft
Diameter =	12	ft
Height =	15	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	26	7.85	0.13
Total HAP	16	4.66	0.08
Total H ₂ S	4.15E-04	1.24E-04	2.05E-06
Total CO ₂	3.06E-03	9.17E-04	1.51E-05
Total CH ₄	1.49E-03	4.46E-04	7.35E-06

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 (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

Global Warming Potentials (GWP):

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

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

Metric to Short Ton Conversion:

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

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

Section 7

Information Used to Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☒ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
 - ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
 - ☒ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
 - ☐ If an older version of AP-42 is used, include a complete copy of the section.
 - ☒ If an EPA document or other material is referenced, include a complete copy.
 - ☐ Fuel specifications sheet.
 - ☒ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.
-

This section contains the following references or actual 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 ENG-1 through ENG-10)
- Engine manufacturer specification sheet (for Trailer-1)
- Certification of Conformity with the Clean Air Act (for GEN-1)
- Generator manufacturer specification sheets (for GEN-1)
- Vapor combustion unit manufacturer specification sheet (for VCU-1)
- ProMax report
- Inlet gas analysis (June 26, 2023)
- 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

ENGINE SPEED (rpm): 1400
 COMPRESSION RATIO: 8
 AFTERCOOLER TYPE: SCAC
 AFTERCOOLER - STAGE 2 INLET (°F): 130
 AFTERCOOLER - STAGE 1 INLET (°F): 201
 JACKET WATER OUTLET (°F): 210
 ASPIRATION: TA
 COOLING SYSTEM: JW+OC+1AC, 2AC
 CONTROL SYSTEM: ADEM3
 EXHAUST MANIFOLD: ASWC
 COMBUSTION: LOW EMISSION
 NOx EMISSION LEVEL (g/bhp-hr NOx): 0.5
 SET POINT TIMING: 28

RATING STRATEGY: STANDARD
 RATING LEVEL: CONTINUOUS
 FUEL SYSTEM: CAT WIDE RANGE
 WITH AIR FUEL RATIO CONTROL

SITE CONDITIONS:

FUEL: Gas Analysis
 FUEL PRESSURE RANGE(psig): (See note 1) 7.0-40.0
 FUEL METHANE NUMBER: 53.6
 FUEL LHV (Btu/scf): 1133
 ALTITUDE(ft): 500
 MAXIMUM INLET AIR TEMPERATURE(°F): 77
 STANDARD RATED POWER: 1380 bhp@1400rpm

			MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
RATING	NOTES	LOAD	100%	100%	75%	50%	
ENGINE POWER (WITHOUT FAN)	(2)	bhp	1380	1380	1035	690	
INLET AIR TEMPERATURE		°F	77	77	77	77	

ENGINE DATA							
FUEL CONSUMPTION (LHV)		(3)	Btu/bhp-hr	7420	7420	7947	8535
FUEL CONSUMPTION (HHV)		(3)	Btu/bhp-hr	8180	8180	8761	9410
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(4)(5)	ft3/min	3132	3132	2393	1643
AIR FLOW	(WET)	(4)(5)	lb/hr	13885	13885	10611	7286
FUEL FLOW (60°F, 14.7 psia)			scfm	151	151	121	87
INLET MANIFOLD PRESSURE		(6)	in Hg(abs)	88.2	88.2	70.2	48.3
EXHAUST TEMPERATURE - ENGINE OUTLET		(7)	°F	847	847	865	922
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(8)(5)	ft3/min	8182	8182	6353	4562
EXHAUST GAS MASS FLOW	(WET)	(8)(5)	lb/hr	14386	14386	11014	7574

EMISSIONS DATA - ENGINE OUT						
NOx (as NO2)	(9)(10)	g/bhp-hr	0.50	0.50	0.50	0.50
CO	(9)(10)	g/bhp-hr	2.98	2.98	3.20	3.13
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	4.40	4.40	4.72	4.79
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	1.79	1.79	1.92	1.95
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	1.05	1.05	1.13	1.15
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.39	0.39	0.37	0.36
CO2	(9)(10)	g/bhp-hr	507	507	526	561
EXHAUST OXYGEN	(9)(12)	% DRY	9.1	9.1	8.8	8.4

HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	36501	36501	32695	26964
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	5313	5313	4428	3543
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	4347	4347	3894	3211
HEAT REJ. TO A/C - STAGE 1 (1AC)	(13)(14)	Btu/min	7661	7661	5688	1140
HEAT REJ. TO A/C - STAGE 2 (2AC)	(13)(14)	Btu/min	5048	5048	4389	2764

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC+1AC)	(14)(15)	Btu/min	53412
TOTAL AFTERCOOLER CIRCUIT (2AC)	(14)(15)	Btu/min	5300
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.



