December 6, 2024

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

Subject: Initial New Source Review Construction Permit Application – Revision 1
Sendero Carlsbad Midstream, LLC
Sendero Carlsbad Plant, AI No. 37724
AIRS No. 35-015-1672
Loving, Eddy County, NM

Dear Sir or Madam:

Sendero Carlsbad Midstream, LLC is submitting this revision to the initial New Source Review (NSR) construction permit application for the Sendero Carlsbad Plant (the Facility) in Eddy County, New Mexico to incorporate the removal of the existing regenerative thermal oxidizer (RTO) from the Facility.

The Facility is currently authorized to process up to 350 million standard cubic feet per day (MMscfd) of natural gas under the New Mexico Environment Department (NMED) General Construction Permit for Oil and Gas Facilities, GCP-7220(M3). Sendero Carlsbad Midstream, LLC plans to install an additional natural gas processing train capable of handling up to 275 MMscfd at the Facility, which will increase the facility-wide potential to emit above GCP thresholds. The requested NSR construction permit will therefore include the existing operations and the proposed additional natural gas processing train.

The enclosed Universal Air Quality Permit Application includes all of the required forms and supporting documentation for an initial minor NSR construction permit, including UA1 through UA4, all potential emission calculations, proof of public notice activities, and an air dispersion modeling report.

If there are any questions concerning this letter or supporting attachments, please contact me at (214) 840-5251 or jeff.weiler@energytransfer.com or Peter Guo at (214) 840-5142 or yanshan.guo@energytransfer.com.

Sincerely,

Jeff Weiler
Director - Environmental
Energy Transfer

Enclosure

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**
Sendero Carlsbad Midstream, LLC		12/06/2024 Revision #1
Permittee/Company Contact	**Phone**	**Email**
Alena Miro	713-865-6825	alena.miro@energytransfer.com

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

Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
☒ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
☒ Check No.: 019443 in the amount of $500.00
☒ 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: **20.2.72.200.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: 37724	Updating Permit/NOI #:7220M4
1	Facility Name: Sendero Carlsbad Plant	Plant primary SIC Code (4 digits): 1321 Plant NAIC code (6 digits): 211130	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 1025 Bounds Rd, Loving, NM 88256 (approximate)		
2	Plant Operator Company Name: Sendero Carlsbad Midstream, LLC	Phone/Fax: 713-865-6825	
a	Plant Operator Address: 2564 Pecos Hwy, Carlsbad, NM 88220		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 61-1794537	
3	Plant Owner(s) name(s): Sendero Carlsbad Midstream, LLC	Phone/Fax: 713-865-6825
a	Plant Owner(s) Mailing Address(s): 2564 Pecos Hwy, Carlsbad, NM 88220	
4	Bill To (Company): Sendero Carlsbad Midstream, LLC	Phone/Fax: 713-865-6825
a	Mailing Address: 2564 Pecos Hwy, Carlsbad, NM 88220	E-mail: accountspayable@senderomidstream.com
5	Preparer: ☒ Consultant: Rebecca Beatty, Apex Companies, LLC	Phone/Fax: 469-365-1142
a	Mailing Address: 2121 Midway Rd., Ste. 100, Carrollton, TX 75006	E-mail: rbeatty@apexcos.com
6	Plant Operator Contact: Alena Miro	Phone/Fax: 713-865-6825
a	Address: 2564 Pecos Hwy, Carlsbad, NM 88220	E-mail: alena.miro@energytransfer.com
7	Air Permit Contact: Peter Guo, P.E.	Title: Staff Engineer, E&C Environmental
a	E-mail: yanshan.guo@energytransfer.com	Phone/Fax: 214-840-5412
b	Mailing Address: 8111 Westchester Dr, Ste 600 Dallas, TX 75225	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☒ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is:
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☒ Yes ☐ No	If yes, the register No. is: GCP-7220M3

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: 14.58 MMscf/hr	Daily: 350 MMscfd	Annually: 127,750 MMscf/yr
b	Proposed	Hourly: 14.58 + 11.46 MMscf/hr	Daily: 350 + 275 MMscfd	Annually: 127,750 + 100,375 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:	Daily:	Annually:
b	Proposed	Hourly:	Daily:	Annually:

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 32.2621	Longitude (decimal degrees): -104.122353	County: Eddy	Elevation (ft): 3110
2	UTM Zone: ☐ 12 or ☒ 13	Datum: ☒ NAD 83 ☐ WGS 84		
a	UTM E (in meters, to nearest 10 meters): 582,569	UTM N (in meters, to nearest 10 meters): 3,569,632		
3	Name and zip code of nearest New Mexico town: Loving 88256			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Loving, NM, head south on N 4th St toward W Cedar St. Turn right at the 1st cross street onto W Cedar St, continue for 0.3 miles. Turn left onto S 8th St/US Hwy 285 S and continue for 1.0 mile. Turn right onto Higby Hole Rd and continue for 0.4 miles. Turn right onto Bounds Rd for 1.4 miles and the Facility will be on your left.			
5	The facility is 2.2 (distance) miles SW (direction) of Loving (nearest town).			
6	Land Status of facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Government ☐ BLM ☐ Forest Service ☐ Military			
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: Loving, Carlsbad, 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: 15.5			
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): 15.5			
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: 1461			
12	Method(s) used to delineate the Restricted Area: Fencing with signage "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.			
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.			
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?			

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

1	Facility **maximum** operating ($\frac{hours}{day}$): 24	($\frac{days}{week}$): 7	($\frac{weeks}{year}$): 52	($\frac{hours}{year}$): 8760	
2	Facility's maximum daily operating schedule (if less than 24 $\frac{hours}{day}$)? Start:	☐AM ☐PM	End:	☐AM ☐PM	
3	Month and year of anticipated start of construction: Plant 1 – existing, Plant 2 – proposed construction December 2024				
4	Month and year of anticipated construction completion: Plant 2 - December 2025				
5	Month and year of anticipated startup of new or modified facility: Plant 2 - December 2025				
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No				

Section 1-F: Other Facility Information

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

a	If yes, NOV date or description of issue:		NOV Tracking No:
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:	Date:	Requirement # (or page # and paragraph #):
d	Provide the required text to be inserted in this permit:		
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 X No		
a	If yes, include the name of company providing commercial electric power to the facility: ___________________________ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

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

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

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

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

1	Responsible Official (R.O.) Alena Miro (20.2.70.300.D.2 NMAC):	Phone: 713-865-6825
A	R.O. Title: Manager, Environmental Compliance	R.O. e-mail: alena.miro@energytransfer.com
b	R. O. Address: 2564 Pecos Hwy, Carlsbad, NM 88220	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC):	Phone:
a	A. R.O. Title:	A. R.O. e-mail:
b	A. R. O. Address:	
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): N/A	
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): Sendero Midstream Holdings, LLC	
a	Address of Parent Company: 8111 Westchester Dr., Ste. 600, Dallas, TX 75225	
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: Alena Miro, 713-865-6825	
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: Approximately 17 km to Texas	

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 Rebecca Beatty, Email rbeatty@apexcos.com Phone number 469-365-1142.

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

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

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

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

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

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

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

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

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

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

Table of Contents

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2]	Date of Construction/ Reconstruction[2]	Controlled by Unit #	Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Medium Heater				30.64 MMBtu/hr	30.64 MMBtu/hr		Feb-17		1	31000404	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
2	Flare	John Zink	AZDAIR		225 scf/hr	225 scf/hr		Jul-19		2	31000205	☐ Existing (unchanged) ☐ New/Additional ☑ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
3	1000-bbl Condensate Tank 1				54,142 bbl/yr	54,142 bbl/yr		May-17	23	3	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
4	1000-bbl Condensate Tank 2				54,142 bbl/yr	54,142 bbl/yr		May-17	23	4	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
5	1000-bbl Condensate Tank 3				54,142 bbl/yr	54,142 bbl/yr		May-17	23	5	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
6	1000-bbl Condensate Tank 4				54,142 bbl/yr	54,142 bbl/yr		May-17	23	6	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
7	1000-bbl Condensate Tank 5				54,142 bbl/yr	54,142 bbl/yr		May-17	23	7	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
8	1000-bbl Slop Tank				54,142 bbl/yr	54,142 bbl/yr		May-17		8	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
9	Slop Oil/Water Truck Loading				2274 Mgal/yr	2274 Mgal/yr		May-17		9	2310021030	☐ Existing (unchanged) ☐ New/Additional ☑ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
10	210-bbl Slop Tank				3650 bbl/yr	3650 bbl/yr		May-17		10	40400311	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
11	400-bbl Produced Water Tank				69,524 bbl/yr	69,524 bbl/yr		May-17		11	40400315	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
12	Fugitives							2017		12	2310011500	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
13	MSS							2017		13	2310021803	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
14	Malfunctions							2017		14	2310021803	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
15	BOP Hot Oil Heater				64.38 MMBtu/hr	64.38 MMBtu/hr		May-19		15	31000404	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		
16	Trim Reboiler Hot Oil Heater				19.69 MMBtu/hr	19.69 MMBtu/hr		Dec-18		16	31000404	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced		

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2]	Date of Construction/ Reconstruction[2]	Controlled by Unit #	Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
17	Regen Heater				16.1 MMBtu/hr	16.1 MMBtu/hr		May-19		17	31000404	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
18	Amine Unit				350 MMscfd	350 MMscfd		Mar-19	2	2	31000305	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
19	Glycol Dehydrator				350 MMscfd	350 MMscfd		Nov-18	2	2	31000302	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
21	10,000-bbl Condensate Tank				54,142 bbl/yr	54,142 bbl/yr		Jan-19	23	21	40400311	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
22	Haul Roads				372.3 VMT/yr	372.3 VMT/yr		2017		22	30205054	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
23	Vapor Recovery Unit							May-17		23	31000203	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
24	Electric Driven Compressors							2018		24	31000313	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
25	Plant Fugitives							2024		25	2310011500	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
26	Residue Compressor Engine 1	Caterpillar	G3616		5000 hp	5000 hp		2024		26	2310021203	Existing (unchanged) To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
27	Residue Compressor Engine 2	Caterpillar	G3616		5000 hp	5000 hp		2024		27	2310021203	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
28	Residue Compressor Engine 3	Caterpillar	G3616		5000 hp	5000 hp		2024		28	2310021203	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
29	Residue Compressor Engine 4	Caterpillar	G3616		5000 hp	5000 hp		2024		29	2310021203	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
30	Generator Engine 1	Caterpillar	G3520		3628 hp	3628 hp		2024		30	20100207	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
31	Generator Engine 2	Caterpillar	G3520		3628 hp	3628 hp		2024		31	20100207	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
32	Generator Engine 3	Caterpillar	G3520		3628 hp	3628 hp		2024		32	20100207	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
33	Generator Engine 4	Caterpillar	G3520		3628 hp	3628 hp		2024		33	20100207	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	
34	TEG Reboiler				3.75	3.75					31000228	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit		

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
34	TEG Reboiler				MMBtu/hr	MMBtu/hr	 2024	 34	[illegible]	☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
35	Hot Oil System Heater				15.95 MMBtu/hr	15.95 MMBtu/hr	 2024	 35	321000404	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
36	Hot Oil System Heater				60.00 MMBtu/hr	60.00 MMBtu/hr	 2024	 36	321000404	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
37	Regen Heater				5.61 MMBtu/hr	5.61 MMBtu/hr	 2024	 37	321000404	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
38	Stabilizer Heater				23.00 MMBtu/hr	23.00 MMBtu/hr	 2024	 38	321000404	Existing (unchanged) To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
39	Process Flare				195 scf/hr	195 scf/hr	 2024	 39	31000205	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
40	Acid Gas Flare				195 scf/hr	195 scf/hr	 2024	 40	31000205	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
41	Thermal Oxidizer				20 MMBtu/hr	20 MMBtu/hr	 2024	 41	31000205	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
42	Glycol Flash Gas						 2024	34, 36, 41 34, 36, 41	31000303	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
43	Amine Flash Gas						 2024	34, 36, 41 34, 36, 41	31000305	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
44	Glycol Dehydration Unit				275 MMscfd	275 MMscfd	 2024	40, 41 40, 41	31000301	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
45	Amine Unit				275 MMscfd	275 MMscfd	 2024	40, 41 40, 41	31000305	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
46	Residue Compressor Blowdowns						 2024	39 39	2310021803	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
47	Stabilizer Overhead VRU Downtime						 2024	39 39	31000199	Existing (unchanged) To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
48	Maintenance Operations						 2024	 48	2310021803	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
49	500-bbl Slop Oil Storage				18,250 bbl/yr	18,250 bbl/yr	 2024	 49	40400311	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
50	500-bbl Slop Oil Storage				18,250 bbl/yr	18,250 bbl/yr	 2024	 50	40400311	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
51	500-bbl Stabilized Condensate Storage				109,500 bbl/yr	109,500 bbl/yr	 2024	59, 39 51	40400311	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
52	500-bbl Stabilized Condensate Storage				109,500 bbl/yr	109,500 bbl/yr	 2024	59, 39 52	40400311	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
53	500-bbl Stabilized Condensate Storage				109,500 bbl/yr	109,500 bbl/yr	 2024	59, 39 53	40400311	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
54	500-bbl Stabilized Condensate Storage				109,500 bbl/yr	109,500 bbl/yr	 2024	59, 39 54	40400311	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
55	Miscellaneous VOC Storage Tanks				20,640 bbl/yr	20,640 bbl/yr	 2024	 55	40400314	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
56	Truck Loading Slop Oil/Water				1533 Mgal/yr	1533 Mgal/yr	 2024	 56	2310021030	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
57	Truck Loading Stabilized Condensate				18,396 Mgal/yr	18,396 Mgal/yr	 2024	2 2, 57	2310021030	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
58	NGL Unload Hose Disconnects						 2024	 58	2310021030	Existing (unchanged) To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
59	Vapor Recovery Unit						 2024	 59	31000203	Existing (unchanged) To be Removed ☑ New/Additional ☐ Replacement Unit ☐ 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 Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No. Serial No.	Max Capacity Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
							☐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
							☐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
							☐Existing (unchanged) ☐To be Removed ☐New/Additional ☐Replacement Unit ☐To Be Modified ☐To be Replaced
							☐Existing (unchanged) ☐To be Removed ☐New/Additional ☐Replacement Unit ☐To Be Modified ☐To be Replaced
							☐Existing (unchanged) ☐To be Removed ☐New/Additional ☐Replacement Unit ☐To Be Modified ☐To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
2	Flare	Jul-19	VOC, H2S	18, 19, 57	98%	Manufacturer Specs
23	Vapor Recovery Unit	May-17	VOC, H2S	3, 4, 5, 6, 7, 9, 21	95%	Manufacturer Specs
39	Process Flare	2024	VOC, H2S	46, 47, 51, 52, 53, 54	98% (99% C1-C3)	Manufacturer Specs
40	Acid Gas Flare	2024	VOC, H2S	44, 45	98% (99% C1-C3)	Manufacturer Specs
41	Thermal Oxidizer	2024	VOC, H2S	44, 45	99%	Manufacturer Specs
59	Vapor Recovery Unit	2024	VOC, H2S	51, 52, 53, 54	97%	Manufacturer Specs
	Oxidation Catalysts	2024	CO, VOC, CH2O	26, 27, 28, 29	88%, 45%, 83%	Vendor Specs
	Oxidation Catalysts	2024	CO, VOC, CH2O	30, 31, 32, 33	73%, 64%, 76%	Vendor Specs

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
12	-	-	-	-	31.06	136.02	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
1	1.23	5.38	2.52	11.05	0.17	0.72	0.02	0.08	0.23	1.00	0.23	1.00	0.17	0.75	-	-	-	-
15	2.58	11.31	2.62	11.48	0.35	1.52	0.04	0.16	0.48	2.10	0.48	2.10	0.36	1.58	-	-	-	-
16	0.79	3.46	0.80	3.51	0.11	0.47	0.01	0.05	0.15	0.64	0.15	0.64	0.11	0.48	-	-	-	-
17	0.65	2.83	0.66	2.87	0.09	0.38	0.01	0.04	0.12	0.53	0.12	0.53	0.09	0.39	-	-	-	-
2	0.49	2.16	0.99	4.31	3749.68	90.07	0.002	0.01	0.03	0.11	0.03	0.11	0.02	0.08	-	-	-	-
19	-	-	-	-	649.31	2888.97	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
18	-	-	-	-	89.03	389.93	-	-	-	-	-	-	-	-	0.35	1.51	-	-
3	-	-	-	-	93.15	16.24	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
4	-	-	-	-	93.15	16.24	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
5	-	-	-	-	93.15	16.24	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
6	-	-	-	-	93.15	16.24	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
7	-	-	-	-	93.15	16.24	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
21	-	-	-	-	92.67	51.97	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
9	-	-	-	-	1.40	0.16	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
8	-	-	-	-	1.10	0.25	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
10	-	-	-	-	0.29	0.04	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
11	-	-	-	-	1.17	0.12	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
13	-	-	-	-		10	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-
14	-	-	-	-		10	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-
22	-	-	-	-	-	-	-	-	0.37	1.33	0.10	0.34	0.01	0.03	-	-	-	-
25	-	-	-	-	19.60	85.87	-	-	-	-	-	-	-	-	0.001	0.01	-	-
26	3.31	14.48	30.31	132.77	10.25	44.90	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.62	-	-	-	-
27	3.31	14.48	30.31	132.77	10.25	44.90	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.62	-	-	-	-
28	3.31	14.48	30.31	132.77	10.25	44.90	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.62	-	-	-	-
29	3.31	14.48	30.31	132.77	10.25	44.90	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.62	-	-	-	-
30	2.40	10.51	10.48	45.89	4.00	17.52	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-
31	2.40	10.51	10.48	45.89	4.00	17.52	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-
32	2.40	10.51	10.48	45.89	4.00	17.52	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-
33	2.40	10.51	10.48	45.89	4.00	17.52	0.01	0.06	0.22	0.67	0.22	0.67	0.22	0.97	-	-	-	-
34	0.37	1.61	0.31	1.35	0.02	0.09	0.002	0.01	0.03	0.12	0.03	0.12	0.02	0.09	-	-	-	-
35	1.56	6.85	1.31	5.75	0.09	0.38	0.01	0.04	0.12	0.52	0.12	0.52	0.09	0.39	-	-	-	-
36	2.41	10.54	4.94	21.64	0.32	1.42	0.04	0.15	0.45	1.96	0.45	1.96	0.34	1.47	-	-	-	-

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
37	0.55	2.41	0.46	2.02	0.03	0.13	0.003	0.01	0.04	0.18	0.04	0.18	0.03	0.14	-	-	-	-
38	0.92	4.04	1.89	8.30	0.12	0.54	0.01	0.06	0.17	0.75	0.17	0.75	0.13	0.56	-	-	-	-
41	0.09	0.40	0.11	0.48	0.10	0.43	0.01	0.05	0.13	0.59	0.13	0.59	0.10	0.44	-	-	-	-
39	0.03	0.12	0.06	0.24	0.001	0.005	<0.001	0.001	0.001	0.01	0.001	0.01	0.001	0.005	-	-	-	-
40	0.03	0.12	0.06	0.24	0.001	0.005	<0.001	0.001	0.001	0.01	0.001	0.01	0.001	0.005	-	-	-	-
44	-	-	-	-	64.99	284.65	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
42	-	-	-	-	102.52	449.03	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
45	-	-	-	-	12.15	53.22	-	-	-	-	-	-	-	-	29.05	127.23	-	-
43	-	-	-	-	48.69	213.25	-	-	-	-	-	-	-	-	0.03	0.13	-	-
49	-	-	-	-	1.40	0.56	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
50	-	-	-	-	1.40	0.56	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
51	-	-	-	-	89.37	8.72	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
52	-	-	-	-	89.37	8.72	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
53	-	-	-	-	89.37	8.72	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
54	-	-	-	-	89.37	8.72	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
55	-	-	-	-	0.22	0.001	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	4.95	0.38	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
57	-	-	-	-	52.58	48.51	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
58	-	-	-	-	0.41	0.37	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
46	-	-	-	-	108.20	12.98	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
47	-	-	-	-	10292.9	514.64	-	-	-	-	-	-	-	-	2.63	0.13	-	-
48	-	-	-	-	82.43	2.65	-	-	-	-	-	-	-	-	0.01	<0.001	-	-
Totals	34.52	151.2	179.89	787.93	16289.7	5616.05	0.29	1.27	4.69	20.23	4.41	19.25	3.84	16.81	32.07	129.01	0	0

[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).

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
12	-	-	-	-	3.37	14.75	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
1	1.23	5.38	2.52	11.05	0.17	0.72	0.02	0.08	0.23	1.00	0.23	1.00	0.17	0.75	-	-	-	-
15	2.58	11.31	2.62	11.48	0.35	1.52	0.04	0.16	0.48	2.10	0.48	2.10	0.36	1.58	-	-	-	-
16	0.79	3.46	0.80	3.51	0.11	0.47	0.01	0.05	0.15	0.64	0.15	0.64	0.11	0.48	-	-	-	-
17	0.65	2.83	0.66	2.87	0.09	0.38	0.01	0.04	0.12	0.53	0.12	0.53	0.09	0.39	-	-	-	-
2	52.96	4.62	107.34	16.28	56.51	1.44	0.65	2.85	2.39	0.65	2.39	0.65	1.79	0.49	<0.001	<0.001	-	-
2-SSM	4.45	0.03	8.89	0.06	0.09	0.001	0.02	<0.001	0.21	0.001	0.21	0.001	0.16	0.001	<0.001	<0.001	-	-
2-M	57.20	1.24	114.19	2.47	3.49	0.08	0.20	0.004	2.57	0.05	2.57	0.05	1.92	0.04	<0.001	<0.001	-	-
19	-	-	-	-	9.58	8.07	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
18	-	-	-	-	1.39	2.41	-	-	-	-	-	-	-	-	0.01	0.03	-	-
3	-	-	-	-	4.66	0.81	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
4	-	-	-	-	4.66	0.81	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
5	-	-	-	-	4.66	0.81	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
6	-	-	-	-	4.66	0.81	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
7	-	-	-	-	4.66	0.81	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
21	-	-	-	-	4.63	2.60	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
9	-	-	-	-	1.40	0.16	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
8	-	-	-	-	1.10	0.25	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
10	-	-	-	-	0.29	0.04	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
11	-	-	-	-	1.17	0.12	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
13	-	-	-	-		10	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-
14	-	-	-	-		10	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-
22	-	-	-	-	-	-	-	-	0.37	1.33	0.10	0.34	0.01	0.03	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	1.89	8.30	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
26	3.31	14.48	3.64	15.93	4.38	19.19	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.62	-	-	-	-
27	3.31	14.48	3.64	15.93	4.38	19.19	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.61	-	-	-	-
28	3.31	14.48	3.64	15.93	4.38	19.19	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.62	-	-	-	-
29	3.31	14.48	3.64	15.93	4.38	19.19	0.02	0.10	0.37	1.62	0.37	1.62	0.37	1.61	-	-	-	-
30	2.40	10.51	2.83	12.39	1.20	5.25	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-
31	2.40	10.51	2.83	12.39	1.20	5.25	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-
32	2.40	10.51	2.83	12.39	1.20	5.25	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-
33	2.40	10.51	2.83	12.39	1.20	5.25	0.01	0.06	0.22	0.97	0.22	0.97	0.22	0.97	-	-	-	-

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
34	0.37	1.61	0.31	1.35	0.07	0.31	0.003	0.01	0.03	0.12	0.03	0.12	0.02	0.09	-	-	-	-
35	1.56	6.85	1.31	5.75	0.09	0.38	0.01	0.04	0.12	0.52	0.12	0.52	0.09	0.39	-	-	-	-
36	2.41	10.54	4.94	21.64	1.12	4.91	0.04	0.18	0.45	1.96	0.45	1.96	0.34	1.47	-	-	-	-
37	0.55	2.41	0.46	2.02	0.03	0.13	0.003	0.01	0.04	0.18	0.04	0.18	0.03	0.14	-	-	-	-
38	0.92	4.04	1.89	8.30	0.12	0.54	0.01	0.06	0.17	0.75	0.17	0.75	0.13	0.56	-	-	-	-
39	70.61	3.72	140.97	7.44	0.001	0.005	4.95	0.25	2.44	0.13	2.44	0.13	1.83	0.10	-	-	-	-
46	-	-	-	-	1.60	0.19	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
49	-	-	-	-	1.40	0.56	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
50	-	-	-	-	1.40	0.56	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
55	-	-	-	-	0.22	0.001	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	4.95	0.38	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
58	-	-	-	-	0.41	0.37	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
48	-	-	-	-	82.43	2.65	-	-	-	-	-	-	-	-	0.01	<0.001	-	-
40	2.96	5.06	25.17	42.56	0.22	0.38	54.63	92.05	1.74	2.93	1.74	2.93	1.30	2.20	-	-	-	-
41	0.11	0.49	0.14	0.60	0.32	1.41	54.61	239.21	1.56	6.85	1.56	6.85	1.17	5.13	<0.001	<0.001	-	-
44	-	-	-	-	1.15	3.70	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
45	-	-	-	-	0.17	0.61	-	-	-	-	-	-	-	-	0.58	1.76	-	-
47	-	-	-	-	137.67	6.88	-	-	-	-	-	-	-	-	0.05	0.003	-	-
51	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
52	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
53	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
54	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
57	-	-	-	-	1.72	1.59	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
Totals	221.91	163.13	437.65	249.94	366.64	188.01	60.73	243.57	13.87	27.50	13.60	26.51	10.73	22.26	0.65	1.80	0	0

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals																		

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		☑ H_2S or ☐ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
2	2 - Normal + AOS	52.96	4.62	107.34	16.28	0.02	0.08	0.65	2.85	2.39	0.65	2.39	0.65	1.79	0.49	-	-
2	19	-	-	-	-	1.80	7.88	-	-	-	-	-	-	-	-	<0.001	<0.001
2	18	-	-	-	-	0.55	2.39	-	-	-	-	-	-	-	-	0.01	0.03
2	57	-	-	-	-	1.72	1.59	-	-	-	-	-	-	-	-	<0.001	<0.001
2	V-2440 (19) - AOS 1	-	-	-	-	7.78	0.19	-	-	-	-	-	-	-	-	<0.001	<0.001
2	V-2200 (18) - AOS 2	-	-	-	-	0.84	0.02	-	-	-	-	-	-	-	-	<0.001	<0.001
2	Z-2110 - AOS 3	-	-	-	-	0.004	<0.001	-	-	-	-	-	-	-	-	<0.001	<0.001
2	Res Gas - AOS 4	-	-	-	-	56.49	1.36	-	-	-	-	-	-	-	-	<0.001	<0.001
2	2 - SSM	4.45	0.03	8.89	0.06	0.09	0.001	0.02	<0.001	0.21	0.001	0.21	0.001	0.16	0.001	<0.001	<0.001
2	2 - M	57.20	1.24	114.19	2.47	3.49	0.08	0.20	0.004	2.57	0.05	2.57	0.05	1.92	0.04	<0.001	<0.001
Stack No. 2 Proposed Allowable Totals:		**114.61**	**5.89**	**230.42**	**18.81**	**72.78**	**13.59**	**0.87**	**2.86**	**5.17**	**0.71**	**5.17**	**0.71**	**3.88**	**0.53**	**0.01**	**0.03**
39	39 - Normal	1.07	0.25	2.14	0.49	0.001	0.005	0.001	0.001	0.05	0.01	0.05	0.01	0.04	0.01	-	-
39	46	-	-	-	-	1.60	0.19	-	-	-	-	-	-	-	-	<0.001	<0.001
39	39 - AOS	69.54	3.48	138.83	6.94	-	-	4.95	0.25	2.39	0.12	2.39	0.12	1.80	0.09	-	-
39	47 - AOS	-	-	-	-	137.67	6.88	-	-	-	-	-	-	-	-	0.05	0.003
39	51 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
39	52 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
39	53 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
39	54 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
Stack No. 39 Proposed Allowable Totals:		**70.61**	**3.73**	**140.97**	**7.43**	**146.43**	**7.12**	**4.95**	**0.25**	**2.44**	**0.13**	**2.44**	**0.13**	**1.83**	**0.10**	**0.05**	**0.003**
40	40	2.93	4.94	25.11	42.32	0.22	0.38	54.63	92.05	1.74	2.93	1.74	2.93	1.30	2.19	-	-
40	44	-	-	-	-	1.15	1.95	-	-	-	-	-	-	-	-	<0.001	<0.001
40	45	-	-	-	-	0.17	0.28	-	-	-	-	-	-	-	-	0.58	0.98
Stack No. 40 Proposed Allowable Totals:		**2.93**	**4.94**	**25.11**	**42.32**	**1.55**	**2.61**	**54.63**	**92.05**	**1.74**	**2.93**	**1.74**	**2.93**	**1.30**	**2.19**	**0.58**	**0.98**
41	41	0.11	0.49	0.14	0.60	0.32	1.41	54.61	239.21	1.56	6.85	1.56	6.85	1.17	5.13	<0.001	<0.001
41	44	-	-	-	-	0.65	2.85									<0.001	<0.001
41	45	-	-	-	-	0.12	0.53									0.29	1.27
Stack No. 41 Proposed Allowable Totals:		**0.11**	**0.49**	**0.14**	**0.60**	**1.09**	**4.79**	**54.61**	**239.21**	**1.56**	**6.85**	**1.56**	**6.85**	**1.17**	**5.13**	**0.29**	**1.27**
2	18	-	-	-	-	0.55	2.39	-	-	-	-	-	-	-	-	0.01	0.03

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		☑ H_2S or ☐ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
2	18 (V-2200 AOS 2)	-	-	-	-	0.84	0.02	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 18 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**1.39**	**2.41**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.01**	**0.03**
2	19	-	-	-	-	1.80	7.88	-	-	-	-	-	-	-	-	<0.001	<0.001
2	19 (V-2440 AOS 1)	-	-	-	-	7.78	0.19	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 19 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**9.58**	**8.07**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
40	44	-	-	-	-	1.15	1.95	-	-	-	-	-	-	-	-	<0.001	<0.001
41	44	-	-	-	-	0.65	2.85	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 44 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**1.15**	**3.70**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
40	45	-	-	-	-	0.17	0.28	-	-	-	-	-	-	-	-	0.58	0.98
41	45	-	-	-	-	0.12	0.53	-	-	-	-	-	-	-	-	0.29	1.27
Unit No. 45 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**0.17**	**0.61**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.58**	**1.76**
39	51 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
51	51	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 51 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**2.68**	**0.26**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
39	52 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
52	52	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 52 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**2.68**	**0.26**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
39	53 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
53	53	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 53 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**2.68**	**0.26**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
39	54 - AOS	-	-	-	-	1.79	0.01	-	-	-	-	-	-	-	-	<0.001	<0.001
54	54	-	-	-	-	2.68	0.26	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 54 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**2.68**	**0.26**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
2	57	-	-	-	-	1.04	0.96	-	-	-	-	-	-	-	-	<0.001	<0.001
57	57	-	-	-	-	0.68	0.63	-	-	-	-	-	-	-	-	<0.001	<0.001
Unit No. 57 Proposed Allowable Totals:		**-**	**-**	**-**	**-**	**1.72**	**1.59**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**<0.001**	**<0.001**
Totals:																	

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V		35	1100	596			47.4	4
2	2, 18, 19, 57	V		199	1200					1
3	3			16						
4	4			16						
5	5			16						
6	6			16						
7	7			16						
8	8			16						
9	9									
10	10			15						
11	11			20						
15	15	V		35.2	515	456			47.4	4
16	16	V		27.5	474	456			35.1	2.5
17	17	V		25.7	461	282			32.4	2.33
21	21			44						
26	26	V		40	840	535			109	2.5
27	27	V		40	840	535			109	2.5
28	28	V		40	840	535			109	2.5
29	29	V		40	840	535			109	2.5
30	30	V		30	854	338			108	2
31	31	V		30	854	338			108	2
32	32	V		30	854	338			108	2
33	33	V		30	854	338			108	2
34	34	V		35	500				14.6	6
35	35	V		25.7	461				32.4	2.33
36	36	V		35	515				47.4	3.5

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
37	37	V		16	650				30.8	1.5
38	38	V		25	500				32.2	2
39	39, 46, 47, 51, 52, 53, 54	V		120						
40	40, 44, 45	V		30						
41	41, 44, 45	V		52						7
49	49			16						
50	50			16						
51	51			16						
52	52			16						
53	53			16						
54	54			16						

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		n-Hexane ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Xylene ☑ HAP or ☐ TAP		Acetaldehyde ☑ HAP or ☐ TAP		Acrolein ☑ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
12	12	0.44	1.91	-	-	0.33	1.43	0.02	0.08	0.04	0.18	<0.01	0.01	0.03	0.12	-	-	-	-
1	1	0.06	0.25	<0.01	0.01	0.05	0.24	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
15	15	0.12	0.52	<0.01	0.02	0.11	0.50	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
16	16	0.04	0.16	<0.01	0.01	0.03	0.15	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
17	17	0.03	0.13	<0.01	0.01	0.03	0.12	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
2	2	1.46	0.06	-	-	1.32	0.06	0.07	<0.01	0.07	<0.01	<0.01	<0.01	0.01	<0.01	-	-	-	-
2-SSM	2	0.03	<0.01	-	-	0.03	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
2-M	2	1.43	0.03	-	-	1.42	0.03	0.01	<0.01	-	-	-	-	-	-	-	-	-	-
2	19	0.94	2.73	-	-	0.28	0.25	0.33	1.23	0.29	1.10	<0.01	<0.01	0.04	0.15	-	-	-	-
2	18	0.36	1.49	-	-	0.01	0.01	0.15	0.63	0.16	0.68	<0.01	<0.01	0.04	0.17	-	-	-	-
3	3	0.63	0.11	-	-	0.60	0.10	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
4	4	0.63	0.11	-	-	0.60	0.10	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
5	5	0.63	0.11	-	-	0.60	0.10	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
6	6	0.63	0.11	-	-	0.60	0.10	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
7	7	0.63	0.11	-	-	0.60	0.10	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
21	21	0.62	0.35	-	-	0.59	0.33	0.02	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
9	9	0.19	0.02	-	-	0.18	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
8	8	0.15	0.03	-	-	0.13	0.03	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
10	10	0.04	0.01	-	-	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
11	11	0.16	0.02	-	-	0.15	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
13	13	<0.01	<0.01	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-
14	14	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	25	0.20	0.86	-	-	0.19	0.82	0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
26	26	1.10	4.84	0.56	2.46	0.07	0.28	0.03	0.11	0.02	0.10	<0.01	0.01	0.01	0.05	0.15	0.66	0.09	0.41
27	27	1.10	4.84	0.56	2.46	0.07	0.28	0.03	0.11	0.02	0.10	<0.01	0.01	0.01	0.05	0.15	0.66	0.09	0.41
28	28	1.10	4.84	0.56	2.46	0.07	0.28	0.03	0.11	0.02	0.10	<0.01	0.01	0.01	0.05	0.15	0.66	0.09	0.41
29	29	1.10	4.84	0.56	2.46	0.07	0.28	0.03	0.11	0.02	0.10	<0.01	0.01	0.01	0.05	0.15	0.66	0.09	0.41

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Xylene ☑ HAP or ☐ TAP		Acetaldehyde ☑ HAP or ☐ TAP		Acrolein ☑ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
30	30	0.56	2.47	0.41	1.79	0.01	0.05	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.06	0.27	0.04	0.17
31	31	0.56	2.47	0.41	1.79	0.01	0.05	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.06	0.27	0.04	0.17
32	32	0.56	2.47	0.41	1.79	0.01	0.05	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.06	0.27	0.04	0.17
33	33	0.56	2.47	0.41	1.79	0.01	0.05	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.06	0.27	0.04	0.17
34	34	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
35	35	0.03	0.13	<0.01	0.01	0.03	0.12	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
36	36	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
37	37	0.01	0.05	<0.01	<0.01	0.01	0.04	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
38	38	0.04	0.19	<0.01	0.01	0.04	0.18	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
39	39	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
46	46	0.14	0.02	-	-	0.14	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
49	49	0.17	0.07	-	-	0.16	0.06	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
50	50	0.17	0.07	-	-	0.16	0.06	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
56	56	0.60	0.05	-	-	0.57	0.04	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
58	58	0.04	0.04	-	-	0.04	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
48	48	4.83	0.16	-	-	4.73	0.15	0.08	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
40	40	0.08	0.13	<0.01	0.01	0.07	0.12	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-	-	-	-
41	41	0.11	0.30	<0.01	0.01	0.11	0.29	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
40	44	0.36	0.60	-	-	0.36	0.60	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
41	44	0.18	0.78	-	-	0.18	0.78	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
40	45	<0.01	0.01	-	-	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
41	45	0.01	0.01	-	-	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
39	47	1.49	0.07	-	-	1.42	0.07	0.06	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
39	51	0.32	<0.01	-	-	0.30	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
51	51	0.48	0.07	-	-	0.45	0.07	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
39	52	0.32	<0.01	-	-	0.30	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
52	52	0.48	0.07	-	-	0.45	0.07	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
39	53	0.32	<0.01	-	-	0.30	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
53	53	0.48	0.07	-	-	0.45	0.07	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
39	54	0.32	<0.01	-	-	0.30	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
54	54	0.48	0.07	-	-	0.45	0.07	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
2	57	0.31	0.28	-	-	0.29	0.27	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-
57	57	0.20	0.19	-	-	0.19	0.18	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-	-

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Xylene ☑ HAP or ☐ TAP		Acetaldehyde ☑ HAP or ☐ TAP		Acrolein ☑ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals:		27.75	41.49	3.90	17.07	19.45	8.93	1.11	2.59	0.88	2.52	0.04	0.07	0.17	0.67	0.85	3.73	0.52	2.29

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Pipeline quality natural gas	1020	30.64 MMBtu/hr	268,406 MMBtu/yr	2000 gr/MMscf	
2	Natural Gas	Pipeline quality natural gas	1052	225 scfh	1,971,000 scf/yr	2000 gr/MMscf	
15	Natural Gas	Pipeline quality natural gas	1020	64.38 MMBtu/hr	563,969 MMBtu/yr	2000 gr/MMscf	
16	Natural Gas	Pipeline quality natural gas	1020	19.69 MMBtu/hr	172,484 MMBtu/yr	2000 gr/MMscf	
17	Natural Gas	Pipeline quality natural gas	1020	16.1 MMBtu/hr	141,036 MMBtu/yr	2000 gr/MMscf	
26	Natural Gas	Pipeline quality natural gas	927	37.1 MMBtu/hr	324,777 MMBtu/yr	2000 gr/MMscf	
27	Natural Gas	Pipeline quality natural gas	927	37.1 MMBtu/hr	324,777 MMBtu/yr	2000 gr/MMscf	
28	Natural Gas	Pipeline quality natural gas	927	37.1 MMBtu/hr	324,777 MMBtu/yr	2000 gr/MMscf	
29	Natural Gas	Pipeline quality natural gas	927	37.1 MMBtu/hr	324,777 MMBtu/yr	2000 gr/MMscf	
30	Natural Gas	Pipeline quality natural gas	927	22.3 MMBtu/hr	195,239 MMBtu/yr	2000 gr/MMscf	
31	Natural Gas	Pipeline quality natural gas	927	22.3 MMBtu/hr	195,239 MMBtu/yr	2000 gr/MMscf	
32	Natural Gas	Pipeline quality natural gas	927	22.3 MMBtu/hr	195,239 MMBtu/yr	2000 gr/MMscf	
33	Natural Gas	Pipeline quality natural gas	927	22.3 MMBtu/hr	195,239 MMBtu/yr	2000 gr/MMscf	
34	Natural Gas	Pipeline quality natural gas	977	3.75 MMBtu/hr	32,850 MMBtu/yr	2000 gr/MMscf	
35	Natural Gas	Pipeline quality natural gas	927	15.95 MMBtu/hr	139,722 MMBtu/yr	2000 gr/MMscf	
36	Natural Gas	Pipeline quality natural gas	977	60.00 MMBtu/hr	478,208 MMBtu/yr	2000 gr/MMscf	
37	Natural Gas	Pipeline quality natural gas	927	5.61 MMBtu/hr	49,100 MMBtu/yr	2000 gr/MMscf	
38	Natural Gas	Pipeline quality natural gas	927	23.0 MMBtu/hr	201,480 MMBtu/yr	2000 gr/MMscf	
39	Natural Gas	Pipeline quality natural gas	927	195 scfh	1,708,200 scf/yr	2000 gr/MMscf	

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
40	Natural Gas	Pipeline quality natural gas	927	195 scfh	1,708,200 scf/yr	2000 gr/MMscf	
41	Natural Gas	Pipeline quality natural gas	971	17.22 MMBtu/hr	150,878 MMBtu/yr	2000 gr/MMscf	

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
3	40400311	Stabilized Condensate			86.54	65	7	95	9
4	40400311	Stabilized Condensate			86.54	65	7	95	9
5	40400311	Stabilized Condensate			86.54	65	7	95	9
6	40400311	Stabilized Condensate			86.54	65	7	95	9
7	40400311	Stabilized Condensate			86.54	65	7	95	9
8	40400311	Slop	Water and hydrocarbon liquids		18.75	65	7	95	9
10	40400311	Slop	Water and hydrocarbon liquids		18.75	65	7	95	9
11	40400315	Produced Water			18.11	65	7	95	9
21	40400311	Stabilized Condensate			86.54	65	7	95	9
49	40400311	Slop	Water and hydrocarbon liquids		50	65	7	95	9
50	40400311	Slop	Water and hydrocarbon liquids		50	65	7	95	9
51	40400311	Stabilized Condensate	Stabilized Product RVP2 - RVP9		62.15	65	7	95	9
52	40400311	Stabilized Condensate	Stabilized Product RVP2 - RVP9		62.15	65	7	95	9
53	40400311	Stabilized Condensate	Stabilized Product RVP2 - RVP9		62.15	65	7	95	9
54	40400311	Stabilized Condensate	Stabilized Product RVP2 - RVP9		62.15	65	7	95	9

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
3	2018	Condensate		Vertical FX	1,000		6.25	0.46	White	White	Average	2,273,964	55
4	2018	Condensate		Vertical FX	1,000		6.25	0.46	White	White	Average	2,273,964	55
5	2018	Condensate		Vertical FX	1,000		6.25	0.46	White	White	Average	2,273,964	55
6	2018	Condensate		Vertical FX	1,000		6.25	0.46	White	White	Average	2,273,964	55
7	2018	Condensate		Vertical FX	1,000		6.25	0.46	White	White	Average	2,273,964	55
8	2018	Slop		Vertical FX	1,000		6.25	0.46	White	White	Average	2,273,964	55
10	2018	Slop		Vertical FX	210		3.05	0.46	White	White	Average	153,300	18
11	2018	Produced Water		Vertical FX	400		3.66	0.46	White	White	Average	2,920,000	174
21	2018	Condensate		Vertical FX	10,000		12.95	0.46	White	White	Average	2,273,964	6
49	2024	Slop		Vertical FX	500		4.73	0.46	White	White	Average	766,500	36.5
50	2024	Slop		Vertical FX	500		4.73	0.46	White	White	Average	766,500	36.5
51	2024	Stabilized Condensate		Vertical FX	500		4.73	0.46	White	White	Average	4,599,000	219
52	2024	Stabilized Condensate		Vertical FX	500		4.73	0.46	White	White	Average	4,599,000	219
53	2024	Stabilized Condensate		Vertical FX	500		4.73	0.46	White	White	Average	4,599,000	219
54	2024	Stabilized Condensate		Vertical FX	500		4.73	0.46	White	White	Average	4,599,000	219

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

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**

Table 2-N: CEM Equipment

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

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

Table 2-O: Parametric Emissions Measurement Equipment

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

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

Table 2-P: Greenhouse Gas Emissions

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

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	1	298	25	22,800	footnote 3										
1	mass GHG				-	-									15687.05	
	CO_2e				-	-										15702.94
2	mass GHG	16208.161	0.01	15.88	-	-									16224.05	
	CO_2e				-	-										16607.88
2-SSM	mass GHG	23072.693	4.60E-05	0.04	-	-									23072.73	
	CO_2e				-	-										23073.61
2-M	mass GHG	23072.692	0.002	0.02	-	-									23072.72	
	CO_2e				-	-										23073.87
3	mass GHG	0	-	0.0003	-	-									0.0003	
	CO_2e	0	-	0.01	-	-										0.01
4	mass GHG	0	-	0.0003	-	-									0.0003	
	CO_2e	0	-	0.01	-	-										0.01
5	mass GHG	0	-	0.0003	-	-									0.0003	
	CO_2e	0	-	0.01	-	-										0.01
6	mass GHG	0	-	0.0003	-	-									0.0003	
	CO_2e	0	-	0.01	-	-										0.01
7	mass GHG	0	-	0.0003	-	-									0.0003	
	CO_2e	0	-	0.01	-	-										0.01
8	mass GHG	0	-	0.0001	-	-									0.0001	
	CO_2e	0	-	0.002	-	-										0.002
9	mass GHG	0	-	0.0001	-	-									0.0001	
	CO_2e	0	-	0.001	-	-										0.001
10	mass GHG	0	-	0.00002	-	-									0.00002	
	CO_2e	0	-	0.0004	-	-										0.0004
11	mass GHG	0	-	0.00004	-	-									0.00004	
	CO_2e	0	-	0.001	-	-										0.001
12	mass GHG	0.03	-	7.25	-	-									7.28	
	CO_2e	0.03	-	181.25	-	-										181.28
15	mass GHG				-	-									32961.25	
	CO_2e				-	-										32994.63
16	mass GHG				-	-									10080.88	
	CO_2e				-	-										10091.09
17	mass GHG				-	-									8242.87	
	CO_2e				-	-										8251.22
21	mass GHG	0	-	0.001	-	-									0.001	

21	CO_2e	0	-	0.02	-	-										0.02
25	mass GHG	0.23	-	4.16	-	-									4.39	
	CO_2e	0.23	-	104.00	-	-										104.23
26	mass GHG				-	-									18981.64	
	CO_2e				-	-										19000.87
27	mass GHG				-	-									18981.64	
	CO_2e				-	-										19000.87
28	mass GHG				-	-									18981.64	
	CO_2e				-	-										19000.87
29	mass GHG				-	-									18981.64	
	CO_2e				-	-										19000.87
30	mass GHG				-	-									11410.75	
	CO_2e				-	-										11422.30
31	mass GHG				-	-									11410.75	
	CO_2e				-	-										11422.30
32	mass GHG				-	-									11410.75	
	CO_2e				-	-										11422.30
33	mass GHG				-	-									11410.75	
	CO_2e				-	-										11422.30
34	mass GHG				-	-									1919.92	
	CO_2e				-	-										1921.87
35	mass GHG				-	-									8166.07	
	CO_2e				-	-										8174.35
36	mass GHG				-	-									30718.78	
	CO_2e				-	-										30749.89
37	mass GHG				-	-									2869.65	
	CO_2e				-	-										2872.55
38	mass GHG				-	-									11775.53	
	CO_2e				-	-										11787.46
39	mass GHG	6776.55	0.01	3.03	-	-									6779.59	
	CO_2e				-	-										6854.07
40	mass GHG	34462.53	0.02	27.33	-	-									34489.88	
	CO_2e				-	-										35150.77
41	mass GHG				-	-									10868.44	
	CO_2e				-	-										10879.45
49	mass GHG	0.004	-	0.01	-	-									0.01	
	CO_2e	0.004	-	0.16	-	-										0.16
50	mass GHG	0.004	-	0.01	-	-									0.01	
	CO_2e	0.004	-	0.16	-	-										0.16
51	mass GHG	1.332E-16	-	0	-	-									1.33E-16	
	CO_2e	1.33E-16	-	0	-	-										1.33E-16
52	mass GHG	1.332E-16	-	0	-	-									1.33E-16	
	CO_2e	1.33E-16	-	0	-	-										1.33E-16
53	mass GHG	1.332E-16	-	0	-	-									1.33E-16	
	CO_2e	1.33E-16	-	0	-	-										1.33E-16
54	mass GHG	1.332E-16	-	0	-	-									1.33E-16	

54	CO_2e	1.33E-16	-	0	-	-										1.33E-16
56	mass GHG	0.002	-	0.004	-	-									0.01	
	CO_2e	0.002	-	0.11	-	-										0.11
57	mass GHG	3.212E-16	-	0	-	-									3.21E-16	
	CO_2e	3.21E-16	-	0	-	-										3.21E-16
58	mass GHG	0.0004	-	2.30E-05	-	-									0.0004	
	CO_2e	0.0004	-	0.001	-	-										0.001
Total	mass GHG														358510.66	
	CO_2e															360164.3

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

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

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

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

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

Section 3

Application Summary

Application Summary

Sendero Carlsbad Midstream, LLC (SCM) is submitting this initial New Source Review (NSR) construction application under 20.2.72.200.A NMAC to authorize the installation of a second natural gas processing train at the Sendero Carlsbad Plant (the Facility), Agency Interest ID: 37724. The Facility currently consists of a single synthetic minor natural gas processing train authorized under the General Construction Permit for oil and gas production, transmission, and processing facilities (GCP-O&G) 7220M3. The addition of the second train will increase the Facility's sitewide potential to emit (PTE) above the limits for the GCP-O&G and above Title V major source thresholds (the Facility will remain minor with respect to Prevention of Significant Deterioration (PSD)). As such, SCM is including both the existing and proposed trains in this NSR application (the Project). The Project is not modifying any of the existing equipment or operations under GCP-O&G 7220M3 with the exception of removing the existing regenerative thermal oxidizer (Unit 20), updating Unit 9 to represent truck loading of produced water rather than condensate, and slightly increasing the produced water throughput to average one truckload per day. The condensate from the existing train is all sent out from the Facility via pipeline. In addition, stabilized condensate truck loading operations from the proposed second natural gas processing train will be controlled by the existing flare, Unit 2, increasing the flare's potential combustion emissions. Any other changes in the existing equipment PTE are due to recalculating the PTE according to current approved calculation methodologies and guidance.

Process Summary

At the existing Facility, inlet gas enters through a pig launcher, slug catcher, and 3-phase separator where liquids are separated from the gas. Separated water is sent to a storage tank (Unit 11) prior to being removed via truck (Unit 9). Separated hydrocarbon liquids are sent to a natural gas liquids (NGL) stripper/condensate stabilizer and the stabilized condensate is sent to storage tanks (Units 3 - 7 and 21) prior to being sent out via pipeline. The stabilized condensate storage vapors are captured by a vapor recovery unit (VRU) (Unit 23) and routed to inlet. NGLs are separated prior to being removed from the Facility via pipeline. The separated gas is routed to electric-driven overhead compression prior to entering a methyldiethanolamine (MDEA) sweetening unit (Unit 18) where carbon dioxide (CO_2) and hydrogen sulfide (H_2S) are removed. Heat for the amine unit is provided by a regenerator heater (Unit 17). The amine unit still vent is routed to the flare (Unit 2) and the flash gas is piped to the inlet.

Following the amine unit, the gas is sent to a triethylene glycol (TEG) dehydration unit (Unit 19) where water is further removed to bring the gas to a lower water dew point prior to entering the cryogenic plant. Heat for the dehydration unit is provided by a trim reboiler (Unit 16). The dehydration unit still vent is routed to a condenser and then to the flare (Unit 2) and the flash gas is piped to the inlet. The cryogenic unit liquefies natural gas components from the sweet, dehydrated inlet gas through removing work in an electric driven turbo expander/compressor. Process heat is provided by the BOP Heater (Unit 15) and Hot Oil Heater (Unit 1). The gas is then compressed in an electric-driven residue compressor prior to entering the pipeline.

There are four (4) Alternate Operating Scenarios (AOS) wherein additional gases may be sent to the flare (Unit 2). When the flash gas compressor is down, the TEG flash tank (V-2440, AOS 1) and the amine flash tank (V-2200, AOS 2) will vent to the flare. When the closed drain skid (Z-2110, AOS 3) is over-pressured, it will vent to the flare. In the event of pipeline curtailment, the residue gas will be routed from the residue compressor to the flare (Res Gas, AOS 4).

The proposed additional natural gas processing train will operate in a similar manner to the existing train. Natural gas will enter through slug catchers and inlet filters where entrained liquids will be separated from the inlet gas. The liquids along with field condensate that will be trucked in will be processed in a condensate stabilization system which will produce Y-Grade product and stabilized condensate. Heat for the stabilization system will be provided by a natural gas-fueled heater (Unit 38). The stabilized condensate, which can have a Reid Vapor Pressure (RVP) ranging from two (2) to nine (9) pounds per square inch (psi) as the market dictates, will be pumped into four (4) 500-barrel (bbl) atmospheric storage tanks (Units 51 - 54) and loaded out by trucks (Unit 57) as necessary. The storage tank vapors will be captured by a VRU (Unit 59) and routed to the inlet. During VRU maintenance downtime, the storage tank vapors will be routed to the process flare (Unit 39) for combustion. Truck loading emissions will be combusted by the existing flare (Unit 2). Y-Grade product will be stored in pressurized tanks and exit the Facility via pipeline. Overhead flash gas from the stabilization system will be captured by electric-driven VRUs, compressed, and routed to the inlet. When a VRU is taken down for maintenance, small amounts of the overhead flash gas may be sent to the process flare (Unit 39).

The inlet gas stream will be routed to the amine sweetening unit (Unit 45) for removal of CO_2 and H_2S. Sweetened natural gas will exit the top of the amine contactors and flow to the Facility's dehydration systems. Rich amine containing absorbed CO_2 and H_2S will flow to the amine flash tank where entrained natural gas vapors will be separated from the rich amine. The flash gas (Unit 43) will be routed to the fuel system for the hot oil heater (Unit 36), glycol reboiler (Unit 34), and thermal oxidizer (Unit 41). The acid gas removed by the amine unit will be routed to the thermal oxidizer (Unit 41) or the acid gas flare (Unit 40) where the H_2S, volatile organic compounds (VOC), and other hydrocarbons will be combusted.

Natural gas dehydration will be accomplished using a TEG dehydration unit (Unit 44) and a mol sieve unit. Heat for the TEG unit will be supplied by a glycol reboiler (Unit 34) and heat for regeneration of the mol sieve beds will be supplied by a regenerator heater (Unit 37). Rich TEG (water-saturated) leaving the glycol contactor will be sent to a flash tank where entrained vapors will be separated from the rich TEG. The flash gas (Unit 42) will be routed to the fuel system for the hot oil heater (Unit 36), glycol reboiler (Unit 34), and thermal oxidizer (Unit 41). The still overhead vapor from the TEG unit will pass through a condenser to remove water and heavy hydrocarbons. Any non-condensable vapors will be routed to the thermal oxidizer (Unit 41) or the acid gas flare (Unit 40) for combustion. Condensed water and hydrocarbons will be sent to two (2) 500-bbl atmospheric slop oil/water storage tanks (Units 49 and 50) along with liquids from various plant drains and sumps and loaded out by truck (Unit 56) as necessary.

After dehydration, sweet, dry natural gas will be routed to the cryogenic process for recovery of NGL. The resulting NGL will be sent out of the Facility via pipeline. Heat for the amine treating system and cryogenic plant will be provided by a hot oil system and natural gas-fueled heaters (Units 35 and 36). Residue gas leaving the cryogenic unit will be compressed by four (4) natural gas engine-driven recompressors (Units 26 - 29) prior to being sent out through the residue pipeline.

Four natural gas-fired generator engines (Units 30 - 34) will provide electricity to the Facility due to utility company electrical power being unavailable.

The Facility may generate fugitive emissions (Unit 25) from equipment components such as piping fittings, pumps, and compressor seals. SCM will implement a Leak Detection and Repair (LDAR) program to minimize emissions from leaks at the Facility. The Facility will also be equipped with various fixed roof tanks (Unit 55) storing lube oil, antifreeze, methanol, glycol, and amine to support the operations on site.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions

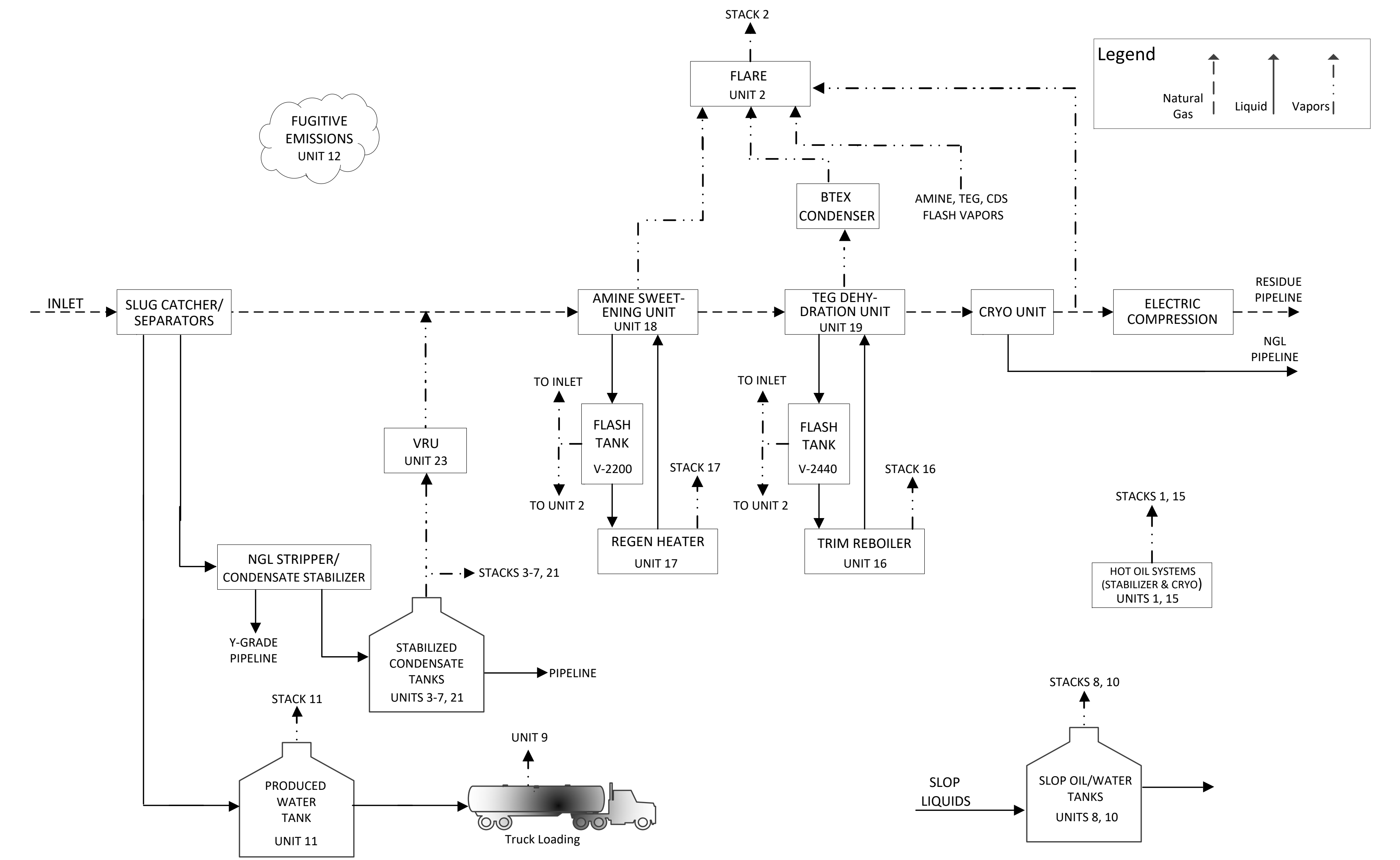
The Facility's GCP authorizes a generic 10 tons per year (tpy) SSM emissions (Unit 13) and 10 tpy malfunction emissions (Unit 14). In addition, various specific SSM and malfunction activities controlled by the flare are individually calculated and authorized (Stack 2-SSM and 2-M). SCM is carrying these currently authorized SSM and malfunction emissions forward into this NSR application.

The new proposed processing train will have additional associated SSM activities, including compressor blowdowns (Unit 46) controlled by the process flare (Unit 39) and miscellaneous uncontrolled maintenance operations (Unit 48).

Section 4

Process Flow Sheet

<u>Process flow sheets</u> and/or block diagrams indicating the individual equipment, all emission points and types of control applied to those points are provided on the following pages.



Sendero Carlsbad Midstream, LLC
Initial NSR Application
December 2024
Sendero Carlsbad Plant
Eddy County, New Mexico

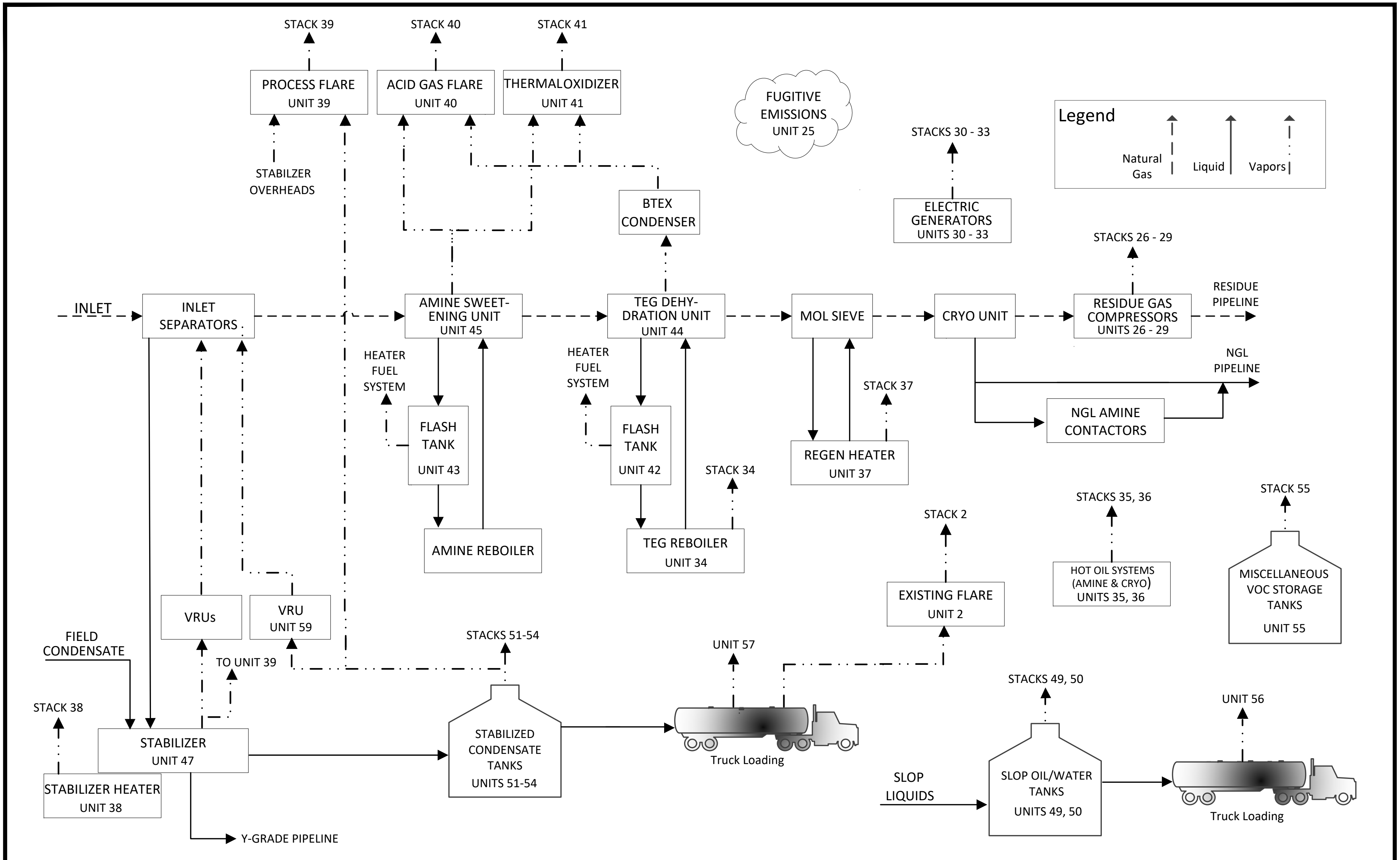
Project No. ENE010-0202725-24005752

Apex Companies, LLC
2121 Midway Rd, Ste 100
Carrollton, TX 75006
Phone: (469) 365-1100
www.apexcos.com

FIGURE 4-1

Existing Train

Process Flow Diagram



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Initial NSR Application
December 2024
Sendero Carlsbad Plant
Eddy County, New Mexico

Project No. ENE010-0202725-24005752

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FIGURE 4-2

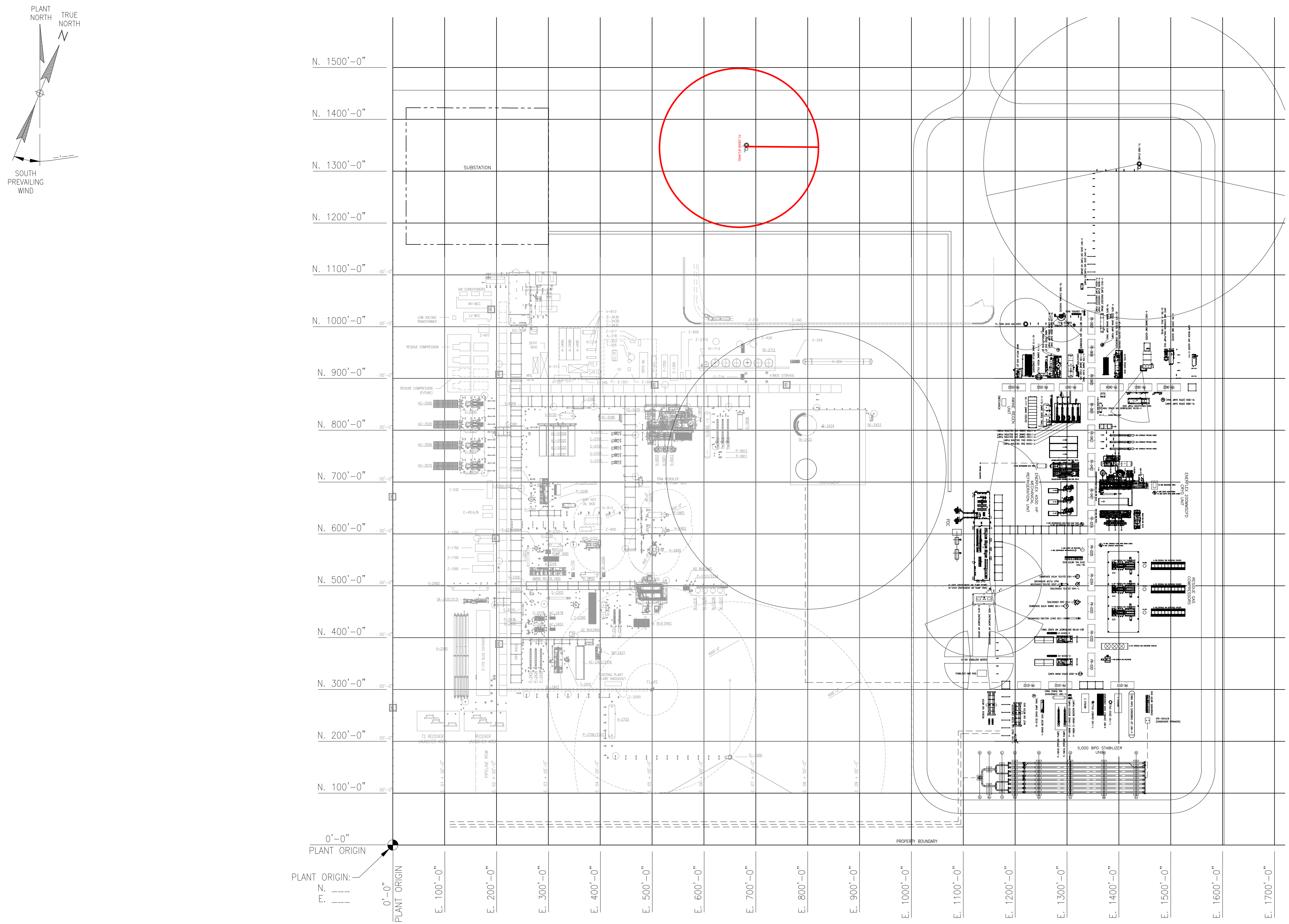
Proposed Train

Process Flow Diagram

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 are provided on the following page.



NOTE:
FINAL GRADE REFERENCE ELEVATION 100'-0" = X'-X".

REV	CKD	APP	DATE	DESCRIPTION
P2	MLD	TAP	06/28/23	ISSUED FOR INFORMATION ONLY
P1	MLD	TAP	06/22/23	ISSUED FOR INFORMATION ONLY

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Crestwood MIDSTREAM PARTNERS LP

SELECT Engineering
TX Registered Engineering Firm F-13159

CRESTWOOD MIDSTREAM PARTNERS LP
SITE PLAN
CARLSBAD PLANT III

DWG No.: P5043-0000-1003   Rev P2

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.

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.

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.

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

SUMMARY OF PROPOSED PLANT ALLOWABLE EMISSION RATES

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	VOC Hourly (lb/hr)	VOC Annual (T/yr)	NO_X Hourly (lb/hr)	NO_X Annual (T/yr)	CO Hourly (lb/hr)	CO Annual (T/yr)	PM_{10} Hourly (lb/hr)	PM_{10} Annual (T/yr)	$PM_{2.5}$ Hourly (lb/hr)	$PM_{2.5}$ Annual (T/yr)	SO_2 Hourly (lb/hr)	SO_2 Annual (T/yr)	H_2S Hourly (lb/hr)	H_2S Annual (T/yr)	CH_2O Hourly (lb/hr)	CH_2O Annual (T/yr)	Benzene Hourly (lb/hr)	Benzene Annual (T/yr)	Total HAP Hourly (lb/hr)	Total HAP Annual (T/yr)
Existing Processing Train																							
12	-	12	Fugitives	3.37	14.75	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.02	0.08	0.44	1.91
1	-	1	Medium Heater	0.17	0.72	1.23	5.38	2.52	11.05	0.23	1.00	0.17	0.75	0.02	0.08	--	--	--	--	--	--	0.06	0.25
15	-	15	BOP Hot Oil Heater	0.35	1.52	2.58	11.31	2.62	11.48	0.48	2.10	0.36	1.58	0.04	0.16	--	--	--	--	--	--	0.12	0.52
16	-	16	Trim Reboiler Hot Oil Heater	0.11	0.47	0.79	3.46	0.80	3.51	0.15	0.64	0.11	0.48	0.01	0.05	--	--	--	--	--	--	0.04	0.16
17	-	17	Regen Heater	0.09	0.38	0.65	2.83	0.66	2.87	0.12	0.53	0.09	0.39	0.01	0.04	--	--	--	--	--	--	0.03	0.13
2	2	2	Flare - Normal + AOS	0.02	0.08	52.81	4.48	107.04	16.00	2.39	0.65	1.79	0.49	0.65	2.85	--	--	--	--	<0.001	<0.001	0.01	0.03
2	2	2	Flare - SSM	0.09	0.001	4.45	0.03	8.89	0.06	0.21	0.001	0.16	0.001	0.02	<0.001	<0.001	<0.001	--	--	<0.001	<0.001	0.03	<0.001
2	2	2	Flare - M	3.49	0.08	57.20	1.24	114.19	2.47	2.57	0.05	1.92	0.04	0.20	0.004	<0.001	<0.001	--	--	0.01	<0.001	1.43	0.03
19	2	2	Dehy Still Vent	1.80	7.88	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.28	1.23	0.62	2.73
18	2	2	Amine Acid Gas	0.55	2.39	--	--	--	--	--	--	--	--	--	--	0.01	0.03	--	--	0.14	0.63	0.34	1.49
V-2440	2	2	TEG Flash Gas - AOS 1	7.78	0.19	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.05	0.001	0.32	0.01
V-2200	2	2	Amine Flash Gas - AOS 2	0.84	0.02	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.005	<0.001	0.02	<0.001
Z-2110	2	2	Closed Drain Skid - AOS 3	0.004	<0.001	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	<0.001	<0.001	0.002	<0.001
Res Gas	2	2	Residue Pipeline Curtailment - AOS 4	56.49	1.36	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.07	0.002	1.45	0.03
3	23	3	1,000-bbl Condensate Tank 1	4.66	0.81	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.03	0.005	0.63	0.11
4	23	4	1,000-bbl Condensate Tank 2	4.66	0.81	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.03	0.005	0.63	0.11
5	23	5	1,000-bbl Condensate Tank 3	4.66	0.81	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.03	0.005	0.63	0.11
6	23	6	1,000-bbl Condensate Tank 4	4.66	0.81	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.03	0.005	0.63	0.11
7	23	7	1,000-bbl Condensate Tank 5	4.66	0.81	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.03	0.005	0.63	0.11
21	23	21	10,000-bbl Condensate Tank	4.63	2.60	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.03	0.02	0.62	0.35
9	-	9	Produced Water Truck Loading	1.40	0.16	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.01	0.001	0.19	0.02
8	-	8	1,000-bbl Slop Tank	1.10	0.25	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.01	0.001	0.15	0.03
10	-	10	210-bbl Slop Tank	0.29	0.04	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.002	<0.001	0.04	0.01
11	-	11	400-bbl Produced Water Tank	1.17	0.12	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.01	0.001	0.16	0.02
13	-	13	SSM	--	10.00	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	--	<0.01	<0.01	<0.01	<0.01
14	-	14	Malfunctions	--	10.00	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	--	<0.01	<0.01	<0.01	<0.01
22	-	22	Haul Roads	--	--	--	--	--	--	0.10	0.34	0.01	0.03	--	--	--	--	--	--	--	--	--	--
23	23	23	VRU	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	-	24	Electric Driven Compressors	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Proposed New Processing Train																							
Normal Operations																							
25	-	25	Plant Fugitives	1.89	8.30	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	--	--	0.20	0.86
26	-	26	Caterpillar G3616 Residue Compressor	4.38	19.19	3.31	14.48	3.64	15.93	0.37	1.62	0.37	1.62	0.02	0.10	--	--	0.56	2.46	0.03	0.11	1.10	4.84
27	-	27	Caterpillar G3616 Residue Compressor	4.38	19.19	3.31	14.48	3.64	15.93	0.37	1.62	0.37	1.62	0.02	0.10	--	--	0.56	2.46	0.03	0.11	1.10	4.84
28	-	28	Caterpillar G3616 Residue Compressor	4.38	19.19	3.31	14.48	3.64	15.93	0.37	1.62	0.37	1.62	0.02	0.10	--	--	0.56	2.46	0.03	0.11	1.10	4.84
29	-	29	Caterpillar G3616 Residue Compressor	4.38	19.19	3.31	14.48	3.64	15.93	0.37	1.62	0.37	1.62	0.02	0.10	--	--	0.56	2.46	0.03	0.11	1.10	4.84
30	-	30	Caterpillar G3520 Generator Engine	1.20	5.25	2.40	10.51	2.83	12.39	0.22	0.97	0.22	0.97	0.01	0.06	--	--	0.48	2.10	0.005	0.02	0.56	2.47
31	-	31	Caterpillar G3520 Generator Engine	1.20	5.25	2.40	10.51	2.83	12.39	0.22	0.97	0.22	0.97	0.01	0.06	--	--	0.48	2.10	0.005	0.02	0.56	2.47
32	-	32	Caterpillar G3520 Generator Engine	1.20	5.25	2.40	10.51	2.83	12.39	0.22	0.97	0.22	0.97	0.01	0.06	--	--	0.48	2.10	0.005	0.02	0.56	2.47
33	-	33	Caterpillar G3520 Generator Engine	1.20	5.25	2.40	10.51	2.83	12.39	0.22	0.97	0.22	0.97	0.01	0.06	--	--	0.48	2.10	0.005	0.02	0.56	2.47
34	-	34	TEG Reboiler	0.07	0.31	0.37	1.61	0.31	1.35	0.03	0.12	0.02	0.09	0.003	0.01	<0.001	<0.001	--	--	<0.001	<0.001	<0.001	<0.001
35	-	35	Hot Oil System Heater	0.09	0.38	1.56	6.85	1.31	5.75	0.12	0.52	0.09	0.39	0.01	0.04	--	--	--	--	<0.001	<0.001	0.03	0.13
36	-	36	Hot Oil System Heater 2	1.12	4.91	2.41	10.54	4.94	21.64	0.45	1.96	0.34	1.47	0.04	0.18	<0.001	0.001	--	--	0.001	0.01	0.001	0.01
37	-	37	Regen Heater	0.03	0.13	0.55	2.41	0.46	2.02	0.04	0.18	0.03	0.14	0.003	0.01	--	--	--	--	<0.001	<0.001	0.01	0.05
38	-	38	Stabilizer Heater	0.12	0.54	0.92	4.04	1.89	8.30	0.17	0.75	0.13	0.56	0.01	0.06	--	--	--	--	<0.001	<0.001	0.04	0.19
39	39	39	Process Flare - Pilot and BD Combustion	0.001	0.005	1.07	0.25	2.14	0.49	0.05	0.01	0.04	0.01	0.001	0.001	--	--	--	--	<0.001	<0.001	<0.001	0.002
46	39	39	Residue Compressor Blowdowns	1.60	0.19	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	<0.001	<0.001	0.14	0.02
49	-	49	500-bbl Slop Oil Storage	1.40	0.56	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.01	0.002	0.17	0.07
50	-	50	500-bbl Slop Oil Storage	1.40	0.56	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.01	0.002	0.17	0.07
55	-	55	Miscellaneous VOC Storage Tanks	0.22	0.001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
56	-	56	Truck Loading Slop Oil/Water	4.95	0.38	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.02	0.001	0.60	0.05
58	-	58	NGL Unload Hose Disconnects	0.41	0.37	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.001	0.001	0.04	0.04
48	-	48	Maintenance Operations	82.43	2.65	--	--	--	--	--	--	--	--	--	--	0.01	<0.001	--	--	0.08	0.003	4.83	0.16
Amine Acid Gas and Dehydration Waste Gas Control Alternate Operating Scenarios																							
40	40	40	Acid Gas Flare - Pilot, Assist, and Waste Gas	0.22	0.38	2.96	5.06	25.17	42.56	1.74	2.93	1.30	2.20	54.63	92.05	--	--	--	--	<0.001	<0.001	0.08	0.13
41	41	41	Thermal Oxidizer - Fuel and Waste Gas	0.32	1.41	0.11	0.49	0.14	0.60	1.56	6.85	1.17	5.13	54.61	239.21	<0.001	<0.001	--	--	<0.001	0.002	0.11	0.48
44	41 40	41 40	Dehy BTEX Condenser Gas	1.15	3.70	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	<0.001	<0.001	0.36	1.08
45	41 40	41 40	Amine Acid Gas	0.17	0.61	--	--	--	--	--	--	--	--	--	--	0.58	1.76	--	--	0.01	0.01	0.01	0.02
			Maximum Potential AOS Emissions:	**1.55**	**5.55**	**2.93**	**5.24**	**25.11**	**42.68**	**1.74**	**7.14**	**1.30**	**5.35**	**54.63**	**239.23**	**0.58**	**1.76**	**--**	**--**	**0.01**	**0.01**	**0.44**	**1.52**

SUMMARY OF PROPOSED PLANT ALLOWABLE EMISSION RATES

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Potential Emissions: VOC Hourly (lb/hr)	VOC Annual (T/yr)	NO_X Hourly (lb/hr)	NO_X Annual (T/yr)	CO Hourly (lb/hr)	CO Annual (T/yr)	PM_{10} Hourly (lb/hr)	PM_{10} Annual (T/yr)	$PM_{2.5}$ Hourly (lb/hr)	$PM_{2.5}$ Annual (T/yr)	SO_2 Hourly (lb/hr)	SO_2 Annual (T/yr)	H_2S Hourly (lb/hr)	H_2S Annual (T/yr)	CH_2O Hourly (lb/hr)	CH_2O Annual (T/yr)	Benzene Hourly (lb/hr)	Benzene Annual (T/yr)	Total HAP Hourly (lb/hr)	Total HAP Annual (T/yr)
<u>Stabilized Condensate RVP and Vapor Control Alternate Operating Scenarios</u>																							
39	39	39	Process Flare - Condensate Stabilization Vapors	--	--	69.54	3.48	138.83	6.94	2.39	0.12	1.80	0.09	4.95	0.25	--	--	--	--	--	--	--	--
47	39	39	Stabillizer Overhead VRU Downtime	137.67	6.88	--	--	--	--	--	--	--	--	--	--	0.05	0.003	--	--	0.06	0.003	1.49	0.07
51	59 39	51 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.02	0.002	0.79	0.08
52	59 39	52 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.02	0.002	0.79	0.08
53	59 39	53 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.02	0.002	0.79	0.08
54	59 39	54 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.02	0.002	0.79	0.08
2	2	2	Flare - Loading	--	--	0.15	0.14	0.30	0.28	0.002	0.002	0.001	0.001	<0.001	<0.001	--	--	--	--	--	--	--	--
57	- 2	57 2	Truck Loading Stabilized Condensate	1.72	1.59	--	--	--	--	--	--	--	--	--	--	<0.001	<0.001	--	--	0.01	0.01	0.51	0.47
			Maximum Potential AOS Emissions:	**140.00**	**8.32**	**69.57**	**3.50**	**138.88**	**6.96**	**2.39**	**0.12**	**1.80**	**0.09**	**4.95**	**0.25**	**0.05**	**0.003**	**--**	**--**	**0.17**	**0.03**	**5.17**	**0.85**
			Total Existing Plant Project Emissions:	107.02	57.07	119.71	28.72	236.72	47.44	6.24	5.32	4.61	3.77	0.94	3.18	0.01	0.03	0.00	0.00	0.75	1.98	9.21	8.26
			Total Proposed Plant Project Emissions:	259.62	130.95	102.20	134.40	200.92	202.50	7.36	21.19	6.11	18.49	59.79	240.39	0.65	1.77	4.17	18.26	0.41	0.59	18.51	33.23
			Total Proposed Allowable Emissions:	**366.64**	**188.01**	**221.91**	**163.13**	**437.65**	**249.94**	**13.60**	**26.51**	**10.73**	**22.26**	**60.73**	**243.57**	**0.65**	**1.80**	**4.17**	**18.26**	**1.16**	**2.58**	**27.72**	**41.49**
			Total Emissions Previously Authorized Under GCP-7220M3:	42.22	82.19	66.93	33.91	137.27	45.49	3.79	4.56	3.79	4.56	0.73	3.19	0.05	0.24	0.00	0.00	1.27	4.53	3.37	13.72
			Total New/Increased Project Emissions:	324.42	105.82	154.98	129.22	300.38	204.45	9.81	21.95	6.94	17.70	60.00	240.38	0.60	1.56	4.17	18.26	-0.11	-1.95	24.35	27.77

Engine formaldehyde emissions are included in engine VOC emissions.

The amine and dehy control alternate operating scenarios (AOS) are summarized later in the calculations. The worst case emissions from each Unit Number are shown in the individual rows for 40, 41, 44, and 45, but only the worst case emissions between the AOS are shown in the Maximum Potential AOS Emissions and included in the Total Proposed Emissions.

The condensate stabilization units may produce condensate ranging from RVP 2 through RVP 9. The stabilization overheads and tank vapors are normally captured by VRUs, but are routed to flare during VRU downtime. The worst case emissions from each Unit ID are shown in the individual rows for 39, 47, 51 - 54, 2, and 57, but only the worst case emissions between the AOS are shown in the Maximum Potential AOS Emissions and included in the Total Proposed Emissions.

CALCULATION OF EXISTING PLANT FUGITIVES POTENTIAL TO EMIT

											Potential To Emit [b, c]									
		Emission	Annual Operating	Stream Maximum Values						Reduction	VOC		Benzene		H_2S		HAP		CO_2	CH_4
	Number of	Factors [a]	Hours	VOC	Benzene	H_2S	HAP	CO_2	CH_4	Credit	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Annual	Annual
Component	**Components**	**(lb/hr-component)**	**(hr/yr)**	**(wt%)**	**(wt%)**	**(wt%)**	**(wt%)**	**(wt%)**	**(wt%)**	**(%)**	**(lb/hr)**	**(T/yr)**	**(lb/hr)**	**(T/yr)**	**(lb/hr)**	**(T/yr)**	**(lb/hr)**	**(T/yr)**	**(T/yr)**	**(T/yr)**
Valves																				
Gas/Vapor Stream	2,556	0.0099207	8,760	27.56%	0.03%	0.00002%	0.53%	0.21%	59.36%	92.00%	0.56	2.45	0.001	0.003	3.93E-07	1.72E-06	0.01	0.05	0.02	5.27
Light Oil Stream	2,703	0.0055115	8,760	100.00%	0.70%	0.00%	16.17%	0.00%	0.04%	88.00%	1.79	7.83	0.01	0.05	0.00	0.00	0.29	1.27	0.00	0.003
Relief Valves																				
Gas/Vapor Stream	95	0.01940048	8,760	27.56%	0.03%	0.00002%	0.53%	0.21%	59.36%	92.00%	0.04	0.18	4.57E-05	0.0002	2.85E-08	1.25E-07	0.001	0.003	0.001	0.38
Light Oil Stream	55	0.0165345	8,760	100.0%	0.70%	0.00%	16.17%	0.00%	0.04%	88.00%	0.11	0.48	0.001	0.003	0.00	0.00	0.02	0.08	0.00	0.0002
Compressor Seals																				
Gas/Vapor Stream	20	0.01940048	8,760	27.56%	0.03%	0.00002%	0.53%	0.21%	59.36%	75.00%	0.03	0.12	3.01E-05	0.0001	1.88E-08	8.22E-08	0.001	0.002	0.001	0.25
Pump Seals																				
Light Oil Stream	40	0.0286598	8,760	100.00%	0.70%	0.00%	16.17%	0.00%	0.04%	75.00%	0.29	1.26	0.002	0.01	0.00	0.00	0.05	0.20	0.00	0.0004
Flanges																				
Gas/Vapor Stream	2,103	0.00085979	8,760	27.56%	0.03%	0.00002%	0.53%	0.21%	59.36%	93.00%	0.03	0.15	3.92E-05	0.0002	2.45E-08	1.07E-07	0.001	0.003	0.001	0.33
Light Oil Stream	2,022	0.00024251	8,760	100.00%	0.70%	0.00%	16.17%	0.00%	0.04%	93.00%	0.03	0.15	0.0002	0.001	0.00	0.00	0.01	0.02	0.00	0.0001
Connectors																				
Gas/Vapor Stream	12,582	0.00044092	8,760	27.56%	0.03%	0.00002%	0.53%	0.21%	59.36%	93.00%	0.11	0.47	0.0001	0.001	7.51E-08	3.29E-07	0.002	0.01	0.004	1.01
Light Oil Stream	11,764	0.00046297	8,760	100.00%	0.70%	0.00%	16.17%	0.00%	0.04%	93.00%	0.38	1.67	0.003	0.01	0.00	0.00	0.06	0.27	0.00	0.001
										Gas/Vapor Totals:	0.77	3.37	0.001	0.004	5.39E-07	2.36E-06	0.01	0.07	0.03	7.25
										Liquid Totals:	2.60	11.38	0.02	0.08	0.00	0.00	0.42	1.84	0.00	0.004
										Totals:	**3.37**	**14.75**	**0.02**	**0.08**	**5.39E-07**	**2.36E-06**	**0.44**	**1.91**	**0.03**	**7.25**

[a] Fugitive emission factors are based on 1995 Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), Table 2-4, dated June 23, 2016. The emission factors are for total hydrocarbon.

[b] Hourly emission rates are calculated as follows:
(2,556 components) * (0.0099207 lb/hr-component) * (27.56% VOC) * (100% - 92.00% Reduction Credit) = 0.56 lb/hr VOC

[c] Annual emission rates are calculated as follows:
(2,556 components) * (0.0099207 lb/hr-component) * (8,760 hr/yr) * (27.56% VOC) * (100% - 92.00% Reduction Credit) / (2,000 lb/T) = 2.45 T/yr VOC

CALCULATION OF PROPOSED PLANT FUGITIVES POTENTIAL TO EMIT

				Stream Maximum Values							Potential To Emit [b, c]									
											VOC		Benzene		H_2S		HAP		CO_2	CH_4
Component	**Number of Components**	**Emission Factors [a] (lb/hr-component)**	**Annual Operating Hours (hr/yr)**	**VOC (wt%)**	**Benzene (wt%)**	**H_2S (wt%)**	**HAP (wt%)**	**CO_2 (wt%)**	**CH_4 (wt%)**	**Reduction Credit [b] (%)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Annual (T/yr)**	**Annual (T/yr)**
Valves																				
Inlet Gas Stream	1,650	0.0099207	8,760	28.34%	0.03%	0.004%	1.66%	3.02%	55.72%	92.00%	0.37	1.63	0.0004	0.002	0.0001	0.0002	0.02	0.10	0.17	3.20
Residue Gas Stream	175	0.0099207	8,760	29.24%	0.0001%	0.0001%	1.86%	0.00%	56.57%	92.00%	0.04	0.18	1.39E-07	6.08E-07	1.39E-07	6.08E-07	0.003	0.01	7.07E-08	0.34
Refrigeration Gas Stream	150	0.0099207	8,760	100.0%	0.00%	0.00%	0.00%	0.00%	0.00%	92.00%	0.12	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Liquid Stream	1,300	0.0055115	8,760	100.0%	0.40%	0.003%	13.30%	0.59%	1.04%	88.00%	0.86	3.77	0.003	0.02	2.92E-05	0.0001	0.11	0.50	0.02	0.04
Relief Valves																				
Inlet Gas Stream	60	0.01940048	8,760	28.34%	0.03%	0.004%	1.66%	3.02%	55.72%	92.00%	0.03	0.12	2.56E-05	0.0001	4.00E-06	1.75E-05	0.002	0.01	0.01	0.23
Residue Gas Stream	5	0.01940048	8,760	29.24%	0.0001%	0.0001%	1.86%	0.00%	56.57%	92.00%	0.002	0.01	7.76E-09	3.40E-08	7.76E-09	3.40E-08	0.0001	0.001	3.95E-09	0.02
Refrigeration Gas Stream	15	0.01940048	8,760	100.0%	0.00%	0.00%	0.00%	0.00%	0.00%	92.00%	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Liquid Stream	35	0.0165345	8,760	100.0%	0.40%	0.003%	13.30%	0.59%	1.04%	88.00%	0.07	0.30	0.0003	0.001	2.36E-06	1.03E-05	0.01	0.04	0.002	0.003
Compressor Seals																				
Residue Gas Stream	4	0.01940048	8,760	29.24%	0.0001%	0.0001%	1.86%	0.00%	56.57%	75.00%	0.01	0.02	1.94E-08	8.50E-08	1.94E-08	8.50E-08	0.0004	0.002	9.88E-09	0.05
Pump Seals																				
Inlet Gas Stream	20	0.00529104	8,760	28.34%	0.03%	0.004%	1.66%	3.02%	55.72%	75.00%	0.01	0.03	7.27E-06	3.18E-05	1.13E-06	4.97E-06	0.0004	0.002	0.004	0.06
Light Liquid Stream	10	0.0286598	8,760	100.0%	0.40%	0.003%	13.30%	0.59%	1.04%	75.00%	0.07	0.31	0.0003	0.001	2.43E-06	1.07E-05	0.01	0.04	0.002	0.003
Flanges																				
Light Liquid Stream	2,700	0.00024251	8,760	100.0%	0.40%	0.003%	13.30%	0.59%	1.04%	93.00%	0.05	0.20	0.0002	0.001	1.56E-06	6.82E-06	0.01	0.03	0.001	0.002
Connectors																				
Inlet Gas Stream	2,500	0.00044092	8,760	28.34%	0.03%	0.004%	1.66%	3.02%	55.72%	93.00%	0.02	0.10	2.12E-05	0.0001	3.31E-06	1.45E-05	0.001	0.01	0.01	0.19
Residue Gas Stream	200	0.00044092	8,760	29.24%	0.0001%	0.0001%	1.86%	0.00%	56.57%	93.00%	0.002	0.01	6.17E-09	2.70E-08	6.17E-09	2.70E-08	0.0001	0.001	3.14E-09	0.02
Refrigeration Gas Stream	165	0.00044092	8,760	100.0%	0.00%	0.00%	0.00%	0.00%	0.00%	93.00%	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Liquid Stream	6,900	0.00046297	8,760	100.0%	0.40%	0.003%	13.30%	0.59%	1.04%	93.00%	0.22	0.98	0.001	0.004	7.59E-06	3.33E-05	0.03	0.13	0.01	0.01
										Gas/Vapor Totals:	0.62	2.74	0.0004	0.002	0.0001	0.0003	0.03	0.12	0.20	4.10
										Liquid Totals:	1.27	5.56	0.01	0.02	4.31E-05	0.0002	0.17	0.74	0.03	0.06
										Totals:	**1.89**	**8.30**	**0.01**	**0.02**	**0.0001**	**0.0005**	**0.20**	**0.86**	**0.23**	**4.16**

[a] Fugitive emission factors are based on 1995 Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), Table 2-4, dated June 23, 2016. The emission factors are for total hydrocarbon.