ICE Catalyst Sizing Program

ENGINE INPUT (Manufacturer, Model, Type) - Caterpillar G3516J Caterpillar G3516J 1380bhp 1400rpm - EXPERT MODE

Input Mass Flow Rate									
	lbs/hr	"scfm"	"scfh"	"acfm"	"acfh"	Estimated Exhaust Gas Composition			
lb/hr(Estimated):	14,407	3,255	195,316	8182	490,920	N2	74.5	vol%	
Brake Horse Power:	1380					O2	10	vol%	
						H2O	10	vol%	
Molecular weight:	28.50		0.029		Exhaust Density (lbs/ft3)	CO2	6	vol%	

Inlet Temperature		Enter permitted grams per brake horse power hour (g/bhp-hr)							
Process Temperature (F):	847	NOx**		CO**		VOC(NMNE)**		H2CO**	
		0.5		0.5		0.5		0.07	

Catalyst Type	Catalyst Module Details					
	Module Shape		Module/Layer	2	Layers	1
NG/Diesel (Lean)	Square				psi	300
		X&Y (inch)	15	24	Depth	3.5

Open area for gas flow (ft2):	4.47								
Linear Velocity(ft/min):	1,830	Calculated Space Velocity:	149,737		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	1.52	6.66	64.27	38.65
		CO	2.98	9.07	39.71	383.07	230.39
		VOC	1.05	3.19	13.99	134.97	81.17
300	3.04	H2CO	0.39	1.19	5.20	50.13	30.15

Target Conversions		Required Output Pollutants					
			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.0%	NOx	0.5	1.52	6.66	64.27	38.65
CO	83.2%	CO	0.5	1.52	6.66	64.27	38.66
VOC(NMNE)	52.4%	VOC	0.5	1.52	6.66	64.27	38.65
H2CO	82.1%	H2CO	0.07	0.21	0.93	9.00	5.41

Conversions Catalyst Design		Output Pollutants with Catalyst Sizing					
			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*
NOx	0.0%	NOx	0.5	1.52	6.66	64.27	38.65
CO	83.2%	CO	0.5	1.52	6.66	64.27	38.66
VOC(NMNE)	52.4%	VOC	0.5	1.52	6.66	64.27	38.65
H2CO	82.1%	H2CO	0.07	0.21	0.93	9.00	5.41

Customer:	Pegasus	Project:	Lucid - G3516J Trojan Horse
Sales Person:	KW	Date:	8/10/2018
		Contact:	Justin Watson

Notes: (2) Standard Element
Expected Emissions:
> 90% CO
> 60% VOC
> 80% HCHO
Trojan Horse

ENGINE SPEED (rpm): 1000
 COMPRESSION RATIO: 7.6
 AFTERCOOLER TYPE: SCAC
 AFTERCOOLER - STAGE 2 INLET (°F): 130
 AFTERCOOLER - STAGE 1 INLET (°F): 174
 JACKET WATER OUTLET (°F): 190
 ASPIRATION: TA
 COOLING SYSTEM: JW+1AC, OC+2AC
 CONTROL SYSTEM: ADEM4
 EXHAUST MANIFOLD: DRY
 COMBUSTION: LOW EMISSION
 NOx EMISSION LEVEL (g/bhp-hr NOx): 0.5
 SET POINT TIMING: 16

RATING STRATEGY: STANDARD
 RATING LEVEL: CONTINUOUS
 FUEL SYSTEM: GAV
 WITH AIR FUEL RATIO CONTROL

SITE CONDITIONS:

FUEL: Gas Analysis
 FUEL PRESSURE RANGE(psig): (See note 1) 58.0-70.3
 FUEL METHANE NUMBER: 53.6
 FUEL LHV (Btu/scf): 1133
 ALTITUDE(ft): 500
 MAXIMUM INLET AIR TEMPERATURE(°F): 77
 STANDARD RATED POWER: 1875 bhp@1000rpm

RATING	NOTES	LOAD	MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
			100%	100%	75%	50%	
ENGINE POWER (WITHOUT FAN)	(2)	bhp	1875	1875	1406	938	
INLET AIR TEMPERATURE		°F	77	77	77	77	