[b] Hourly emission rates are calculated as follows:
(1,650 components) * (0.0099207 lb/hr-component) * (28.34% VOC) * (100% - 92.0% Reduction Credit) = 0.37 lb/hr VOC

[c] Annual emission rates are calculated as follows:
(1,650 components) * (0.0099207 lb/hr-component) * (8,760 hr/yr) * (28.34% VOC) * (100% - 92.0% Reduction Credit) / (2,000 lb/T) = 1.63 T/yr VOC

CALCULATION OF PROPOSED PLANT COMPRESSOR AND GENERATOR ENGINES POTENTIAL TO EMIT

Unit Number	Stack Number	Source Description	Engine Ratings: Fuel Consumption (Btu/hp-hr)	Engine Ratings: Rated Horsepower (hp)	Annual Operating Hours (hr/yr)	Pollutant	Uncontrolled Emission Factors [a]	Catalyst Reduction (%)	Controlled Emission Factors [a]	Units	Potential to Emit: Hourly [a] (lb/hr)	Potential to Emit: Annual [b] (T/yr)
26	26	Residue Compressor Engine	7,415	5,000	8,760	CO	2.75	88%	0.33	g/hp-hr	3.64	15.93
		Caterpillar G3616				NO_X	0.30	0%	0.30	g/hp-hr	3.31	14.48
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.02	0.10
						VOC	0.63	45%	0.35	g/hp-hr	3.82	16.73
						CH_2O	0.30	83%	0.05	g/hp-hr	0.56	2.46
27	27	Residue Compressor Engine	7,415	5,000	8,760	CO	2.75	88%	0.33	g/hp-hr	3.64	15.93
		Caterpillar G3616				NO_X	0.30	0%	0.30	g/hp-hr	3.31	14.48
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.02	0.10
						VOC	0.63	45%	0.35	g/hp-hr	3.82	16.73
						CH_2O	0.30	83%	0.05	g/hp-hr	0.56	2.46
28	28	Residue Compressor Engine	7,415	5,000	8,760	CO	2.75	88%	0.33	g/hp-hr	3.64	15.93
		Caterpillar G3616				NO_X	0.30	0%	0.30	g/hp-hr	3.31	14.48
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.02	0.10
						VOC	0.63	45%	0.35	g/hp-hr	3.82	16.73
						CH_2O	0.30	83%	0.05	g/hp-hr	0.56	2.46
29	29	Residue Compressor Engine	7,415	5,000	8,760	CO	2.75	88%	0.33	g/hp-hr	3.64	15.93
		Caterpillar G3616				NO_X	0.30	0%	0.30	g/hp-hr	3.31	14.48
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.37	1.62
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.02	0.10
						VOC	0.63	45%	0.35	g/hp-hr	3.82	16.73
						CH_2O	0.30	83%	0.05	g/hp-hr	0.56	2.46

CALCULATION OF PROPOSED PLANT COMPRESSOR AND GENERATOR ENGINES POTENTIAL TO EMIT

Unit Number	Stack Number	Source Description	Engine Ratings: Fuel Consumption (Btu/hp-hr)	Engine Ratings: Rated Horsepower (hp)	Annual Operating Hours (hr/yr)	Pollutant	Uncontrolled Emission Factors [a]	Catalyst Reduction (%)	Controlled Emission Factors [a]	Units	Potential to Emit: Hourly [a] (lb/hr)	Potential to Emit: Annual [b] (T/yr)
30	30	Generator Engine	6,143	3,628	8,760	CO	1.31	73%	0.35	g/hp-hr	2.83	12.39
		Caterpillar G3520				NO_X	0.30	0%	0.30	g/hp-hr	2.40	10.51
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.01	0.06
						VOC	0.25	64%	0.09	g/hp-hr	0.72	3.15
						CH_2O	0.25	76%	0.06	g/hp-hr	0.48	2.10
31	31	Generator Engine	6,143	3,628	8,760	CO	1.31	73%	0.35	g/hp-hr	2.83	12.39
		Caterpillar G3520				NO_X	0.30	0%	0.30	g/hp-hr	2.40	10.51
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.01	0.06
						VOC	0.25	64%	0.09	g/hp-hr	0.72	3.15
						CH_2O	0.25	76%	0.06	g/hp-hr	0.48	2.10
32	32	Generator Engine	6,143	3,628	8,760	CO	1.31	73%	0.35	g/hp-hr	2.83	12.39
		Caterpillar G3520				NO_X	0.30	0%	0.30	g/hp-hr	2.40	10.51
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.01	0.06
						VOC	0.25	64%	0.09	g/hp-hr	0.72	3.15
						CH_2O	0.25	76%	0.06	g/hp-hr	0.48	2.10
33	33	Generator Engine	6,143	3,628	8,760	CO	1.31	73%	0.35	g/hp-hr	2.83	12.39
		Caterpillar G3520				NO_X	0.30	0%	0.30	g/hp-hr	2.40	10.51
		4 Stroke, Lean Burn				PM_{10}	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
		Oxidation Catalyst				$PM_{2.5}$	0.0099871	---	0.0099871	lb/MMBtu	0.22	0.97
						SO_2	0.000588	---	0.000588	lb/MMBtu	0.01	0.06
						VOC	0.25	64%	0.09	g/hp-hr	0.72	3.15
						CH_2O	0.25	76%	0.06	g/hp-hr	0.48	2.10

CALCULATION OF PROPOSED PLANT COMPRESSOR AND GENERATOR ENGINES POTENTIAL TO EMIT

			Engine Ratings		Annual						Potential to Emit	
Unit Number	Stack Number	Source Description	Fuel Consumption (Btu/hp-hr)	Rated Horsepower (hp)	Operating Hours (hr/yr)	Pollutant	Uncontrolled Emission Factors [a]	Catalyst Reduction (%)	Controlled Emission Factors [a]	Units	Hourly [a] (lb/hr)	Annual [b] (T/yr)

[a] The emission factors for CO, NO_X, VOC, and CH_2O are based on engine specification sheets with reduction from catalysts as applicable. An example calculation for hourly CO emissions for Unit Number 26 follows:

CO (lb/hr) = (Rated Horsepower, hp) * (Emission Factor, g/hp-hr) * (1 lb/453.59 g)

CO (lb/hr) = (5,000 hp) * (0.33 g/hp-hr) * (1 lb/453.59 g)

CO (lb/hr) = **3.64**

The PM_{10}, $PM_{2.5}$, and SO_2 emission factors are from AP-42 Table 3.2-2 for Four-Stroke Lean Burn Engines (dated 7/00). An example calculation for hourly PM_{10} emissions for Unit Number 26 follows:

PM_{10} (lb/hr) = (Emission Factor, lb/MMBtu) * (Fuel Consumption, Btu/hp-hr) * (Rated Horsepower, hp) * (1 MM/10^6)

PM_{10} (lb/hr) = (0.0099871 lb/MMBtu) * (7,415 Btu/hp-hr) * (5,000 hp) * (1 MM/10^6)

PM_{10} (lb/hr) = **0.37**

[b] An example calculation for annual CO emissions for Unit Number 26 follows:

CO (T/yr) = (Hourly Emissions, lb/hr) * (Annual Operating Hours, hr/yr) * (1 T/2,000 lb)

CO (T/yr) = (3.64 lb/hr) * (8,760 hr/yr) * (1 T/2,000 lb)

CO (T/yr) = **15.93**

CALCULATION OF COMPRESSOR AND GENERATOR ENGINES POTENTIAL TO EMIT HAZARDOUS AIR POLLUTANTS

		Caterpillar G3616	Caterpillar G3520
NMNEHC Manufacturer Emission Factor	**(g/hp-hr)**	0.63	0.25
NMNEHC Catalyst Control Efficiency	**(%)**	45%	64%
CH_2O Catalyst Control Efficiency	**(%)**	83%	76%
Horsepower	**(hp)**	5,000	3,628
Annual Operating Hours	**(hr/yr)**	8,760	8,760

				Caterpillar G3616		Caterpillar G3520		Caterpillar G3616		Caterpillar G3520	
								Potential to Emit		Potential to Emit	
Constituent	**Factor Rating**	**AP-42 Emission Factor [a] (lb/MMBtu)**	**Emission Factor Ratio [b]**	**Uncontrolled Emission Factor [c] (g/hp-hr)**	**Controlled Emission Factor [d] (g/hp-hr)**	**Uncontrolled Emission Factor [c] (g/hp-hr)**	**Controlled Emission Factor [d] (g/hp-hr)**	**Hourly [f] (lb/hr)**	**Annual [g] (T/yr)**	**Hourly [f] (lb/hr)**	**Annual [g] (T/yr)**
Total VOC		1.18E-01						--	--	--	--
NMNEHC		6.52E-02						--	--	--	--
Formaldehyde [e]	A	5.28E-02		3.00E-01	5.10E-02	3.00E-01	5.10E-02	5.62E-01	2.46E+00	4.08E-01	1.79E+00
2-Methylnaphthalene	C	3.32E-05	5.09E-04	3.21E-04	1.76E-04	1.27E-04	4.58E-05	1.94E-03	8.52E-03	3.67E-04	1.61E-03
2,2,4-Trimethylpentane	C	2.50E-04	3.83E-03	2.42E-03	1.33E-03	9.59E-04	3.45E-04	1.46E-02	6.41E-02	2.76E-03	1.21E-02
Acenaphthene	C	1.25E-06	1.92E-05	1.21E-05	6.64E-06	4.79E-06	1.73E-06	7.32E-05	3.21E-04	1.38E-05	6.04E-05
Acenaphthylene	C	5.53E-06	8.48E-05	5.34E-05	2.94E-05	2.12E-05	7.63E-06	3.24E-04	1.42E-03	6.11E-05	2.67E-04
Acetaldehyde	A	8.36E-03	1.28E-01	8.08E-02	1.37E-02	3.21E-02	7.69E-03	1.51E-01	6.63E-01	6.15E-02	2.70E-01
Acrolein	A	5.14E-03	7.88E-02	4.97E-02	8.44E-03	1.97E-02	4.73E-03	9.31E-02	4.08E-01	3.78E-02	1.66E-01
Benzene	A	4.40E-04	6.75E-03	4.25E-03	2.34E-03	1.69E-03	6.07E-04	2.58E-02	1.13E-01	4.86E-03	2.13E-02
Chrysene	C	6.93E-07	1.06E-05	6.70E-06	3.68E-06	2.66E-06	9.57E-07	4.06E-05	1.78E-04	7.65E-06	3.35E-05
Ethylbenzene	B	3.97E-05	6.09E-04	3.84E-04	2.11E-04	1.52E-04	5.48E-05	2.33E-03	1.02E-02	4.38E-04	1.92E-03
Fluoranthene	C	1.11E-06	1.70E-05	1.07E-05	5.90E-06	4.26E-06	1.53E-06	6.50E-05	2.85E-04	1.23E-05	5.37E-05
Fluorene	C	5.67E-06	8.70E-05	5.48E-05	3.01E-05	2.17E-05	7.83E-06	3.32E-04	1.45E-03	6.26E-05	2.74E-04
Methanol	B	2.50E-03	3.83E-02	2.42E-02	1.33E-02	9.59E-03	3.45E-03	1.46E-01	6.41E-01	2.76E-02	1.21E-01
Methylene Chloride	C	2.00E-05	3.07E-04	1.93E-04	1.06E-04	7.67E-05	2.76E-05	1.17E-03	5.13E-03	2.21E-04	9.67E-04
n-Hexane	C	1.11E-03	1.70E-02	1.07E-02	5.90E-03	4.26E-03	1.53E-03	6.50E-02	2.85E-01	1.23E-02	5.37E-02
Naphthalene	C	7.44E-05	1.14E-03	7.19E-04	3.95E-04	2.85E-04	1.03E-04	4.36E-03	1.91E-02	8.21E-04	3.60E-03
Pyrene	C	1.36E-06	2.09E-05	1.31E-05	7.23E-06	5.21E-06	1.88E-06	7.97E-05	3.49E-04	1.50E-05	6.58E-05
Toluene	B	4.08E-04	6.26E-03	3.94E-03	2.17E-03	1.56E-03	5.63E-04	2.39E-02	1.05E-01	4.50E-03	1.97E-02
Vinyl Chloride	C	1.49E-05	2.29E-04	1.44E-04	7.92E-05	5.71E-05	2.06E-05	8.73E-04	3.82E-03	1.65E-04	7.21E-04
Xylene	B	1.84E-04	2.82E-03	1.78E-03	9.78E-04	7.06E-04	2.54E-04	1.08E-02	4.72E-02	2.03E-03	8.90E-03
								1.10	**4.84**	**0.56**	**2.47**

[a] Emission factors based on AP-42 Table 3.2-2 (7/00) with a rating of C or better.

[b] Emission Factor Ratio = AP-42 Emission Factor (lb/MMBtu) / (AP-42 Total VOC (lb/MMBtu) - AP-42 CH_2O (lb/MMBtu))

[c] Uncontrolled Emission Factor (g/hp-hr) = Emission Factor Ratio x Manufacturer NMNEHC Emission Factor (g/hp-hr)

[d] Controlled Emission Factors calculated using the CH_2O catalyst reduction for acetaldehyde and acrolein (both aldehydes that react similar to formaldehyde), and the NMNEHC catalyst reduction for all other HAP.

[e] Formaldehyde emissions calculated in previous table, based on manufacturer CH_2O and catalyst reduction guarantee.

[f] Hourly Emission Rate (lb/hr) = Controlled Emission Factor (g/hp-hr) x Horsepower (hp) / 453.5924 g/lb

[g] Annual Emission Rate (T/yr) = Hourly Emission Rate (lb/hr) x Annual Operating Hours (hr/yr) / 2,000 lb/T

CALCULATION OF EXISTING PLANT HEATERS/REBOILERS POTENTIAL TO EMIT

Unit Number	Stack Number	Source Description	Heat Release (MMBtu/hr)	Fuel Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factor [a]	Unit	Potential to Emit: Hourly [b] (lb/hr)	Potential to Emit: Annual [c] (T/yr)
1	1	Medium Heater	30.64	1,020.0	8,760	CO	84	lb/MMscf	2.52	11.05
						NO_X	0.0401	lb/MMBtu	1.23	5.38
						PM_{10}	7.6	lb/MMscf	0.23	1.00
						$PM_{2.5}$	5.7	lb/MMscf	0.17	0.75
						SO_2	2,000	gr/MMscf	0.02	0.08
						VOC	5.5	lb/MMscf	0.17	0.72
15	15	BOP Hot Oil Heater	64.38	1,020.0	8,760	CO	0.0407	lb/MMBtu	2.62	11.48
						NO_X	0.0401	lb/MMBtu	2.58	11.31
						PM_{10}	7.6	lb/MMscf	0.48	2.10
						$PM_{2.5}$	5.7	lb/MMscf	0.36	1.58
						SO_2	2,000	gr/MMscf	0.04	0.16
						VOC	5.5	lb/MMscf	0.35	1.52
16	16	Trim Reboiler Hot Oil Heater	19.69	1,020.0	8,760	CO	0.0407	lb/MMBtu	0.80	3.51
						NO_X	0.0401	lb/MMBtu	0.79	3.46
						PM_{10}	7.6	lb/MMscf	0.15	0.64
						$PM_{2.5}$	5.7	lb/MMscf	0.11	0.48
						SO_2	2,000	gr/MMscf	0.01	0.05
						VOC	5.5	lb/MMscf	0.11	0.47
17	17	Regen Heater	16.10	1,020.0	8,760	CO	0.0407	lb/MMBtu	0.66	2.87
						NO_X	0.0401	lb/MMBtu	0.65	2.83
						PM_{10}	7.6	lb/MMscf	0.12	0.53
						$PM_{2.5}$	5.7	lb/MMscf	0.09	0.39
						SO_2	2,000	gr/MMscf	0.01	0.04
						VOC	5.5	lb/MMscf	0.09	0.38

CALCULATION OF EXISTING PLANT HEATERS/REBOILERS POTENTIAL TO EMIT

[a] Unless otherwise noted, emission factors are from AP-42 Tables 1.4-1 and 1.4-2 (dated 7/98).
NO_X emission factors and CO emission factors for Unit Numbers 15, 16-1, and 17-1 are manufacturer guarantees.

[b] An example calculation for hourly emissions of CO for Unit Number 1 follows:

CO (lb/hr) = (Rated Duty, MMBtu/hr) / (Fuel Gas Heating Value, Btu/scf) * (Correction Factor) * (Emission Factor, lb/MMscf)

CO (lb/hr) = (30.64 MMBtu/hr) / (1,020.0 Btu/scf) * (1.00) * (84 lb/MMscf)

CO (lb/hr) = 2.52

Potential SO_2 emissions are based on the maximum sulfur content of the fuel gas stream combusted in the heaters. An example calculation for hourly emissions of SO_2 for Unit Number 1 follows:

SO_2 (lb/hr) = (Maximum Fuel Gas Sulfur Content, gr S/MMscf) * (Heat Release, MMBtu/hr) * (1 lb/7,000 gr) / (Fuel Heating Value, Btu/scf) * (SO_2 Molecular Weight, lb/lb-mol) / (S Molecular Weight, lb/lb-mol)

SO_2 (lb/hr) = (2,000 gr S/MMscf) * (30.64 MMBtu/hr) * (1 lb/7,000 gr) / (1,020.0 Btu/scf) * (64.06 SO2 lb/lb-mol) / (32.06 S lb/lb-mol)

SO_2 (lb/hr) = 0.02

[d] An example calculation for annual emissions of NO_X for Unit Number 1 follows:

NO_X (T/yr) = (Rated Duty, MMBtu/hr) / (Fuel Gas Heating Value, Btu/scf) * (Correction Factor) * (Emission Factor, lb/MMscf) * (Annual Operating Hours, hr/yr) / (2,000 lb/T)

NO_X (T/yr) = (30.64 MMBtu/hr) / (1,020.0 Btu/scf) * (1.00) * (0.0 lb/MMscf) * (8,760 hr/yr) / (2,000 lb/T)

NO_X (T/yr) = 5.38

CALCULATION OF PROPOSED PLANT HEATERS/REBOILERS POTENTIAL TO EMIT

Unit Number	Stack Number	Source Description	Heat Release (MMBtu/hr)	Fuel Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Correction Factor [a]	Pollutant	Emission Factor [b]	Unit	Potential to Emit: Hourly [c] (lb/hr)	Potential to Emit: Annual [d] (T/yr)
34	34	TEG Reboiler	3.75	970.7	8,760	0.95	CO	84	lb/MMscf	0.31	1.35
							NO_X	100	lb/MMscf	0.37	1.61
							PM_{10}	7.6	lb/MMscf	0.03	0.12
							$PM_{2.5}$	5.7	lb/MMscf	0.02	0.09
							Flash Gas SO_2	0.001	lb/hr H_2S	0.003	0.01
							Flash Gas VOC	7.00	lb/hr VOC	0.07	0.31
							Flash Gas H_2S	0.001	lb/hr H_2S	1.37E-05	0.0001
35	35	Hot Oil System Heater	15.95	1,028.5	8,760	1.01	CO	84	lb/MMscf	1.31	5.75
							NO_X	100	lb/MMscf	1.56	6.85
							PM_{10}	7.6	lb/MMscf	0.12	0.52
							$PM_{2.5}$	5.7	lb/MMscf	0.09	0.39
							SO_2	2,000	gr/MMscf	0.01	0.04
							VOC	5.5	lb/MMscf	0.09	0.38
36	36	Hot Oil System Heater 2 (Amine Reboiler)	60.00	970.7	8,760	0.95	CO	84	lb/MMscf	4.94	21.64
							NO_X	0.0401	lb/MMBtu	2.41	10.54
							PM_{10}	7.6	lb/MMscf	0.45	1.96
							$PM_{2.5}$	5.7	lb/MMscf	0.34	1.47
							Flash Gas SO_2	0.02	lb/hr H_2S	0.04	0.18
							Flash Gas VOC	112.04	lb/hr VOC	1.12	4.91
							Flash Gas H_2S	0.02	lb/hr H_2S	0.0002	0.001
37	37	Regen Heater	5.61	1,028.5	8,760	1.01	CO	84	lb/MMscf	0.46	2.02
							NO_X	100	lb/MMscf	0.55	2.41
							PM_{10}	7.6	lb/MMscf	0.04	0.18
							$PM_{2.5}$	5.7	lb/MMscf	0.03	0.14
							SO_2	2,000	gr/MMscf	0.003	0.01
							VOC	5.5	lb/MMscf	0.03	0.13
38	38	Stabilizer Heater	23.00	1,028.5	8,760	1.01	CO	84	lb/MMscf	1.89	8.30
							NO_X	0.0401	lb/MMBtu	0.92	4.04
							PM_{10}	7.6	lb/MMscf	0.17	0.75
							$PM_{2.5}$	5.7	lb/MMscf	0.13	0.56
							SO_2	2,000	gr/MMscf	0.01	0.06
							VOC	5.5	lb/MMscf	0.12	0.54

CALCULATION OF PROPOSED PLANT HEATERS/REBOILERS POTENTIAL TO EMIT

[a] An emission factor correction is applied to AP-42 emission factors based upon the ratio of actual fuel gas heating values to the assumed fuel gas heating value (1,020 Btu/scf) which EPA used to develop the AP-42 emission factors.

[b] Emission factors are from AP-42 Tables 1.4-1 and 1.4-2 (dated 7/98) unless otherwise noted. NO_X emission factors for Unit Numbers 36 and 38 are manufacturer gu

[c] An example calculation for hourly emissions of CO for Unit Number 34 follows:

CO (lb/hr) = (Rated Duty, MMBtu/hr) / (Fuel Gas Heating Value, Btu/scf) * (Correction Factor) * (Emission Factor, lb/MMscf)

CO (lb/hr) = (3.75 MMBtu/hr) / (970.7 Btu/scf) * (0.95) * (84 lb/MMscf)

CO (lb/hr) = 0.31

The flash gas vapors from the sweetening and dehydration operations are mixed into the fuel line for Unit Numbers 34, 36, and 41. Potential SO_2 and VOC emissions are based on the respective H_2S and VOC contents of the combined fuel gas stream combusted in the heaters. An example calculation for hourly emissions of SO_2 for Unit Number 34 follows:

SO_2 (lb/hr) = (Total H_2S in Combined Fuel Gas, lb/hr) * (Unit Heat Release, MMBtu/hr/Combined Units Heat Release, MMBtu/hr) * (Conversion Efficiency, %) * (SO_2 Molecular Weight, lb/lb-mol) / (H_2S Molecular Weight, lb/lb-mol)

SO_2 (lb/hr) = (0.0295 H2S lb/hr) * (3.75 MMBtu/hr / 80.97 MMBtu/hr) * (99%) * (64.06 SO2 lb/lb-mol) / (34.08 H2S lb/lb-mol)

SO_2 (lb/hr) = 0.003

Potential SO_2 emissions for the other heaters are based on the maximum sulfur content of the fuel gas stream combusted in the heaters. An example calculation for hourly emissions of SO_2 for Unit Number 35 follows:

SO_2 (lb/hr) = (Maximum Fuel Gas Sulfur Content, gr S/MMscf) * (Heat Release, MMBtu/hr) * (1 lb/7,000 gr) / (Fuel Heating Value, Btu/scf) * (SO_2 Molecular Weight, lb/lb-mol) / (S Molecular Weight, lb/lb-mol)

SO_2 (lb/hr) = (2,000 gr S/MMscf) * (15.95 MMBtu/hr) * (1 lb/7,000 gr) / (1,028.5 Btu/scf) * (64.06 SO2 lb/lb-mol) / (32.06 S lb/lb-mol)

SO_2 (lb/hr) = 0.01

[d] An example calculation for annual emissions of NO_X for Unit Number 36 follows:

NO_X (T/yr) = (Rated Duty, MMBtu/hr) * (Emission Factor, lb/MMBtu) * (Annual Operating Hours, hr/yr) / (2,000 lb/T)

NO_X (T/yr) = (60.00 MMBtu/hr) * (0.04 lb/MMBtu) * (8,760 hr/yr) / (2,000 lb/T)

NO_X (T/yr) = 10.54

CALCULATION OF EXISTING PLANT FLARE COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
2	2	2	Flare	1,051.70	0.24	2,072.90	CO	0.2755	lb/MMBtu	0.07	0.29
			Pilot Gas				NO_X	0.1380	lb/MMBtu	0.03	0.14
							PM_{10}	7.6	lb/MMscf	0.002	0.01
							$PM_{2.5}$	5.7	lb/MMscf	0.001	0.01
							SO_2	0.6	lb/MMscf	0.0001	0.001
							VOC	5.5	lb/MMscf	0.001	0.01
							Benzene	0.0021	lb/MMscf	4.73E-07	2.07E-06
2	2	2	Flare	1,051.70	3.34	29,250.93	CO	0.2755	lb/MMBtu	0.92	4.03
			Sweep Gas				NO_X	0.1380	lb/MMBtu	0.46	2.02
							PM_{10}	7.6	lb/MMscf	0.02	0.11
							$PM_{2.5}$	5.7	lb/MMscf	0.02	0.08
							SO_2	0.6	lb/MMscf	0.002	0.01
							VOC	5.5	lb/MMscf	0.02	0.08
							Benzene	0.0021	lb/MMscf	6.67E-06	2.92E-05
19	2	2	Flare	2,280.00	2.30	20,172.53	CO	0.5496	lb/MMBtu	1.27	5.54
			Dehy Still Vent Control				NO_X	0.0641	lb/MMBtu	0.15	0.65
							PM_{10}	7.6	lb/MMscf	0.01	0.03
							$PM_{2.5}$	5.7	lb/MMscf	0.01	0.03
							SO_2	0.00	lb/hr H_2S	0.00	0.00
							VOC	97.16	lb/hr VOC	1.72	7.53
							Benzene	14.04	lb/hr Benzene	0.28	1.23
18	2	2	Flare	111.74	1.52	13,275.93	CO	0.5496	lb/MMBtu	0.83	3.65
			Acid Gas Control				NO_X	0.0641	lb/MMBtu	0.10	0.43
							PM_{10}	7.6	lb/MMscf	0.10	0.45
							$PM_{2.5}$	5.7	lb/MMscf	0.08	0.34
							SO_2	0.35	lb/hr H_2S	0.65	2.84
							VOC	30.61	lb/hr VOC	0.55	2.39
							Benzene	7.15	lb/hr Benzene	0.14	0.63

CALCULATION OF EXISTING PLANT FLARE COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
V-2440	2	2	Flare - AOS 1	1,523.39	6.35	304.68	CO	0.2755	lb/MMBtu	1.75	0.04
			Flash Gas Compressor				NO_X	0.1380	lb/MMBtu	0.88	0.02
			Downtime				PM_{10}	7.6	lb/MMscf	0.03	0.001
			TEG Flash				$PM_{2.5}$	5.7	lb/MMscf	0.02	0.001
							SO_2	0.00	lb/hr H_2S	0.00	0.00
							VOC	2.72	lb/hr VOC	0.04	0.001
							Benzene	0.01	lb/hr Benzene	0.0003	6.15E-06
V-2200	2	2	Flare - AOS 2	1,256.22	0.16	7.67	CO	0.2755	lb/MMBtu	0.04	0.001
			Flash Gas Compressor				NO_X	0.1380	lb/MMBtu	0.02	0.001
			Downtime				PM_{10}	7.6	lb/MMscf	0.001	2.32E-05
			Amine Flash				$PM_{2.5}$	5.7	lb/MMscf	0.001	1.74E-05
							SO_2	3.65E-07	lb/hr H_2S	6.87E-07	1.65E-08
							VOC	0.32	lb/hr VOC	0.004	0.0001
							Benzene	0.001	lb/hr Benzene	2.47E-05	5.93E-07
Z-2110	2	2	Flare - AOS 3	1,249.10	0.44	21.22	CO	0.2755	lb/MMBtu	0.12	0.003
			Closed Drain Skid				NO_X	0.1380	lb/MMBtu	0.06	0.001
			Overpressurized				PM_{10}	7.6	lb/MMscf	0.003	0.0001
							$PM_{2.5}$	5.7	lb/MMscf	0.002	4.84E-05
							SO_2	0.00	lb/hr H_2S	0.00	0.00
							VOC	0.29	lb/hr VOC	0.004	0.0001
							Benzene	0.0003	lb/hr Benzene	6.00E-06	1.44E-07
Res Gas	2	2	Flare - AOS 4	1,268.46	370.39	17,778.71	CO	0.2755	lb/MMBtu	102.04	2.45
			Residue Pipeline				NO_X	0.1380	lb/MMBtu	51.11	1.23
			Curtailment				PM_{10}	7.6	lb/MMscf	2.22	0.05
							$PM_{2.5}$	5.7	lb/MMscf	1.66	0.04
							SO_2	0.00	lb/hr H_2S	0.00	0.00
							VOC	3,749.37	lb/hr VOC	56.49	1.36
							Benzene	3.42	lb/hr Benzene	0.07	0.002

CALCULATION OF EXISTING PLANT FLARE COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
			Total Flare Normal and AOS Control PTE	1,226.5	384.73	82,884.57			CO	**107.04**	**16.00**
									NO_X	**52.81**	**4.48**
									PM_{10}	**2.39**	**0.65**
									$PM_{2.5}$	**1.79**	**0.49**
									SO_2	**0.65**	**2.85**
									VOC	**58.82**	**11.35**
									Benzene	**0.49**	**1.86**

[a, b] Emission factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for unassisted high- and low- Btu flares. An example calculation for hourly CO emissions for Unit Number 2 follows:

CO (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)
CO (lb/hr) = (0.24 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = 0.07

SO_2 emissions from waste gas combustion are estimated assuming 100% conversion of H_2S in the waste stream to SO_2. An example calculation for hourly SO_2 emissions for Unit Number 2 follows:

SO_2 (lb/hr) = (Waste Stream H_2S, lb/hr) * (Conversion Efficiency, %) * (64.06 lb SO_2/34.08 lb H_2S)
SO_2 (lb/hr) = (0.35 lb/hr H2S) * (100% Conversion) * (64.06 lb SO2/34.08 lb H2S)
SO_2 (lb/hr) = 0.65

[c] An example calculation for annual CO emissions for Unit Number 2 follows:

CO (T/yr) = (Annual Waste Gas Flow Rate, MMBtu/yr) * (Emission Factor, lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = (2,072.90 MMBtu/yr) * (0.2755 lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = 0.29

CALCULATION OF EXISTING PLANT FLARE SSM WASTE GAS COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
A-506 1	2	2	Process Flare SSM Combustion P1 Residue Compressor Cool BD	1,051.7	11.47	114.72	CO	0.2755	lb/MMBtu	3.16	0.02
							NO_X	0.1380	lb/MMBtu	1.58	0.01
							PM_{10}	7.6	lb/MMscf	0.08	0.0004
							$PM_{2.5}$	5.7	lb/MMscf	0.06	0.0003
							SO_2	0.6	lb/MMscf	0.01	3.27E-05
							VOC	0.06	lb/hr VOC	0.001	3.00E-06
							Benzene	0.00	lb/hr Benzene	0.00	0.00
V-2428 8	2	2	Process Flare SSM Combustion Reflux Accumulator (Stab SU)	1,249.1	4.94	59.22	CO	0.2755	lb/MMBtu	1.36	0.01
							NO_X	0.1380	lb/MMBtu	0.68	0.004
							PM_{10}	7.6	lb/MMscf	0.03	0.0002
							$PM_{2.5}$	5.7	lb/MMscf	0.02	0.0001
							SO_2	0.6	lb/MMscf	0.002	1.42E-05
							VOC	3.24	lb/hr VOC	0.05	0.0003
							Benzene	0.0032	lb/hr Benzene	0.0001	3.84E-07
F-2112 11A	2	2	Process Flare SSM Combustion Condensate Filter Changeout	1,249.1	1.12	53.54	CO	0.2755	lb/MMBtu	0.31	0.01
							NO_X	0.1380	lb/MMBtu	0.15	0.004
							PM_{10}	7.6	lb/MMscf	0.01	0.0002
							$PM_{2.5}$	5.7	lb/MMscf	0.01	0.0001
							SO_2	0.6	lb/MMscf	0.001	1.29E-05
							VOC	0.73	lb/hr VOC	0.01	0.0002
							Benzene	0.001	lb/hr Benzene	1.40E-05	3.36E-07
F-2113 11B	2	2	Process Flare SSM Combustion Condensate Filter Changeout	1,249.1	1.12	53.54	CO	0.2755	lb/MMBtu	0.31	0.01
							NO_X	0.1380	lb/MMBtu	0.15	0.004
							PM_{10}	7.6	lb/MMscf	0.01	0.0002
							$PM_{2.5}$	5.7	lb/MMscf	0.01	0.0001
							SO_2	0.6	lb/MMscf	0.001	1.29E-05
							VOC	0.73	lb/hr VOC	0.01	0.0002
							Benzene	0.001	lb/hr Benzene	1.40E-05	3.36E-07

CALCULATION OF EXISTING PLANT FLARE SSM WASTE GAS COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
V-428 13	2	2	Process Flare SSM Combustion NGL Surge Vessel (Stab SU)	1,249.1	13.63	136.25	CO	0.2755	lb/MMBtu	3.75	0.02
							NO_X	0.1380	lb/MMBtu	1.88	0.01
							PM_{10}	7.6	lb/MMscf	0.08	0.0004
							$PM_{2.5}$	5.7	lb/MMscf	0.06	0.0003
							SO_2	0.6	lb/MMscf	0.01	3.27E-05
							VOC	1.35	lb/hr VOC	0.02	0.0001
							Benzene	0.001	lb/hr Benzene	2.80E-05	1.40E-07
			Total Flare SSM Control PTE	1,763.9	32.26	417.28			CO	8.89	0.06
									NO_X	4.45	0.03
									PM_{10}	0.21	0.001
									$PM_{2.5}$	0.16	0.001
									SO_2	0.02	0.0001
									VOC	0.09	0.001
									Benzene	0.0001	1.20E-06

[a, b] Emission factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for other high-Btu flares. An example calculation for hourly CO emissions for Unit Number 2 follows:

CO (lb/hr) = (Hourly Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)
CO (lb/hr) = (11.47 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = **3.16**

Emission factors for PM and SO_2 are from AP-42 Table 1.4-2 (dated 7/98). An example calculation for hourly SO_2 emissions for Unit Number 2 follows:

SO_2 (lb/hr) = (Hourly Gas Flow Rate, MMBtu/hr) / (Gas Heating Value, Btu/scf) * (Emission Factor, lb/MMscf)
SO_2 (lb/hr) = (11.47 MMBtu/hr) / (1,051.7 Btu/scf) * (0.6 lb/MMscf)
SO_2 (lb/hr) = **0.01**

[c] An example calculation for annual CO emissions for Unit Number 2 follows:

CO (T/yr) = (Annual Gas Flow Rate, MMBtu/yr) * (Emission Factor, lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = (114.72 MMBtu/yr) * (0.2755 lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = **0.02**

CALCULATION OF EXISTING PLANT FLARE MALFUNCTION WASTE GAS COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
C-2453 2A	2	2	Process Flare M Combustion P2 Stabilizer Overhead Compressor	1,249.1	1.76	17.57	CO	0.2755	lb/MMBtu	0.48	0.002
							NO_X	0.1380	lb/MMBtu	0.24	0.001
							PM_{10}	7.6	lb/MMscf	0.01	0.0001
							$PM_{2.5}$	5.7	lb/MMscf	0.01	4.01E-05
							SO_2	0.6	lb/MMscf	0.001	4.22E-06
							VOC	1.15	lb/hr VOC	0.02	0.0001
							Benzene	0.001	lb/hr Benzene	2.40E-05	1.20E-07
C-2478 2B	2	2	Process Flare M Combustion P2 Stabilizer Overhead Compressor	1,249.1	1.76	17.57	CO	0.2755	lb/MMBtu	0.48	0.002
							NO_X	0.1380	lb/MMBtu	0.24	0.001
							PM_{10}	7.6	lb/MMscf	0.01	0.0001
							$PM_{2.5}$	5.7	lb/MMscf	0.01	4.01E-05
							SO_2	0.6	lb/MMscf	0.001	4.22E-06
							VOC	1.15	lb/hr VOC	0.02	0.0001
							Benzene	0.001	lb/hr Benzene	2.40E-05	1.20E-07
V-2220 3	2	2	Process Flare M Combustion P2 Amine Surge Tank	1,249.1	3.60	129.55	CO	0.2755	lb/MMBtu	0.99	0.02
							NO_X	0.1380	lb/MMBtu	0.50	0.01
							PM_{10}	7.6	lb/MMscf	0.02	0.0004
							$PM_{2.5}$	5.7	lb/MMscf	0.02	0.0003
							SO_2	0.6	lb/MMscf	0.002	3.11E-05
							VOC	2.36	lb/hr VOC	0.03	0.001
							Benzene	0.002	lb/hr Benzene	4.80E-05	8.64E-07
V-2910 4	2	2	Process Flare M Combustion BOP HO Expansion Tank	1,051.7	29.45	29.45	CO	0.2755	lb/MMBtu	8.11	0.004
							NO_X	0.1380	lb/MMBtu	4.06	0.002
							PM_{10}	7.6	lb/MMscf	0.21	0.0001
							$PM_{2.5}$	5.7	lb/MMscf	0.16	0.0001
							SO_2	0.6	lb/MMscf	0.02	8.40E-06
							VOC	0.16	lb/hr VOC	0.002	8.00E-07
							Benzene	0.02	lb/hr Benzene	0.0005	2.30E-07
V-2400 9	2	2	Process Flare M Combustion Condensate Flash Tank	1,249.1	369.53	17,737.22	CO	0.2755	lb/MMBtu	101.80	2.44
							NO_X	0.1380	lb/MMBtu	50.99	1.22
							PM_{10}	7.6	lb/MMscf	2.25	0.05
							$PM_{2.5}$	5.7	lb/MMscf	1.69	0.04
							SO_2	0.6	lb/MMscf	0.18	0.004
							VOC	242.76	lb/hr VOC	3.42	0.08
							Benzene	0.24	lb/hr Benzene	0.005	0.0001

CALCULATION OF EXISTING PLANT FLARE MALFUNCTION WASTE GAS COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value (Btu/scf)	Waste Gas Flow Rate Hourly (MMBtu/hr)	Waste Gas Flow Rate Annual (MMBtu/yr)	Pollutant	Emission Factors [a]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
V-5810 10	2	2	Process Flare M Combustion HO Expansion Tank	1,051.7	8.41	8.41	CO	0.2755	lb/MMBtu	2.32	0.001
							NO_X	0.1380	lb/MMBtu	1.16	0.001
							PM_{10}	7.6	lb/MMscf	0.06	3.04E-05
							$PM_{2.5}$	5.7	lb/MMscf	0.05	2.28E-05
							SO_2	0.6	lb/MMscf	0.005	2.40E-06
							VOC	0.04	lb/hr VOC	0.0004	2.00E-07
							Benzene	0.01	lb/hr Benzene	0.0001	6.60E-08
			Total Flare M Control PTE	1,228.0	414.50	17,939.78			CO	114.19	2.47
									NO_X	57.20	1.24
									PM_{10}	2.57	0.05
									$PM_{2.5}$	1.92	0.04
									SO_2	0.20	0.004
									VOC	3.49	0.08
									Benzene	0.01	0.0001

[a, b] Emission factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for other high-Btu flares. An example calculation for hourly CO emissions for Unit Number 2 follows:

CO (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)
CO (lb/hr) = (1.76 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = 0.48

Emission factors for PM and SO2 are from AP-42 Table 1.4-2 (dated 7/98). An example calculation for hourly SO2 emissions for Unit Number 2 follows:

SO_2 (lb/hr) = (Hourly Gas Flow Rate, MMBtu/hr) / (Gas Heating Value, Btu/scf) * (Emission Factor, lb/MMscf)
SO_2 (lb/hr) = (1.76 MMBtu/hr) / (1,249.1 Btu/scf) * (0.6 lb/MMscf)
SO_2 (lb/hr) = 0.001

[c] An example calculation for annual CO emissions for Unit Number 2 follows:

CO (T/yr) = (Annual Waste Gas Flow Rate, MMBtu/yr) * (Emission Factor, lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = (17.57 MMBtu/yr) * (0.2755 lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = 0.002

CALCULATION OF EXISTING FLARE RESIDUE GAS FEED RATES DURING PIPELINE CURTAILMENT

Constituent	Residue Gas Stream Composition (mol%)	Residue Stream Hourly (lb/hr)	Heating Value [a] (Btu/lb)	Residue Vapor Emissions to Flare Hourly (lb/hr)	Residue Vapor Emissions to Flare Annual (T/yr)	Flare Feed Rates Hourly (MMBtu/hr)	Flare Feed Rates Annual (MMBtu/yr)	Volumetric Feed Rate Hourly (scf/hr)
Water	0.0074%	51.5		1.03	0.02			21.72
Nitrogen	0.9610%	10,300	--	206.00	4.94	--	--	2,806.12
Carbon Dioxide	0.0030%	50.7	--	1.01	0.02	--	--	8.76
Hydrogen Sulfide	0.0000%	0	7,479	0.00	0.00	0.00	0.00	0.00
Methane	78.0000%	481,000	23,861	9,620.00	230.88	229.54	11,018.06	227,760.00
Ethane	11.8000%	136,000	22,304	2,720.00	65.28	60.67	2,912.01	34,456.00
Propane	5.4600%	92,500	21,646	1,850.00	44.40	40.05	1,922.16	15,943.20
Isobutane	0.7520%	16,800	21,242	336.00	8.06	7.14	342.59	2,195.84
n-Butane	1.7300%	38,600	21,293	772.00	18.53	16.44	789.03	5,051.60
Isopentane	0.3990%	11,100	21,025	222.00	5.33	4.67	224.04	1,165.08
n-Pentane	0.4430%	12,300	21,072	246.00	5.90	5.18	248.82	1,293.56
cyclopentane	0.0288%	777	20,350	15.54	0.37	0.32	15.18	84.10
n-Hexane	0.0987%	3,270	20,928	65.40	1.57	1.37	65.70	288.20
cyclohexane	0.0415%	1,340	20,195	26.80	0.64	0.54	25.98	121.18
other hexanes	0.1690%	5,600	20,928	112.00	2.69	2.34	112.51	493.48
Heptanes	0.0949%	3,630	20,825	72.60	1.74	1.51	72.57	277.11
C8+ Heavies	0.0182%	1,190	20,747	23.80	0.57	0.49	23.70	53.14
Benzene	0.0057%	171	18,172	3.42	0.08	0.06	2.98	16.64
Toluene	0.0046%	163	18,422	3.26	0.08	0.06	2.88	13.46
Ethylbenzene	0.0000%	0	18,658	0.00	0.00	0.00	0.00	0.00
Xylene	0.0007%	27.6	18,438	0.55	0.01	0.01	0.49	1.97
Total						370.39	17,778.71	292,000.00

CALCULATION OF PROPOSED PLANT FLARE PILOT GAS COMBUSTION POTENTIAL TO EMIT

Unit Number	Stack Number	Source Description	Flow Rate (scf/hr)	Fuel Gas Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factors [a]	Units	Potential To Emit: Hourly [a] (lb/hr)	Potential To Emit: Annual [b] (T/yr)
39	39	Process Flare	195.00	1,028.52	8,760	CO	0.2755	lb/MMBtu	0.06	0.24
						NO_X	0.1380	lb/MMBtu	0.03	0.12
						PM_{10}	7.6	lb/MMscf	0.001	0.01
						$PM_{2.5}$	5.7	lb/MMscf	0.001	0.005
						SO_2	0.6	lb/MMscf	0.0001	0.001
						VOC	5.5	lb/MMscf	0.001	0.005
40	40	Acid Gas Flare	195.00	1,028.52	8,760	CO	0.2755	lb/MMBtu	0.06	0.24
						NO_X	0.1380	lb/MMBtu	0.03	0.12
						PM_{10}	7.6	lb/MMscf	0.001	0.01
						$PM_{2.5}$	5.7	lb/MMscf	0.001	0.005
						SO_2	0.6	lb/MMscf	0.0001	0.001
						VOC	5.5	lb/MMscf	0.001	0.005

[a] Emission factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for unassisted high-Btu flares.
An example calculation for hourly CO emissions for Unit Number 39 follows:

CO (lb/hr) = (Fuel Flow Rate, scf/hr) * (Fuel Heating Value, Btu/scf) * ($MM/10^6$) * (Emission Factor, lb/MMBtu)
CO (lb/hr) = (195.00 scf/hr) * (1,028.5 Btu/scf) * (MM/10^6) * (0.2755 lb/MMBtu)
CO (lb/hr) = 0.06

Emission factors for VOC, PM, and SO_2 are based upon AP-42 Table 1.4-2 (dated 7/98). An example calculation for hourly VOC emissions for Unit Number 39

VOC (lb/hr) = (Fuel Flow Rate, scf/hr) * ($MM/10^6$) * (Emission Factor, lb/MMscf)
VOC (lb/hr) = (195.00 scf/hr) * (MM/10^6) * (5.5 lb/MMscf)
VOC (lb/hr) = 0.001

[b] An example calculation for annual CO emissions for Unit Number 39 follows:

CO (T/yr) = (Hourly Emissions, lb/hr) * (Annual Operating Hours, hr/yr) * (1 T/2,000 lb)
CO (T/yr) = (0.06 lb/hr) * (8,760 hr/yr) * (1 T/2,000 lb)
CO (T/yr) = 0.24

[c] The flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible.

CALCULATION OF PROPOSED PLANT FLARE WASTE GAS COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Heating Value [a] (Btu/scf)	Waste Gas Flow Rate [a] Hourly (MMBtu/hr)	Waste Gas Flow Rate [a] Annual (MMBtu/yr)	Pollutant	Emission Factors [b]	Units	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
46	39	39	Process Flare	1,164.52	7.57	1,816.65	CO	0.2755	lb/MMBtu	2.09	0.25
			Residue Compressor				NO_X	0.1380	lb/MMBtu	1.04	0.13
			Blowdowns				PM_{10}	7.6	lb/MMscf	0.05	0.01
							$PM_{2.5}$	5.7	lb/MMscf	0.04	0.004
							SO_2	0.0004	lb/hr H_2S	0.001	0.0001
51	39	39	Process Flare	4,739.77	7.46	72.79	CO	0.2755	lb/MMBtu	2.06	0.01
52			Stabilized Condensate Tank				NO_X	0.1380	lb/MMBtu	1.03	0.01
53			VRU Downtime AOS				PM_{10}	7.6	lb/MMscf	0.01	0.0001
54							$PM_{2.5}$	5.7	lb/MMscf	0.01	4.38E-05
							SO_2	7.34E-12	lb/hr H_2S	1.38E-11	6.73E-14
47	39	39	Process Flare	1,600.20	503.92	50,392.38	CO	0.2755	lb/MMBtu	138.83	6.94
			Stabilizer Overhead Flash				NO_X	0.1380	lb/MMBtu	69.54	3.48
			VRU Downtime AOS				PM_{10}	7.6	lb/MMscf	2.39	0.12
							$PM_{2.5}$	5.7	lb/MMscf	1.80	0.09
							SO_2	2.6346	lb/hr H_2S	4.95	0.25
44	40	40	Acid Gas Flare	21.31	4.00	13,495.92	CO	0.5496	lb/MMBtu	2.20	3.71
45			TO Downtime AOS				NO_X	0.0641	lb/MMBtu	0.26	0.43
			Dehy BTEX Vent Gas				PM_{10}	7.6	lb/MMscf	1.43	2.41
			and Amine Acid Gas				$PM_{2.5}$	5.7	lb/MMscf	1.07	1.81
							SO_2	29.05	lb/hr H_2S	54.60	92.01
40	40	40	Acid Gas Flare	1,028.52	41.69	140,495.30	CO	0.5496	lb/MMBtu	22.91	38.61
			TO Downtime AOS				NO_X	0.0641	lb/MMBtu	2.67	4.50
			Assist Gas				PM_{10}	7.6	lb/MMscf	0.31	0.52
							$PM_{2.5}$	5.7	lb/MMscf	0.23	0.39
							SO_2	0.6	lb/MMscf	0.02	0.04
							VOC	5.5	lb/MMscf	0.22	0.38
57	2	2	Truck Loading Flare	4,739.77	1.08	1,999.56	CO	0.2755	lb/MMBtu	0.30	0.28
			Truck Loading Vapors				NO_X	0.1380	lb/MMBtu	0.15	0.14
							PM_{10}	7.6	lb/MMscf	0.002	0.002
							$PM_{2.5}$	5.7	lb/MMscf	0.001	0.001
							SO_2	1.07E-12	lb/hr H_2S	2.00E-12	1.85E-12

CALCULATION OF PROPOSED PLANT FLARE WASTE GAS COMBUSTION POTENTIAL TO EMIT

[a] Waste gas stream heating value and flow rate calculations on Flare Feed Rate Calculation worksheets.