ENGINE DATA							
FUEL CONSUMPTION (LHV)	(3)	Btu/bhp-hr	6814	6814	7092	7671	
FUEL CONSUMPTION (HHV)	(3)	Btu/bhp-hr	7512	7512	7818	8457	
AIR FLOW (@inlet air temp, 14.7 psia)	(4)(5)	ft ³ /min	4696	4696	3557	2446	
AIR FLOW (WET)	(4)(5)	lb/hr	20823	20823	15773	10848	
FUEL FLOW (60°F, 14.7 psia)		scfm	188	188	147	106	
INLET MANIFOLD PRESSURE	(6)	in Hg(abs)	101.4	101.4	77.7	55.7	
EXHAUST TEMPERATURE - ENGINE OUTLET	(7)	°F	814	814	885	966	
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(8)(5)	ft ³ /min	11840	11840	9481	6930	
EXHAUST GAS MASS FLOW (WET)	(8)(5)	lb/hr	21449	21449	16262	11200	

EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)	(9)(10)	g/bhp-hr	0.50	0.50	0.50	0.50	
CO	(9)(10)	g/bhp-hr	2.50	2.50	2.50	2.50	
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	3.94	3.94	4.12	4.35	
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	1.61	1.61	1.68	1.77	
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	0.94	0.94	0.99	1.04	
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.20	0.20	0.22	0.25	
CO2	(9)(10)	g/bhp-hr	458	458	473	513	
EXHAUST OXYGEN	(9)(12)	% DRY	11.2	11.2	11.0	10.6	

HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	22805	22805	18555	15087	
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	5421	5421	5501	5360	
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	11714	11714	10805	9351	
HEAT REJ. TO A/C - STAGE 1 (1AC)	(13)(14)	Btu/min	13588	13588	6609	1880	
HEAT REJ. TO A/C - STAGE 2 (2AC)	(13)(14)	Btu/min	6734	6734	4160	2124	

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+1AC)	(14)(15)	Btu/min	39353
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (OC+2AC)	(14)(15)	Btu/min	21128
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.



ICE Catalyst Sizing Program

ENGINE INPUT (Manufacturer, Model, Type) - Caterpillar G3606 1875 BHP @ 1000 RPM Caterpillar G3606 - EXPERT MODE

Input Mass Flow Rate									
	lbs/hr	"scfm"	"scfh"	"acfm"	"acfh"	Estimated Exhaust Gas Composition			
lb/hr(Estimated):	21,388	4,833	289,959	11840	710,400	N2	74.5	vol%	
Brake Horse Power:	1875					O2	10	vol%	
						H2O	10	vol%	
Molecular weight:	28.50		0.030		Exhaust Density (lbs/ft3)	CO2	6	vol%	
Inlet Temperature									
Enter permitted grams per brake horse power hour (g/bhp-hr)									
Process Temperature (F):	814	NOx**		CO**		VOC(NMNE)**		H2CO**	
		0.5		0.5		0.5		0.07	
Catalyst Type									
Catalyst Module Details									
		Module Shape		Module/Layer	2	Layers		1	
NG/Diesel (Lean)		Square				cpsi		300	
			X&Y (inch)	15	36	Depth		3.5	
Open area for gas flow (ft2): 6.81									
Linear Velocity(ft/min): 1,740									
Calculated Space Velocity: 146,079									
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	2.07	9.05	58.82	35.38		
		CO	2.50	10.33	45.26	294.12	176.89		
		VOC	0.94	3.89	17.02	110.59	66.51		
300	2.89	H2CO	0.20	0.83	3.62	23.53	14.15		
Target Conversions									
Required Output Pollutants									
			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*		
NOx	0.0%	NOx	0.5	2.07	9.05	58.82	35.38		
CO	80.0%	CO	0.5	2.07	9.05	58.82	35.38		
VOC(NMNE)	46.8%	VOC	0.5	2.07	9.05	58.82	35.38		
H2CO	65.0%	H2CO	0.07	0.29	1.27	8.24	4.95		
Conversions Catalyst Design									
Output Pollutants with Catalyst Sizing									
			g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd%O2*		
NOx	0.0%	NOx	0.5	2.07	9.05	58.82	35.38		
CO	80.0%	CO	0.5	2.07	9.05	58.82	35.38		
VOC(NMNE)	46.8%	VOC	0.5	2.07	9.05	58.82	35.38		
H2CO	65.0%	H2CO	0.07	0.29	1.27	8.24	4.95		
Customer: Pegasus									
Project: Lucid - G3606A4 Trojan Horse									
Sales Person: KW									
Date: 8/10/2018									
Contact: Justin Watson									