[b] Emission factors for CO and NO_X are based upon the Draft TNRCC Guidance Document for Flares and Vapor Oxidizers (dated 10/00) for unassisted high- and low- Btu flares. An example calculation for hourly CO emissions for Unit Number 46 follows:

CO (lb/hr) = (Hourly Waste Gas Flow Rate, MMBtu/hr) * (Emission Factor, lb/MMBtu)
CO (lb/hr) = (7.57 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = 2.09

SO_2 emissions from waste gas combustion are estimated assuming 100% conversion of H_2S in the waste stream to SO_2. An example calculation for hourly SO_2 emissions for Unit Number 46 follows:

SO_2 (lb/hr) = (Waste Stream H_2S, lb/hr) * (Conversion Efficiency, %) * (64.06 lb SO_2/34.08 lb H_2S)
SO_2 (lb/hr) = (0.0004 lb/hr H2S) * (100% Conversion) * (64.06 lb SO2/34.08 lb H2S)
SO_2 (lb/hr) = 0.001

[c] An example calculation for annual CO emissions for Unit Number 46 follows:

CO (T/yr) = (Annual Waste Gas Flow Rate, MMBtu/yr) * (Emission Factor, lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = (1,816.65 MMBtu/yr) * (0.2755 lb/MMBtu) * (1 T/2,000 lb)
CO (T/yr) = 0.25

[d] The flares are smokeless per 40 CFR §60.18 requirements; therefore, PM emissions are negligible.

CALCULATION OF PROPOSED PLANT THERMAL OXIDIZER COMBUSTION POTENTIAL TO EMIT

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Rated Duty (MMBtu/hr)	Rated Duty (MMBtu/yr)	Gas Heating Value (Btu/scf)	Annual Operating Hours (hr/yr)	Pollutant	Emission Factor [a]	Unit	Potential to Emit Hourly [b] (lb/hr)	Potential to Emit Annual [c] (T/yr)
41	-	41	Thermal Oxidizer Fuel Gas	17.22	150,878.21	970.72	8,760	CO	0.0064	lb/MMBtu	0.11	0.48
								NO_X	0.0053	lb/MMBtu	0.09	0.40
								PM_{10}	7.6	lb/MMscf	0.13	0.59
								$PM_{2.5}$	5.7	lb/MMscf	0.10	0.44
								Flash Gas SO_2	0.01	lb/hr H_2S	0.01	0.05
								Flash Gas VOC	32.16	lb/hr VOC	0.32	1.41
								Flash Gas H_2S	0.01	lb/hr H_2S	0.0001	0.0003
44 45	41	41	Thermal Oxidizer Dehy BTEX Vent Gas and Amine Acid Gas	4.00	35,081.38	21.31	8,760	CO	0.0064	lb/MMBtu	0.03	0.11
								NO_X	0.0053	lb/MMBtu	0.02	0.09
								PM_{10}	7.6	lb/MMscf	1.43	6.26
								$PM_{2.5}$	5.7	lb/MMscf	1.07	4.69
								SO_2	29.05	lb/hr H_2S	54.60	239.16
									Totals	CO	0.14	0.60
										NO_X	0.11	0.49
										PM_{10}	1.56	6.85
										$PM_{2.5}$	1.17	5.13
										SO_2	54.61	239.21
										VOC	0.32	1.41
										H_2S	0.0001	0.0003

[a] Emission factors for CO and NO_X are from vendor data. Factors for fuel gas PM, SO_2, and VOC can be found under natural gas-fired small boilers (<100 MMBtu/hr) in AP-42 Table 1.4-2 (dated 7/98) and are expressed as pounds of pollutant per million Btu of natural gas fired.

[b] An example calculation for hourly PTE CO for Unit Number 41 follows:

CO (lb/hr) = (Rated Duty, MMBtu/hr) * (Emission Factor, lb/MMBtu)
CO (lb/hr) = (17.22 MMBtu/hr) * (0.0064 lb/MMBtu)
CO (lb/hr) = 0.11

The flash gas vapors from the sweetening and dehydration operations are mixed into the fuel line for Unit Numbers 41, 34, and 36. Potential SO_2 and VOC emissions are based on the respective H_2S and VOC contents of the combined fuel gas stream combusted in the thermal oxidizer.

SO_2 emissions from waste gas combustion are estimated assuming 100% conversion of H_2S in the waste stream to SO_2. An example calculation for hourly PTE SO_2 for Unit Numbers 44 and 45 follows:

SO_2 (lb/hr) = (Waste Stream H_2S, lb/hr) * (Conversion Efficiency, %) * (64.06 lb SO_2/34.08 lb H_2S)
SO_2 (lb/hr) = (29.05 lb/hr H2S) * (99% Conversion) * (64.06 lb SO2/34.08 lb H2S)
SO_2 (lb/hr) = 54.60

[c] An example calculation for annual PTE CO for Unit Number 41 follows:

CO (T/yr) = (Hourly PTE, lb/hr) * (Annual Operating Hours, hr/yr) / (2,000 lb/T)
CO (T/yr) = (0.11 lb/hr) * (8,760 hr/yr) / (2,000 lb/T)
CO (T/yr) = 0.48

[d] All PM is assumed to be less than 2.5 microns in diameter per footnote "c" of AP-42 Table 1.4-2.

SUMMARY OF EXISTING PLANT TEG DEHYDRATION UNIT POTENTIAL TO EMIT

	Precontrol Still Vent Stream [a]		Post-BTEX Condenser Vent Stream [b]		Flare Controlled Still Vent Emissions [b]		Precontrol Flash Gas Stream [a]		AOS 1 Flare Controlled Flash Gas Emissions [c]	
Constituent	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**
Nitrogen	0.1690	0.7402	0.1690	0.7402	0.1690	0.7402	18.4000	80.5920	18.4000	0.4416
Carbon Dioxide	0.0198	0.0867	0.0197	0.0863	0.0197	0.0863	0.1910	0.8366	0.1910	0.0046
Hydrogen Sulfide	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Methane	8.0200	35.1276	8.0150	35.1057	0.0802	0.3511	842.6122	3,690.6416	8.4261	0.2022
Ethane	9.1400	40.0332	9.1200	39.9456	0.0912	0.3995	285.8312	1,251.9406	2.8583	0.0686
Propane	14.5000	63.5100	14.3500	62.8530	0.1435	0.6285	214.2385	983.3647	2.1424	0.0539
I-Butane	4.1900	18.3522	4.1000	17.9580	0.0820	0.3592	42.1756	184.7289	0.8435	0.0202
N-Butane	13.7000	60.0060	13.2900	58.2102	0.2658	1.1642	106.7087	467.3841	2.1342	0.0512
I-Pentane	4.2400	18.5712	3.8950	17.0601	0.0779	0.3412	29.6829	130.0109	0.5937	0.0142
N-Pentane	6.4200	28.1196	5.8600	25.6668	0.1172	0.5133	36.2840	158.9241	0.7257	0.0174
Cyclopentane	3.1400	13.7532	2.7450	12.0231	0.0549	0.2405	4.5339	19.8583	0.0907	0.0022
n-Hexane	3.4800	15.2424	2.8000	12.2640	0.0560	0.2453	11.2012	49.0611	0.2240	0.0054
Cyclohexane	11.0000	48.1800	8.1900	35.8722	0.1638	0.7174	9.0906	39.8168	0.1818	0.0044
Other Hexanes	4.0900	17.9142	3.4750	15.2205	0.0695	0.3044	17.3517	76.0006	0.3470	0.0083
Heptanes	16.8000	73.5840	10.0600	44.0628	0.2012	0.8813	17.2177	75.4137	0.3444	0.0083
Octanes Plus	16.2000	70.9560	0.0736	0.3224	0.0015	0.0064	3.0176	13.2171	0.0604	0.0014
Benzene	19.5000	85.4100	14.0350	61.4733	0.2807	1.2295	2.3389	10.2444	0.0468	0.0011
Toluene	26.8000	117.3840	12.5250	54.8595	0.2505	1.0972	2.1221	9.2947	0.0424	0.0010
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Xylene	8.9900	39.3762	1.7600	7.7088	0.0352	0.1542	0.2949	1.2915	0.0059	0.0001
Totals:	170.40	746.35	114.48	501.43	2.16	9.46	1,643.29	7,242.62	37.66	0.91
VOC Totals:	**153.05**	**670.36**	**97.16**	**425.55**	**1.80**	**7.88**	**496.26**	**2,218.61**	**7.78**	**0.19**
HAP Totals:	58.77	257.41	31.12	136.31	0.62	2.73	15.96	69.89	0.32	0.01

[a] Precontrol streams are from a GRI-GlyCalc simulation using Plant operating data.

[b] Dehy regenerator still waste gas emissions are routed through a BTEX condenser with non-condensed vapors sent to the flare for 98% destruction.

[c] The dehy flash tank emissions are piped to the inlet. As an alternative operating scenario, if the flash gas compressor is down, up to 0.55% of the flash gas can be sent to the flare for 98% destruction.

SUMMARY OF PROPOSED PLANT TEG DEHYDRATION UNIT POTENTIAL TO EMIT

Constituent	Precontrol Still Vent Stream [a] Hourly (lb/hr)	Precontrol Still Vent Stream [a] Annual (T/yr)	Post-BTEX Condenser Vent Stream [b] Hourly (lb/hr)	Post-BTEX Condenser Vent Stream [b] Annual (T/yr)	TO Controlled BTEX Vent Emissions [b] Hourly (lb/hr)	TO Controlled BTEX Vent Emissions [b] Annual (T/yr)	Flare Controlled BTEX Vent Emissions [b] Hourly (lb/hr)	Flare Controlled BTEX Vent Emissions [b] Annual (T/yr)	Precontrol Flash Gas Stream [a, c] Hourly (lb/hr)	Precontrol Flash Gas Stream [a, c] Annual (T/yr)
Nitrogen	0.0123	0.0538	0.0123	0.0538	0.0123	0.0538	0.0123	0.0207	0.5814	2.5466
Carbon Dioxide	3.69E-05	0.0002	3.66E-05	0.0002	3.66E-05	0.0002	3.66E-05	0.0001	0.0001	0.0004
Hydrogen Sulfide	0.0001	0.0002	0.0001	0.0002	5.39E-07	2.36E-06	1.08E-06	1.82E-06	3.01E-05	0.0001
Methane	3.7892	16.5965	3.7873	16.5883	0.0379	0.1659	0.0379	0.0638	57.2534	250.7698
Ethane	8.0604	35.3045	8.0554	35.2825	0.0806	0.3528	0.0806	0.1357	43.2915	189.6169
Propane	14.4498	63.2902	14.4436	63.2629	0.1444	0.6326	0.1444	0.2434	44.7269	195.9040
I-Butane	3.4106	14.9385	3.4098	14.9349	0.0341	0.1493	0.0682	0.1149	8.2243	36.0225
N-Butane	14.3769	62.9707	14.3711	62.9454	0.1437	0.6295	0.2874	0.4843	24.6351	107.9019
I-Pentane	6.1185	26.7992	6.1171	26.7927	0.0612	0.2679	0.1223	0.2061	7.1651	31.3829
N-Pentane	8.7764	38.4406	8.7752	38.4352	0.0878	0.3844	0.1755	0.2957	8.8902	38.9392
n-Hexane	17.8405	78.1413	17.8389	78.1345	0.1784	0.7813	0.3568	0.6012	8.8701	38.8512
Heptanes	0.0142	0.0622	0.0142	0.0622	0.0001	0.0006	0.0003	0.0005	0.0053	0.0230
Octanes Plus	0.0013	0.0055	0.0013	0.0055	1.26E-05	0.0001	2.52E-05	4.24E-05	0.0003	0.0013
Benzene	2.16E-06	9.45E-06	1.08E-06	4.72E-06	1.08E-08	4.72E-08	2.16E-08	3.64E-08	1.26E-07	5.51E-07
Toluene	1.58E-05	6.94E-05	7.92E-06	3.47E-05	7.92E-08	3.47E-07	1.58E-07	2.67E-07	5.56E-07	2.44E-06
Ethylbenzene	1.32E-05	5.77E-05	6.58E-06	2.88E-05	6.58E-08	2.88E-07	1.32E-07	2.22E-07	3.05E-07	1.34E-06
Xylene	1.11E-06	4.86E-06	5.55E-07	2.43E-06	5.55E-09	2.43E-08	1.11E-08	1.87E-08	2.63E-08	1.15E-07
Totals:	76.85	336.60	76.83	336.50	0.78	3.42	1.29	2.17	203.64	891.96
VOC Totals:	**64.99**	**284.65**	**64.97**	**284.57**	**0.65**	**2.85**	**1.15**	**1.95**	**102.52**	**449.03**
HAP Totals:	17.84	78.14	17.84	78.13	0.18	0.78	0.36	0.60	8.87	38.85

[a] Uncontrolled streams are from a ProMax simulation using anticipated Plant operating data.

[b] Dehy still waste gas emissions are routed a BTEX condenser with an assumed 50% BTEX removal efficiency and then to the thermal oxidizer for 99% destruction. As an alternative operating scenario, estimated to occur up to 38% annually, the BTEX condenser emissions are controlled by the process flare with 98% destruction (99% for C1 - C3).

[c] The dehy flash tank emissions are routed to the hot oil heater fuel system.

SUMMARY OF EXISTING PLANT AMINE SWEETENING UNIT POTENTIAL TO EMIT

	Precontrol Acid Gas [a]		Flare Controlled Acid Gas [b]		Precontrol Flash Gas [a]		AOS 2 Flare Controlled Flash Gas [c]	
Constituent	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
Nitrogen	0.0399	0.1749	0.0399	0.1749	1.3811	6.0494	1.3811	0.0331
Carbon Dioxide	1,370.7262	6,003.7806	1,370.7262	6,003.7806	0.0061	0.0269	0.0061	0.0001
Hydrogen Sulfide	0.3454	1.5129	0.0069	0.0303	0.0001	0.0003	1.33E-06	3.20E-08
Methane	20.2229	88.5763	0.2022	0.8858	184.5563	808.3566	1.8456	0.0443
Ethane	17.2055	75.3599	0.1721	0.7536	72.3897	317.0668	0.7239	0.0174
Propane	6.6645	29.1906	0.0666	0.2919	32.7952	143.6431	0.3280	0.0079
I-Butane	0.7030	3.0791	0.0141	0.0616	4.0848	17.8915	0.0817	0.0020
N-Butane	3.1596	13.8391	0.0632	0.2768	12.4300	54.4433	0.2486	0.0060
I-Pentane	0.4261	1.8661	0.0085	0.0373	2.1699	9.5043	0.0434	0.0010
N-Pentane	0.6867	3.0076	0.0137	0.0602	2.8790	12.6099	0.0576	0.0014
Cyclopentane	0.3854	1.6882	0.0077	0.0338	0.4675	2.0475	0.0093	0.0002
n-Hexane	0.1196	0.5237	0.0024	0.0105	0.5442	2.3838	0.0109	0.0003
Cyclohexane	0.8791	3.8506	0.0176	0.0770	0.7306	3.2000	0.0146	0.0004
Other Hexanes	0.4507	1.9742	0.0090	0.0395	1.2901	5.6508	0.0258	0.0006
Heptanes	0.2235	0.9788	0.0045	0.0196	0.5513	2.4149	0.0110	0.0003
Octanes	0.0060	0.0263	0.0001	0.0005	0.0461	0.2018	0.0009	2.21E-05
Nonanes Plus	0.0002	0.0007	3.36E-06	1.47E-05	0.0026	0.0116	0.0001	1.27E-06
Benzene	7.1463	31.3008	0.1429	0.6260	0.2254	0.9874	0.0045	0.0001
Toluene	7.7644	34.0081	0.1553	0.6802	0.1773	0.7764	0.0035	0.0001
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Xylene	1.9927	8.7280	0.0399	0.1746	0.0243	0.1065	0.0005	1.17E-05
Totals	1,439.15	6,303.47	1,371.69	6,008.01	316.75	1,387.37	4.80	0.12
VOC Totals	**30.61**	**134.06**	**0.55**	**2.39**	**58.42**	**255.87**	**0.84**	**0.02**
HAP Totals	17.02	74.56	0.34	1.49	0.97	4.25	0.02	0.0005

[a] Precontrol streams are from a ProMax simulation using Plant operating data.

[b] Amine unit overhead still acid gas emissions are routed to the flare with 98% destruction.

[c] The amine flash tank emissions are piped to the inlet. As an alternative operating scenario, if the flash gas compressor is down, up to 0.55% of the flash gas can be sent to the flare for 98% destruction.

SUMMARY OF PROPOSED PLANT AMINE SWEETENING UNIT POTENTIAL TO EMIT

Constituent	Precontrol Acid Gas [a] Hourly (lb/hr)	Precontrol Acid Gas [a] Annual (T/yr)	TO Controlled Acid Gas [b] Hourly (lb/hr)	TO Controlled Acid Gas [b] Annual (T/yr)	Flare Controlled Acid Gas [b] Hourly (lb/hr)	Flare Controlled Acid Gas [b] Annual (T/yr)	Precontrol Flash Gas [a, c] Hourly (lb/hr)	Precontrol Flash Gas [a, c] Annual (T/yr)
Nitrogen	0.1204	0.5274	0.1204	0.5274	0.1204	0.2029	2.4003	10.5132
Carbon Dioxide	19,966.4292	87,452.9599	19,966.4292	87,452.9599	19,966.4292	33,643.4332	11.7626	51.5202
Hydrogen Sulfide	29.0486	127.2329	0.2905	1.2723	0.5810	0.9789	0.0295	0.1290
Methane	28.3267	124.0709	0.2833	1.2407	0.2833	0.4773	172.1938	754.2090
Ethane	18.5833	81.3948	0.1858	0.8139	0.1858	0.3131	61.6286	269.9332
Propane	7.4843	32.7811	0.0748	0.3278	0.0748	0.1261	29.9968	131.3861
I-Butane	0.6521	2.8562	0.0065	0.0286	0.0130	0.0220	3.3818	14.8122
N-Butane	2.9449	12.8987	0.0294	0.1290	0.0589	0.0992	10.2633	44.9534
I-Pentane	0.3066	1.3427	0.0031	0.0134	0.0061	0.0103	1.5821	6.9297
N-Pentane	0.4935	2.1616	0.0049	0.0216	0.0099	0.0166	2.0871	9.1414
n-Hexane	0.0107	0.0470	0.0001	0.0005	0.0002	0.0004	1.1922	5.2218
Heptanes	7.13E-07	3.12E-06	7.13E-09	3.12E-08	1.43E-08	2.40E-08	0.0003	0.0012
Octanes Plus	8.70E-08	3.81E-07	8.70E-10	3.81E-09	1.74E-09	2.93E-09	1.26E-05	0.0001
Benzene	0.2586	1.1327	0.0026	0.0113	0.0052	0.0087	0.1828	0.8008
Toluene	3.54E-05	0.0002	3.54E-07	1.55E-06	7.08E-07	1.19E-06	4.28E-05	0.0002
Ethylbenzene	7.72E-07	3.38E-06	7.72E-09	3.38E-08	1.54E-08	2.60E-08	3.88E-07	1.70E-06
Xylene	5.75E-07	2.52E-06	5.75E-09	2.52E-08	1.15E-08	1.94E-08	1.95E-07	8.55E-07
Totals	20,054.66	87,839.41	19,967.43	87,457.35	19,967.77	33,645.69	296.70	1,299.55
VOC Totals	**12.15**	**53.22**	**0.12**	**0.53**	**0.17**	**0.28**	**48.69**	**213.25**
HAP Totals	0.27	1.18	0.003	0.01	0.01	0.01	1.38	6.02

[a] Uncontrolled streams are from a ProMax simulation using anticipated Plant operating data.

[b] Amine unit overhead still acid gas emissions are routed to the thermal oxidizer for 99% destruction. As an alternative operating scenario, estimated to occur up to 38% annually, the acid gas is controlled by the process flare with 98% destruction (99% for C1 - C3).

[c] The amine flash tank emissions are routed to the hot oil heater fuel system.

CALCULATION OF PROPOSED PLANT THERMAL OXIDIZER FEED RATES FROM BTEX CONDENSER AND ACID GAS CONTROL

Constituent	Heating Value [a] (Btu/lb)	Molecular Weight (lb/lb-mol)	Glycol BTEX Condenser Uncontrolled Waste Gas [b] Hourly (lb/hr)	Glycol BTEX Condenser Uncontrolled Waste Gas [b] Annual (T/yr)	Amine Still Vent Uncontrolled Acid Gas [b] Hourly (lb/hr)	Amine Still Vent Uncontrolled Acid Gas [b] Annual (T/yr)	Total Uncontrolled Emissions Hourly (lb/hr)	Total Uncontrolled Emissions Annual (T/yr)	Flare Feed Rate Hourly (MMBtu/hr)	Flare Feed Rate Annual (MMBtu/yr)	Volumetric Feed Rate [c] Hourly (scf/hr)
Total VOC:			64.9711	284.5734	12.1507	53.2202	77.1218	337.7936			
Nitrogen	--	28.013	0.0123	0.0538	0.1204	0.5274	0.1327	0.5812	--	--	1.8042
Carbon Dioxide	--	44.010	3.66E-05	0.0002	19,966.4292	87,452.9599	19,966.4292	87,452.9600	--	--	172,788.3572
Hydrogen Sulfide	7,479	34.081	0.0001	0.0002	29.0486	127.2329	29.0487	127.2331	0.2173	1,903.1529	324.6229
Methane	23,861	16.043	3.7873	16.5883	28.3267	124.0709	32.1140	140.6591	0.7663	6,712.5357	762.3839
Ethane	22,304	30.070	8.0554	35.2825	18.5833	81.3948	26.6386	116.6773	0.5941	5,204.7399	337.3993
Propane	21,646	44.097	14.4436	63.2629	7.4843	32.7811	21.9279	96.0440	0.4747	4,157.9383	189.3881
Isobutane	21,242	58.123	3.4098	14.9349	0.6521	2.8562	4.0619	17.7911	0.0863	755.8354	26.6161
n-Butane	21,293	58.123	14.3711	62.9454	2.9449	12.8987	17.3160	75.8441	0.3687	3,229.8969	113.4658
Isopentane	21,025	72.150	6.1171	26.7927	0.3066	1.3427	6.4236	28.1355	0.1351	1,183.0961	33.9085
n-Pentane	21,072	72.150	8.7752	38.4352	0.4935	2.1616	9.2687	40.5968	0.1953	1,710.9122	48.9268
n-Hexane	20,928	86.177	17.8389	78.1345	0.0107	0.0470	17.8497	78.1815	0.3736	3,272.3642	78.8867
Heptanes	20,825	100.204	0.0142	0.0622	7.13E-07	3.12E-06	0.0142	0.0622	0.0003	2.5893	0.0539
C8+ Heavies	20,747	114.231	0.0013	0.0055	8.70E-08	3.81E-07	0.0013	0.0055	2.61E-05	0.2289	0.0042
Benzene	18,172	78.114	1.08E-06	4.72E-06	0.2586	1.1327	0.2586	1.1327	0.0047	41.1668	1.2609
Toluene	18,422	92.141	7.92E-06	3.47E-05	3.54E-05	0.0002	4.33E-05	0.0002	7.98E-07	0.0070	0.0002
Ethylbenzene	18,658	106.168	6.58E-06	2.88E-05	7.72E-07	3.38E-06	7.36E-06	3.22E-05	1.37E-07	0.0012	2.64E-05
Xylene	18,438	106.167	5.55E-07	2.43E-06	5.75E-07	2.52E-06	1.13E-06	4.95E-06	2.08E-08	0.0002	4.05E-06
								Total Feed Rates:	**3.2163**	**28,174.4650**	**174,707.08**
									Heating Value (Btu/scf):		**18.41**

[a] Heating values taken from Perry's Chemical Engineers' Handbook, Table 3-207 (pg. 3-155).

[b] Emissions taken from ProMax simulation reports.

[c] Volumetric feed rate for each contaminant calculated using the Ideal Gas Law at standard conditions of 14.65 psia and 60 °F.

An example volumetric feed rate calculation for methane follows:

(28.3267 lb/hr) / (16.043 lb/lb-mol) * (10.73 psia-ft3/lb-mol-deg. R) * (520 deg. R) / (14.65 psia) = 762.3839 scf/hr

CALCULATION OF PROPOSED PLANT ACID GAS FLARE FEED RATES DURING THERMAL OXIDIZER DOWNTIME

Constituent	Heating Value [a] (Btu/lb)	Molecular Weight (lb/lb-mol)	Glycol BTEX Condenser Uncontrolled Waste Gas [b] Hourly (lb/hr)	Glycol BTEX Condenser Uncontrolled Waste Gas [b] Annual (T/yr)	Amine Still Vent Uncontrolled Acid Gas [b] Hourly (lb/hr)	Amine Still Vent Uncontrolled Acid Gas [b] Annual (T/yr)	Total Uncontrolled Emissions Hourly (lb/hr)	Total Uncontrolled Emissions Annual (T/yr)	Flare Feed Rate Hourly (MMBtu/hr)	Flare Feed Rate Annual (MMBtu/yr)	Volumetric Feed Rate [c] Hourly (scf/hr)
Total VOC:			64.9711	109.4763	12.1507	20.4740	77.1218	129.9503			
Nitrogen	--	28.013	0.0123	0.0207	0.1204	0.2029	0.1327	0.2236	--	--	1.8042
Carbon Dioxide	--	44.010	3.66E-05	0.0001	19,966.4292	33,643.4332	19,966.4292	33,643.4333	--	--	172,788.3572
Hydrogen Sulfide	7,479	34.081	0.0001	0.0001	29.0486	48.9469	29.0487	48.9470	0.2173	732.1490	324.6229
Methane	23,861	16.043	3.7873	6.3816	28.3267	47.7305	32.1140	54.1120	0.7663	2,582.3340	762.3839
Ethane	22,304	30.070	8.0554	13.5733	18.5833	31.3128	26.6386	44.8861	0.5941	2,002.2801	337.3993
Propane	21,646	44.097	14.4436	24.3374	7.4843	12.6110	21.9279	36.9484	0.4747	1,599.5721	189.3881
Isobutane	21,242	58.123	3.4098	5.7455	0.6521	1.0988	4.0619	6.8443	0.0863	290.7723	26.6161
n-Butane	21,293	58.123	14.3711	24.2153	2.9449	4.9622	17.3160	29.1775	0.3687	1,242.5517	113.4658
Isopentane	21,025	72.150	6.1171	10.3072	0.3066	0.5166	6.4236	10.8238	0.1351	455.1409	33.9085
n-Pentane	21,072	72.150	8.7752	14.7862	0.4935	0.8316	9.2687	15.6177	0.1953	658.1934	48.9268
n-Hexane	20,928	86.177	17.8389	30.0586	0.0107	0.0181	17.8497	30.0767	0.3736	1,258.8890	78.8867
Heptanes	20,825	100.204	0.0142	0.0239	7.13E-07	1.20E-06	0.0142	0.0239	0.0003	0.9961	0.0539
C8+ Heavies	20,747	114.231	0.0013	0.0021	8.70E-08	1.47E-07	0.0013	0.0021	2.61E-05	0.0881	0.0042
Benzene	18,172	78.114	1.08E-06	1.82E-06	0.2586	0.4358	0.2586	0.4358	0.0047	15.8370	1.2609
Toluene	18,422	92.141	7.92E-06	1.34E-05	3.54E-05	0.0001	4.33E-05	0.0001	7.98E-07	0.0027	0.0002
Ethylbenzene	18,658	106.168	6.58E-06	1.11E-05	7.72E-07	1.30E-06	7.36E-06	1.24E-05	1.37E-07	0.0005	2.64E-05
Xylene	18,438	106.167	5.55E-07	9.35E-07	5.75E-07	9.68E-07	1.13E-06	1.90E-06	2.08E-08	0.0001	4.05E-06
								Total Feed Rates:	**3.2163**	**10,838.8067**	**174,707.08**

Heating Value (Btu/scf): 18.41

[a] Heating values taken from Perry's Chemical Engineers' Handbook, Table 3-207 (pg. 3-155).

[b] Emissions taken from ProMax simulation reports.

[c] Volumetric feed rate for each contaminant calculated using the Ideal Gas Law at standard conditions of 14.65 psia and 60 °F.

An example volumetric feed rate calculation for methane follows:

(32.1140 lb/hr) / (16.043 lb/lb-mol) * (10.73 psia-ft3/lb-mol-deg. R) * (520 deg. R) / (14.65 psia) = 762.3839 scf/hr

SUMMARY OF PROPOSED PLANT DEHY AND AMINE STILL VENT EMISSIONS CONTROL ALTERNATE OPERATING SCENARIO EMISSION RATES

Unit Number	Control Equipment Unit Number	Stack Number	Source Description	VOC Hourly (lb/hr)	VOC Annual (T/yr)	NO_X Hourly (lb/hr)	NO_X Annual (T/yr)	CO Hourly (lb/hr)	CO Annual (T/yr)	PM_{10} Hourly (lb/hr)	PM_{10} Annual (T/yr)	$PM_{2.5}$ Hourly (lb/hr)	$PM_{2.5}$ Annual (T/yr)	SO_2 Hourly (lb/hr)	SO_2 Annual (T/yr)	H_2S Hourly (lb/hr)	H_2S Annual (T/yr)	Total HAP Hourly (lb/hr)	Total HAP Annual (T/yr)
41	-	41	Thermal Oxidizer - Fuel Gas	0.32	1.41	0.09	0.40	0.11	0.48	0.13	0.59	0.10	0.44	0.01	0.05	0.0001	0.0003	0.11	0.48
41	41	41	Thermal Oxidizer - Waste Gas	--	--	0.02	0.09	0.03	0.11	1.43	6.26	1.07	4.69	54.60	239.16	--	--	--	--
45	41	41	Amine Acid Gas	0.12	0.53	--	--	--	--	--	--	--	--	--	--	0.29	1.27	0.003	0.01
44	41	41	Dehy BTEX Condenser Gas	0.65	2.85	--	--	--	--	--	--	--	--	--	--	5.39E-07	2.36E-06	0.18	0.78
			TO Operating 8,760 hr/yr:	1.09	4.79	0.11	0.49	0.14	0.60	1.56	6.85	1.17	5.13	54.61	239.21	0.29	1.27	0.29	1.27
41	-	41	Thermal Oxidizer - Fuel Gas	0.32	0.87	0.09	0.25	0.11	0.30	0.13	0.36	0.10	0.27	0.01	0.03	0.0001	0.0002	0.11	0.30
41	41	41	Thermal Oxidizer - Waste Gas	--	--	0.02	0.06	0.03	0.07	1.43	3.85	1.07	2.89	54.60	147.15	--	--	--	--
45	41	41	Amine Acid Gas	0.12	0.33	--	--	--	--	--	--	--	--	--	--	0.29	0.78	0.003	0.01
44	41	41	Dehy BTEX Condenser Gas	0.65	1.75	--	--	--	--	--	--	--	--	--	--	5.39E-07	1.45E-06	0.18	0.48
40	40	40	Acid Gas Flare - Assist and Waste Gas	0.22	0.38	2.93	4.94	25.11	42.32	1.74	2.93	1.30	2.19	54.63	92.05	--	--	0.08	0.13
45	40	40	Amine Acid Gas	0.17	0.28	--	--	--	--	--	--	--	--	--	--	0.58	0.98	0.01	0.01
44	40	40	Dehy BTEX Condenser Gas	1.15	1.95	--	--	--	--	--	--	--	--	--	--	1.08E-06	1.82E-06	0.36	0.60
			TO Operating 5,390 hr/yr, Flare Control 3,370 hr/yr:	1.55	5.55	2.93	5.24	25.11	42.68	1.74	7.14	1.30	5.35	54.63	239.23	0.58	1.76	0.44	1.52
			Maximum AOS Emissions:	**1.55**	**5.55**	**2.93**	**5.24**	**25.11**	**42.68**	**1.74**	**7.14**	**1.30**	**5.35**	**54.63**	**239.23**	**0.58**	**1.76**	**0.44**	**1.52**

SUMMARY OF EXISTING PLANT STORAGE TANKS POTENTIAL TO EMIT

Unit Number	Control Device Unit Number	Stack Number	Description	Uncontrolled Working/ Breathing Losses [a] Hourly (lb/hr)	Uncontrolled Working/ Breathing Losses [a] Annual (T/yr)	VRU Capture Efficiency [b] (%)	Potential to Emit [c] VOC Hourly (lb/hr)	Potential to Emit [c] VOC Annual (T/yr)
3	23	3	1,000-bbl Condensate Tank 1	93.15	16.24	95.00%	4.66	0.81
4	23	4	1,000-bbl Condensate Tank 2	93.15	16.24	95.00%	4.66	0.81
5	23	5	1,000-bbl Condensate Tank 3	93.15	16.24	95.00%	4.66	0.81
6	23	6	1,000-bbl Condensate Tank 4	93.15	16.24	95.00%	4.66	0.81
7	23	7	1,000-bbl Condensate Tank 5	93.15	16.24	95.00%	4.66	0.81
21	23	21	10,000-bbl Condensate Tank	92.67	51.97	95.00%	4.63	2.60
8	-	8	1,000-bbl Slop Tank	1.10	0.25	0.00%	1.10	0.25
10	-	10	210-bbl Slop Tank	0.29	0.04	0.00%	0.29	0.04
11	-	11	400-bbl Produced Water Tank	1.17	0.12	0.00%	1.17	0.12

[a] The storage tank working and breathing losses are calculated using equations from AP-42 Chapter 7. Flash emissions are not expected because liquids are stabilized and reduced to atmospheric pressure prior to entering the storage tanks and/or the materials stored have very low vapor pressures.

[b] The stabilized condensate storage tanks are controlled by a VRU (Control Equipment Unit Number 23) that routes captured vapors back to the in

[c] An example calculation for the potential hourly VOC emissions for Unit Number 3 follows:

VOC (lb/hr) = (Uncontrolled Working/Breathing Losses, lb/hr) * (100% - Capture Efficiency, %)

VOC (lb/hr) = (93.15 lb/hr) * (100% - 95.00%) = 4.66 lb/hr

SUMMARY OF PROPOSED PLANT STORAGE TANKS POTENTIAL TO EMIT

AOS	Unit Number	Control Equipment Unit Number	Stack Number	Source Description	Uncontrolled Working/ Breathing Losses [a] Hourly (lb/hr)	Uncontrolled Working/ Breathing Losses [a] Annual (T/yr)	VRU Capture Efficiency [b] (%)	Potential to Emit [c] VOC Hourly (lb/hr)	Potential to Emit [c] VOC Annual (T/yr)	Annual VRU Downtime [d] (%)	Flare Control Efficiency [d] (%)	VRU Maintenance Downtime Potential to Emit [e] VOC Hourly (lb/hr)	VRU Maintenance Downtime Potential to Emit [e] VOC Annual (T/yr)
-	49	-	49	500-bbl Slop Oil Storage	1.40	0.56	0.00%	1.40	0.56	0.00%	0.00%	--	--
-	50	-	50	500-bbl Slop Oil Storage	1.40	0.56	0.00%	1.40	0.56	0.00%	0.00%	--	--
RVP 2	51	59 39	51 39	500-bbl Stabilized Condensate Storage	17.00	1.11	97.00%	0.51	0.03	5.00%	98.00%	0.34	0.001
	52	59 39	52 39	500-bbl Stabilized Condensate Storage	17.00	1.11	97.00%	0.51	0.03	5.00%	98.00%	0.34	0.001
	53	59 39	53 39	500-bbl Stabilized Condensate Storage	17.00	1.11	97.00%	0.51	0.03	5.00%	98.00%	0.34	0.001
	54	59 39	54 39	500-bbl Stabilized Condensate Storage	17.00	1.11	97.00%	0.51	0.03	5.00%	98.00%	0.34	0.001
RVP 9	51	59 39	51 39	500-bbl Stabilized Condensate Storage	89.37	8.72	97.00%	2.68	0.26	5.00%	98.00%	1.79	0.01
	52	59 39	52 39	500-bbl Stabilized Condensate Storage	89.37	8.72	97.00%	2.68	0.26	5.00%	98.00%	1.79	0.01
	53	59 39	53 39	500-bbl Stabilized Condensate Storage	89.37	8.72	97.00%	2.68	0.26	5.00%	98.00%	1.79	0.01
	54	59 39	54 39	500-bbl Stabilized Condensate Storage	89.37	8.72	97.00%	2.68	0.26	5.00%	98.00%	1.79	0.01
-	55	-	55	Miscellaneous VOC Storage Tanks	0.22	0.001	0.00%	0.22	0.001	0.00%	0.00%	--	--

[a] The storage tank working and breathing losses are calculated using equations from AP-42 Chapter 7. Flash emissions are not expected because liquids are stabilized and reduced to atmospheric pressure prior to entering the storage tanks and/or the materials stored have very low vapor pressures.

The plant may produce stabilized condensate with a target RVP of 2 through 9, depending on market demands. Potential emissions are calculated for two (2) operating scenarios, RVP 2 and RVP 9, and the maximum potential emissions between the two (2) scenarios are used for the plant-wide potential emission totals and for all impacts analyses.

[b] The stabilized condensate storage tanks are controlled by a VRU (Control Equipment Unit Number 59) that routes captured vapors back to the inlet.

[c] An example calculation for the potential hourly RVP 2 VOC emissions for Unit Number 51 follows:
VOC (lb/hr) = (Uncontrolled Working/Breathing Losses, lb/hr) * (100% - Capture Efficiency, %)
VOC (lb/hr) = (17.00 lb/hr) * (100% - 97.00%) = 0.51 lb/hr

[d] When the VRU is down for maintenance, stabilized condensate storage vapors are routed to the process flare (Control Equipment Unit Number 39) for combustion.

[e] An example calculation for the potential annual RVP 9 VOC emissions for Unit Number 51 follows:
VOC (T/yr) = (Uncontrolled Working/Breathing Losses, T/yr) * (Annual VRU Downtime, %) * (100% - Flare Control Efficiency, %)
VOC (T/yr) = (8.72 T/yr) * (5.00%) * (100% - 98.00%) = 0.01 T/yr

CALCULATION OF EXISTING PLANT STORAGE TANK WORKING AND BREATHING LOSSES POTENTIAL TO EMIT

Variable	Description	Units	Value
L_T	Total Loss = Ls + Lw	T/yr	See Table
L_S	Breathing Loss = 365 V_V W_V K_E K_S	lb/yr	See Table
L_W	Working Loss = 5.614 Q K_N K_P W_V K_B	lb/yr	See Table
L_H	Hourly Working Loss = (M_V P_{VX}) / (R T_{LX}) Q_H	lb/hr	See Table
	Roof Construction (Cone/Dome)		Cone
P_{BP}	Breather Vent Pressure Setting	psig	0.03
P_{BV}	Breather Vent Vacuum Setting	psig	-0.03
ΔP_B	Breather Vent Pressure Range	psig	0.06
I_A	Average Annual Solar Insolation Factor	Btu/ft²-day	1,669
I_D	Maximum Short Term Solar Insolation Factor	Btu/ft²-day	2,507
P_I	Storage Tank Operating Pressure	psig	0
P_A	Atmospheric Pressure	psia	12.88
T_{AX}	Average Annual Maximum Ambient Temperature	°R	535.5
T_{AN}	Average Annual Minimum Ambient Temperature	°R	507.3
T_{AA}	Average Annual Ambient Temperature	°R	521.4
ΔT_A	Annual Average Ambient Temperature Range	°R	28.2
T_{DAX}	Short Term Maximum Ambient Temperature	°R	554.7
T_{DAN}	Short Term Minimum Ambient Temperature	°R	487.4
T_{DAA}	Short Term Average Ambient Temperature	°R	521.05
ΔT_{DA}	Short Term Average Ambient Temperature Range	°R	67.3
K_P	Product Factor		1

		Tank Specifications								Material Specifications											
			V/H	D	H	Capacity	Color		α	M_V	RVP	Q_H	Q	ΔT_V	H_{VO}	V_V	T_B	T_{DB}	T_{LX}	T_{DLX}	T_{LN}
Storage Tank Unit ID	Material Stored	Number of Tanks	Tank Type	Tank Diameter (ft)	Tank Height/ Length (ft)	Tank Capacity (bbl)	Paint Color	Paint Condition	Paint Solar Absorbtance Factor	Vapor Molecular Weight (lb/lb-mol)	Reid Vapor Pressure (psi)	Max. Hourly Through-put (bbl/hr)	Annual Net Through-put per Tank (bbl/yr)	Daily Vapor Temp. Range (°R)	Vapor Space Outage (ft)	Vapor Space Volume (ft³)	Average Liquid Bulk Temp. (°R)	Max. Daily Liquid Bulk Temp. (°R)	Max. Daily Avg. Liquid Surface Temp. (°R)	Max. Short Term Liquid Surface Temp. (°R)	Min. Daily Avg. Liquid Surface Temp. (°R)
3 - 7	Condensate	5	V	15.5	30	1,000	White	Average	0.25	86.54	9.00	96.00	54,142.00	28.09	15.16	2,860.84	522.65	522.93	538.34	558.96	510.14
21	Condensate	1	V	40	48	10,000	White	Average	0.25	86.54	9.00	96.00	54,142.00	28.09	24.42	30,682.89	522.65	522.93	538.34	558.96	510.14
8	Slop Oil	1	V	15.5	30	1,000	White	Average	0.25	18.75	9.00	75.00	54,142.00	28.09	15.16	2,860.84	522.65	522.93	538.34	558.96	510.14
10	Slop Oil	1	V	10	15	210	White	Average	0.25	18.75	9.00	20.00	3,650.00	28.09	7.60	597.23	522.65	522.93	538.34	558.96	510.14
11	Produced Water	1	V	12	20	400	White	Average	0.25	18.11	9.00	96.00	69,523.81	28.09	10.13	1,145.11	522.65	522.93	538.34	558.96	510.14

																		VOC PTE	
	T_{LA}	T_{DLA}	T_V	P_{VX}	P_{DVX}	P_{VN}	P_{VA}	P_{DVA}	W_V	ΔP_V	K_E	Ks	N	K_N	K_B	K_B		L_S	L_W	L_H	L_T
Storage Tank Unit ID	Daily Average Liquid Surface Temp. (°R)	Max. Short Term Liquid Surface Temp. (°R)	Average Vapor Temp. (°R)	Vapor Pressure at T_{LX} (psia)	Vapor Pressure at T_{DLX} (psia)	Vapor Pressure at T_{LN} (psia)	Average Annual Vapor Pressure (psia)	Average Short Term Vapor Pressure (psia)	Stock Vapor Density (lb/ft³)	Daily Vapor Pressure Range	Vapor Space Expan. Factor	Vented Vapor Saturation Factor	Number of Turnovers per Year	Turnover Factor	Annual Vent Setting Correction Factor	Short Term Vent Setting Correction Factor	VOC Content (wt%)	Breathing Loss per Tank (lb/yr)	Working Loss per Tank (lb/yr)	Total Loss (lb/hr)	Total Loss (T/yr)
3 - 7	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.11	3.29	0.60	0.15	57.53	0.69	1.00	1.00	100.00%	10,134.82	22,353.94	465.76	81.22
21	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.11	3.29	0.60	0.10	5.26	1.00	0.99	0.99	100.00%	71,610.07	32,321.01	92.67	51.97
8	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.02	3.29	0.60	0.15	57.53	0.69	1.00	1.00	7.00%	153.70	339.01	1.10	0.25
10	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.02	3.29	0.60	0.26	20.07	1.00	0.99	0.99	7.00%	55.60	33.04	0.29	0.04
11	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.02	3.29	0.60	0.21	191.73	0.32	1.00	1.00	6.00%	70.94	169.29	1.17	0.12

Tank working and breathing emissions are based on the equations found in EPA AP-42 Chapter 7. All factors used are represented in the table on this page. All variables can be found in AP-42 Chapter 7 or are default unit values.

CALCULATION OF PROPOSED PLANT STORAGE TANK WORKING AND BREATHING LOSSES POTENTIAL TO EMIT

Variable	Description	Units	Value
L_T	Total Loss = Ls + Lw	T/yr	See Table
L_S	Breathing Loss = 365 V_V W_V K_E K_S	lb/yr	See Table
L_W	Working Loss = 5.614 Q K_N K_P W_V K_B	lb/yr	See Table
L_H	Hourly Working Loss = (M_V P_{VX}) / (R T_{LX}) Q_H	lb/hr	See Table
	Roof Construction (Cone/Dome)		Cone
P_{BP}	Breather Vent Pressure Setting	psig	0.03
P_{BV}	Breather Vent Vacuum Setting	psig	-0.03
ΔP_B	Breather Vent Pressure Range	psig	0.06
I_A	Average Annual Solar Insolation Factor	Btu/ft²-day	1,669
I_D	Maximum Short Term Solar Insolation Factor	Btu/ft²-day	2,507
P_I	Storage Tank Operating Pressure	psig	0
P_A	Atmospheric Pressure	psia	12.88
T_{AX}	Average Annual Maximum Ambient Temperature	°R	535.5
T_{AN}	Average Annual Minimum Ambient Temperature	°R	507.3
T_{AA}	Average Annual Ambient Temperature	°R	521.4
ΔT_A	Annual Average Ambient Temperature Range	°R	28.2
T_{DAX}	Short Term Maximum Ambient Temperature	°R	554.7
T_{DAN}	Short Term Minimum Ambient Temperature	°R	487.4
T_{DAA}	Short Term Average Ambient Temperature	°R	521.05
ΔT_{DA}	Short Term Average Ambient Temperature Range	°R	67.3
K_P	Product Factor		1

			Tank Specifications							Material Specifications											
			V/H	D	H	Capacity	Color		α	M_V	RVP	Q_H	Q	ΔT_V	H_{VO}	V_V	T_B	T_{DB}	T_{LX}	T_{DLX}	T_{LN}
Storage Tank Unit Number	Material Stored	Number of Tanks	Tank Type	Tank Diameter (ft)	Tank Height/ Length (ft)	Tank Capacity (bbl)	Paint Color	Paint Condition	Paint Solar Absorbtance Factor	Vapor Molecular Weight (lb/lb-mol)	Reid Vapor Pressure (psi)	Max. Hourly Through-put (bbl/hr)	Annual Net Through-put per Tank (bbl/yr)	Daily Vapor Temp. Range (°R)	Vapor Space Outage (ft)	Vapor Space Volume (ft³)	Average Liquid Bulk Temp. (°R)	Max. Daily Liquid Bulk Temp. (°R)	Max. Daily Avg. Liquid Surface Temp. (°R)	Max. Short Term Liquid Surface Temp. (°R)	Min. Daily Avg. Liquid Surface Temp. (°R)
49 - 50	Slop Oil	2	V	15.5	16	500	White	Average	0.25	50.00	9.00	25.00	18,250.00	28.09	8.16	1,540.00	522.65	522.93	538.34	558.96	510.14
51 - 54	Condensate	4	V	15.5	16	500	White	Average	0.25	62.15	2.00	150.00	109,500.00	28.09	8.16	1,540.00	522.65	522.93	538.34	558.96	510.14
51 - 54	Condensate	4	V	15.5	16	500	White	Average	0.25	53.14	9.00	150.00	109,500.00	28.09	8.16	1,540.00	522.65	522.93	538.34	558.96	510.14
55	Lube Oil	4	H	8	12	100	Lt. Gray	Average	0.58	190	0.0001	100.00	2,400.00	39.10	3.14	301.59	524.30	525.41	562.16	564.59	513.88
	Waste Oil	4	V	9.5	12	150	Lt. Gray	Average	0.58	190	0.0001	150.00	2,400.00	39.10	6.10	432.31	524.30	525.41	562.16	564.59	513.88
	Coolant	4	V	9.5	12	150	Lt. Gray	Average	0.58	62	0.0019	150.00	3,600.00	39.10	6.10	432.31	524.30	525.41	562.16	564.59	513.88
	Waste Coolant	4	V	9.5	12	150	Lt. Gray	Average	0.58	62	0.0019	150.00	3,600.00	39.10	6.10	432.31	524.30	525.41	562.16	564.59	513.88
	Amine	4	V	10	15	210	Lt. Gray	Average	0.58	61	0.0089	210.00	5,040.00	39.10	7.60	597.23	524.30	525.41	562.16	564.59	513.88
	Glycol	1	V	9.5	12	150	Lt. Gray	Average	0.58	76	0.0034	150.00	3,600.00	39.10	6.10	432.31	524.30	525.41	562.16	564.59	513.88

																				VOC PTE	
		T_{LA}	T_{DLA}	T_V	P_{VX}	P_{DVX}	P_{VN}	P_{VA}	P_{DVA}	W_V	ΔP_V	K_E	Ks	N	K_N	K_B	K_B		L_S	L_W	L_H	L_T
Storage Tank Unit Number	Material Stored	Daily Average Liquid Surface Temp. (°R)	Max. Short Term Liquid Surface Temp. (°R)	Average Vapor Temp. (°R)	Vapor Pressure at T_{LX} (psia)	Vapor Pressure at T_{DLX} (psia)	Vapor Pressure at T_{LN} (psia)	Average Annual Vapor Pressure (psia)	Average Short Term Vapor Pressure (psia)	Stock Vapor Density (lb/ft³)	Daily Vapor Pressure Range	Vapor Space Expan. Factor	Vented Vapor Saturation Factor	Number of Turnovers per Year	Turnover Factor	Annual Vent Setting Correction Factor	Short Term Vent Setting Correction Factor	VOC Content (wt%)	Breathing Loss per Tank (lb/yr)	Working Loss per Tank (lb/yr)	Total Loss (lb/hr)	Total Loss (T/yr)
49 - 50	Slop Oil	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.06	3.29	0.60	0.25	38.78	0.94	1.00	1.00	10.00%	518.18	594.80	2.80	1.11
51 - 54	Condensate	524.24	525.31	525.53	1.25	1.95	0.65	0.91	0.93	0.01	0.61	0.10	0.72	232.70	0.30	1.00	1.00	100.00%	401.40	1,824.23	68.00	4.45
51 - 54	Condensate	524.24	525.31	525.53	8.75	11.98	5.46	6.96	7.09	0.07	3.29	0.60	0.25	232.70	0.30	1.00	1.00	100.00%	5,506.80	11,923.82	357.47	34.86
55	Lube Oil	527.98	530.94	530.98	1.50E-05	1.73E-05	6.88E-07	1.78E-06	2.17E-06	5.95E-08	1.44E-05	0.07	1.00	42.66	0.87	1.00	1.00	100.00%	0.0005	0.001	0.001	2.32E-06
	Waste Oil	527.98	530.94	530.98	1.50E-05	1.73E-05	6.88E-07	1.78E-06	2.17E-06	5.95E-08	1.44E-05	0.07	1.00	19.01	1.00	1.00	1.00	100.00%	0.001	0.001	0.002	2.92E-06
	Coolant	527.98	530.94	530.98	0.001	0.001	4.23E-05	0.0001	0.0001	9.92E-07	0.0005	0.07	1.00	28.51	1.00	1.00	1.00	100.00%	0.01	0.02	0.02	0.0001
	Waste Coolant	527.98	530.94	530.98	0.001	0.001	4.23E-05	0.0001	0.0001	9.92E-07	0.0005	0.07	1.00	28.51	1.00	1.00	1.00	100.00%	0.01	0.02	0.02	0.0001
	Amine	527.98	530.94	530.98	0.003	0.004	0.0004	0.001	0.001	7.68E-06	0.003	0.07	1.00	27.71	1.00	1.00	1.00	100.00%	0.12	0.22	0.17	0.001
	Glycol	527.98	530.94	530.98	0.001	0.001	0.0001	0.0002	0.0002	2.65E-06	0.001	0.07	1.00	28.51	1.00	1.00	1.00	100.00%	0.03	0.05	0.01	4.14E-05
																				Unit 55	0.22	0.001

Tank working and breathing emissions are based on the equations found in EPA AP-42 Chapter 7. All factors used are represented in the table on this page. All variables can be found in AP-42 Chapter 7 or are default unit values.

CALCULATION OF EXISTING PLANT ATMOSPHERIC TRUCK LOADING POTENTIAL TO EMIT

Unit Number	Control Device Unit Number	Stack Number	Source Description	Saturation Factor	Max. Vapor Pressure (psia)	Avg. Vapor Pressure (psia)	Vapor Molecular Weight (lb/lb-mol)	Max. Temp. (F)	Avg. Temp. (F)	Hourly Throughput (Mgal/hr)	Annual Throughput (Mgal/yr)	VOC Fraction (wt%)	Max. Loading Loss (lb/Mgal)	Avg. Loading Loss (lb/Mgal)	Capture Efficiency (%)	Potential to Emit Uncaptured Hourly VOC (lb/hr)	Potential to Emit Uncaptured Annual VOC (T/yr)
9	-	9	Produced Water Truck Loading	0.60	11.98	6.96	18.11	95.00	64.54	8.00	2,920.00	6.00%	0.18	0.11	0.0%	1.40	0.16

Calculation method and factors per AP-42, Section 5.2, dated June 2008.

Example Calculations:

Maximum Loading Loss = 12.46 * (Saturation Factor) * (Maximum Vapor Pressure, psia) * (Vapor Molecular Weight, lb/lb-mol) / (Maximum Temperature, R)
Maximum Loading Loss = 12.46 * (0.60) * (11.98 psia) * (18.11 lb/lb-mol) / (95.00 + 460) R = 0.18 lb/Mgal

Average Loading Loss = 12.46 * (Saturation Factor) * (Average Vapor Pressure, psia) * (Vapor Molecular Weight, lb/lb-mol) / (Average Temperature, R)
Average Loading Loss = 12.46 * (0.60) * (6.96 psia) * (18.11 lb/lb-mol) / (64.54 + 460) R = 0.11 lb/Mgal

Hourly Uncaptured PTE = (Hourly Throughput, Mgal/hr) * (Maximum Loading Loss, lb/Mgal) * (100% - Capture Efficiency, %)
Hourly Uncaptured PTE = (8.00 Mgal/hr) * (0.18 lb/Mgal) * (100% - 0.0%) = 1.40 lb/hr

Annual Uncaptured PTE = (Annual Throughput, Mgal/yr) * (Avg. Loading Loss, lb/Mgal) * (100% - Capture Efficiency, %) / (2,000 lb/T)
Annual Uncaptured PTE = (2,920.00 Mgal/yr) * (0.11 lb/Mgal) * (100% - 0.0%) / (2,000 lb/T) = 0.16 T/yr

CALCULATION OF PROPOSED PLANT ATMOSPHERIC TRUCK LOADING POTENTIAL TO EMIT

AOS	Unit Number	Control Device Unit Number	Stack Number	Source Description	Saturation Factor	Max. Vapor Pressure (psia)	Avg. Vapor Pressure (psia)	Vapor Molecular Weight (lb/lb-mol)	Max. Temp. (F)	Avg. Temp. (F)	Hourly Throughput (Mgal/hr)	Annual Throughput (Mgal/yr)	VOC Fraction (wt%)	Max. Loading Loss (lb/Mgal)	Avg. Loading Loss (lb/Mgal)	Capture Efficiency [a] (%)	Control Efficiency (%)	Potential to Emit [b] Uncaptured Hourly VOC (lb/hr)	Potential to Emit [b] Uncaptured Annual VOC (T/yr)	Potential to Emit [b] Controlled Hourly VOC (lb/hr)	Potential to Emit [b] Controlled Annual VOC (T/yr)
-	56	-	56	Truck Loading Slop Oil/Water	0.60	8.75	6.96	50.00	95.00	64.54	8.40	1,533.00	10.00%	0.59	0.50	0.0%	0.0%	4.95	0.38	--	--
RVP 2	57	2	57 2	Truck Loading Stabilized Condensate	0.60	1.25	0.91	62.15	95.00	64.54	8.40	18,396.00	100.00%	1.05	0.81	98.7%	98.0%	0.11	0.10	0.17	0.15
RVP 9	57	2	57 2	Truck Loading Stabilized Condensate	0.60	8.75	6.96	53.14	95.00	64.54	8.40	18,396.00	100.00%	6.26	5.27	98.7%	98.0%	0.68	0.63	1.04	0.96

Calculation method and factors per AP-42, Section 5.2, dated June 2008.

[a] The loading may claim a 98.7% capture efficiency because the trucks are leak tested and pass the NSPS-level annual tests. Stabilized condensate loading emissions are controlled by the truck loading flare with 98% (99% for C1 - C3) combustion efficiency.

[b] Example Calculations:

Maximum Loading Loss = 12.46 * (Saturation Factor) * (Maximum Vapor Pressure, psia) * (Vapor Molecular Weight, lb/lb-mol) / (Maximum Temperature, R)
Maximum Loading Loss = 12.46 * (0.60) * (8.75 psia) * (50.00 lb/lb-mol) / (95.00 + 460) R = 0.59 lb/Mgal

Average Loading Loss = 12.46 * (Saturation Factor) * (Average Vapor Pressure, psia) * (Vapor Molecular Weight, lb/lb-mol) / (Average Temperature, R)
Average Loading Loss = 12.46 * (0.60) * (6.96 psia) * (50.00 lb/lb-mol) / (64.54 + 460) R = 0.50 lb/Mgal

Hourly Uncaptured PTE = (Hourly Throughput, Mgal/hr) * (Maximum Loading Loss, lb/Mgal) * (100% - Capture Efficiency, %)
Hourly Uncaptured PTE = (8.40 Mgal/hr) * (0.59 lb/Mgal) * (100% - 0.0%) = 4.95 lb/hr

Annual Controlled PTE = (Annual Throughput, Mgal/yr) * (Avg. Loading Loss, lb/Mgal) * (Capture Efficiency, %) * (100% - Control Efficiency, %) / (2,000 lb/T)
Annual Controlled PTE = (18,396.00 Mgal/yr) * (0.81 lb/Mgal) * (98.7%) * (100% - 98.0%) / (2,000 lb/T) = 0.15 T/yr

CALCULATION OF PROPOSED PLANT NGL TRUCK UNLOADING HOSE DISCONNECTS POTENTIAL TO EMIT

Vapor Hose Parameters	**Units**	**Value**
Vapor Hose Diameter	inches	1
Vapor Hose Length	feet	0.5
Vapor Hose Volume	ft^3	0.003
Number of Vapor Hoses		1
Liquid Hose Parameters	**Units**	**Value**
Liquid Hose Diameter	inches	2
Liquid Hose Length	feet	0.5
Liquid Hose Volume	ft^3	0.01
Number of Liquid Hoses		1
NGL Data	**Units**	**Value**
Hourly Truckloads	loads/hr	1
Annual Truckloads	loads/yr	1,825
Loadout Pressure	psia	214.7
Maximum Unloading Temperature	deg R	554.67
Molecular Weight [a]	lb/lb-mol	62.15
Moles in Vapor Phase	lb-mol/ft^3	0.04
Vapor Density [b]	lb/ft^3	2.24
Liquid Density [a]	lb/ft^3	36.95

[a] Molecular weight and liquid density obtained from ProMax.

[b] Vapor density calculated using PV = nRT, where R = Universal Gas Constant 10.73 ft^3 x psia / lb-mol x deg R

Unit Number	Stack Number	Source Description	Density (lb/ft^3)	Hose Volume (ft^3/load)	Hourly PTE [c] (lb/hr)	Annual PTE [d] (T/yr)	VOC Content (wt%)	Hourly VOC PTE (lb/hr)	Annual VOC PTE (T/yr)
		NGL Vapor Hose Disconnects	2.24	0.003	0.01	0.01	100%	0.01	0.01
		NGL Liquid Hose Disconnects	36.95	0.01	0.40	0.37	100%	0.40	0.37
58	58	NGL Unload Hose Disconnects			0.41	0.37	100%	0.41	0.37

[c] Hourly Emissions (lb/hr) = No. of Hoses x Density (lb/ft^3) x Hose Volume (ft^3/load) x Loads per Hour (load/hr)

[d] Annual Emissions (T/yr) = No. of Hoses x Density (lb/ft^3) x Hose Volume (ft^3/load) x Loads per Year (load/yr) / 2,000 (lb/T)

CALCULATION OF PROPOSED PLANT FLARE FEED RATES DURING CONDENSATE TANK VRU DOWNTIME

			RVP 2 AOS					RVP 9 AOS				
	Heating	Molecular	Uncontrolled Stabilized Condensate Tank Vapors [b]		Flare Feed Rate		Volumetric Feed Rate [c]	Uncontrolled Stabilized Condensate Tank Vapors [b]		Flare Feed Rate		Volumetric Feed Rate [c]
Constituent	Value [a] (Btu/lb)	Weight (lb/lb-mol)	Hourly (lb/hr)	Annual (T/yr)	Hourly (MMBtu/hr)	Annual (MMBtu/yr)	Hourly (scf/hr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (MMBtu/hr)	Annual (MMBtu/yr)	Hourly (scf/hr)
Total VOC:			68.00	0.22				357.47	1.74			
Nitrogen	--	28.013	0.0000	0.0000	--	--	0.0000	0.0000	0.0000	--	--	0.0000
Carbon Dioxide	--	44.010	0.0000	0.0000	--	--	0.0000	1.82E-13	8.88E-16	--	--	1.58E-12
Hydrogen Sulfide	7,479	34.081	0.0000	0.0000	0.0000	0.0000	0.0000	7.34E-12	3.58E-14	5.49E-14	5.35E-13	8.20E-11
Methane	23,861	16.043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ethane	22,304	30.070	5.45E-14	1.78E-16	1.22E-15	7.96E-15	6.90E-13	5.04E-09	2.46E-11	1.12E-10	1.10E-09	6.38E-08
Propane	21,646	44.097	9.68E-09	3.17E-11	2.10E-10	1.37E-09	8.36E-08	0.0002	8.71E-07	3.87E-06	3.77E-05	0.0015
Isobutane	21,242	58.123	1.44E-06	4.73E-09	3.07E-08	2.01E-07	9.47E-06	0.0469	0.0002	0.0010	0.0097	0.3070
n-Butane	21,293	58.123	3.74E-05	1.23E-07	7.97E-07	5.22E-06	0.0002	3.0993	0.0151	0.0660	0.6436	20.3088
Isopentane	21,025	72.150	0.0020	6.42E-06	4.12E-05	0.0003	0.0104	42.3893	0.2067	0.8912	8.6915	223.7617
n-Pentane	21,072	72.150	0.0111	3.62E-05	0.0002	0.0015	0.0584	68.0211	0.3317	1.4333	13.9782	359.0645
n-Hexane	20,928	86.177	8.5441	0.0280	0.1788	1.1705	37.7608	100.2205	0.4887	2.0974	20.4544	442.9257
Heptanes	20,825	100.204	37.2327	0.1219	0.7754	5.0757	141.5160	91.5202	0.4463	1.9059	18.5868	347.8544
C8+ Heavies	20,747	114.231	20.8327	0.0682	0.4322	2.8294	69.4586	46.6325	0.2274	0.9675	9.4351	155.4785
Benzene	18,172	78.114	0.3559	0.0012	0.0065	0.0423	1.7354	3.0959	0.0151	0.0563	0.5486	15.0944
Toluene	18,422	92.141	0.8595	0.0028	0.0158	0.1037	3.5529	2.0885	0.0102	0.0385	0.3752	8.6327
Ethylbenzene	18,658	106.168	0.1448	0.0005	0.0027	0.0177	0.5194	0.3233	0.0016	0.0060	0.0588	1.1597
Xylene	18,438	106.167	0.0148	4.83E-05	0.0003	0.0018	0.0529	0.0328	0.0002	0.0006	0.0059	0.1177
				Total Feed Rates:	**1.4119**	**9.2429**	**254.66**		**Total Feed Rates:**	**7.4637**	**72.7880**	**1,574.71**
				Heating Value (Btu/scf):	**5,544.34**				**Heating Value (Btu/scf):**	**4,739.77**		

[a] Heating values taken from Perry's Chemical Engineers' Handbook, Table 3-207 (pg. 3-155).

[b] Emissions are speciated based on stabilized condensate streams from ProMax simulation reports.

[c] Volumetric feed rate for each contaminant calculated using the Ideal Gas Law at standard conditions of 14.65 psia and 60 °F.
An example volumetric feed rate calculation for propane follows:
(0.0002 lb/hr) / (44.097 lb/lb-mol) * (10.73 psia-ft3/lb-mol-deg. R) * (520 deg. R) / (14.65 psia) = 0.0015 scf/hr

Example process flare waste gas combustion calculations:

CO (lb/hr) = (1.4119 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = 0.39

PM_{10} (lb/hr) = (254.66 scf/hr) / (1,000,000) * (7.6 lb/MMscf)
PM_{10} (lb/hr) = 0.002

SO_2 (lb/hr) = (3.58E-14 T/yr H2S) * (64.06 lb/lb-mol SO2/34.08 lb/lb-mol H2S)
SO_2 (lb/hr) = 6.73E-14

		RVP 2 AOS		RVP 9 AOS	
Pollutant	lb/MMBtu	(lb/hr)	(T/yr)	lb/hr	T/yr
CO	0.2755	0.39	0.001	2.06	0.01
NO_X	0.1380	0.19	0.001	1.03	0.01
	lb/MMscf				
PM_{10}	7.6	0.002	6.33E-06	0.01	0.0001
$PM_{2.5}$	5.7	0.001	4.75E-06	0.01	4.38E-05
	H_2S lb/hr				
SO_2		0.00E+00	0.00E+00	1.38E-11	6.73E-14

CALCULATION OF PROPOSED PLANT FLARE FEED RATES DURING STABILIZER OVERHEAD VRU DOWNTIME AOS

Constituent	Heating Value [a] (Btu/lb)	Molecular Weight (lb/lb-mol)	RVP 2 AOS: Uncontrolled Stabilizer Flash Overheads [b] Hourly (lb/hr)	RVP 2 AOS: Uncontrolled Stabilizer Flash Overheads [b] Annual (T/yr)	RVP 2 AOS: Flare Feed Rate Hourly (MMBtu/hr)	RVP 2 AOS: Flare Feed Rate Annual (MMBtu/yr)	RVP 2 AOS: Volumetric Feed Rate [c] Hourly (scf/hr)	RVP 9 AOS: Uncontrolled Stabilizer Flash Overheads [b] Hourly (lb/hr)	RVP 9 AOS: Uncontrolled Stabilizer Flash Overheads [b] Annual (T/yr)	RVP 9 AOS: Flare Feed Rate Hourly (MMBtu/hr)	RVP 9 AOS: Flare Feed Rate Annual (MMBtu/yr)	RVP 9 AOS: Volumetric Feed Rate [c] Hourly (scf/hr)
Total VOC:			10,292.85	514.64				8,264.63	413.23			
Nitrogen	--	28.013	132.6262	6.6313	--	--	1,803.1641	132.6258	6.6313	--	--	1,803.1579
Carbon Dioxide	--	44.010	1,159.7406	57.9870	--	--	10,036.3303	1,114.1300	55.7065	--	--	9,641.6183
Hydrogen Sulfide	7,479	34.081	2.6346	0.1317	0.0197	1.9704	29.4415	2.0891	0.1045	0.0156	1.5624	23.3458
Methane	23,861	16.043	6,057.5710	302.8786	144.5397	14,453.9702	143,806.4524	6,054.5922	302.7296	144.4686	14,446.8624	143,735.7349
Ethane	22,304	30.070	6,186.8971	309.3449	137.9926	13,799.2553	78,361.8904	5,077.5361	253.8768	113.2494	11,324.9364	64,310.9654
Propane	21,646	44.097	6,818.7481	340.9374	147.5986	14,759.8622	58,892.6430	5,147.9380	257.3969	111.4323	11,143.2266	44,462.0727
Isobutane	21,242	58.123	917.0576	45.8529	19.4801	1,948.0138	6,009.1637	744.8566	37.2428	15.8222	1,582.2244	4,880.7898
n-Butane	21,293	58.123	1,983.5535	99.1777	42.2358	4,223.5805	12,997.5455	1,711.8238	85.5912	36.4499	3,644.9865	11,216.9939
Isopentane	21,025	72.150	270.3314	13.5166	5.6837	568.3719	1,427.0056	286.6388	14.3319	6.0266	602.6581	1,513.0878
n-Pentane	21,072	72.150	249.4743	12.4737	5.2569	525.6923	1,316.9067	281.0597	14.0530	5.9225	592.2490	1,483.6372
n-Hexane	20,928	86.177	43.0233	2.1512	0.9004	90.0392	190.1420	71.0415	3.5521	1.4868	148.6757	313.9688
Heptanes	20,825	100.204	7.8143	0.3907	0.1627	16.2733	29.7010	16.2614	0.8131	0.3386	33.8643	61.8070
C8+ Heavies	20,747	114.231	0.6718	0.0336	0.0139	1.3937	2.2398	1.6565	0.0828	0.0344	3.4368	5.5230
Benzene	18,172	78.114	1.9635	0.0982	0.0357	3.5680	9.5734	2.9298	0.1465	0.0532	5.3240	14.2848
Toluene	18,422	92.141	0.2049	0.0102	0.0038	0.3774	0.8468	0.4070	0.0204	0.0075	0.7499	1.6825
Ethylbenzene	18,658	106.168	0.0053	0.0003	0.0001	0.0098	0.0189	0.0125	0.0006	0.0002	0.0234	0.0450
Xylene	18,438	106.167	0.0005	2.30E-05	8.49E-06	0.0008	0.0017	0.0011	0.0001	2.05E-05	0.0021	0.0040
				Total Feed Rates:	**503.92**	**50,392.38**	**314,913.07**		**Total Feed Rates:**	**435.31**	**43,530.78**	**283,468.72**
				Heating Value (Btu/scf):	**1,600.20**				**Heating Value (Btu/scf):**	**1,535.65**		

[a] Heating values taken from Perry's Chemical Engineers' Handbook, Table 3-207 (pg. 3-155).

[b] Hourly emissions are based on ProMax simulations for the stabilization system. There are two (2) overhead compressors running at all times during normal operation. Vapors should only be sent to the flare while one (1) compressor is shut down for maintenance, and vapors will be curtailed during this transition.

[c] Volumetric feed rate for each contaminant calculated using the Ideal Gas Law at standard conditions of 14.65 psia and 60 °F.
An example volumetric feed rate calculation for propane follows:
(5,147.9380 lb/hr) / (44.097 lb/lb-mol) * (10.73 psia-ft3/lb-mol-deg. R) * (520 deg. R) / (14.65 psia) = 44,462.0727 scf/hr

Example proces flare waste gas combustion calculations:

CO (lb/hr) = (503.9238 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = 138.83

PM_{10} (lb/hr) = (314,913.07 scf/hr) / (1,000,000) * (7.6 lb/MMscf)
PM_{10} (lb/hr) = 2.39

SO_2 (lb/hr) = (0.1045 T/yr H2S) * (64.06 lb/lb-mol SO2/34.08 lb/lb-mol H2S)
SO_2 (lb/hr) = 0.20

Pollutant		RVP 2 AOS lb/hr	RVP 2 AOS T/yr	RVP9 AOS lb/hr	RVP9 AOS T/yr
	lb/MMBtu				
CO	0.2755	138.83	6.94	119.93	6.00
NO_X	0.1380	69.54	3.48	60.07	3.00
	lb/MMscf				
PM_{10}	7.6	2.39	0.12	2.15	0.11
$PM_{2.5}$	5.7	1.80	0.09	1.62	0.08
	H_2S lb/hr				
SO_2		4.95	0.25	3.93	0.20

CALCULATION OF PROPOSED PLANT TRUCK LOADING FLARE FEED RATES FROM LIQUID LOADING

Constituent	Heating Value [a] (Btu/lb)	Molecular Weight (lb/lb-mol)	RVP 2 AOS Uncontrolled Stabilized Condensate Loading [b] Hourly (lb/hr)	RVP 2 AOS Uncontrolled Stabilized Condensate Loading [b] Annual (T/yr)	RVP 2 AOS Flare Feed Rate Hourly (MMBtu/hr)	RVP 2 AOS Flare Feed Rate Annual (MMBtu/yr)	RVP 2 AOS Volumetric Feed Rate [c] Hourly (scf/hr)	RVP 9 AOS Uncontrolled Stabilized Condensate Loading [b] Hourly (lb/hr)	RVP 9 AOS Uncontrolled Stabilized Condensate Loading [b] Annual (T/yr)	RVP 9 AOS Flare Feed Rate Hourly (MMBtu/hr)	RVP 9 AOS Flare Feed Rate Annual (MMBtu/yr)	RVP 9 AOS Volumetric Feed Rate [c] Hourly (scf/hr)
Total VOC:			8.71	7.33				51.90	47.88			
Nitrogen	--	28.013	0.0000	0.0000	--	--	0.0000	0.0000	0.0000	--	--	0.0000
Carbon Dioxide	--	44.010	0.0000	0.0000	--	--	0.0000	2.64E-14	2.44E-14	--	--	2.29E-13
Hydrogen Sulfide	7,479	34.081	0.0000	0.0000	0.0000	0.0000	0.0000	1.07E-12	9.83E-13	7.97E-15	1.47E-11	1.19E-11
Methane	23,861	16.043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ethane	22,304	30.070	6.98E-15	5.87E-15	1.56E-16	2.62E-13	8.84E-14	7.32E-10	6.75E-10	1.63E-11	3.01E-08	9.27E-09
Propane	21,646	44.097	1.24E-09	1.04E-09	2.68E-11	4.51E-08	1.07E-08	2.59E-05	2.39E-05	5.61E-07	0.0010	0.0002
Isobutane	21,242	58.123	1.85E-07	1.56E-07	3.93E-09	6.61E-06	1.21E-06	0.0068	0.0063	0.0001	0.2666	0.0446
n-Butane	21,293	58.123	4.79E-06	4.03E-06	1.02E-07	0.0002	3.14E-05	0.4499	0.4152	0.0096	17.6799	2.9483
Isopentane	21,025	72.150	0.0003	0.0002	5.28E-06	0.0089	0.0013	6.1539	5.6781	0.1294	238.7647	32.4846
n-Pentane	21,072	72.150	0.0014	0.0012	2.98E-05	0.0502	0.0075	9.8750	9.1115	0.2081	383.9960	52.1272
n-Hexane	20,928	86.177	1.0943	0.9205	0.0229	38.5286	4.8363	14.5495	13.4247	0.3045	561.9039	64.3017
Heptanes	20,825	100.204	4.7686	4.0113	0.0993	167.0701	18.1248	13.2864	12.2593	0.2767	510.5987	50.4998
C8+ Heavies	20,747	114.231	2.6682	2.2444	0.0554	93.1298	8.8960	6.7699	6.2465	0.1405	259.1921	22.5716
Benzene	18,172	78.114	0.0456	0.0383	0.0008	1.3937	0.2223	0.4494	0.4147	0.0082	15.0717	2.1913
Toluene	18,422	92.141	0.1101	0.0926	0.0020	3.4119	0.4550	0.3032	0.2798	0.0056	10.3074	1.2533
Ethylbenzene	18,658	106.168	0.0185	0.0156	0.0003	0.5820	0.0665	0.0469	0.0433	0.0009	1.6160	0.1684
Xylene	18,438	106.167	0.0019	0.0016	3.48E-05	0.0586	0.0068	0.0048	0.0044	0.0001	0.1621	0.0171
			Total Feed Rates:		**0.1808**	**304.2340**	**32.62**			**1.0835**	**1,999.5601**	**228.61**
			Heating Value (Btu/scf):		**5,544.34**					**4,739.77**		

[a] Heating values taken from Perry's Chemical Engineers' Handbook, Table 3-207 (pg. 3-155).

[b] Emissions are speciated based on stabilized condensate streams from ProMax simulation reports.

[c] Volumetric feed rate for each contaminant calculated using the Ideal Gas Law at standard conditions of 14.65 psia and 60 °F.
An example volumetric feed rate calculation for propane follows:
(0.00003 lb/hr) / (44.097 lb/lb-mol) * (10.73 psia-ft3/lb-mol-deg. R) * (520 deg. R) / (14.65 psia) = 0.0002 scf/hr

Example truck loading flare waste gas combustion calculations:

CO (lb/hr) = (0.1808 MMBtu/hr) * (0.2755 lb/MMBtu)
CO (lb/hr) = 0.05

PM_{10} (lb/hr) = (32.62 scf/hr) / (1,000,000) * (7.6 lb/MMscf)
PM_{10} (lb/hr) = 0.0002

SO_2 (lb/hr) = (1.07E-12 T/yr H2S) * (64.06 lb/lb-mol SO2/34.08 lb/lb-mol H2S)
SO_2 (lb/hr) = 1.85E-12

Pollutant	lb/MMBtu	RVP 2 AOS lb/hr	RVP 2 AOS T/yr	RVP 9 AOS lb/hr	RVP 9 AOS T/yr
CO	0.2755	0.05	0.02	0.30	0.28
NO_X	0.1380	0.02	0.02	0.15	0.14
	lb/MMscf				
PM_{10}	7.6	0.0002	0.0002	0.002	0.002
$PM_{2.5}$	5.7	0.0002	0.0002	0.001	0.001
	H_2S lb/hr				
SO_2		0.00E+00	0.00E+00	2.00E-12	1.85E-12

SUMMARY OF PROPOSED PLANT STABILIZED CONDENSATE STORAGE TANK EMISSIONS CONTROL AOS EMISSION RATES - RVP 2

	Control Equipment			Potential Emissions															
				VOC		NO_X		CO		PM_{10}		$PM_{2.5}$		SO_2		H_2S		Total HAP	
Unit Number	Unit Number	Stack Number	Source Description	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)	Hourly (lb/hr)	Annual (T/yr)
51	59	51	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
52	59	52	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
53	59	53	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
54	59	54	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
			VRU Operating 8,760 hr/yr:	2.04	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.02
51	59	51	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
52	59	52	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
53	59	53	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
54	59	54	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
39	39	39	Process Flare - Storage Tank Vapor Combustion	--	--	0.19	0.001	0.39	0.001	0.002	6.33E-06	0.001	4.75E-06	0.00	0.00	--	--		
51	39	39	500-bbl Stabilized Condensate Storage	0.34	0.001	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.05	0.0002
52	39	39	500-bbl Stabilized Condensate Storage	0.34	0.001	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.05	0.0002
53	39	39	500-bbl Stabilized Condensate Storage	0.34	0.001	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.05	0.0002
54	39	39	500-bbl Stabilized Condensate Storage	0.34	0.001	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.05	0.0002
			VRU Operating 8,322 hr/yr, Flare Control 438 hr/yr:	2.04	0.13	0.19	0.001	0.39	0.001	0.002	6.33E-06	0.001	4.75E-06	0.00	0.00	0.00	0.00	0.30	0.02
			Maximum AOS Emissions:	**2.04**	**0.13**	**0.19**	**0.001**	**0.39**	**0.001**	**0.002**	**6.33E-06**	**0.001**	**4.75E-06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.30**	**0.02**

SUMMARY OF PROPOSED PLANT STABILIZED CONDENSATE STORAGE TANK EMISSIONS CONTROL AOS EMISSION RATES - RVP 9

	Control Equipment			Potential Emissions															
				VOC		NO_X		CO		PM_{10}		$PM_{2.5}$		SO_2		H_2S		Total HAP	
Unit Number	**Unit Number**	**Stack Number**	**Source Description**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**
51	59	51	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
52	59	52	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
53	59	53	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
54	59	54	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
			VRU Operating 8,760 hr/yr:	10.72	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20E-13	2.15E-14	3.17	0.31
51	59	51	500-bbl Stabilized Condensate Storage	2.68	0.25	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.10E-15	0.79	0.07
52	59	52	500-bbl Stabilized Condensate Storage	2.68	0.25	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.10E-15	0.79	0.07
53	59	53	500-bbl Stabilized Condensate Storage	2.68	0.25	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.10E-15	0.79	0.07
54	59	54	500-bbl Stabilized Condensate Storage	2.68	0.25	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.10E-15	0.79	0.07
39	39	39	Process Flare - Storage Tank Vapor Combustion	--	--	1.03	0.01	2.06	0.01	0.01	0.0001	0.01	4.38E-05	1.38E-11	6.73E-14	--	--		
51	39	39	500-bbl Stabilized Condensate Storage	1.79	0.01	--	--	--	--	--	--	--	--	--	--	3.67E-14	1.79E-16	0.53	0.003
52	39	39	500-bbl Stabilized Condensate Storage	1.79	0.01	--	--	--	--	--	--	--	--	--	--	3.67E-14	1.79E-16	0.53	0.003
53	39	39	500-bbl Stabilized Condensate Storage	1.79	0.01	--	--	--	--	--	--	--	--	--	--	3.67E-14	1.79E-16	0.53	0.003
54	39	39	500-bbl Stabilized Condensate Storage	1.79	0.01	--	--	--	--	--	--	--	--	--	--	3.67E-14	1.79E-16	0.53	0.003
			VRU Operating 8,322 hr/yr, Flare Control 438 hr/yr:	10.72	1.03	1.03	0.01	2.06	0.01	0.01	0.0001	0.01	4.38E-05	1.38E-11	6.73E-14	2.20E-13	2.11E-14	3.17	0.30
			Maximum AOS Emissions:	**10.72**	**1.05**	**1.03**	**0.01**	**2.06**	**0.01**	**0.01**	**0.0001**	**0.01**	**4.38E-05**	**1.38E-11**	**6.73E-14**	**2.20E-13**	**2.15E-14**	**3.17**	**0.31**

SUMMARY OF PROPOSED PLANT STABILIZED CONDENSATE PRODUCT REID VAPOR PRESSURE ALTERNATE OPERATING SCENARIO EMISSION RATES

				Potential Emissions															
	Control Equipment			VOC		NO_X		CO		PM_{10}		$PM_{2.5}$		SO_2		H_2S		Total HAP	
Unit Number	**Unit Number**	**Stack Number**	**SourceDescription**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**	**Hourly (lb/hr)**	**Annual (T/yr)**
RVP 2																			
39	39	39	Process Flare - Condensate Stabilization Vapors	--	--	69.54	3.48	138.83	6.94	2.39	0.12	1.80	0.09	4.95	0.25	--	--	--	--
47	39	39	Stabillizer Overhead VRU Downtime	137.67	6.88	--	--	--	--	--	--	--	--	--	--	0.05	0.003	0.90	0.05
51	59 39	51 39	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
52	59 39	52 39	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
53	59 39	53 39	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
54	59 39	54 39	500-bbl Stabilized Condensate Storage	0.51	0.03	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.07	0.005
2	2	2	Flare - Loading	--	--	0.02	0.02	0.05	0.02	0.0002	0.0002	0.0002	0.0002	0.00	0.00	--	--	--	--
57	- 2	57 2	Truck Loading Stabilized Condensate	0.29	0.24	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.04	0.04
			Maximum RVP 2 Product Emissions:	140.00	7.26	69.57	3.50	138.88	6.96	2.39	0.12	1.80	0.09	4.95	0.25	0.05	0.003	1.24	0.10
RVP 9																			
39	39	39	Process Flare - Condensate Stabilization Vapors	--	--	60.07	3.01	119.93	6.01	2.15	0.11	1.62	0.08	3.93	0.20	--	--	--	--
47	39	39	Stabillizer Overhead VRU Downtime	113.81	5.69	--	--	--	--	--	--	--	--	--	--	0.04	0.002	1.49	0.07
51	59 39	51 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
52	59 39	52 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
53	59 39	53 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
54	59 39	54 39	500-bbl Stabilized Condensate Storage	2.68	0.26	--	--	--	--	--	--	--	--	--	--	5.50E-14	5.37E-15	0.79	0.08
2	2	2	Flare - Loading	--	--	0.15	0.14	0.30	0.28	0.002	0.002	0.001	0.001	2.00E-12	1.85E-12	--	--	--	--
57	- 2	57 2	Truck Loading Stabilized Condensate	1.72	1.59	--	--	--	--	--	--	--	--	--	--	3.53E-14	3.26E-14	0.51	0.47
			Maximum RVP 9 Product Emissions:	126.26	8.32	60.22	3.15	120.23	6.28	2.16	0.11	1.62	0.08	3.93	0.20	0.04	0.002	5.17	0.85
			Maximum RVP AOS Emissions:	**140.00**	**8.32**	**69.57**	**3.50**	**138.88**	**6.96**	**2.39**	**0.12**	**1.80**	**0.09**	**4.95**	**0.25**	**0.05**	**0.003**	**5.17**	**0.85**

CALCULATION OF EXISTING PLANT UNPAVED HAUL ROADS POTENTIAL TO EMIT

Round-trip Distance Within Facility Boundaries, miles	0.6	Silt Content, %	4.8
Number of Round-trips per Hour	0.07	Mean Vehicle Weight, tons	46
Number of Round-trips per Year	620.5	Rain Days	70
Hourly Miles Traveled, VMT/hr	0.04	User Control, %	0
Annual Miles Traveled, VMT/yr	372.3		

	TSP		PM_{10}		$PM_{2.5}$	
Unit Number	**Hourly lb/VMT [a]**	**Annual lb/VMT [b]**	**Hourly lb/VMT [a]**	**Annual lb/VMT [b]**	**Hourly lb/VMT [a]**	**Annual lb/VMT [b]**
22	8.81	7.12	2.25	1.82	0.22	0.18

Potential Emission Rates

	TSP		PM_{10}		$PM_{2.5}$	
Control	**lb/hr [a]**	**T/yr [b]**	**lb/hr [a]**	**T/yr [b]**	**lb/hr [a]**	**T/yr [b]**
Continuous	0.37	1.25	0.10	0.32	0.01	0.03
0% Control	0.37	1.33	0.10	0.34	0.01	0.03
User % Control	0.37	1.33	0.10	0.34	0.01	0.03

[a] AP-42 Section 13.2.2 Unpaved Roads (11/06), Equation 1a and Table 13.2.2-2. Constants for Equations 1a and 1b.
4.9 lb/VMT TSP * (Silt Content, 4.8 / 12)^0.7 * (Mean Vehicle Weight, 46 T / 3)^0.45 = 8.81 Hourly lb/VMT TSP

[b] AP-42 Section 13.2.2 Unpaved Roads (11/06), Equation 2.
8.81 Hourly lb/VMT TSP * [(365 days - 70 days) / 365 days] = 7.12 Annual lb/VMT TSP

7.12 Annual lb/VMT TSP * Annual Miles Traveled, 372.3 VMT/yr / 2,000 lb/T = 1.33 T/yr TSP

CALCULATION OF PROPOSED PLANT COMPRESSOR BLOWDOWNS POTENTIAL TO EMIT

	Residue
Number of Blowdowns per Hour:	1
Number of Blowdowns per Year per Unit:	60
Gas Stream Molecular Weight, lb/lb-mol:	21.58
Gas Stream Density, lb/scf :	0.0569
Maximum VOC, wt%:	29.24%
Maximum H_2S, wt%:	0.0001%
Flare Control Efficiency, %:	98.52%

Compressor Engine Stack Numbers	Blowdown Volume scf/event	Potential Emission Rates			
		VOC		H_2S	
		lb/hr [a]	T/yr [b]	lb/hr [a]	T/yr [b]
26	6,500	1.60	0.05	7.40E-06	2.22E-07
27	6,500	1.60	0.05	7.40E-06	2.22E-07
28	6,500	1.60	0.05	7.40E-06	2.22E-07
29	6,500	1.60	0.05	7.40E-06	2.22E-07
Max. Totals	--	1.60	0.19	7.40E-06	8.88E-07

[a] Hourly blowdown VOC emission rates are calculated as follows:

(1 blowdown/hr) * (6,500 scf/blowdown) * (0.0569 lb/scf) * (29.24% VOC) * (100% - 98.52%) = 1.60 lb/hr VOC

[b] Annual blowdown VOC emission rates are calculated as follows:

(60 blowdowns/yr) * (6,500 scf/blowdown) * (0.0569 lb/scf) * (29.24% VOC) / (2,000 lb/T) * (100% - 98.52%) = 0.05 T/yr VOC

Note: Compressors are able to start up and shut down during normal operations without a blowdown. The blowdown emissions represented are only for severe repairs that cannot be recycled back to inlet suction.