Notes: (2) High Activity Elements
Expected Emissions:
> 90% CO
> 60% VOC
> 80% HCHO
Trojan Horse
Exhaust Piping to be Insulated

ENGINE SPEED (rpm): 1000
 COMPRESSION RATIO: 7.6
 AFTERCOOLER TYPE: SCAC
 AFTERCOOLER - STAGE 2 INLET (°F): 130
 AFTERCOOLER - STAGE 1 INLET (°F): 174
 JACKET WATER OUTLET (°F): 190
 ASPIRATION: TA
 COOLING SYSTEM: JW+1AC, OC+2AC
 CONTROL SYSTEM: ADEM4
 EXHAUST MANIFOLD: DRY
 COMBUSTION: LOW EMISSION
 NOx EMISSION LEVEL (g/bhp-hr NOx): 0.5
 SET POINT TIMING: 17

RATING STRATEGY: STANDARD
 RATING LEVEL: CONTINUOUS
 FUEL SYSTEM: GAV
 WITH AIR FUEL RATIO CONTROL
SITE CONDITIONS:
 FUEL: Salt Draw (Cadillac)
 FUEL PRESSURE RANGE(psig): (See note 1) 58.0-70.3
 FUEL METHANE NUMBER: 56.8
 FUEL LHV (Btu/scf): 1118
 ALTITUDE(ft): 3000
 INLET AIR TEMPERATURE(°F): 110
 STANDARD RATED POWER: 2500 bhp@1000rpm

RATING	NOTES	LOAD	MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE			
			100%	100%	75%	50%	
ENGINE POWER (WITHOUT FAN)	(2)	bhp	2500	2500	1875	1250	
INLET AIR TEMPERATURE		°F	110	110	110	110	

ENGINE DATA							
FUEL CONSUMPTION (LHV)	(3)	Btu/bhp-hr	6761	6761	7007	7512	
FUEL CONSUMPTION (HHV)	(3)	Btu/bhp-hr	7452	7452	7723	8280	
AIR FLOW (@inlet air temp, 14.7 psia)	(4)(5)	ft ³ /min	6614	6614	5006	3421	
AIR FLOW (WET)	(4)(5)	lb/hr	27627	27627	20912	14289	
FUEL FLOW (60°F, 14.7 psia)		scfm	252	252	196	140	
INLET MANIFOLD PRESSURE	(6)	in Hg(abs)	99.0	99.0	75.2	52.9	
EXHAUST TEMPERATURE - ENGINE OUTLET	(7)	°F	835	835	882	937	
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(8)(5)	ft ³ /min	15994	15994	12558	8950	
EXHAUST GAS MASS FLOW (WET)	(8)(5)	lb/hr	28480	28480	21575	14763	

EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)	(9)(10)	g/bhp-hr	0.50	0.50	0.50	0.50	
CO	(9)(10)	g/bhp-hr	2.80	2.80	2.80	2.80	
THC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	3.99	3.99	4.19	4.21	
NMHC (mol. wt. of 15.84)	(9)(10)	g/bhp-hr	1.66	1.66	1.74	1.75	
NMNEHC (VOCs) (mol. wt. of 15.84)	(9)(10)(11)	g/bhp-hr	1.01	1.01	1.06	1.06	
HCHO (Formaldehyde)	(9)(10)	g/bhp-hr	0.23	0.23	0.24	0.24	
CO2	(9)(10)	g/bhp-hr	454	454	467	500	
EXHAUST OXYGEN	(9)(12)	% DRY	11.6	11.6	11.3	10.8	

HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)	(13)	Btu/min	26677	26677	23010	19384	
HEAT REJ. TO ATMOSPHERE	(13)	Btu/min	9106	9106	9529	9540	
HEAT REJ. TO LUBE OIL (OC)	(13)	Btu/min	13036	13036	12159	10943	
HEAT REJ. TO A/C - STAGE 1 (1AC)	(13)(14)	Btu/min	26905	26905	13289	3479	
HEAT REJ. TO A/C - STAGE 2 (2AC)	(13)(14)	Btu/min	8911	8911	5506	2724	

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+1AC)	(14)(15)	Btu/min	57595
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (OC+2AC)	(14)(15)	Btu/min	24999
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.