CALCULATION OF SPECIATED PROPOSED PLANT COMPRESSOR BLOWDOWN VAPORS

Constituent	Residue Gas Stream Composition (wt%)	Uncontrolled Residue Compressor Blowdown Vapors	
		Hourly (lb/hr)	Annual (T/yr)
Water	0.0097%	0.0433	0.0052
Nitrogen	1.9214%	8.5318	1.0238
Carbon Dioxide	0.00001%	0.0001	6.20E-06
Hydrogen Sulfide	0.0001%	0.0004	4.44E-05
Methane	56.5749%	251.2200	30.1464
Ethane	17.1265%	76.0498	9.1260
Propane	12.5956%	55.9307	6.7117
Isobutane	2.2088%	9.8079	1.1770
n-Butane	5.0574%	22.4573	2.6949
Isopentane	1.4036%	6.2326	0.7479
n-Pentane	1.5498%	6.8817	0.8258
n-Hexane	1.5515%	6.8895	0.8267
Heptanes	0.0007%	0.0033	0.0004
C8+ Heavies	0.00004%	0.0002	2.30E-05
Benzene	0.000002%	7.26E-06	8.71E-07
Toluene	0.000003%	1.42E-05	1.70E-06
Ethylbenzene	0.000001%	5.67E-06	6.80E-07
Xylene	0.0000001%	5.18E-07	6.21E-08
	Total Uncontrolled VOC:	108.20	12.98
	Total Controlled VOC:	**1.60**	**0.19**
	Total Controlled Benzene:	**1.45E-07**	**1.74E-08**
	Total Controlled HAP:	**0.14**	**0.02**

CALCULATION OF PROPOSED PLANT MISCELLANEOUS MSS ACTIVITIES POTENTIAL TO EMIT

Emissions Summary

Pollutant	Hourly Max. (lb/hr)	Annual Total (T/yr)
VOC	82.43	2.65
H_2S	0.01	0.0002

#	Activity	Description / Comments	Default Parameters		Equation Used		Input Parameters		Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (T/yr)	Source for "Input Parameters"
1	***(b)(1) Engine/Turbine Oil Changes / Filter Changes*** The emissions associated with an engine oil/filter change occur during the draining of the used engine oil into oil pan or container.	-Engine has been isolated and blowdown occurs prior to oil change. -Oil is drained into a 4' x 4' open pan and transferred to a closed container per Best Management Practice (BMP). -Input parameters based on manufacturer specifications of engine oil SAE 10W (a). -Used a 1,380 hp Caterpillar G3516B LE engine (b) as basis for calculation. An average engine uses 112 gallons of motor oil and manufacturer recommends changing oil every 1,000 hrs. -Assume emissions from opening, loading, and evaporation occur in three separate hours.	Temperature (°F)	212	Loading Loss, L_L (lb/Mgal)	0.0093	Number of Engines/Turbines	8	VOC	1.0272	0.0823	Site-Specific Data
			Vapor Pressure (psia)	0.001								
			Saturation Factor	1	Loading Loss per Activity (lb/activity)	0.0010						
			Molecular Weight (lb/lb-mol)	500								
			Motor Oil (gal/activity)	112								
			Wind Speed, U (mph)	3.52	Evaporation Loss (lb/activity)	1.0272						
			Vapor Pressure, P_V (Pa)	10								
			Surface Area, Ap (m^2) (4' x 4')	1.48								
			Evaporation Time, t (hr)	10								
			Factor For Larger Horsepower Engines	2								
			Number of Activities (oil changes per engine) per Year	10	Total (lb/yr/engine)	20.5650						
2	***(b)(1) & (b)(4) Changing Engine Rod Packings*** Emissions from changing of the rod would be from clingage of lubricant in the casing.	-Engine has been isolated and blowdown occurs prior to changing rod packing. -Emissions from clingage are the evaporation of the lubricant adhered to the rod packing casing. -Casing volume for calculations is based on field observation of casing for a 1,380-hp G3516B LE engine (b). -Input parameters based on material specifications for AP 101 (c) grease. -Assume all emissions from maintenance activity occur in one hour.	Temperature (°F)	104	Clingage Loss (lb/activity)	0.0001	Number of Engines	4	VOC	0.0001	2.33E-06	Site-Specific Data
			Vapor Pressure (psia)	0.001								
			Molecular Weight (lb/lb-mol)	500								
			Casing Volume, V_V (ft^3) (1' x 3')	2.355								
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73								
			Number of Activities (rod packing changes per engine) per Year	10	Total (lb/yr/engine)	0.0012						
3	***(b)(3) Changing Wet and Dry Seals*** Emissions from changing seals would be from clingage of lubricant in the casing.	-Engine has been isolated and blowdown occurs prior to changing seals. -Emissions from clingage are the evaporation of the lubricant adhered to the seal. -Casing volume for calculations is based on field observation of casing for a 1,380-hp Caterpillar G3516B LE engine (b). -Input parameters based on material specifications for AP 101 (c) grease. -Assume all emissions from maintenance activity occur in one hour.	Temperature (°F)	104	Clingage Loss (lb/activity)	0.0001	Number of Engines	4	VOC	0.0001	4.67E-07	Site-Specific Data
			Vapor Pressure (psia)	0.001								
			Molecular Weight (lb/lb-mol)	500								
			Casing Volume, V_V (ft^3) (1' x 3')	2.355								
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73								
			Number of Activities (seal changes per engine) per Year	2	Total (lb/yr/engine)	0.0002						
4	***(b)(2) Glycol Dehydration Unit*** ***E*** missions associated with replacement of glycol solution. There are two vessels in a dehydration unit: contactor and regenerator.	-Calculations based on physical properties of mono ethylene glycol (MEG) (d) because of its low molecular weight and high vapor pressure which gives the most conservative emissions estimate. -Typically the glycol solution used in dehydration unit is not entirely replaced but it is conservatively assumed that the glycol solution is drained once per year for vessel maintenance. -Per field experience, 4,000 gal of glycol solution is used in a large dehydration unit. -Assume emissions from opening, loading, and clingage occur in three separate hours.	Temperature (°F)	68	Loading Loss, L_L (lb/Mgal)	0.0015	Number of Dehy Units	1	VOC	0.0155	1.07E-05	Site-Specific Data
			Vapor Pressure (psia)	0.001								
			Saturation Factor	1	Loading Loss per Activity (lb/activity)	0.0059						
			Molecular Weight (lb/lb-mol)	62.07								
			Glycol Solution (gal/activity)	4,000								
			Vessel Volume, V_V (ft^3) (5' radii x 30' height)	2,355	Clingage Loss (lb/activity)	0.0155						
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73	Total (lb/yr/unit)	0.0213						
			Number of Activities per Year	1								
5	***(b)(2) Amine Unit*** Emissions associated with replacement of solution used in the amine unit. There are two vessels in an amine unit: Contactor and regenerator.	-Calculations based on physical properties of mono ethanol amine (MEA)(e) because of its low molecular weight and high vapor pressure which gives the most conservative emissions estimate. -Typically the solution used in amine unit is not entirely replaced but it is conservatively assumed that the amine solution is drained once per year for vessel maintenance. -Per field experience, 4,000 gal of solution is used in a large amine unit. -Assume emissions from opening, loading, and clingage occur in three separate hours.	Temperature (°F)	68	Loading Loss, L_L (lb/Mgal)	0.0058	Number of Amine Units	2	VOC	0.0609	0.0001	TCEQ Default Value
			Vapor Pressure (psia)	0.004								
			Saturation Factor	1	Loading Loss per Activity (lb/activity)	0.0231						
			Molecular Weight (lb/lb-mol)	61.08								
			Amine Solution (gal/activity)	4,000								
			Vessel Volume, V_V (ft^3) (5' radii x 30' height)	2,355	Clingage Loss (lb/activity)	0.0609						
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73	Total (lb/yr/unit)	0.0840						
			Number of Activities per Year	1								
7	***(b)(2) Aerosol Lubricants***	-45-50% VOC by weight volatilizes. -Material specification per Lubricant MSDS (f). -VOC evaporation is based off standard engineering judgment consistent with product specification. -Standard Industrial Size Cans (oz.) 16 -Assume 4 cans used in an hour as a maximum			Pounds of Emissions per Can (lb/can)	0.5	Number of 16 oz Cans Used	100	VOC	2.0000	0.0250	TCEQ Default Value

CALCULATION OF PROPOSED PLANT MISCELLANEOUS MSS ACTIVITIES POTENTIAL TO EMIT

Emissions Summary

Pollutant	Hourly Max. (lb/hr)	Annual Total (T/yr)
VOC	82.43	2.65
H_2S	0.01	0.0002

#	Activity	Description / Comments	Default Parameters		Equation Used		Input Parameters		Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (T/yr)	Source for "Input Parameters"
8	***(b)(3) Piping Components***	-Calculations based on condensate (RVP 10) because it has higher vapor pressure than crude oil (RVP 5) and results in a more conservative emission estimate. -100 foot long pipe sections conservatively assumed for emission calculations. -Assume all emissions from maintenance activity occur in one hour.	Temperature (°F)	100	Clingage Loss (lb/activity)	5.4321	Number of 100 ft Piping Sections	10	VOC	5.4321	0.0272	TCEQ Default Value
			Vapor Pressure (psia)	10.5								
			Molecular Weight (lb/lb-mol)	66								
			Vessel Volume, V_V (ft^3) (0.5' radii x 100' height)	78.5								
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73								
			Number of Activities per Year	1	Total (lb/yr/section)	5.4321						
9	***(b)(3) Pneumatic Controllers***	Based on field experience and site visits to two plants in Central Texas area, changing pneumatic controllers of equipment under pressure requires isolation of pipe section or process equipment and a blowdown. There are no emissions associated with changing the controller.										
10	***(b)(2) Calibration***	-Per Monitoring Division's Laboratory and Quality Assurance Section - a typical cylinder contains 100 lbs.			Pounds of pentane in one cylinder (lb/cylinder)	100	Number of Cylinders	12	VOC	0.2740	0.6000	Site-Specific Data
11	***(b)(6)***	Safety factor to account for MSS activities with the same character and quantity of emissions as those listed in paragraphs (b) (1) - (5) of §106.359.						1	VOC	0.6790	0.0918	TCEQ Default Value
16	***(b)(8) Gas Pipeline Blowdown***	-Assume all emissions from maintenance activity occur in one hour. -Includes blocking and venting lines for minor repair and replacement.	Volume Degassed (scf)	100	Volume Degassed (at pressure) (scf)	204.0816			VOC	3.3646	0.0404	Site-Specific Data
			Pressure at Which Stream is Degassed (psi)	30					H_2S	0.0005	6.11E-06	
			Air Molecular Weight (lb/lb-mol)	28.96	Stream Specific Gravity	0.7622						
			Molar Volume Conversion (scf/lb-mol)	379.4	Stream Density (lb/scf)	0.0582						
			Inlet Stream VOC Content (%)	28.34%								
			Inlet Stream H_2S Content (%)	0.00%								
			Type of Control Equipment	None								
			Control Efficiency (%)	0.00%								
			Events per Hour	1								
			Events per Year	24								
18a	***(b)(10) Coating (hand-applied)***	Regardless of the amount of paint applied, if the coating is applied with brushes and/or rollers, the coating activity is De Minimis.										
18b	***(b)(10) Coating (spray)***	-If less than 100 gal/yr coating and less than 50 gal/yr solvent, activity is De Minimis regardless of the application method. -Assume max. VOC content as allowed by 30 TAC 115, i.e., 3.5 lb/gal. -Emission calculation formula and emission factors are defined in TCEQ Technical Guidance Document for Surface Coating Operations dated April 2001. -The calculations do not account for any enclosure or control device.	Maximum Hourly Coating Usage Rate (gal/hr-gun)	5	Maximum Hourly Emissions (lb/hr)	17.5000			VOC	0.0000	0.0000	Site-Specific Data
			Maximum Annual Coating Usage Rate (gal/yr-gun)	99								
			Number of Guns with Concurrent Coating	1	Maximum Annual Emissions (T/yr)	0.1733						
			Max. VOC Content (lb/gal)	3.5								

CALCULATION OF PROPOSED PLANT MISCELLANEOUS MSS ACTIVITIES POTENTIAL TO EMIT

Emissions Summary

Pollutant	Hourly Max. (lb/hr)	Annual Total (T/yr)
VOC	82.43	2.65
H_2S	0.01	0.0002

#	Activity	Description / Comments	Default Parameters		Equation Used		Input Parameters		Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (T/yr)	Source for "Input Parameters"
18b	***(b)(10) Coating (spray)***	-If less than 100 gal/yr coating and less than 50 gal/yr solvent, activity is De Minimis regardless of the application method. -Emission calculation formula and emission factors are defined in TCEQ Technical Guidance Document for Surface Coating Operations dated April 2001. -It is assumed that 90% of the overspray falls to the ground per TCEQ Memo dated January 10, 1994. -All PM is assumed to be PM and PM_{10} (i.e., no particle size distribution is applied).	Maximum Hourly Coating Usage Rate (gal/hr-gun)	5	Maximum Hourly Emissions (lb/hr)	4.5425			PM_{10}	0.0000	0.0000	Site-Specific Data
			Maximum Annual Coating Usage Rate (gal/yr-gun)	99					PM	0.0000	0.0000	
			Max. Density (lb/gal)	23	Maximum Annual Emissions (T/yr)	0.0398						
			Percent Overspray for PM (%)	50.00%								
			Max. Solids Content (%)	79.00%								
			Max. Solids Content (%)	70.00%								
			Fallout Factor Content (%)	90.00%								
19	***(b)(7) Pigging Activities***	-Based on an estimate of 50 scf of gas being degassed per event at 900 psi -Assume all emissions from maintenance activity occur in one hour.	Volume degassed (acf)	821	Volume degassed (scf)	5,000.00			VOC	82.4331	0.9892	Site-Specific Data
			Pressure at which stream is degassed (psi)	900					H_2S	0.0125	0.0001	
			Air Molecular Weight (lb/lb-mol)	28.96	Stream Specific Gravity	0.7622						
			Molar volume conversion (scf/(lb/mol))	379.4	Stream Density (lb/scf)	0.0582						
			Inlet stream VOC content (%)	28.34%								
			Inlet stream H_2S content (%)	0.00%								
			Type of Control Equipment	None								
			Control Efficiency (%)	0.00%								
			Events per Hour	1								
			Events per Year	24								
20	***(b)(9) Non-Condensate Tank Cleaning Activities***	-For non-condensate tanks and storage vessels. -Assumed volume drained was equal to 1% of the vessel volume. -Assumed drained material is immediately placed in a closed vessel. To be conservative, this time is represented as 15 minutes. -Assumed an average daily temperature of 95F, per TCEQ guidance. -Assume all emissions from opening, loading, and evaporation occur in three separate hours.	Vapor Pressure, P (psia)	0.0089	Volume of Vessel, Vv (ft^3)	1,179.14	Number of Non-Condensate Tanks	18	VOC	0.1123	0.0013	Site-Specific Data
			Vessel Height (ft)	15								
			Vessel Diameter (ft)	10	Opening Loss, Lo (lb/activity)	0.1123						
			Vessel Volume (bbl)	210	Loading Loss Factor (lb/Mgal loaded)	0.0127						
			Average Daily Temperature (°F)	71.28								
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73	Volume of Liquid Drained, Vl (gal/activity)	88.2000						
			Vapor Molecular Weight, MWv (lb/lb-mol)	61.00								
			Saturation Factor	1	Loading Loss per Activity (due to draining) (lb/activity)	0.0011						
			Wind Speed, U (mph)	3.52								
			Surface Area, Ap (m^2)	1	Vapor Pressure, P_V (Pa)	61.3634						
			Time Material Sits Uncovered, t (hr)	0.25	Evaporation Loss (lb/activity)	0.0266						
			Events per Hour per Tank	1	Total (lb/yr/tank)	0.1400						
			Events per Year per Tank	1								
21	***(b)(9) Condensate Tank Cleaning Activities***	-For condensate tanks and storage vessels. -Assume volume drained is equal to 1% of the vessel volume. -Assume drained material is immediately placed in a closed vessel. To be conservative, this time is represented as 15 minutes. -Assume emissions from opening, loading, and evaporation occur in three separate hours.	Vapor Pressure, P (psia)	9.00	Volume of Vessel, Vv (ft^3)	2,807.4866	Number of Condensate Tanks	6	VOC	59.4897	0.7947	Site-Specific Data
			Vessel Height (ft)	16	Events per Hour per Tank	0.25			H_2S	1.22E-12	1.63E-14	
			Vessel Diameter (ft)	15.5	Events per Year per Tank	1						
			Vessel Volume (bbl)	500	Opening Loss, Lo (lb/activity)	237.9590						
			Average Daily Temperature (°F)	65.8	Loading Loss Factor (lb/Mgal loaded)	11.3319						
			Ideal Gas Constant (psia-ft^3/lb-mol-°R)	10.73								
			Vapor Molecular Weight, MWv (lb/lb-mol)	53.14	Volume of Liquid Drained, Vl (gal/activity)	210.0000						
			Saturation Factor	1								
			Wind Speed, U (mph)	3.52	Loading Loss per Activity (due to draining) (lb/activity)	2.3797						
			Surface Area, Ap (m^2)	1								
			Time Material Sits Uncovered, t (hr)	0.25	Vapor Pressure, P_V (Pa)	62,052.84						
			Condensate Stream H_2S Content (%)	0.00%	Evaporation Loss (lb/activity)	24.5479						
			Type of Control Equipment	None	Total (lb/yr/tank)	264.8866						
			Control Efficiency (%) (opening losses only)	0.00%								

CALCULATION OF POTENTIAL TO EMIT GREENHOUSE GASES FROM COMBUSTION SOURCES

Combustion Source Unit No.	HP	Btu/hp-hr	MMBtu/hr	Annual Operating Hours	Fuel Usage MMBtu/Year	CO_2e [a] metric T/yr	CO_2e [a] short T/yr	GHG Mass [a] short T/yr
1	--	--	30.64	8,760	268,406	14,245.62	15,702.94	15,687.05
15	--	--	64.38	8,760	563,969	29,932.53	32,994.63	32,961.25
16	--	--	19.69	8,760	172,484	9,154.58	10,091.09	10,080.88
17	--	--	16.10	8,760	141,036	7,485.46	8,251.22	8,242.87
26	5,000	7,415	37.08	8,760	324,777	17,237.47	19,000.87	18,981.64
27	5,000	7,415	37.08	8,760	324,777	17,237.47	19,000.87	18,981.64
28	5,000	7,415	37.08	8,760	324,777	17,237.47	19,000.87	18,981.64
29	5,000	7,415	37.08	8,760	324,777	17,237.47	19,000.87	18,981.64
30	3,628	6,143	22.29	8,760	195,239	10,362.24	11,422.30	11,410.75
31	3,628	6,143	22.29	8,760	195,239	10,362.24	11,422.30	11,410.75
32	3,628	6,143	22.29	8,760	195,239	10,362.24	11,422.30	11,410.75
33	3,628	6,143	22.29	8,760	195,239	10,362.24	11,422.30	11,410.75
34	--	--	3.75	8,760	32,850	1,743.51	1,921.87	1,919.92
35	--	--	15.95	8,760	139,722	7,415.72	8,174.35	8,166.07
36	--	--	60.00	8,760	525,600	27,896.11	30,749.89	30,718.78
37	--	--	5.61	8,760	49,100	2,605.96	2,872.55	2,869.65
38	--	--	23.00	8,760	201,480	10,693.51	11,787.46	11,775.53
41	--	--	21.23	8,760	185,960	9,869.77	10,879.45	10,868.44
SITE TOTAL			**497.79**	**---**	**4,360,669**	**231,441.63**	**255,118.11**	**254,859.99**

[a] Example calculations:

Greenhouse Gas (GHG) Emission Factors are from 40 CFR 98, Subpart C Tables C-1 and C-2.

Carbon Dioxide Emission Factor (CO_2EF) = 53.02 kg/MMBtu
Methane Emission Factor (CH_4EF) = 0.001 kg/MMBtu
Nitrous Oxide Emission Factor (N_2OEF) = 0.0001 kg/MMBtu

An example calculation for carbon dioxide equivalent CO_2e in metric T/yr for Unit No. 1 follows:
CO_2e (metric T/yr) = (0.001 metric T/kg)*(Fuel usage, MMBtu/yr))*[(CO_2EF + 25*CH_4EF + 298*N_2OEF), kg/MMBtu]
CO2e (metric T/yr) = (0.001 metric T/kg) * (268,406 MMBtu/yr) * [(53.02 kg/MMBtu) + (25*0.001 kg/MMBtu) + (298*0.0001 kg/MMBtu)] = 14,245.62 metric T/yr

An example calculation for CO_2e in short T/yr for Unit No. 1 follows:
CO_2e (short T/yr) = (0.001 metric T/kg) * (Fuel usage, MMBtu/yr)) * [(CO_2EF + 25*CH_4EF +298*N_2OEF), kg/MMBtu] * (2,204.6 lb/metric T) / (2,000 lb/short T)
CO2e (short T/yr) = (0.001 metric T/kg) * (268,406 MMBtu/yr) * [(53.02 kg/MMBtu) + (25*0.001 kg/MMBtu) + (298*0.0001 kg/MMBtu)] * (2,204.6 lb/metric T) / (2,000 lb/short T) = 15,702.94 short T/yr

An example calculation for GHG Mass in short T/yr for Unit No. 1 follows:
GHG Mass (short T/yr) = (0.001 metric T/kg) * (Fuel usage, MMBtu/yr) * (CO_2EF+CH_4EF+N_2OEF) * (2,204.6 lb/metric T) / (2,000 lb/short T)
GHG Mass (short T/yr) = (0.001 metric T/kg) * (268,406 MMBtu/yr) * [(53.02 kg/MMBtu) + (0.001 kg/MMBtu) + (0.0001 kg/MMBtu)] * (2,204.6 lb/metric T) / (2,000 lb/short T) = 15,687.05 short T/yr

CALCULATION OF POTENTIAL TO EMIT GREENHOUSE GASES FROM FLARES

Unit No.	Description	Gas Flow Rates [a] scf/hr	Gas Flow Rates [a] scf/yr	HHV [a] (Btu/scf)	Uncombusted [a] CO_2 (short T/yr)	Combusted [b] CO_2 (short T/yr)	CH_4 [a] (short T/yr)	N_2O [b] (short T/yr)	CO_2e [c] (short T/yr)
2	Flare Waste Gas During Normal and AOS Events	313,920	67,579,888	1,226.5	6,003.95	10,204.21	15.88	0.0091	16,607.88
2 - SSM	Flare Waste Gas During SSM Events	18,291	236,567	1,763.9	0.0002	23,072.69	0.04	4.60E-05	23,073.61
2 - M	Flare Waste Gas During Malfunction Events	337,528	14,608,399	1,228.0	0.0001	23,072.69	0.02	0.0020	23,073.87
39	Process Flare Waste Gas	323,183	34,774,864	1,606.4	55.71	6,720.85	3.03	0.0062	6,854.07
40	Acid Gas Flare Waste Gas	228,664	771,650,206	200.7	33,643.43	819.10	27.33	0.0171	35,150.77

[a] Values are from flare waste gas calculation worksheets.

[b] Calculated with equations W-21 and W-40 in 40 CFR §98.233.

[c] CO_2e emissions are calculated as follows:

(55.71 T/yr Uncombusted CO2) + (10,204.21 T/yr Combustion CO2) + ((3.03 T/yr Methane) * 25) + ((0.00914 T/yr N2O) * 298) = 16,607.88 T/yr CO2e

Carbon Flow for CO_2 Combustion Emissions

Compound	Number of Carbons	MW	Stack No. 2 - SSM Concentration (mol%)	Gas Flow	Stack No. 39 Concentration (mol%)	Gas Flow	Stack No. 40 Concentration (mol%)	Gas Flow
Nitrogen	---	28.013	0.0095%	---	0.6553%	---	0.3789%	---
Carbon Dioxide	---	44.01	0.0000%	---	3.2920%	---	80.2040%	---
Hydrogen Sulfide	---	34.081	0.0000%	---	0.0080%	---	0.1507%	---
Methane	1	16.043	0.9578%	640,825	51.1128%	34,196,580	17.9548%	12,012,499
Ethane	2	30.07	0.2215%	296,332	22.2870%	29,821,762	1.0452%	1,398,517
Propane	3	44.097	0.5733%	1,150,771	15.3459%	30,801,068	0.1257%	252,335
Isobutane	4	58.123	0.7834%	2,075,292	1.6885%	4,473,124	0.0124%	32,729
n-Butane	4	58.123	5.7484%	15,228,229	3.8871%	10,297,339	0.0527%	139,524
Isopentane	5	72.15	10.8635%	35,973,524	0.6043%	2,000,942	0.0157%	52,120
n-Pentane	5	72.15	13.4195%	44,437,505	0.6416%	2,124,496	0.0227%	75,204
n-Hexane	6	86.172	10.5145%	41,781,404	0.2688%	1,068,237	0.0366%	145,506
Cyclohexane	6	86.172	5.8987%	23,439,571	0.0000%	0	0.0000%	0
Other Hexanes	6	86.172	15.6047%	62,008,387	0.0000%	0	0.0000%	0
Heptanes	7	100.198	23.2921%	107,981,843	0.1399%	648,469	0.0000%	116
Benzene	6	78.00	0.6442%	2,560,023	0.0100%	39,861	0.0006%	2,326
Toluene	7	92.13	1.2967%	6,011,685	0.0035%	16,328	0.0000%	0
Ethylbenzene	8	106.165	0.0745%	394,742	0.0004%	2,179	0.0000%	0
Xylenes	8	106.165	0.7258%	3,845,339	0.0000%	220	0.0000%	0
C8+ Heavies	8	114.224	9.3718%	49,654,090	0.0550%	291,256	0.0000%	10
			TOTAL:	**397,479,563**	**TOTAL:**	**115,781,862**	**TOTAL:**	**14,110,887**

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.

EXISTING PLANT STREAM DATA SUMMARY

	Stream 1		Stream 2		Stream 3		Stream 4		Stream 5	
	Plant Inlet Gas		Condensate		Slop Liquid		Produced Water		Residue Gas	
Component	mole %	weight %	mole %	weight %	mole %	weight %	mole %	weight %	mole %	weight %
Water	0.000%	0.000%	0.0000%	0.0000%	98.9293%	95.0318%	99.8550%	99.3126%	0.0074%	0.0063%
Nitrogen	0.938%	1.243%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.9610%	1.2696%
Carbon Dioxide	0.099%	0.206%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0030%	0.00623%
Hydrogen Sulfide	0.00001%	0.00002%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Methane	78.203%	59.363%	0.1909%	0.0352%	0.0020%	0.0017%	0.0003%	0.0002%	78.0000%	59.0150%
Ethane	11.732%	16.692%	0.1062%	0.0367%	0.0011%	0.0018%	0.0002%	0.0003%	11.8000%	16.7339%
Propane	5.364%	11.192%	0.5247%	0.2660%	0.0056%	0.0132%	0.0008%	0.00185%	5.4600%	11.3549%
I-Butane	0.742%	2.041%	0.7837%	0.5236%	0.0084%	0.0260%	0.0011%	0.0036%	0.7520%	2.0613%
N-Butane	1.695%	4.661%	5.7884%	3.8673%	0.0620%	0.1921%	0.0084%	0.0269%	1.7300%	4.7422%
I-Pentane	0.374%	1.277%	9.0110%	7.4732%	0.0965%	0.3713%	0.0131%	0.0521%	0.3990%	1.3577%
N-Pentane	0.421%	1.437%	13.5487%	11.2365%	0.1451%	0.5583%	0.0196%	0.0783%	0.4430%	1.5074%
Cyclopentane	0.000%	0.000%	1.9564%	1.6225%	0.0209%	0.0806%	0.0005%	0.0019%	0.0288%	0.0980%
n-Hexane	0.094%	0.383%	10.6182%	10.5176%	0.1137%	0.5225%	0.0154%	0.0733%	0.0987%	0.4011%
Cyclohexane	0.038%	0.155%	5.9570%	5.9005%	0.0638%	0.2932%	0.0086%	0.0411%	0.0415%	0.1687%
Other Hexanes	0.146%	0.595%	15.7584%	15.6090%	0.1687%	0.7755%	0.0229%	0.1088%	0.1690%	0.6868%
Heptanes	0.098%	0.465%	23.5231%	27.0926%	0.2519%	1.3460%	0.0341%	0.1888%	0.0949%	0.4484%
Octanes	0.038%	0.205%	6.7629%	8.8795%	0.0724%	0.4412%	0.0098%	0.0619%	0.0182%	0.0980%
Nonanes Plus	0.006%	0.036%	2.7020%	3.9833%	0.0289%	0.1979%	0.0039%	0.0278%	0.0000%	0.0000%
Benzene	0.007%	0.026%	0.6506%	0.5833%	0.0070%	0.0290%	0.0009%	0.0041%	0.0057%	0.0210%
Toluene	0.005%	0.022%	1.3096%	1.3869%	0.0140%	0.0689%	0.0019%	0.0097%	0.0046%	0.0200%
Ethylbenzene	0.000%	0.000%	0.0752%	0.0918%	0.0008%	0.0046%	0.0001%	0.0006%	0.0000%	0.0000%
Xylene	0.000%	0.000%	0.7330%	0.8945%	0.0078%	0.0444%	0.0011%	0.0062%	0.0007%	0.0034%
Totals	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.02%	100.00%
Totals (C3+)		22.50%		99.93%		4.96%		0.69%		22.97%
Max. VOC%		26.99%		100.00%		5.00%		1.00%		27.56%
Max. H_2S%		0.00002%		0.00%		0.00%		0.00%		0.00%
Max. HAP%		0.52%		16.17%		0.80%		0.11%		0.53%
Max. Benzene%		0.03%		0.70%		0.03%		0.005%		0.03%
Specific Gravity	0.7317		0.6894		0.9770		0.9955			

PROPOSED PLANT STREAM DATA SUMMARY

	Stream 1		Stream 2		Stream 3		Stream 4		Stream 5		Stream 6	
	Plant Inlet Gas		Fuel Gas		Inlet Condensate		RVP 2 Condensate		RVP 9 Condensate		Residue Gas	
Component	mole %	weight %	mole %	weight %	mole %	weight %	mole %	weight %	mole %	weight %	mole %	weight %
Water	0.0000%	0.0000%	0.0000%	0.0000%	0.0070%	0.0022%	0.0000%	0.0000%	0.0000%	0.0000%	0.0117%	0.0097%
Nitrogen	1.5073%	1.9327%	2.0000%	3.2961%	0.0076%	0.0038%	0.0000%	0.0000%	0.0000%	0.0000%	1.4799%	1.9214%
Carbon Dioxide	1.5001%	3.0221%	0.0000%	0.0000%	0.7564%	0.5882%	0.0000%	0.0000%	0.0000%	0.0000%	0.00001%	0.00001%
Hydrogen Sulfide	0.0025%	0.0039%	0.0000%	0.0000%	0.0051%	0.0031%	0.0000%	0.0000%	0.0000%	0.0000%	0.000001%	0.000002%
Methane	75.8820%	55.7246%	93.1000%	87.8705%	3.6621%	1.0380%	0.0000%	0.0000%	0.0000%	0.0000%	76.0875%	56.5749%
Ethane	11.4071%	15.7011%	4.7000%	8.3146%	12.4335%	6.6054%	0.0000%	0.0000%	0.0000%	0.0000%	12.2888%	17.1265%
Propane	5.5548%	11.2124%	0.2000%	0.5189%	26.3831%	20.5546%	0.00000003%	0.00000001%	0.0001%	0.00005%	6.1629%	12.5956%
I-Butane	0.7935%	2.1112%	0.0000%	0.0000%	6.4821%	6.6564%	0.000004%	0.000002%	0.0195%	0.0131%	0.8199%	2.2088%
N-Butane	1.8847%	5.0142%	0.0000%	0.0000%	21.2451%	21.8163%	0.0001%	0.0001%	1.2896%	0.8670%	1.8774%	5.0574%
I-Pentane	0.4563%	1.5069%	0.0000%	0.0000%	6.5178%	8.3082%	0.0041%	0.0029%	14.2090%	11.8581%	0.4197%	1.4036%
N-Pentane	0.5158%	1.7035%	0.0000%	0.0000%	8.2708%	10.5429%	0.0229%	0.0163%	22.8008%	19.0284%	0.4635%	1.5498%
n-Hexane	0.3438%	1.3561%	0.0000%	0.0000%	6.9122%	10.5234%	14.8275%	12.5653%	28.1277%	28.0360%	0.3885%	1.5515%
Heptanes	0.1128%	0.5174%	0.0000%	0.0000%	4.8594%	8.6023%	55.5689%	54.7560%	22.0903%	25.6022%	0.0002%	0.0007%
Octanes	0.0316%	0.1653%	0.0000%	0.0000%	2.0777%	4.1929%	27.2743%	30.6374%	9.8736%	13.0451%	0.00001%	0.00004%
Benzene	0.0064%	0.0229%	0.0000%	0.0000%	0.2420%	0.3335%	0.6824%	0.5234%	0.9599%	0.8660%	0.0000005%	0.000002%
Toluene	0.0012%	0.0052%	0.0000%	0.0000%	0.1209%	0.1968%	1.3952%	1.2641%	0.5482%	0.5842%	0.000001%	0.000003%
Ethylbenzene	0.0001%	0.0003%	0.0000%	0.0000%	0.0155%	0.0291%	0.2039%	0.2129%	0.0736%	0.0904%	0.0000003%	0.000001%
Xylene	0.00001%	0.00003%	0.0000%	0.0000%	0.0016%	0.0029%	0.0208%	0.0217%	0.0075%	0.0092%	0.00000002%	0.0000001%
Totals	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Totals (C3+)		23.62%		0.52%		91.76%		100.00%		100.00%		24.37%
Max. VOC%		28.34%		1.00%		100.00%		100.00%		100.00%		29.24%
Max. H_2S%		0.004%		0.00%		0.003%		0.00%		0.00%		0.0001%
Max. HAP %		1.66%		0.00%		13.30%		17.50%		35.50%		1.86%
Max Benzene %		0.03%		0.00%		0.40%		0.63%		1.04%		0.0001%
Specific Gravity	0.7622		0.5869		0.5842		0.6660		0.6474		0.7450	

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5	Stream 6
Higher Heating Value (Btu/scf):	1,257.86	1,028.52	3,158.40	5,568.05	4,760.16	1,282.80
Lower Heating Value (Btu/scf):	1,141.74	927.37	2,914.62	5,164.11	4,409.78	1,164.52

Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481

Certificate of Analysis

Number: 6030-21090051-001A

Cody Rich
Sendero Midstream Partners, LP
1025 Bounds Road
Loving, NM 88256

Sep. 10, 2021

Station Name:	Sendero Plant	Sampled By:	Chad Whitt
Station Number:	N/A	Sample Of:	Gas Spot
Station Location:	Sendero	Sample Date:	09/08/2021
Sample Point:	Inlet	Sample Conditions:	897.1 psig, @ 89.2 °F Ambient: 85.0 °F
Formation:	Callout	Effective Date:	09/08/2021
County:	Eddy	Method:	GPA 2286
Last Inst. Cal.:	07/20/2021 12:57 PM	Cylinder No:	5030-00528
Analyzed:	09/10/2021 06:42:11 by KNF	Instrument:	6030_GC2 (Agilent GC-7890B)

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Hydrogen Sulfide	0.000	0.000	
Nitrogen	0.938	1.244	
Carbon Dioxide	0.099	0.206	
Methane	78.203	59.389	
Ethane	11.732	16.699	3.131
Propane	5.364	11.196	1.474
Iso-butane	0.742	2.041	0.242
n-Butane	1.695	4.663	0.533
Iso-pentane	0.374	1.277	0.137
n-Pentane	0.421	1.438	0.153
Hexanes Plus	0.432	1.847	0.176
	100.000	100.000	5.846

GPM TOTAL C2+	5.846
GPM TOTAL C3+	2.715
GPM TOTAL iC5+	0.466

Calculated Physical Properties	**Total**	**C6+**
Relative Density Real Gas	0.7317	3.1076
Calculated Molecular Weight	21.130	90.003
Compressibility Factor	0.9964	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1265	4868
Water Sat. Gas Base BTU	1243	4783
As Delivered BTU	0	4868

Comments: H2S Field Content 0 ppm

Data reviewed by: Krystle Fitzwater, Laboratory Manager

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

Certificate of Analysis

Number: 6030-21090051-001A

Artesia Laboratory
200 E Main St.
Artesia, NM 88210
Phone 575-746-3481

Cody Rich
Sendero Midstream Partners, LP
1025 Bounds Road
Loving, NM 88256

Sep. 10, 2021

Station Name:	Sendero Plant	Sampled By:	Chad Whitt
Station Number:	N/A	Sample Of:	Gas Spot
Station Location:	Sendero	Sample Date:	09/08/2021
Sample Point:	Inlet	Sample Conditions:	897.1 psig, @ 89.2 °F
Formation:	Callout	Method:	GPA 2286
County:	Eddy	Cylinder No:	5030-00528
		Analyzed:	09/10/2021 06:43:25 by KNF

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Hydrogen Sulfide	0.000	0.000	
Nitrogen	0.938	1.244	
Methane	78.203	59.389	
Carbon Dioxide	0.099	0.206	
Ethane	11.732	16.699	3.131
Propane	5.364	11.196	1.474
Iso-Butane	0.742	2.041	0.242
n-Butane	1.695	4.663	0.533
Iso-Pentane	0.374	1.277	0.137
n-Pentane	0.421	1.438	0.153
i-Hexanes	0.146	0.583	0.059
n-Hexane	0.094	0.369	0.037
Benzene	0.007	0.024	0.002
Cyclohexane	0.038	0.152	0.013
i-Heptanes	0.081	0.368	0.034
n-Heptane	0.017	0.080	0.008
Toluene	0.005	0.022	0.002
i-Octanes	0.036	0.172	0.015
n-Octane	0.002	0.008	0.001
Ethylbenzene	0.000	0.001	0.000
Xylenes	0.000	0.005	0.000
i-Nonanes	0.001	0.013	0.001
n-Nonane	0.000	0.002	0.000
Decanes Plus	0.005	0.048	0.004
	100.000	100.000	5.846

Certificate of Analysis

Number: 6030-21090051-001A

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Cody Rich
Sendero Midstream Partners, LP
1025 Bounds Road
Loving, NM 88256

Sep. 10, 2021

Station Name:	Sendero Plant	Sampled By:	Chad Whitt
Station Number:	N/A	Sample Of:	Gas Spot
Station Location:	Sendero	Sample Date:	09/08/2021
Sample Point:	Inlet	Sample Conditions:	897.1 psig, @ 89.2 °F
Formation:	Callout	Method:	GPA 2286
County:	Eddy	Cylinder No:	5030-00528
		Analyzed:	09/10/2021 06:43:25 by KNF

Calculated Physical Properties	**Total**	**C10+**
Calculated Molecular Weight	21.13	184.37
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1265.4	9986.8
Water Sat. Gas Base BTU	1243.3	9776.6
Relative Density Real Gas	0.7317	6.3656
Compressibility Factor	0.9964	
Ideal, Gross HV - Wet	1238.8	
Ideal, Gross HV - Dry at 14.65 psia	1260.8	
Net BTU Dry Gas - real gas	1148	
Net BTU Wet Gas - real gas	1128	

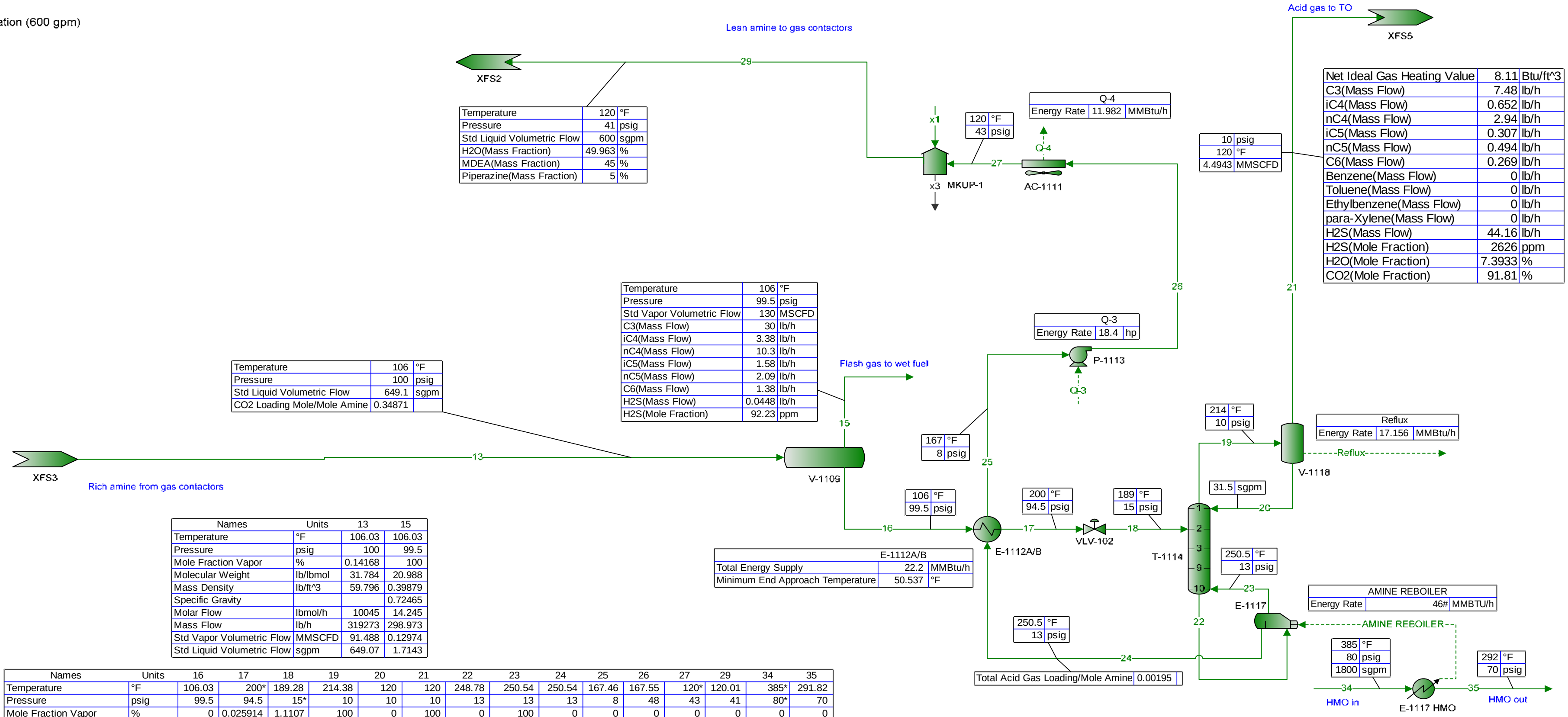
Comments: H2S Field Content 0 ppm

Data reviewed by: Krystle Fitzwater, Laboratory Manager

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

Carlsbad 3

Regen
CS-1160, max circulation (600 gpm)



Names	Units	13	15
Temperature	°F	106.03	106.03
Pressure	psig	100	99.5
Mole Fraction Vapor	%	0.14168	100
Molecular Weight	lb/lbmol	31.784	20.988
Mass Density	lb/ft^3	59.796	0.39879
Specific Gravity			0.72465
Molar Flow	lbmol/h	10045	14.245
Mass Flow	lb/h	319273	298.973
Std Vapor Volumetric Flow	MMSCFD	91.488	0.12974
Std Liquid Volumetric Flow	sgpm	649.07	1.7143

Names	Units	16	17	18	19	20	21	22	23	24	25	26	27	29	34	35
Temperature	°F	106.03	200*	189.28	214.38	120	120	248.78	250.54	250.54	167.46	167.55	120*	120.01	385*	291.82
Pressure	psig	99.5	94.5	15*	10	10	10	13	13	13	8	48	43	41	80*	70
Mole Fraction Vapor	%	0	0.025914	1.1107	100	0	100	0	100	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	31.799	31.799	31.799	26.658	18.029	41.947	28.423	18.178	31.274	31.274	31.274	31.274	31.154	289.8	289.8
Mass Density	lb/ft^3	69.436	65.708	9.9767	0.086281	61.69	0.15759	60.487	0.063335	60.506	62.996	62.998	64.113	64.104	52.345	55.141
Specific Gravity		1.1133			0.92045	0.98912	1.4483	0.96983	0.62763	0.97014	1.0101	1.0101	1.028	1.0278	0.83929	0.88411
Molar Flow	lbmol/h	10031	10031	10031	1367.7	874.23	493.47	12191	2653.7	9537.5	9537.5	9537.5	9537.5	9625.4	2801.5	2801.5
Mass Flow	lb/h	318974	318974	318974	36460.6	15761.4	20699.2	346513	48238.4	298275	298275	298275	298275	299868	811864	811864
Std Vapor Volumetric Flow	MMSCFD	91.358	91.358	91.358	12.456	7.9621	4.4943	111.03	24.169	86.864	86.864	86.864	86.864	87.665	25.515	25.515
Std Liquid Volumetric Flow	sgpm	647.35	647.35	647.35	82.057	31.517	50.54	693.46	96.645	596.81	596.81	596.81	596.81	600*	1800*	1800

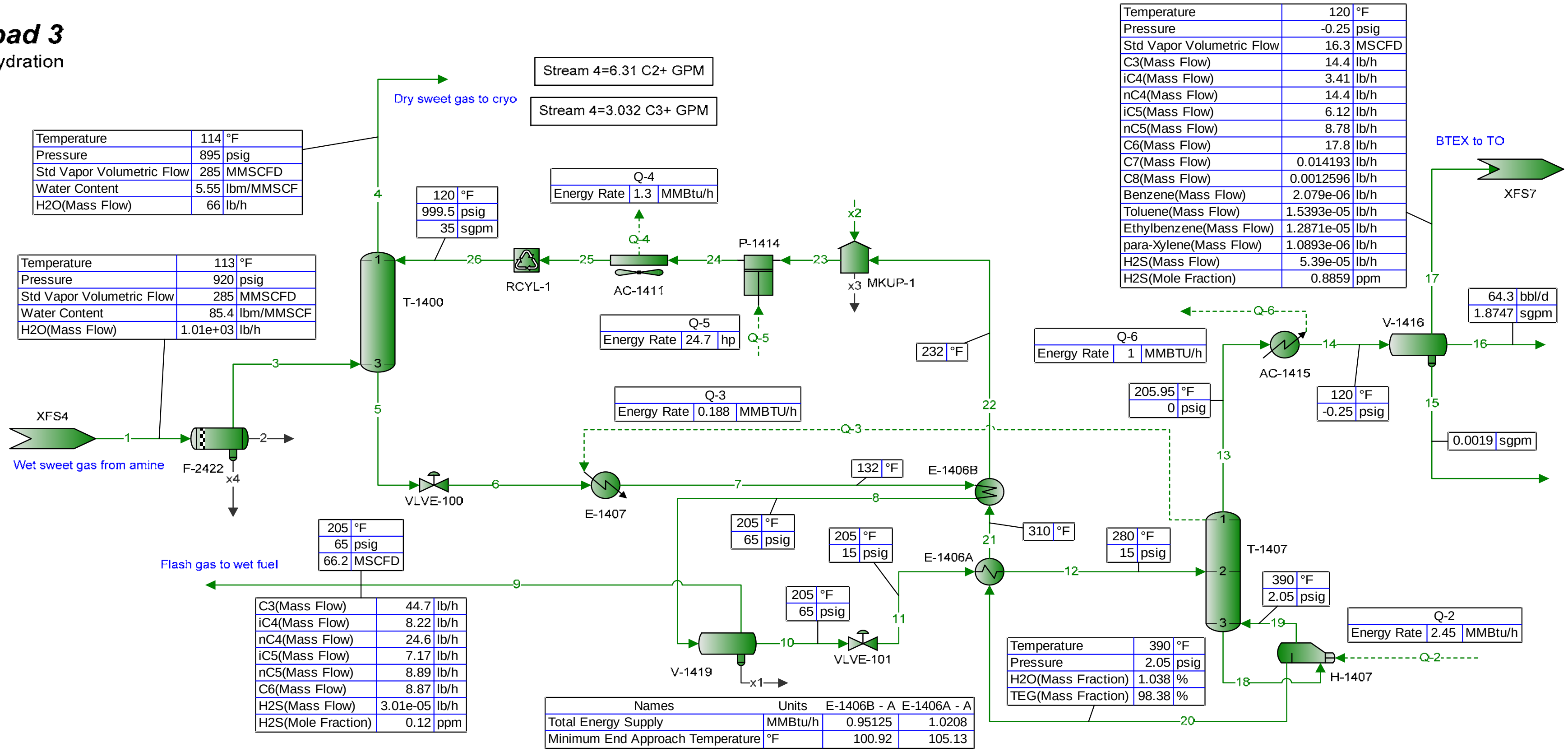
Process Streams		13	15	16	21	25	29
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS3	V-1109	V-1109	V-1118	E-1112A/B	MKUP-1
	To Block:	V-1109	--	E-1112A/B	XFS5	P-1113	XFS2
Mole Fraction		%	%	%	%	%	%
MDEA		11.2727	4.87850E-05	11.2888	3.76759E-13	11.8728	11.7648
Piperazine		1.73207	2.81748E-06	1.73453	2.62665E-13	1.82428	1.80841
H2O		82.2800	0.885468	82.3956	7.39332	86.2762	86.4004
H2S		0.0135065	0.00922283	0.0135126	0.262581	0.000625867	0.000620151
CO2		4.53754	1.87364	4.54132	91.8103	0.0260672	0.0258292
N2		0.000895769	0.601493	4.28545E-05	0.000871129	0	0
C1		0.124431	75.3497	0.0176028	0.357822	0	0
C2		0.0265558	14.3879	0.00616111	0.125241	0	0
C3		0.00846169	4.77545	0.00169204	0.0343951	0	0
iC4		0.000690906	0.408448	0.000111847	0.00227357	0	0
nC4		0.00226226	1.23960	0.000505111	0.0102677	0	0
iC5		0.000260597	0.153938	4.23589E-05	0.000861055	0	0
nC5		0.000356065	0.203069	6.81910E-05	0.00138616	0	0
C6		0.000189957	0.112012	3.11576E-05	0.000633360	0	0
C7		3.54000E-08	2.24338E-05	3.59180E-09	7.30127E-08	0	0
C8		1.27507E-09	8.11069E-07	1.25077E-10	2.54252E-09	0	0
Benzene		0	0	0	0	0	0
Toluene		0	0	0	0	0	0
Ethylbenzene		0	0	0	0	0	0
para-Xylene		0	0	0	0	0	0
O2		0	0	0	0	0	0
Argon		0	0	0	0	0	0
DEA		0	0	0	0	0	0
CHEMTHERM 550		0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
MDEA		134936	0.000828114	134936	2.21544E-10	134936	134940
Piperazine		14986.8	3.45707E-05	14986.8	1.11646E-10	14986.8	14993.4
H2O		148900	2.27237	148898	657.261	148241	149822
H2S		46.2394	0.0447755	46.1947	44.1603	2.03436	2.03436
CO2		20059.8	11.7462	20048.0	19938.6	109.415	109.415
N2		2.52070	2.40028	0.120422	0.120422	0	0
C1		200.521	172.194	28.3267	28.3267	0	0
C2		80.2119	61.6286	18.5833	18.5833	0	0
C3		37.4811	29.9968	7.48427	7.48427	0	0
iC4		4.03386	3.38177	0.652091	0.652091	0	0
nC4		13.2082	10.2633	2.94491	2.94491	0	0
iC5		1.88868	1.58212	0.306561	0.306561	0	0
nC5		2.58059	2.08707	0.493514	0.493514	0	0
C6		1.64436	1.37503	0.269334	0.269334	0	0
C7		0.000356319	0.000320217	3.61020E-05	3.61020E-05	0	0
C8		1.46309E-05	1.31977E-05	1.43317E-06	1.43317E-06	0	0
Benzene		0	0	0	0	0	0
Toluene		0	0	0	0	0	0
Ethylbenzene		0	0	0	0	0	0
para-Xylene		0	0	0	0	0	0
O2		0	0	0	0	0	0
Argon		0	0	0	0	0	0
DEA		0	0	0	0	0	0
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		13	15	16	21	25	29
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS3	V-1109	V-1109	V-1118	E-1112A/B	MKUP-1
	To Block:	V-1109	--	E-1112A/B	XFS5	P-1113	XFS2
Mass Fraction		%	%	%	%	%	%
MDEA		42.2635	0.000276986	42.3031	1.07030E-12	45.2388	45
Piperazine		4.69403	1.15631E-05	4.69843	5.39372E-13	5.02449	5
H2O		46.6372	0.760058	46.6802	3.17529	49.6993	49.9628
H2S		0.0144827	0.0149764	0.0144823	0.213343	0.000682042	0.000678420
CO2		6.28295	3.92885	6.28516	96.3255	0.0366826	0.0364878
N2		0.000789512	0.802841	3.77528E-05	0.000581770	0	0
C1		0.0628053	57.5950	0.00888055	0.136849	0	0
C2		0.0251233	20.6134	0.00582595	0.0897776	0	0
C3		0.0117395	10.0333	0.00234636	0.0361573	0	0
iC4		0.00126345	1.13113	0.000204434	0.00315032	0	0
nC4		0.00413697	3.43285	0.000923244	0.0142272	0	0
iC5		0.000591556	0.529183	9.61085E-05	0.00148103	0	0
nC5		0.000808269	0.698079	0.000154719	0.00238421	0	0
C6		0.000515033	0.459917	8.44375E-05	0.00130118	0	0
C7		1.11603E-07	0.000107106	1.13182E-08	1.74413E-07	0	0
C8		4.58255E-09	4.41433E-06	4.49305E-10	6.92377E-09	0	0
Benzene		0	0	0	0	0	0
Toluene		0	0	0	0	0	0
Ethylbenzene		0	0	0	0	0	0
para-Xylene		0	0	0	0	0	0
O2		0	0	0	0	0	0
Argon		0	0	0	0	0	0
DEA		0	0	0	0	0	0
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		13	15	16	21	25	29
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS3	V-1109	V-1109	V-1118	E-1112A/B	MKUP-1
	To Block:	V-1109	--	E-1112A/B	XFS5	P-1113	XFS2
Property	Units						
Temperature	°F	106.031	106.032	106.032	120.000	167.464	120.014
Pressure	psig	100	99.5	99.5	10	8	41
Molecular Weight	lb/lbmol	31.7836	20.9878	31.7989	41.9466	31.2739	31.1537
Std Vapor Volumetric Flow	MMSCFD	91.4881	0.129739	91.3584	4.49430	86.8641	87.6647
Std Liquid Volumetric Flow	sgpm	649.066	1.71427	647.351	50.5397	596.812	600*
Compressibility		0.00991120	0.977003	0.00850153	0.992699	0.00156380	0.00423416
Specific Gravity			0.724655	1.11332	1.44831	1.01006	1.02783
Mole Fraction Vapor	%	0.141675	100	0	100	0	0
Molar Flow	lbmol/h	10045.2	14.2451	10031.0	493.466	9537.52	9625.43
Mass Flow	lb/h	319273	298.973	318974	20699.2	298275	299868
Mass Cp	Btu/(lb*°F)	0.702434	0.494060	0.702629	0.217531	0.862818	0.827910
Net Ideal Gas Heating Value	Btu/ft^3	460.536	1096.51	459.632	8.10723	482.994	478.622
Gross Ideal Gas Heating Value	Btu/ft^3	543.309	1209.66	542.363	12.6173	569.772	565.069

Carlsbad 3

TEG Dehydration



Names	Units	1	x4	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Temperature	°F	112.96		112.96	113.98	113.43	116.53	131.53	205*	205	205	204.96	280*	205.95	120*	120	120	120	278.56	390	390	310.09	232.45	232.41	233.35	120*	120
Pressure	psig	920	920	920	895	897	75*	70	65	65	65	15*	15	0	-0.25	-0.25	-0.25	-0.25	2.05	2.05	2.05	1.05	0.05	0.05	1000*	999.5	999.5
Mole Fraction Vapor	%	100		100	100	0	3.1133	3.2134	3.5862	100	0	0.41206	1.1172	100	3.316	0	0	100	0	100	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	21.573		21.573	21.576	103.41	103.41	103.41	103.41	28.851	106.19	106.19	106.19	18.946	18.946	98.911	18.022	45.41	109.13	26.643	139.34	139.34	139.34	139.35	139.35	139.35	139.35
Mass Density	lb/ft^3	3.988		3.988	3.8501	67.339	28.564	26.541	21.662	0.32251	65.38	40.082	22.117	0.035282	1.1829	63.701	61.676	0.095705	62.977	0.044862	58.436	61.555	64.485	64.486	64.551	68.652	68.653
Specific Gravity		0.74485		0.74485	0.74495	1.0797				0.99614	1.0483			0.65415		1.0214	0.98889	1.5679	1.0098	0.91991	0.93694	0.98696	1.0339	1.0339	1.035	1.1008	1.1008
Molar Flow	lbmol/h	31330	0	31330	31269	202.72	202.72	202.72	202.72	7.2698	195.45	195.45	195.45	53.825	53.825	0.010259	52.03	1.7848	193.49	51.871	141.62	141.62	141.62	141.66	141.66	141.66	141.66
Mass Flow	lb/h	675885	0	675885	674660	20963.5	20963.5	20963.5	20963.5	209.739	20753.8	20753.8	20753.8	1019.76	1019.76	1.01469	937.695	81.0506	21116	1381.99	19734	19734	19734	19739.1	19739.1	19739.1	19739.2
Std Vapor Volumetric Flow	MMSCFD	285.35	0	285.35	284.79	1.8463	1.8463	1.8463	1.8463	0.066211	1.7801	1.7801	1.7801	0.49022	0.49022	9.3432e-05	0.47387	0.016256	1.7622	0.47242	1.2898	1.2898	1.2898	1.2901	1.2901	1.2901	1.2901
Std Liquid Volumetric Flow	sgpm	3827.9	0	3827.9	3824.7	38.172	38.172	38.172	38.172	1.0058	37.166	37.166	37.166	2.1749	2.1749	0.0019483	1.8747	0.29826	37.643	2.6523	34.991	34.991	34.991	35*	35	35	35

Process Streams		1	3	4	5	9	10	14	15	16	17
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS4	F-2422	T-1400	T-1400	V-1419	V-1419	AC-1415	V-1416	V-1416	V-1416
	To Block:	F-2422	T-1400	--	VLVE-100	--	VLVE-101	V-1416	--	--	XFS7
Mole Fraction		%	%	%	%	%	%	%	%	%	%
H2O		0.179532	0.179532	0.0116793	31.5518	4.60519	32.5541	97.0934	19.9896	99.9911	13.0650
H2S		1.20306E-06	1.20306E-06	1.19740E-06	1.23522E-06	1.21434E-05	8.29479E-07	3.01190E-06	2.16164E-06	7.63112E-08	8.85926E-05
CO2		5.69940E-06	5.69940E-06	5.70161E-06	1.37658E-06	2.68640E-05	4.28559E-07	1.55615E-06	3.19409E-07	1.30834E-08	4.65454E-05
N2		1.47705	1.47705	1.47987	0.0104548	0.285500	0.000224323	0.000814543	3.63603E-06	2.06621E-07	0.0245581
C1		75.9513	75.9513	76.0875	1.87703	49.0917	0.120849	0.438818	0.00304281	0.000225312	13.2268
C2		12.2703	12.2703	12.2888	0.842457	19.8044	0.137154	0.498022	0.00818542	0.000318873	15.0095
C3		6.15518	6.15518	6.16291	0.662013	13.9525	0.167663	0.608806	0.0111904	0.000268964	18.3518
iC4		0.818965	0.818965	0.819924	0.0987490	1.94642	0.0300236	0.109019	0.00191216	2.67007E-05	3.28689
nC4		1.87588	1.87588	1.87739	0.331106	5.83030	0.126559	0.459552	0.0123435	0.000188527	13.8531
iC5		0.419508	0.419508	0.419738	0.0908234	1.36606	0.0433901	0.157554	0.00298539	3.87039E-05	4.75021
nC5		0.463329	0.463329	0.463450	0.120791	1.69497	0.0622386	0.225995	0.00503287	3.15240E-05	6.81437
C6		0.388711	0.388711	0.388479	0.152905	1.41587	0.105928	0.384623	0.00594630	3.32956E-05	11.5980
C7		0.000158260	0.000158260	0.000157954	9.57673E-05	0.000721924	7.24769E-05	0.000263162	3.42876E-06	1.44237E-08	0.00793573
C8		8.16973E-06	8.16973E-06	8.14812E-06	6.76692E-06	3.69968E-05	5.64250E-06	2.04866E-05	1.72992E-07	5.57783E-10	0.000617794
Benzene		0	0	4.52267E-07	1.44505E-08	2.21599E-08	1.41637E-08	5.13133E-08	1.64356E-07	1.89735E-09	1.49120E-06
Toluene		0	0	7.48291E-07	8.84460E-08	8.30634E-08	8.86462E-08	3.19528E-07	1.25301E-06	9.20824E-09	9.36035E-06
Ethylbenzene		0	0	2.59437E-07	6.38498E-08	3.95745E-08	6.47527E-08	2.30447E-07	1.14533E-06	5.16214E-09	6.79249E-06
para-Xylene		0	0	2.36927E-08	5.38007E-09	3.40574E-09	5.45350E-09	1.94245E-08	8.67559E-08	3.57315E-10	5.74869E-07
TEG		0	0	8.62141E-05	63.7761	0.00498301	66.1481	0.00129693	0.00205158	0.00134127	9.82902E-09
MeOH		0	0	0	0	0	0	0	0	0	0
MDEA		1.67393E-06	1.67393E-06	7.42238E-06	0.460957	0.000470351	0.478085	0.0168200	79.9576	0.00125743	0.0110177
Piperazine		5.09008E-05	5.09008E-05	2.83032E-05	0.0246773	0.000882763	0.0255624	0.00495841	0.000150117	0.00512937	2.50135E-06
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		1013.33	1013.33	65.7925	1152.27	6.03130	1146.24	941.496	0.0369431	937.258	4.20100
H2S		0.0128459	0.0128459	0.0127606	8.53382E-05	3.00866E-05	5.52516E-05	5.52508E-05	7.55761E-09	1.35318E-06	5.38901E-05
CO2		0.0785856	0.0785856	0.0784628	0.000122811	8.59487E-05	3.68626E-05	3.68625E-05	1.44206E-09	2.99588E-07	3.65615E-05
N2		12963.7	12963.7	12963.1	0.593708	0.581426	0.0122820	0.0122820	1.04492E-08	3.01160E-06	0.0122789
C1		381745	381745	381684	61.0425	57.2534	3.78916	3.78916	5.00766E-06	0.00188067	3.78727
C2		115596	115596	115544	51.3519	43.2915	8.06038	8.06038	2.52493E-05	0.00498877	8.05537
C3		85036.1	85036.1	84976.9	59.1767	44.7269	14.4498	14.4498	5.06211E-05	0.00617087	14.4436
iC4		14913.3	14913.3	14901.7	11.6349	8.22432	3.41061	3.41061	1.14014E-05	0.000807462	3.40979
nC4		34159.6	34159.6	34120.6	39.0120	24.6351	14.3769	14.3769	7.35984E-05	0.00570129	14.3711
iC5		9482.79	9482.79	9469.51	13.2836	7.16505	6.11855	6.11854	2.20963E-05	0.00145291	6.11706
nC5		10473.3	10473.3	10455.7	17.6666	8.89022	8.77642	8.77639	3.72506E-05	0.00118339	8.77517
C6		10494.9	10494.9	10468.2	26.7112	8.87013	17.8411	17.8405	5.25677E-05	0.00149289	17.8389
C7		4.96839	4.96839	4.94909	0.0194528	0.00525884	0.0141940	0.0141934	3.52454E-08	7.51984E-07	0.0141927
C8		0.292381	0.292381	0.291039	0.00156695	0.000307228	0.00125972	0.00125960	2.02716E-09	3.31510E-08	0.00125956
Benzene		0	0	0.0110467	2.28817E-06	1.25837E-07	2.16233E-06	2.15742E-06	1.31702E-09	7.71118E-08	2.07899E-06
Toluene		0	0	0.0215591	1.65199E-05	5.56381E-07	1.59635E-05	1.58467E-05	1.18436E-08	4.41443E-07	1.53934E-05
Ethylbenzene		0	0	0.00861259	1.37414E-05	3.05435E-07	1.34359E-05	1.31686E-05	1.24738E-08	2.85146E-07	1.28710E-05
para-Xylene		0	0	0.000786530	1.15787E-06	2.62854E-08	1.13158E-06	1.10999E-06	9.44865E-10	1.97374E-08	1.08931E-06
TEG		0	0	4.04846	19415.1	0.0544008	19415.0	0.104833	3.16060E-05	0.104801	2.63453E-08
MeOH		0	0	0	0	0	0	0	0	0	0
MDEA		0.0624945	0.0624945	0.276568	111.350	0.00407458	111.345	1.07883	0.977434	0.0779614	0.0234332
Piperazine		1.37365	1.37365	0.762321	4.30893	0.00552776	4.30341	0.229886	1.32648E-06	0.229881	3.84554E-06

Process Streams		1	3	4	5	9	10	14	15	16	17
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	XFS4	F-2422	T-1400	T-1400	V-1419	V-1419	AC-1415	V-1416	V-1416	V-1416
	To Block:	F-2422	T-1400	--	VLVE-100	--	VLVE-101	V-1416	--	--	XFS7
Mass Fraction		%	%	%	%	%	%	%	%	%	%
H2O		0.149926	0.149926	0.00975194	5.49656	2.87562	5.52304	92.3253	3.64083	99.9535	5.18318
H2S		1.90061E-06	1.90061E-06	1.89141E-06	4.07080E-07	1.43448E-05	2.66224E-07	5.41802E-06	7.44821E-07	1.44309E-07	6.64895E-05
CO2		1.16271E-05	1.16271E-05	1.16300E-05	5.85834E-07	4.09789E-05	1.77619E-07	3.61483E-06	1.42118E-07	3.19494E-08	4.51095E-05
N2		1.91803	1.91803	1.92143	0.00283210	0.277214	5.91794E-05	0.00120440	1.02979E-06	3.21170E-07	0.0151497
C1		56.4808	56.4808	56.5743	0.291185	27.2974	0.0182577	0.371574	0.000493517	0.000200563	4.67273
C2		17.1029	17.1029	17.1263	0.244959	20.6407	0.0388382	0.790419	0.00248838	0.000532025	9.93869
C3		12.5814	12.5814	12.5955	0.282285	21.3250	0.0696250	1.41698	0.00498884	0.000658090	17.8205
iC4		2.20649	2.20649	2.20877	0.0555009	3.92121	0.0164337	0.334453	0.00112363	8.61114E-05	4.20700
nC4		5.05406	5.05406	5.05745	0.186095	11.7456	0.0692736	1.40983	0.00725330	0.000608011	17.7310
iC5		1.40302	1.40302	1.40360	0.0633654	3.41617	0.0294816	0.599998	0.00217765	0.000154945	7.54722
nC5		1.54958	1.54958	1.54977	0.0842733	4.23870	0.0422883	0.860633	0.00367114	0.000126202	10.8268
C6		1.55276	1.55276	1.55162	0.127418	4.22912	0.0859654	1.74948	0.00518068	0.000159208	22.0096
C7		0.000735094	0.000735094	0.000733568	9.27938E-05	0.00250732	6.83923E-05	0.00139184	3.47353E-06	8.01949E-08	0.0175109
C8		4.32590E-05	4.32590E-05	4.31386E-05	7.47465E-06	0.000146481	6.06984E-06	0.000123519	1.99782E-07	3.53537E-09	0.00155404
Benzene		0	0	1.63737E-06	1.09150E-08	5.99967E-08	1.04190E-08	2.11562E-07	1.29795E-07	8.22355E-09	2.56505E-06
Toluene		0	0	3.19555E-06	7.88033E-08	2.65273E-07	7.69188E-08	1.55396E-06	1.16722E-06	4.70775E-08	1.89923E-05
Ethylbenzene		0	0	1.27658E-06	6.55490E-08	1.45626E-07	6.47398E-08	1.29134E-06	1.22933E-06	3.04093E-08	1.58802E-05
para-Xylene		0	0	1.16582E-07	5.52325E-09	1.25324E-08	5.45241E-09	1.08848E-07	9.31188E-08	2.10488E-09	1.34399E-06
TEG		0	0	0.000600074	92.6137	0.0259374	93.5494	0.0102801	0.00311485	0.0111764	3.25047E-08
MeOH		0	0	0	0	0	0	0	0	0	0
MDEA		9.24633E-06	9.24633E-06	4.09937E-05	0.531159	0.00194269	0.536507	0.105792	96.3285	0.00831416	0.0289118
Piperazine		0.000203237	0.000203237	0.000112993	0.0205545	0.00263554	0.0207355	0.0225432	0.000130728	0.0245156	4.74462E-06

Process Streams		1	3	4	5	9	10	14	15	16	17
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	XFS4	F-2422	T-1400	T-1400	V-1419	V-1419	AC-1415	V-1416	V-1416	V-1416
	To Block:	F-2422	T-1400	--	VLVE-100	--	VLVE-101	V-1416	--	--	XFS7
Property	**Units**										
Temperature	°F	112.960	112.960	113.981	113.434	205	205	120*	120	120	120
Pressure	psig	920	920	895	897	65	65	-0.25	-0.25	-0.25	-0.25
Molecular Weight	lb/lbmol	21.5727	21.5727	21.5757	103.413	28.8508	106.186	18.9457	98.9107	18.0221	45.4104
Std Vapor Volumetric Flow	MMSCFD	285.346	285.346	284.790	1.84627	0.0662105	1.78005	0.490222	9.34316E-05	0.473873	0.0162557
Std Liquid Volumetric Flow	sgpm	3827.87	3827.87	3824.70	38.1718	1.00582	37.1660	2.17493	0.00194827	1.87472	0.298258
Compressibility		0.821469	0.821469	0.826732	0.227273	0.980720	0.0178058	0.0333423	0.00323240	0.000608298	0.987751
Specific Gravity		0.744851	0.744851	0.744954	1.07969	0.996142	1.04828		1.02135	0.988886	1.56790
Mole Fraction Vapor	%	100	100	100	0	100	0	3.31599	0	0	100
Molar Flow	lbmol/h	31330.5	31330.5	31269.4	202.717	7.26979	195.447	53.8255	0.0102586	52.0304	1.78485
Mass Flow	lb/h	675885	675885	674660	20963.5	209.739	20753.8	1019.76	1.01469	937.695	81.0506
Mass Cp	Btu/(lb*°F)	0.632242	0.632242	0.626774	0.590290	0.513393	0.629396	0.933865	0.548307	0.977421	0.434774
Net Ideal Gas Heating Value	Btu/ft^3	1162.72	1162.72	1164.52	2499.66	1500.01	2536.84	75.2229	2863.30	0.282850	2243.79
Gross Ideal Gas Heating Value	Btu/ft^3	1280.90	1280.90	1282.80	2748.22	1643.41	2789.32	130.500	3134.70	50.6122	2442.07

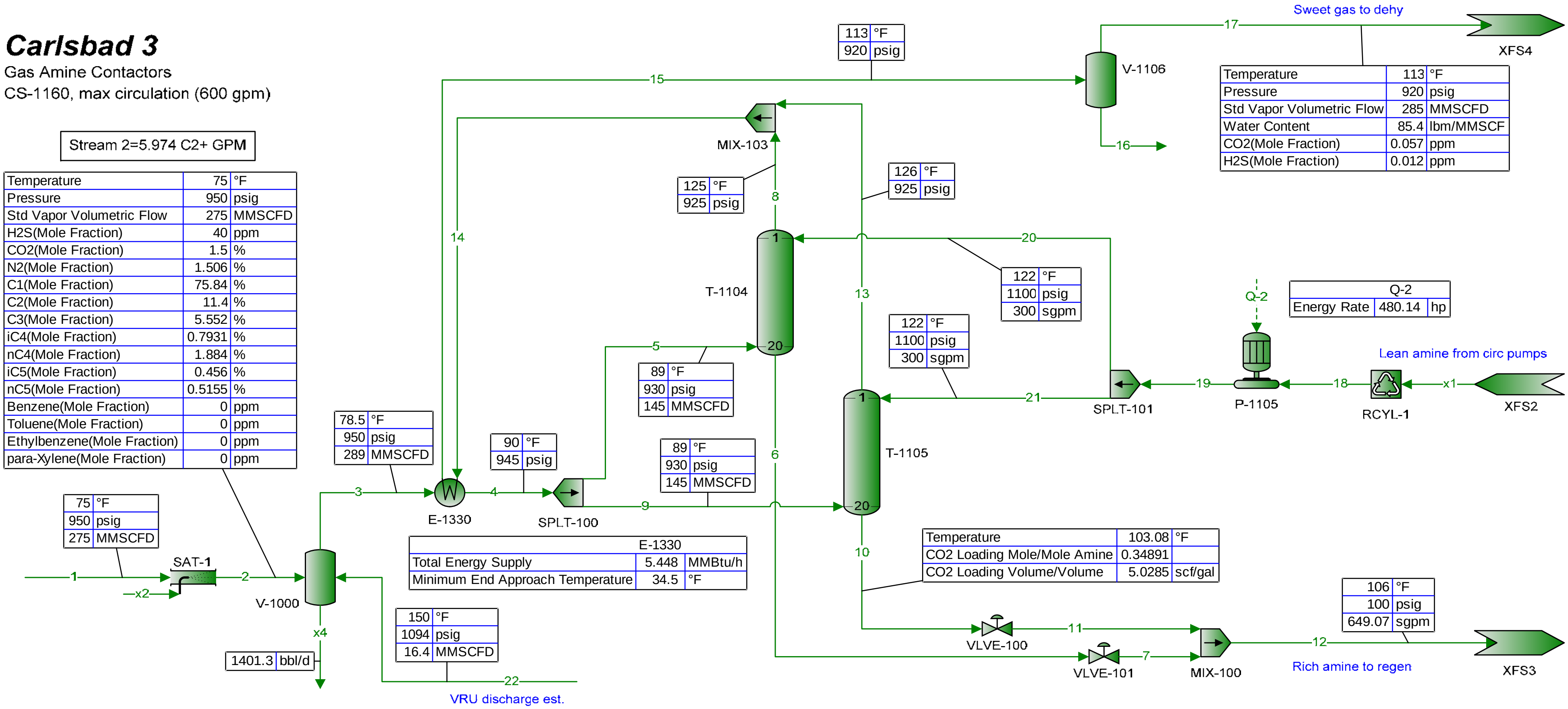
Carlsbad 3

Gas Amine Contactors

CS-1160, max circulation (600 gpm)

Stream 2=5.974 C2+ GPM

Temperature	75	°F
Pressure	950	psig
Std Vapor Volumetric Flow	275	MMSCFD
H2S(Mole Fraction)	40	ppm
CO2(Mole Fraction)	1.5	%
N2(Mole Fraction)	1.506	%
C1(Mole Fraction)	75.84	%
C2(Mole Fraction)	11.4	%
C3(Mole Fraction)	5.552	%
iC4(Mole Fraction)	0.7931	%
nC4(Mole Fraction)	1.884	%
iC5(Mole Fraction)	0.456	%
nC5(Mole Fraction)	0.5155	%
Benzene(Mole Fraction)	0	ppm
Toluene(Mole Fraction)	0	ppm
Ethylbenzene(Mole Fraction)	0	ppm
para-Xylene(Mole Fraction)	0	ppm

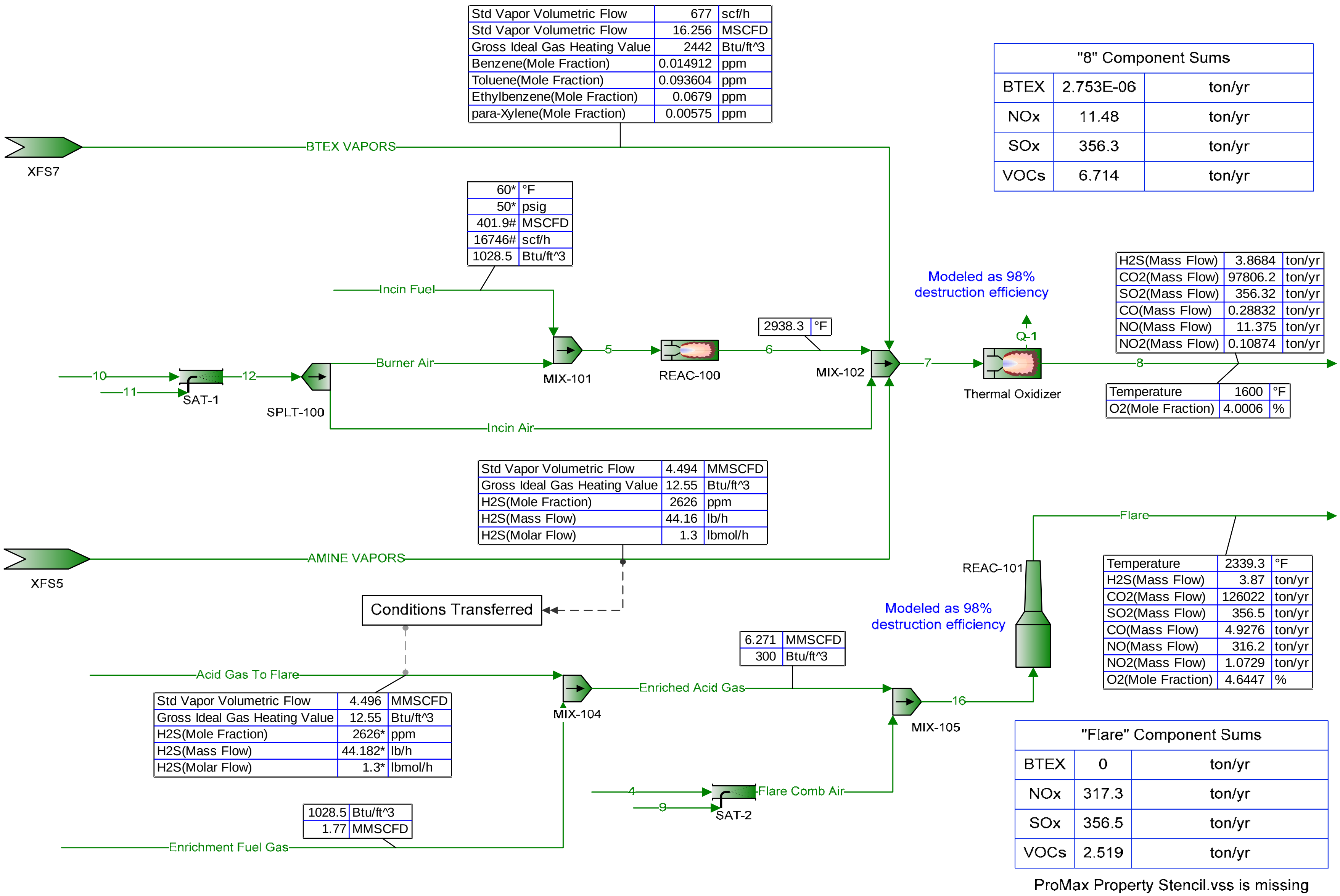


Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Temperature	°F	75*	75	78.462	90*	88.951	103.58	106.28	125.4	88.951	103.08	105.78	106.03	125.67	125.54	112.96	112.96	112.96	120.01	121.98	121.98	121.98	150*
Pressure	psig	950*	950	950	945	930	930	100*	925	930	930	100*	100	925	925	920	920	920	41	1100*	1100	1100	1094*
Mole Fraction Vapor	%	98.95	98.954	100	100	100	0	0.14165	100	100	0	0.1417	0.14168	100	100	99.959	0	100	0	0	0	0	100
Molecular Weight	lb/lbmol	21.822	21.819	21.897	21.897	21.897	31.783	31.783	21.572	21.897	31.784	31.784	31.784	21.572	21.572	21.572	18.62	21.573	31.154	31.154	31.154	31.154	26.162
Mass Density	lb/ft^3	4.8062	4.8057	4.7819	4.5363	4.4668	69.426	59.791	3.8579	4.4668	69.431	59.801	59.796	3.8547	3.8563	3.9893	61.963	3.988	64.104	64.165	64.165	64.165	6.101
Specific Gravity				0.75606	0.75606	0.75606	1.1132		0.74481	0.75606	1.1132			0.74481	0.74481		0.9935	0.74485	1.0278	1.0288	1.0288	1.0288	0.9033
Molar Flow	lbmol/h	30177	30195	31763	31763	15882	5022.7	5022.7	15672	15882	5022.5	5022.5	10045	15672	31343	31343	12.861	31330	9625.4	9625.4	4812.7	4812.7	1802.8
Mass Flow	lb/h	658515	658826	695530	695530	347765	159639	159639	338060	347765	159634	159634	319273	338064	676124	676124	239.475	675885	299868	299868	149934	149934	47165.3
Std Vapor Volumetric Flow	MMSCFD	274.84	275*	289.29	289.29	144.64	45.745	45.745	142.73	144.64	45.743	45.743	91.488	142.73	285.46	285.46	0.11714	285.35	87.665	87.665	43.832	43.832	16.419*
Std Liquid Volumetric Flow	sgpm	3670.3	3670.9	3877.4	3877.4	1938.7	324.54	324.54	1914.2	1938.7	324.53	324.53	649.07	1914.2	3828.4	3828.4	0.48337	3827.9	600	600	300	300	247.41
Std Vapor Volumetric Flow	MMSCFD	274.84	275*	289.29	289.29	144.64	45.745	45.745	142.73	144.64	45.743	45.743	91.488	142.73	285.46	285.46	0.11714	285.35	87.665	87.665	43.832	43.832	16.419*

Process Streams		x1	x4	2	3	12	15	16	17
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS2	V-1000	SAT-1	V-1000	MIX-100	E-1330	V-1106	V-1106
	To Block:	RCYL-1	--	V-1000	E-1330	XFS3	V-1106	--	XFS4
Mole Fraction		%	%	%	%	%	%	%	%
MDEA		11.7648	0	0	0	11.2727	0.000115021	0.276233	1.67393E-06
Piperazine		1.80841	0	0	0	1.73207	0.000244010	0.470664	5.09008E-05
H2O		86.4004	0.0332187	0.0571877	0.0560830	82.2800	0.220142	99.1483	0.179532
H2S		0.000620151	0.00555758	0.00399800	0.00408896	0.0135065	1.39060E-06	0.000458237	1.20306E-06
CO2		0.0258292	0.973810	1.49925	1.42720	4.53754	1.10878E-05	0.0131375	5.69940E-06
N2		0	0.233725	1.50639	1.45722	0.000895769	1.47645	0.000902811	1.47705
C1		0	27.6310	75.8375	74.9561	0.124431	75.9202	0.0761749	75.9513
C2		0	14.9281	11.4004	12.1116	0.0265558	12.2653	0.0101224	12.2703
C3		0	16.8575	5.55150	6.07401	0.00846169	6.15265	0.00301174	6.15518
iC4		0	4.06432	0.793072	0.808028	0.000690906	0.818629	0.000197918	0.818965
nC4		0	12.2144	1.88355	1.85104	0.00226226	1.87511	0.000656558	1.87588
iC5		0	4.64894	0.456016	0.413876	0.000260597	0.419336	5.69491E-05	0.419508
nC5		0	6.15380	0.515497	0.457130	0.000356065	0.463139	7.84013E-05	0.463329
C6		0	12.2448	0.495670	0.383477	0.000189957	0.388552	2.97672E-05	0.388711
C7		0	0.00986187	0	0.000156116	3.54000E-08	0.000158195	5.43071E-09	0.000158260
C8		0	0.00107384	0	8.05885E-06	1.27507E-09	8.16638E-06	1.78645E-10	8.16973E-06
Benzene		0	0	0	0	0	0	0	0
Toluene		0	0	0	0	0	0	0	0
Ethylbenzene		0	0	0	0	0	0	0	0
para-Xylene		0	0	0	0	0	0	0	0
O2		0	0	0	0	0	0	0	0
Argon		0	0	0	0	0	0	0	0
DEA		0	0	0	0	0	0	0	0
CHEMTHERM 550		0	0	0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
MDEA		134940	0	0	0	134936	4.29598	4.23348	0.0624945
Piperazine		14993.4	0	0	0	14986.8	6.58772	5.21408	1.37365
H2O		149822	1.40138	311.080	320.920	148900	1243.05	229.726	1013.33
H2S		2.03436	0.443536	41.1416	44.2636	46.2394	0.0148545	0.00200856	0.0128459
CO2		109.415	100.358	19922.7	19950.5	20059.8	0.152946	0.0743604	0.0785856
N2		0	15.3321	12741.8	12966.2	2.52070	12963.7	0.00325272	12963.7
C1		0	1038.00	367352	381946	200.521	381745	0.157169	381745
C2		0	1051.13	103507	115676	80.2119	115596	0.0391461	115596
C3		0	1740.69	73915.2	85073.6	37.4811	85036.1	0.0170804	85036.1
iC4		0	553.174	13918.2	14917.4	4.03386	14913.3	0.00147949	14913.3
nC4		0	1662.44	33055.7	34172.9	13.2082	34159.7	0.00490794	34159.6
iC5		0	785.443	9934.30	9484.68	1.88868	9482.79	0.000528445	9482.79
nC5		0	1039.69	11230.1	10475.9	2.58059	10473.3	0.000727505	10473.3
C6		0	2470.97	12897.4	10496.5	1.64436	10494.9	0.000329917	10494.9
C7		0	2.31402	0	4.96874	0.000356319	4.96839	6.99869E-08	4.96839
C8		0	0.287241	0	0.292396	1.46309E-05	0.292381	2.62452E-09	0.292381
Benzene		0	0	0	0	0	0	0	0
Toluene		0	0	0	0	0	0	0	0
Ethylbenzene		0	0	0	0	0	0	0	0
para-Xylene		0	0	0	0	0	0	0	0
O2		0	0	0	0	0	0	0	0
Argon		0	0	0	0	0	0	0	0
DEA		0	0	0	0	0	0	0	0
CHEMTHERM 550		0	0	0	0	0	0	0	0

Process Streams		x1	x4	2	3	12	15	16	17
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS2	V-1000	SAT-1	V-1000	MIX-100	E-1330	V-1106	V-1106
	To Block:	RCYL-1	--	V-1000	E-1330	XFS3	V-1106	--	XFS4
Mass Fraction		%	%	%	%	%	%	%	%
MDEA		45	0	0	0	42.2635	0.000635383	1.76782	9.24633E-06
Piperazine		5	0	0	0	4.69403	0.000974336	2.17730	0.000203237
H2O		49.9628	0.0133954	0.0472173	0.0461403	46.6372	0.183850	95.9292	0.149926
H2S		0.000678420	0.00423963	0.00624468	0.00636402	0.0144827	2.19701E-06	0.000838737	1.90061E-06
CO2		0.0364878	0.959294	3.02397	2.86839	6.28295	2.26210E-05	0.0310515	1.16271E-05
N2		0	0.146555	1.93402	1.86422	0.000789512	1.91736	0.00135827	1.91803
C1		0	9.92197	55.7586	54.9144	0.0628053	56.4608	0.0656307	56.4808
C2		0	10.0474	15.7107	16.6313	0.0251233	17.0968	0.0163466	17.1029
C3		0	16.6387	11.2192	12.2315	0.0117395	12.5770	0.00713243	12.5814
iC4		0	5.28763	2.11257	2.14475	0.00126345	2.20571	0.000617806	2.20649
nC4		0	15.8908	5.01736	4.91321	0.00413697	5.05227	0.00204946	5.05406
iC5		0	7.50782	1.50788	1.36366	0.000591556	1.40252	0.000220668	1.40302
nC5		0	9.93810	1.70456	1.50618	0.000808269	1.54903	0.000303792	1.54958
C6		0	23.6192	1.95764	1.50914	0.000515033	1.55221	0.000137767	1.55276
C7		0	0.0221190	0	0.000714382	1.11603E-07	0.000734833	2.92252E-08	0.000735094
C8		0	0.00274566	0	4.20393E-05	4.58255E-09	4.32437E-05	1.09595E-09	4.32590E-05
Benzene		0	0	0	0	0	0	0	0
Toluene		0	0	0	0	0	0	0	0
Ethylbenzene		0	0	0	0	0	0	0	0
para-Xylene		0	0	0	0	0	0	0	0
O2		0	0	0	0	0	0	0	0
Argon		0	0	0	0	0	0	0	0
DEA		0	0	0	0	0	0	0	0
CHEMTHERM 550		0	0	0	0	0	0	0	0

Process Streams		x1	x4	2	3	12	15	16	17
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	XFS2	V-1000	SAT-1	V-1000	MIX-100	E-1330	V-1106	V-1106
	To Block:	RCYL-1	--	V-1000	E-1330	XFS3	V-1106	--	XFS4
Property	Units								
Temperature	°F	120.014	78.4620	75	78.4620	106.031	112.960	112.960	112.960
Pressure	psig	41	950	950	950	100	920	920	920
Molecular Weight	lb/lbmol	31.1537	44.6754	21.8194	21.8974	31.7836	21.5715	18.6198	21.5727
Std Vapor Volumetric Flow	MMSCFD	87.6647	2.13273	275*	289.287	91.4881	285.463	0.117136	285.346
Std Liquid Volumetric Flow	sgpm	600	40.8726	3670.88	3877.42	649.066	3828.36	0.483375	3827.87
Compressibility		0.00423416	0.237212	0.762179	0.763760	0.00991120	0.821150	0.0456330	0.821469
Specific Gravity		1.02783	0.503651		0.756060			0.993497	0.744851
Mole Fraction Vapor	%	0	0	98.9541	100	0.141675	99.9590	0	100
Molar Flow	lbmol/h	9625.43	234.170	30194.5	31763.2	10045.2	31343.4	12.8613	31330.5
Mass Flow	lb/h	299868	10461.7	658826	695530	319273	676124	239.475	675885
Mass Cp	Btu/(lb*°F)	0.827910	0.664015	0.665473	0.667783	0.702434	0.632366	0.981976	0.632242
Net Ideal Gas Heating Value	Btu/ft^3	478.622	2312.86	1141.09	1147.50	460.536	1162.26	25.8230	1162.72
Gross Ideal Gas Heating Value	Btu/ft^3	565.069	2513.74	1257.17	1264.07	543.309	1280.41	77.8905	1280.90

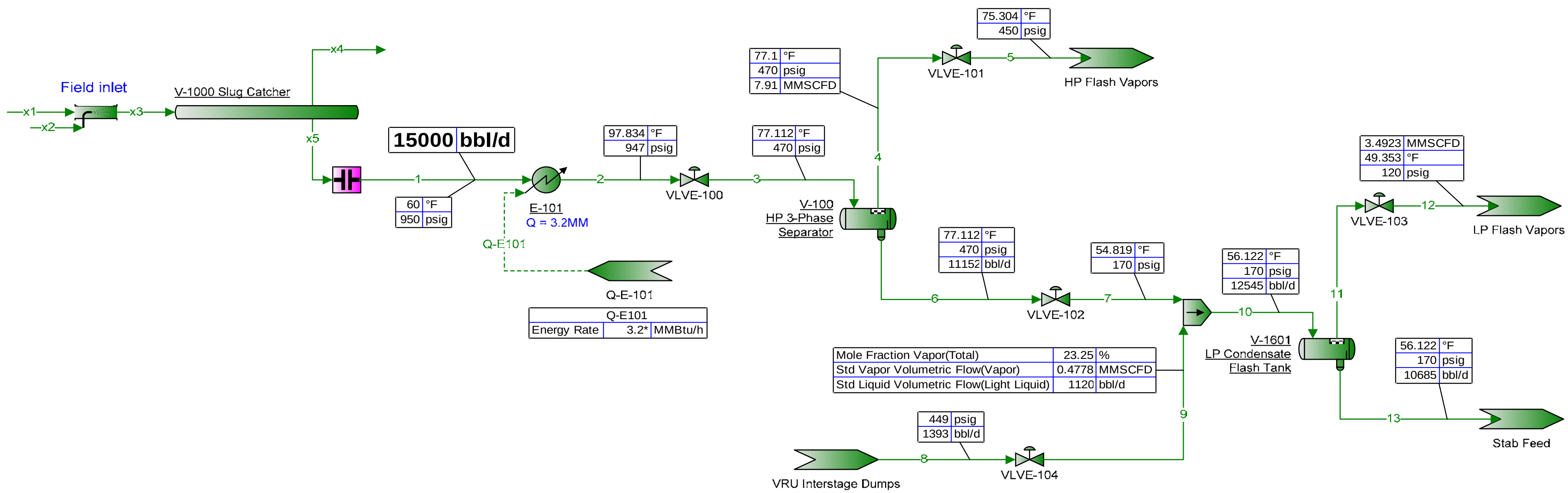

Std Vapor Volumetric Flow 677 scf/h
Std Vapor Volumetric Flow 16.256 MSCFD
Gross Ideal Gas Heating Value 2442 Btu/ft^3
Benzene(Mole Fraction) 0.014912 ppm
Toluene(Mole Fraction) 0.093604 ppm
Ethylbenzene(Mole Fraction) 0.0679 ppm
para-Xylene(Mole Fraction) 0.00575 ppm
"8" Component Sums
BTEX 2.753E-06 ton/yr
NOx 11.48 ton/yr
SOx 356.3 ton/yr
VOCs 6.714 ton/yr
XFS7
BTEX VAPORS
60* °F
50* psig
401.9# MSCFD
16746# scf/h
1028.5 Btu/ft^3
Incin Fuel
Modeled as 98% destruction efficiency
H2S(Mass Flow) 3.8684 ton/yr
CO2(Mass Flow) 97806.2 ton/yr
SO2(Mass Flow) 356.32 ton/yr
CO(Mass Flow) 0.28832 ton/yr
NO(Mass Flow) 11.375 ton/yr
NO2(Mass Flow) 0.10874 ton/yr
2938.3 °F
Q-1
10
11
SAT-1
12
SPLT-100
Burner Air
MIX-101
5
REAC-100
6
MIX-102
7
Thermal Oxidizer
8
Temperature 1600 °F
O2(Mole Fraction) 4.0006 %
Incin Air
Std Vapor Volumetric Flow 4.494 MMSCFD
Gross Ideal Gas Heating Value 12.55 Btu/ft^3
H2S(Mole Fraction) 2626 ppm
H2S(Mass Flow) 44.16 lb/h
H2S(Molar Flow) 1.3 lbmol/h
Flare
XFS5
AMINE VAPORS
REAC-101
Conditions Transferred
Temperature 2339.3 °F
H2S(Mass Flow) 3.87 ton/yr
CO2(Mass Flow) 126022 ton/yr
SO2(Mass Flow) 356.5 ton/yr
CO(Mass Flow) 4.9276 ton/yr
NO(Mass Flow) 316.2 ton/yr
NO2(Mass Flow) 1.0729 ton/yr
O2(Mole Fraction) 4.6447 %
Modeled as 98% destruction efficiency
6.271 MMSCFD
300 Btu/ft^3
Acid Gas To Flare
Enriched Acid Gas
MIX-104
16
MIX-105
Std Vapor Volumetric Flow 4.496 MMSCFD
Gross Ideal Gas Heating Value 12.55 Btu/ft^3
H2S(Mole Fraction) 2626* ppm
H2S(Mass Flow) 44.182* lb/h
H2S(Molar Flow) 1.3* lbmol/h
"Flare" Component Sums
BTEX 0 ton/yr
NOx 317.3 ton/yr
SOx 356.5 ton/yr
VOCs 2.519 ton/yr
4
9
SAT-2
Flare Comb Air
1028.5 Btu/ft^3
1.77 MMSCFD
Enrichment Fuel Gas
ProMax Property Stencil.vss is missing

Process Streams	Acid Gas To Flare	AMINE VAPORS	BTEX VAPORS	Enrichment Fuel Gas	Flare	Incin Fuel	7	8	12	16
Composition Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total** From Block:	--	XFS5	XFS7	--	REAC-101	--	MIX-102	Thermal Oxidizer	SAT-1	MIX-105
To Block:	MIX-104	MIX-102	MIX-102	MIX-104	--	MIX-101	Thermal Oxidizer	--	SPLT-100	REAC-101
Mole Fraction	%	%	%	%	%	%	%	%	%	%
H2O	7.39350*	7.39350	13.0650	0	15.1079	0*	11.2937	12.4769	3.37176	3.75775
H2S	0.262588*	0.262588	8.85926E-05	0	0.000752125	0*	0.0973352	0.00194419	0	0.0376590
CO2	91.8125*	91.8125	4.65454E-05	0	18.9648	0*	37.3732	38.0657	0	13.1673
N2	0*	0	0.0245581	2	61.0616	2*	45.3488	45.3454	76.3363	61.1822
C1	0.357831*	0.357831	13.2268	93.1	0.106239	93.1*	0.212096	0.00423645	0	5.31940
C2	0.125244*	0.125244	15.0095	4.7	0.00567030	4.7*	0.0696648	0.00139150	0	0.283912
C3	0.0343959*	0.0343959	18.3518	0.2	0.000324544	0.2*	0.0374876	0.000748785	0	0.0162499
iC4	0.00227363*	0.00227363	3.28689	0	6.51231E-06	0*	0.00524969	0.000104858	0	0.000326072
nC4	0.0102679*	0.0102679	13.8531	0	2.94103E-05	0*	0.0223797	0.000447016	0	0.00147257
iC5	0*	0	4.75021	0	0	0*	0.00636886	0.000127213	0	0
nC5	0.00138619*	0.00138619	6.81437	0	3.97045E-06	0*	0.00965021	0.000192755	0	0.000198800
C6	0*	0	11.5980	0	0	0*	0.0155501	0.000310601	0	0
C7	0*	0	0.00793573	0	0	0*	1.06398E-05	2.12523E-07	0	0
C8	0*	0	0.000617794	0	0	0*	8.28309E-07	1.65448E-08	0	0
DEA	0*	0	0	0	0	0*	0	0	0	0
Benzene	0*	0	1.49120E-06	0	0	0*	1.99933E-09	3.99350E-11	0	0
Toluene	0*	0	9.36035E-06	0	0	0*	1.25499E-08	2.50675E-10	0	0
Ethylbenzene	0*	0	6.79249E-06	0	0	0*	9.10705E-09	1.81906E-10	0	0
para-Xylene	0*	0	5.74869E-07	0	0	0*	7.70758E-10	1.53953E-11	0	0
CO	0*	0	0	0	0.00116513	0*	0.00878039	0.000176308	0	0
NO	0*	0	0	0	0.0697921	0*	0.116666	0.00649289	0	0
NO2	0*	0	0	0	0.000154452	0*	0.000123796	4.04841E-05	0	0
SO2	0*	0	0	0	0.0368541	0*	0	0.0952655	0	0
MDEA	0*	0	0.0110177	0	0	0*	1.47720E-05	2.95060E-07	0	0
O2	0*	0	0	0	4.64467	0*	5.38289	4.00056	20.2919	16.2335
S2	0*	0	0	0	0	0*	0	0	0	0
Piperazine	0*	0	2.50135E-06	0	0	0*	3.35369E-09	6.69873E-11	0	0
TEG	0*	0	9.82902E-09	0	0	0*	1.31783E-11	2.63226E-13	0	0
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O	657.586*	657.261	4.20100	0	9382.55	0*	2708.50	2996.12	480.296	2330.43
H2S	44.1821*	44.1603	5.38901E-05	0	0.883643	0*	44.1604	0.883207	0	44.1821
CO2	19948.5*	19938.6	3.65615E-05	0	28772.1	0*	21895.7	22330.2	0	19948.5
N2	0*	0	0.0122789	109.136	58967.2	24.7237*	16911.6	16932.1	16908.6	59000.9
C1	28.3407*	28.3267	3.78727	2909.32	58.7532	659.079*	45.2955	0.905911	0	2937.66
C2	18.5925*	18.5833	8.05537	275.289	5.87762	62.3641*	27.8859	0.557719	0	293.881
C3	7.48797*	7.48427	14.4436	17.1789	0.493338	3.89173*	22.0057	0.440114	0	24.6669
iC4	0.652414*	0.652091	3.40979	0	0.0130483	0*	4.06189	0.0812377	0	0.652414
nC4	2.94637*	2.94491	14.3711	0	0.0589273	0*	17.3160	0.346320	0	2.94637
iC5	0*	0	6.11706	0	0	0*	6.11706	0.122341	0	0
nC5	0.493758*	0.493514	8.77517	0	0.00987516	0*	9.26868	0.185374	0	0.493758
C6	0*	0	17.8389	0	0	0*	17.8389	0.356779	0	0
C7	0*	0	0.0141927	0	0	0*	0.0141927	0.000283853	0	0
C8	0*	0	0.00125956	0	0	0*	0.00125956	2.51912E-05	0	0
DEA	0*	0	0	0	0	0*	0	0	0	0
Benzene	0*	0	2.07899E-06	0	0	0*	2.07899E-06	4.15798E-08	0	0
Toluene	0*	0	1.53934E-05	0	0	0*	1.53934E-05	3.07867E-07	0	0
Ethylbenzene	0*	0	1.28710E-05	0	0	0*	1.28710E-05	2.57419E-07	0	0
para-Xylene	0*	0	1.08931E-06	0	0	0*	1.08931E-06	2.17862E-08	0	0
CO	0*	0	0	0	1.12503	0*	3.27401	0.0658263	0	0
NO	0*	0	0	0	72.1924	0*	46.6020	2.59693	0	0
NO2	0*	0	0	0	0.244951	0*	0.0758173	0.0248260	0	0
SO2	0*	0	0	0	81.3907	0*	0	81.3506	0	0
MDEA	0*	0	0.0234332	0	0	0*	0.0234332	0.000468663	0	0
O2	0*	0	0	0	5123.47	0*	2292.98	1706.35	5134.15	17881.9
S2	0*	0	0	0	0	0*	0	0	0	0
Piperazine	0*	0	3.84554E-06	0	0	0*	3.84554E-06	7.69109E-08	0	0
TEG	0*	0	2.63453E-08	0	0	0*	2.63453E-08	5.26906E-10	0	0

Process Streams		Acid Gas To Flare	AMINE VAPORS	BTEX VAPORS	Enrichment Fuel Gas	Flare	Incin Fuel	7	8	12	16
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	XFS5	XFS7	--	REAC-101	--	MIX-102	Thermal Oxidizer	SAT-1	MIX-105
	To Block:	MIX-104	MIX-102	MIX-102	MIX-104	--	MIX-101	Thermal Oxidizer	--	SPLT-100	REAC-101
Mass Fraction		%	%	%	%	%	%	%	%	%	%
H2O		3.17540*	3.17540	5.18318	0	9.15672	0*	6.14831	6.80121	2.13246	2.27434
H2S		0.213350*	0.213350	6.64895E-05	0	0.000862374	0*	0.100244	0.00200489	0	0.0431187
CO2		96.3287*	96.3287	4.51095E-05	0	28.0795	0*	49.7034	50.6897	0	19.4683
N2		0*	0	0.0151497	3.29623	57.5479	3.29623*	38.3894	38.4361	75.0725	57.5808
C1		0.136854*	0.136854	4.67273	87.8704	0.0573391	87.8704*	0.102821	0.00205643	0	2.86695
C2		0.0897807*	0.0897807	9.93869	8.31456	0.00573615	8.31456*	0.0633013	0.00126603	0	0.286808
C3		0.0361585*	0.0361585	17.8205	0.518856	0.000481464	0.518856*	0.0499531	0.000999062	0	0.0240732
iC4		0.00315042*	0.00315042	4.20700	0	1.27342E-05	0*	0.00922051	0.000184410	0	0.000636711
nC4		0.0142276*	0.0142276	17.7310	0	5.75090E-05	0*	0.0393075	0.000786149	0	0.00287545
iC5		0*	0	7.54722	0	0	0*	0.0138858	0.000277716	0	0
nC5		0.00238429*	0.00238429	10.8268	0	9.63747E-06	0*	0.0210400	0.000420800	0	0.000481874
C6		0*	0	22.0096	0	0	0*	0.0404945	0.000809890	0	0
C7		0*	0	0.0175109	0	0	0*	3.22174E-05	6.44349E-07	0	0
C8		0*	0	0.00155404	0	0	0*	2.85921E-06	5.71843E-08	0	0
DEA		0*	0	0	0	0	0*	0	0	0	0
Benzene		0*	0	2.56505E-06	0	0	0*	4.71933E-09	9.43865E-11	0	0
Toluene		0*	0	1.89923E-05	0	0	0*	3.49431E-08	6.98862E-10	0	0
Ethylbenzene		0*	0	1.58802E-05	0	0	0*	2.92172E-08	5.84344E-10	0	0
para-Xylene		0*	0	1.34399E-06	0	0	0*	2.47274E-09	4.94548E-11	0	0
CO		0*	0	0	0	0.00109795	0*	0.00743204	0.000149426	0	0
NO		0*	0	0	0	0.0704548	0*	0.105787	0.00589505	0	0
NO2		0*	0	0	0	0.000239055	0*	0.000172106	5.63552E-05	0	0
SO2		0*	0	0	0	0.0794317	0*	0	0.184666	0	0
MDEA		0*	0	0.0289118	0	0	0*	5.31935E-05	1.06387E-06	0	0
O2		0*	0	0	0	5.00015	0*	5.20509	3.87342	22.7951	17.4515
S2		0*	0	0	0	0	0*	0	0	0	0
Piperazine		0*	0	4.74462E-06	0	0	0*	8.72941E-09	1.74588E-10	0	0
TEG		0*	0	3.25047E-08	0	0	0*	5.98040E-11	1.19608E-12	0	0

Process Streams		Acid Gas To Flare	AMINE VAPORS	BTEX VAPORS	Enrichment Fuel Gas	Flare	Incin Fuel	7	8	12	16
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	XFS5	XFS7	--	REAC-101	--	MIX-102	Thermal Oxidizer	SAT-1	MIX-105
	To Block:	MIX-104	MIX-102	MIX-102	MIX-104	--	MIX-101	Thermal Oxidizer	--	SPLT-100	REAC-101
Property	Units										
Temperature	°F	120.491	120.491	120	100*	2339.29	60*	1355.09	1599.99	105	107.118
Pressure	psig	10*	10	-0.25	5*	5	50*	-0.25	-0.25	7	5
Molecular Weight	lb/lbmol	41.9462	41.9462	45.4104	16.9972	29.7238	16.9972	33.0918	33.0491	28.4850	29.7655
Std Vapor Volumetric Flow	MMSCFD	4.49642	4.49419	0.0162557	1.77409*	31.3965	0.401904*	12.1243	12.1400	7.20138	31.3525
Std Liquid Volumetric Flow	sgpm	50.5626	50.5376	0.298258	21.2782	245.030	4.82038	105.911	105.696	51.8367	252.385
Compressibility		0.992718	0.992718	0.987751	0.997549	1.00022	0.988959	1.00022	1.00020	0.999556	0.998975
Specific Gravity		1.44829	1.44829	1.56790	0.586870	1.02629	0.586870	1.14257	1.14110	0.983513	1.02773
Mole Fraction Vapor	%	100	100	100	100	100	100	100	100	100	100
Molar Flow	lbmol/h	493.698*	493.454	1.78485	194.792	3447.28	44.1283	1331.23	1332.95	790.699	3442.45
Mass Flow	lb/h	20708.8	20698.5	81.0506	3310.92	102466	750.059	44052.7	44052.7	22523.1	102466
Mass Cp	Btu/(lb*°F)	0.217586	0.217586	0.434774	0.521038	0.334223?	0.513071	0.305144	0.312961	0.246851	0.249368
Net Ideal Gas Heating Value	Btu/ft^3	8.04767	8.04767	2243.79	927.374	1.14706	927.374	6.75509	0.139250	0	53.6298
Gross Ideal Gas Heating Value	Btu/ft^3	12.5531	12.5531	2442.07	1028.52	8.86439	1028.52	13.0523	6.42865	1.69633	61.3563

Carlsbad 3
Inlet Separation



Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13
Temperature	°F	60	97.83	77.11	77.11	75.3	77.11	54.82	96.25	64.25	56.12	56.12	49.35	56.12
Pressure	psig	950	947	470*	470	450*	470	170*	449	170#	170	170	120*	170
Mole Fraction Vapor	%	0	11.21	33.62	100	99.96	0	19.43	0	23.25	19.75	100	100	0
Molecular Weight	lb/lbmol	42.41	42.41	42.41	24.6	24.6	51.43	51.43	46.19	46.19	50.82	28.66	28.66	56.27
Mass Density	lb/ft^3	31.4	23.27	9.721	2.46	2.353	34.09	7.841	30.87	6.245	7.664	1.051	0.7536	36.31
Specific Gravity		0.5035			0.8493		0.5466		0.4949			0.9894	0.9894	0.5823
Molar Flow	lbmol/h	2585	2585	2585	868.9	868.9	1716	1716	225.6	225.6	1941	383.5	383.5	1558
Mass Flow	lb/h	109604	109604	109604	21371.5	21371.5	88232.4	88232.4	10421.9	10421.9	98654.3	10988	10988	87666.3
Std Vapor Volumetric Flow	MMSCFD	23.54	23.54	23.54	7.913	7.913	15.63	15.63	2.055	2.055	17.68	3.492	3.492	14.19
Std Liquid Volumetric Flow	sgpm	437.5*	437.5	437.5	112.2	112.2	325.3	325.3	40.64	40.64	365.9	54.26	54.26	311.6
Std Liquid Volumetric Flow	bbl/d	15000*	15000	15000	3848.1	3848.1	11152	11152	1393.2	1393.2	12545	1860.2	1860.2	10685

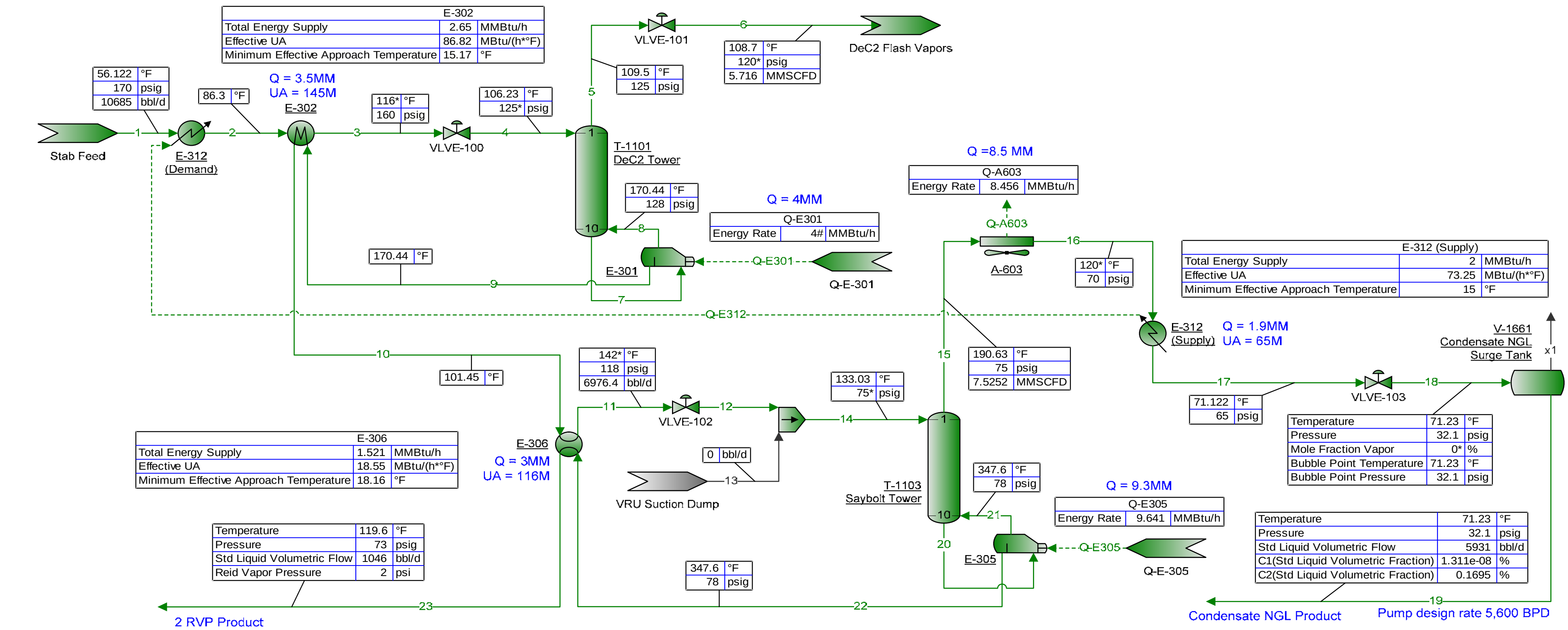
Process Streams		x1	x4	5	8	12	13
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	V-1000 Slug Catcher	VLVE-101	VRU Interstage Dumps	VLVE-103	V-1601 LP Condensate Flash Tank
	To Block:	SAT-1	--	HP Flash Vapors	VLVE-104	LP Flash Vapors	Stab Feed
Mole Fraction		%	%	%	%	%	%
H2O		0*	0.0355293	0.0408165	0.0111622	0.0430330	0.00684486
H2S		0.00400000*	0.00396331	0.00626520	0.00729917	0.00982249	0.00517123
CO2		2.70000*	2.71043	3.35519	1.18435	3.80210	0.747453
N2		2.12445*	2.15402	0.954233	0.0472127	0.304471	0.00749815
C1		73.4622*	74.1991	62.8978	9.03788	45.1149	3.60045
C2		11.8830*	11.8079	17.8521	18.2067	27.1137	12.5323
C3		6.30385*	6.07861	10.2256	34.3527	17.1255	26.9557
iC4		0.734622*	0.678261	1.10753	6.81019	1.68844	6.56586
nC4		1.82663*	1.63988	2.60641	19.3569	3.72937	21.3564
iC5		0.327602*	0.268842	0.390284	4.07341	0.471979	6.43843
nC5		0.357384*	0.282160	0.399219	4.47231	0.457756	8.12625
C6		0.160823*	0.0958661	0.117109	1.71175	0.104034	6.66422
C7		0.0804113*	0.0339923	0.0355681	0.549937	0.0259334	4.64753
C8		0.0268038*	0.00676329	0.00602099	0.0952794	0.00355683	1.98013
Benzene		0.00605567*	0.00378830	0.00487486	0.0678563	0.00470025	0.233810
Toluene		0.00198546*	0.000830466	0.000913355	0.0142599	0.000704163	0.115668
Ethylbenzene		0.000198546*	4.88832E-05	4.60354E-05	0.000746466	2.87287E-05	0.0147889
para-Xylene		1.98546E-05*	4.69290E-06	4.34081E-06	6.99862E-05	2.68332E-06	0.00149720
CHEMTHERM 550		0*	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		0*	138.173	6.38892	0.453741	2.97271	1.92109
H2S		29.9256*	29.1585	1.85522	0.561307	1.28364	2.74566
CO2		26084.5*	25750.2	1282.96	117.609	641.623	512.475
N2		13064.2*	13026.0	232.258	2.98429	32.7056	3.27237
C1		258706*	256960	8767.12	327.155	2775.24	899.850
C2		78436.4*	76645.8	4664.01	1235.28	3126.21	5870.74
C3		61020.1*	57862.3	3917.73	3418.01	2895.66	18517.8
iC4		9372.98*	8510.11	559.302	893.136	376.302	5945.33
nC4		23305.8*	20575.5	1316.24	2538.59	831.165	19338.0
iC5		5188.56*	4187.18	244.658	663.137	130.575	7236.88
nC5		5660.25*	4394.60	250.260	728.077	126.641	9134.01
C6		3042.30*	1783.38	87.6848	332.842	34.3769	8946.95
C7		1768.74*	735.280	30.9661	124.338	9.96427	7255.06
C8		672.113*	166.774	5.97576	24.5578	1.55793	3523.79
Benzene		103.837*	63.8790	3.30849	11.9598	1.40782	284.527
Toluene		40.1582*	16.5181	0.731190	2.96464	0.248785	166.034
Ethylbenzene		4.62717*	1.12031	0.0424642	0.178816	0.0116952	24.4603
para-Xylene		0.462717*	0.107552	0.00400408	0.0167652	0.00109235	2.47631
CHEMTHERM 550		0*	0	0	0	0	0

Process Streams		x1	x4	5	8	12	13
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	--	V-1000 Slug Catcher	VLVE-101	VRU Interstage Dumps	VLVE-103	V-1601 LP Condensate Flash Tank
	To Block:	SAT-1	--	HP Flash Vapors	VLVE-104	LP Flash Vapors	Stab Feed
Mass Fraction		%	%	%	%	%	%
H2O		0*	0.0293457	0.0298946	0.00435375	0.0270543	0.00219137
H2S		0.00615119*	0.00619278	0.00868083	0.00538586	0.0116822	0.00313195
CO2		5.36165*	5.46892	6.00315	1.12849	5.83933	0.584574
N2		2.68534*	2.76651	1.08677	0.0286349	0.297649	0.00373276
C1		53.1769*	54.5741	41.0225	3.13912	25.2572	1.02645
C2		16.1226*	16.2783	21.8235	11.8528	28.4512	6.69669
C3		12.5427*	12.2890	18.3316	32.7965	26.3531	21.1230
iC4		1.92661*	1.80741	2.61705	8.56983	3.42468	6.78177
nC4		4.79049*	4.36989	6.15886	24.3584	7.56433	22.0587
iC5		1.06651*	0.889289	1.14479	6.36295	1.18835	8.25503
nC5		1.16346*	0.933342	1.17100	6.98606	1.15254	10.4191
C6		0.625343*	0.378761	0.410288	3.19369	0.312860	10.2057
C7		0.363564*	0.156161	0.144894	1.19305	0.0906836	8.27577
C8		0.138152*	0.0354201	0.0279613	0.235638	0.0141785	4.01954
Benzene		0.0213436*	0.0135668	0.0154809	0.114757	0.0128124	0.324557
Toluene		0.00825450*	0.00350816	0.00342134	0.0284464	0.00226416	0.189393
Ethylbenzene		0.000951112*	0.000237935	0.000198696	0.00171578	0.000106436	0.0279016
para-Xylene		9.51112E-05*	2.28423E-05	1.87356E-05	0.000160866	9.94138E-06	0.00282470
CHEMTHERM 550		0*	0	0	0	0	0

Process Streams		x1	x4	5	8	12	13
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	V-1000 Slug Catcher	VLVE-101	VRU Interstage Dumps	VLVE-103	V-1601 LP Condensate Flash Tank
	To Block:	SAT-1	--	HP Flash Vapors	VLVE-104	LP Flash Vapors	Stab Feed
Property	**Units**						
Temperature	°F	60*	60	75.3042	96.2484	49.3525	56.1216
Pressure	psig	950*	950	450*	449	120*	170
Molecular Weight	lb/lbmol	22.1621	21.8114	24.5971	46.1880	28.6554	56.2717
Std Vapor Volumetric Flow	MMSCFD	199.929	196.608	7.91325	2.05504	3.49233	14.1888
Std Liquid Volumetric Flow	sgpm	2665.68	2602.91	112.236	40.6357	54.2559	311.644
Compressibility		0.734098	0.742746	0.843376	0.115925	0.927244	0.0512857
Specific Gravity			0.753090		0.494925	0.989397	0.582257
Mole Fraction Vapor	%	98.3014	100	99.9622	0	100	0
Molar Flow	lbmol/h	21951.9	21587.2	868.861	225.640	383.451	1557.91
Mass Flow	lb/h	486501	470846	21371.5	10421.9	10988.0	87666.3
Mass Cp	Btu/(lb*°F)	0.677987	0.678614	0.529489	0.691553	0.437646	0.579391
Molar Density	lbmol/ft^3	0.235272	0.232533	0.0956645	0.668309	0.0262972	0.645344
Mass Density	lb/ft^3	5.21414	5.07187	2.35307	30.8679	0.753557	36.3146
API Gravity					137.172		112.631
Net Ideal Gas Heating Value	Btu/ft^3	1121.86	1103.33	1246.25	2387.91	1449.44	2898.54
Net Liquid Heating Value	Btu/lb	19144.8	19133.5	19140.9	19465.7	19082.5	19389.4
Gross Ideal Gas Heating Value	Btu/ft^3	1235.89	1216.02	1369.33	2593.92	1587.08	3141.18
Gross Liquid Heating Value	Btu/lb	21097.6	21094.5	21040.3	21158.8	20905.9	21026.1

Carlsbad 3

Stabilizer
2 RVP Product



Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Temperature	°F	56.12	86.28	116*	106.2	109.5	108.7	149	170.4	170.4	101.5	142*	133		133	190.6	120*	71.12	71.23	71.23	336.1	347.6	347.6	119.6
Pressure	psig	170	165	160	125*	125	120*	128	128	128	123	118	75	119	75*	75	70	65	32.1	32.1	78	78	78	73
Mole Fraction Vapor	%	0	6.26	18.79	24.07	100	100	0	100	0	0	0	5.134		5.134	100	8.192	0	0*	0	0	100	0	0
Molecular Weight	lb/lbmol	56.27	56.27	56.27	56.27	41	41	62.47	53.4	66.57	66.57	66.57	66.57		66.57	62.15	62.15	62.15	62.15	62.15	99.03	98.7	101.7	101.7
Mass Density	lb/ft^3	36.31	16.79	7.785	5.269	1.054	1.013	33.76	1.327	33.92	36.88	35.19	13.12		13.12	0.8909	8.769	36.98	36.95	36.95	33.41	1.253	33.3	41.54
Specific Gravity		0.5823				1.416	1.416	0.5412	1.844	0.5439	0.5913	0.5643				2.146		0.5929	0.5924	0.5924	0.5357	3.408	0.534	0.666
Molar Flow	lbmol/h	1558	1558	1558	1558	627.6	627.6	1351	420.6	930.3	930.3	930.3	930.3	0	930.3	826.3	826.3	826.3	826.3	826.3	925.8	821.7	104.1	104.1
Mass Flow	lb/h	87666	87666	87666	87666	25735	25735	84393	22462	61931	61931	61931	61931	0	61931	51350	51350	51350	51350	51350	91684	81102	10581	10581
Std Vapor Volumetric Flow	MMSCFD	14.19	14.19	14.19	14.19	5.716	5.716	12.3	3.831	8.473	8.473	8.473	8.473	0	8.473	7.525	7.525	7.525	7.525	7.525	8.432	7.484	0.9477	0.9477
Std Liquid Volumetric Flow	sgpm	311.6	311.6	311.6	311.6	108.2	108.2	284.4	80.88	203.5	203.5	203.5	203.5	0	203.5	173	173	173	173	173	265.6	235.1	30.5	30.5
Std Liquid Volumetric Flow	bbl/d	10685	10685	10685	10685	3708.5	3708.5	9749.6	2773.1	6976.4	6976.4	6976.4	6976.4	0	6976.4	5930.8	5930.8	5930.8	5930.8	5930.8	9107.7	8062	1045.7	1045.7

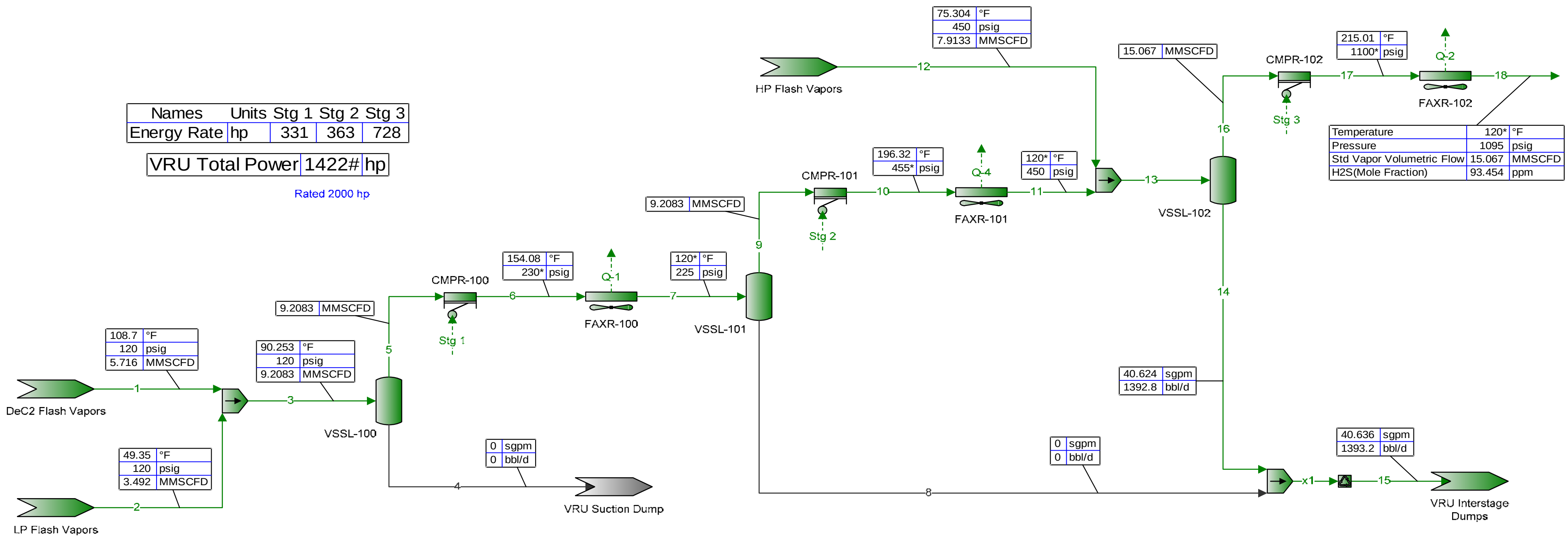
Process Streams		x1	1	5	18	19	23
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	V-1661 Condensate NGL Surge Tank	Stab Feed	T-1101 DeC2 Tower	VLVE-103	V-1661 Condensate NGL Surge Tank	E-306
	To Block:	--	E-312 (Demand)	VLVE-101	V-1661 Condensate NGL Surge Tank	--	--
Mole Fraction		%	%	%	%	%	%
H2O		7.17334E-07	0.00684486	0.0169909	2.67646E-08	2.67646E-08	0
H2S		0.00153695	0.00517123	0.0125827	0.000192790	0.000192790	0
CO2		0.000168511	0.747453	1.85539	7.73922E-06	7.73922E-06	0
N2		0	0.00749815	0.0186127	0	0	0
C1		1.34706E-06	3.60045	8.93739	2.56715E-08	2.56715E-08	0
C2		1.89777	12.5323	30.8320	0.210377	0.210377	2.70981E-13
C3		59.7136	26.9557	37.0044	22.7175	22.7175	3.28277E-08
iC4		9.29897	6.56586	4.91086	8.64984	8.64984	3.71708E-06
nC4		22.0087	21.3564	11.9460	31.1939	31.1939	9.63225E-05
iC5		3.18489	6.43843	1.82958	10.7495	10.7495	0.00406619
nC5		3.15889	8.12625	1.87720	13.8934	13.8934	0.0229140
C6		0.667902	6.66422	0.548775	10.2814	10.2814	14.8275
C7		0.0366823	4.64753	0.157470	1.64540	1.64540	55.5689
C8		0.00197123	1.98013	0.0256192	0.279351	0.279351	27.2743
Benzene		0.0278642	0.233810	0.0227834	0.337611	0.337611	0.682396
Toluene		0.000969561	0.115668	0.00414029	0.0392478	0.0392478	1.39519
Ethylbenzene		1.59102E-05	0.0147889	0.000202890	0.00204887	0.00204887	0.203931
para-Xylene		1.35104E-06	0.00149720	1.88930E-05	0.000191571	0.000191571	0.0207814
CHEMTHERM 550		0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		0	1.92109	1.92109	3.98394E-06	3.98394E-06	0
H2S		0	2.74566	2.69137	0.0542883	0.0542883	0
CO2		0	512.475	512.472	0.00281420	0.00281420	0
N2		0	3.27237	3.27237	0	0	0
C1		0	899.850	899.850	3.40279E-06	3.40279E-06	0
C2		0	5870.74	5818.47	52.2673	52.2673	8.47836E-12
C3		0	18517.8	10240.9	8276.91	8276.91	1.50622E-06
iC4		0	5945.33	1791.38	4153.96	4153.96	0.000224801
nC4		0	19338.0	4357.65	14980.4	14980.4	0.00582537
iC5		0	7236.88	828.455	6408.12	6408.12	0.305260
nC5		0	9134.01	850.017	8282.27	8282.27	1.72021
C6		0	8946.95	296.801	7320.60	7320.60	1329.55
C7		0	7255.06	99.0292	1362.26	1362.26	5793.77
C8		0	3523.79	18.3666	263.655	263.655	3241.76
Benzene		0	284.527	11.1693	217.894	217.894	55.4634
Toluene		0	166.034	2.39419	29.8791	29.8791	133.761
Ethylbenzene		0	24.4603	0.135186	1.79725	1.79725	22.5278
para-Xylene		0	2.47631	0.0125884	0.168044	0.168044	2.29568
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		x1	1	5	18	19	23
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	V-1661 Condensate NGL Surge Tank	Stab Feed	T-1101 DeC2 Tower	VLVE-103	V-1661 Condensate NGL Surge Tank	E-306
	To Block:	--	E-312 (Demand)	VLVE-101	V-1661 Condensate NGL Surge Tank	--	--
Mass Fraction		%	%	%	%	%	%
H2O		2.56850E-07	0.00219137	0.00746489	7.75838E-09	7.75838E-09	0
H2S		0.00104109	0.00313195	0.0104580	0.000105722	0.000105722	0
CO2		0.000147398	0.584574	1.99134	5.48041E-06	5.48041E-06	0
N2		0	0.00373276	0.0127157	0	0	0
C1		4.29511E-07	1.02645	3.49660	6.62662E-09	6.62662E-09	0
C2		1.13417	6.69669	22.6092	0.101786	0.101786	8.01269E-14
C3		52.3343	21.1230	39.7937	16.1185	16.1185	1.42350E-08
iC4		10.7422	6.78177	6.96087	8.08946	8.08946	2.12454E-06
nC4		25.4246	22.0587	16.9328	29.1730	29.1730	5.50542E-05
iC5		4.56710	8.25503	3.21918	12.4793	12.4793	0.00288494
nC5		4.52983	10.4191	3.30297	16.1290	16.1290	0.0162573
C6		1.14397	10.2057	1.15330	14.2562	14.2562	12.5652
C7		0.0730551	8.27577	0.384804	2.65287	2.65287	54.7555
C8		0.00447536	4.01954	0.0713682	0.513445	0.513445	30.6371
Benzene		0.0432595	0.324557	0.0434011	0.424329	0.424329	0.524172
Toluene		0.00177555	0.189393	0.00930327	0.0581869	0.0581869	1.26414
Ethylbenzene		3.35718E-05	0.0279016	0.000525300	0.00349998	0.00349998	0.212905
para-Xylene		2.85080E-06	0.00282470	4.89156E-05	0.000327251	0.000327251	0.0216959
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		x1	1	5	18	19	23
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	V-1661 Condensate NGL Surge Tank	Stab Feed	T-1101 DeC2 Tower	VLVE-103	V-1661 Condensate NGL Surge Tank	E-306
	To Block:	--	E-312 (Demand)	VLVE-101	V-1661 Condensate NGL Surge Tank	--	--
Property	Units						
Temperature	°F	71.2294	56.1216	109.504	71.2294	71.2294	119.613
Pressure	psig	32.1017	170	125	32.1017	32.1017	73
Molecular Weight	lb/lbmol	50.3133	56.2717	41.0049	62.1485	62.1485	101.690
Std Vapor Volumetric Flow	MMSCFD	0	14.1888	5.71601	7.52517	7.52517	0.947673
Std Liquid Volumetric Flow	sgpm	0	311.644	108.164	172.981	172.981	30.4989
Compressibility			0.0512857	0.879910	0.0133744	0.0133744	0.0339440
Specific Gravity			0.582257	1.41579	0.592417	0.592417	0.666045
Mole Fraction Vapor	%	100	0	100	0*	0	0
Molar Flow	lbmol/h	0	1557.91	627.608	826.251	826.251	104.053
Mass Flow	lb/h	0	87666.3	25735.0	51350.2	51350.2	10581.2
Mass Cp	Btu/(lb*°F)		0.579391	0.453868	0.574970	0.574970	0.546534
Molar Density	lbmol/ft^3	0.00854619	0.645344	0.0257135	0.594517	0.594517	0.408499
Mass Density	lb/ft^3	0.429987	36.3146	1.05438	36.9483	36.9483	41.5404
API Gravity			112.631		104.532	104.532	72.1559
Net Ideal Gas Heating Value	Btu/ft^3	2622.11	2898.54	2116.15	3207.52	3207.52	5164.11
Net Liquid Heating Value	Btu/lb	19616.2	19389.4	19432.5	19425.1	19425.1	19111.2
Gross Ideal Gas Heating Value	Btu/ft^3	2845.48	3141.18	2302.33	3472.74	3472.74	5568.05
Gross Liquid Heating Value	Btu/lb	21301.2	21026.1	21156.2	21044.9	21044.9	20618.8

Carlsbad 3

Stabilizer VRU



Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Temperature	°F	108.7	49.35	90.25		90.1	154.1	120*		119.9	196.3	120*	75.3	96.35	96.25	96.25	96.25	215	120*
Pressure	psig	120	120	120	119	119	230*	225	224	224	455*	450	450	450	449	449	449	1100*	1095
Mole Fraction Vapor	%	100	100	100		100	100	100		100	100	73.09	99.96	87.99	0	0	100	100	100
Molecular Weight	lb/lbmol	41	28.66	36.32		36.32	36.32	36.32		36.32	36.32	36.32	24.6	30.9	46.19	46.19	28.82	28.82	28.82
Mass Density	lb/ft^3	1.013	0.7536	0.908		0.9008	1.54	1.642		1.635	3.036	4.679	2.353	3.362	30.87	30.87	2.807	5.671	8.887
Specific Gravity		1.416	0.9894	1.254		1.254	1.254	1.254		1.254	1.254				0.4949	0.4949	0.995	0.995	0.995
Molar Flow	lbmol/h	627.6	383.5	1011	0	1011	1011	1011	0	1011	1011	1011	868.9	1880	225.6	225.6	1654	1654	1654
Mass Flow	lb/h	25735	10988	36723	0	36723	36723	36723	0	36723	36723	36723	21371	58094	10419	10422	47675	47675	47675
Std Vapor Volumetric Flow	MMSCFD	5.716	3.492	9.208	0	9.208	9.208	9.208	0	9.208	9.208	9.208	7.913	17.12	2.054	2.055	15.07	15.07	15.07
Std Liquid Volumetric Flow	sgpm	108.2	54.26	162.4	0	162.4	162.4	162.4	0	162.4	162.4	162.4	112.2	274.7	40.62	40.64	234	234	234
Std Liquid Volumetric Flow	bbl/d	3708	1860	5569	0	5569	5569	5569	0	5569	5569	5569	3848	9417	1393	1393	8024	8024	8024

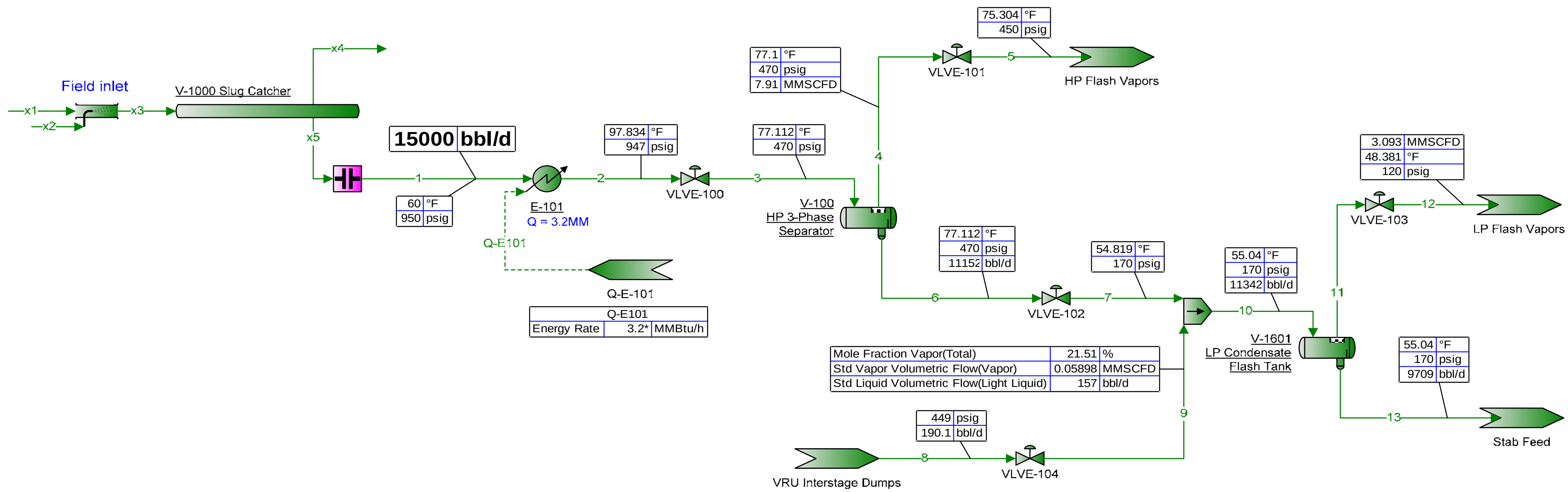
Process Streams		1	2	5	12	15	18
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	DeC2 Flash Vapors	LP Flash Vapors	VSSL-100	HP Flash Vapors	RCYL-1	FAXR-102
	To Block:	MIX-100	MIX-100	CMPR-100	MIX-101	VRU Interstage Dumps	--
Mole Fraction		%	%	%	%	%	%
H2O		0.0169909	0.0430330	0.0268676	0.0408165	0.0111622	0.0363350
H2S		0.0125827	0.00982249	0.0115359	0.00626520	0.00729917	0.00934544
CO2		1.85539	3.80210	2.59369	3.35519	1.18435	3.18580
N2		0.0186127	0.304471	0.127026	0.954233	0.0472127	0.572357
C1		8.93739	45.1149	22.6580	62.8978	9.03788	45.6490
C2		30.8320	27.1137	29.4218	17.8521	18.2067	24.8747
C3		37.0044	17.1255	29.4652	10.2256	34.3527	18.6945
iC4		4.91086	1.68844	3.68873	1.10753	6.81019	1.90747
nC4		11.9460	3.72937	8.82978	2.60641	19.3569	4.12578
iC5		1.82958	0.471979	1.31470	0.390284	4.07341	0.452972
nC5		1.87720	0.457756	1.33887	0.399219	4.47231	0.418023
C6		0.548775	0.104034	0.380103	0.117109	1.71175	0.0603566
C7		0.157470	0.0259334	0.107584	0.0355681	0.549937	0.00942796
C8		0.0256192	0.00355683	0.0172519	0.00602099	0.0952794	0.000710971
Benzene		0.0227834	0.00470025	0.0159253	0.00487486	0.0678563	0.00303889
Toluene		0.00414029	0.000704163	0.00283711	0.000913355	0.0142599	0.000268800
Ethylbenzene		0.000202890	2.87287E-05	0.000136838	4.60354E-05	0.000746466	5.99994E-06
para-Xylene		1.88930E-05	2.68332E-06	1.27454E-05	4.34081E-06	6.99862E-05	5.24075E-07
CHEMTHERM 550		0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		1.92109	2.97271	4.89380	6.38892	0.453741	10.8291
H2S		2.69137	1.28364	3.97501	1.85522	0.561307	5.26910
CO2		512.472	641.623	1154.10	1282.96	117.609	2319.48
N2		3.27237	32.7056	35.9779	232.258	2.98429	265.252
C1		899.850	2775.24	3675.09	8767.12	327.155	12115.1
C2		5818.47	3126.21	8944.68	4664.01	1235.28	12373.8
C3		10240.9	2895.66	13136.5	3917.73	3418.01	13637.5
iC4		1791.38	376.302	2167.68	559.302	893.136	1834.12
nC4		4357.65	831.165	5188.81	1316.24	2538.59	3967.11
iC5		828.455	130.575	959.030	244.658	663.137	540.663
nC5		850.017	126.641	976.658	250.260	728.077	498.949
C6		296.801	34.3769	331.178	87.6848	332.842	86.0466
C7		99.0292	9.96427	108.993	30.9661	124.338	15.6286
C8		18.3666	1.55793	19.9245	5.97576	24.5578	1.34355
Benzene		11.1693	1.40782	12.5771	3.30849	11.9598	3.92697
Toluene		2.39419	0.248785	2.64298	0.731190	2.96464	0.409729
Ethylbenzene		0.135186	0.0116952	0.146881	0.0424642	0.178816	0.0105379
para-Xylene		0.0125884	0.00109235	0.0136808	0.00400408	0.0167652	0.000920452
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		1	2	5	12	15	18
Composition	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**DeC2 Flash Vapors**	**LP Flash Vapors**	**VSSL-100**	**HP Flash Vapors**	**RCYL-1**	**FAXR-102**
	To Block:	**MIX-100**	**MIX-100**	**CMPR-100**	**MIX-101**	**VRU Interstage Dumps**	**--**
Mass Fraction		%	%	%	%	%	%
H2O		0.00746489	0.0270543	0.0133263	0.0298946	0.00435375	0.0227142
H2S		0.0104580	0.0116822	0.0108243	0.00868083	0.00538586	0.0110520
CO2		1.99134	5.83933	3.14271	6.00315	1.12849	4.86515
N2		0.0127157	0.297649	0.0979713	1.08677	0.0286349	0.556371
C1		3.49660	25.2572	10.0076	41.0225	3.13912	25.4117
C2		22.6092	28.4512	24.3572	21.8235	11.8528	25.9542
C3		39.7937	26.3531	35.7721	18.3316	32.7965	28.6049
iC4		6.96087	3.42468	5.90280	2.61705	8.56983	3.84708
nC4		16.9328	7.56433	14.1296	6.15886	24.3584	8.32107
iC5		3.21918	1.18835	2.61153	1.14479	6.36295	1.13405
nC5		3.30297	1.15254	2.65953	1.17100	6.98606	1.04655
C6		1.15330	0.312860	0.901829	0.410288	3.19369	0.180484
C7		0.384804	0.0906836	0.296800	0.144894	1.19305	0.0327812
C8		0.0713682	0.0141785	0.0542563	0.0279613	0.235638	0.00281811
Benzene		0.0434011	0.0128124	0.0342486	0.0154809	0.114757	0.00823688
Toluene		0.00930327	0.00226416	0.00719708	0.00342134	0.0284464	0.000859413
Ethylbenzene		0.000525300	0.000106436	0.000399971	0.000198696	0.00171578	2.21034E-05
para-Xylene		4.89156E-05	9.94138E-06	3.72540E-05	1.87356E-05	0.000160866	1.93066E-06
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		1	2	5	12	15	18
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	**DeC2 Flash Vapors**	**LP Flash Vapors**	**VSSL-100**	**HP Flash Vapors**	**RCYL-1**	**FAXR-102**
	To Block:	**MIX-100**	**MIX-100**	**CMPR-100**	**MIX-101**	**VRU Interstage Dumps**	**--**
Property	**Units**						
Temperature	°F	108.662	49.3525	90.0982	75.3042	96.2484	120*
Pressure	psig	120	120	119	450	449	1095
Molecular Weight	lb/lbmol	41.0049	28.6554	36.3213	24.5971	46.1880	28.8183
Std Vapor Volumetric Flow	MMSCFD	5.71601	3.49233	9.20834	7.91325	2.05504	15.0671
Std Liquid Volumetric Flow	sgpm	108.164	54.2559	162.420	112.236	40.6357	234.032
Compressibility		0.884079	0.927244	0.903501	0.843376	0.115925	0.577666
Specific Gravity		1.41579	0.989397	1.25408		0.494925	0.995022
Mole Fraction Vapor	%	100	100	100	99.9622	0	100
Molar Flow	lbmol/h	627.608	383.451	1011.06	868.861	225.640	1654.35
Mass Flow	lb/h	25735.0	10988.0	36722.9	21371.5	10421.9	47675.5
Mass Cp	Btu/(lb*°F)	0.451975	0.437646	0.445123	0.529489	0.691553	0.913415
Molar Density	lbmol/ft^3	0.0247029	0.0262972	0.0248005	0.0956645	0.668309	0.308387
Mass Density	lb/ft^3	1.01294	0.753557	0.900784	2.35307	30.8679	8.88721
API Gravity						137.172	
Net Ideal Gas Heating Value	Btu/ft^3	2116.15	1449.44	1863.29	1246.25	2387.91	1467.69
Net Liquid Heating Value	Btu/lb	19432.5	19082.5	19327.8	19140.9	19465.7	19213.9
Gross Ideal Gas Heating Value	Btu/ft^3	2302.33	1587.08	2031.07	1369.33	2593.92	1606.77
Gross Liquid Heating Value	Btu/lb	21156.2	20905.9	21081.3	21040.3	21158.8	21046.0

Badger

Inlet Separation



Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13
Temperature	°F	60	97.83	77.11	77.11	75.3	77.11	54.82	94.62	66.68	55.04	55.04	48.38	55.04
Pressure	psig	950	947	470*	470	450*	470	170*	449	170#	170	170	120*	170
Mole Fraction Vapor	%	0	11.21	33.62	100	99.96	0	19.43	0	21.51	19.45	100	100	0
Molecular Weight	lb/lbmol	42.41	42.41	42.41	24.6	24.6	51.43	51.43	48.45	48.45	51.37	28.23	28.23	56.96
Mass Density	lb/ft^3	31.4	23.27	9.721	2.46	2.353	34.09	7.841	32.01	6.847	7.825	1.034	0.7422	36.57
Specific Gravity		0.5035			0.8493		0.5466		0.5133			0.9748	0.9748	0.5863
Molar Flow	lbmol/h	2585	2585	2585	868.9	868.9	1716	1716	30.11	30.11	1746	339.6	339.6	1406
Mass Flow	lb/h	109604	109604	109604	21371.5	21371.5	88232.4	88232.4	1459.08	1459.08	89691.5	9587.62	9587.62	80103.9
Std Vapor Volumetric Flow	MMSCFD	23.54	23.54	23.54	7.913	7.913	15.63	15.63	0.2743	0.2743	15.9	3.093	3.093	12.81
Std Liquid Volumetric Flow	sgpm	437.5*	437.5	437.5	112.2	112.2	325.3	325.3	5.545	5.545	330.8	47.63	47.63	283.2
Std Liquid Volumetric Flow	bbl/d	15000*	15000	15000	3848.1	3848.1	11152	11152	190.12	190.12	11342	1633	1633	9709

Process Streams		x1	x4	5	8	12	13
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	--	V-1000 Slug Catcher	VLVE-101	VRU Interstage Dumps	VLVE-103	V-1601 LP Condensate Flash Tank
	To Block:	SAT-1	--	HP Flash Vapors	VLVE-104	LP Flash Vapors	Stab Feed
Mole Fraction		%	%	%	%	%	%
H2O		0*	0.0355293	0.0408165	0.0121772	0.0441732	0.00711919
H2S		0.00400000*	0.00396331	0.00626520	0.00654455	0.00952039	0.00507717
CO2		2.70000*	2.71043	3.35519	1.25075	3.87266	0.766325
N2		2.12445*	2.15402	0.954233	0.0489180	0.318939	0.00777751
C1		73.4622*	74.1991	62.8978	9.64228	46.8614	3.72991
C2		11.8830*	11.8079	17.8521	16.6343	26.4492	12.3247
C3		6.30385*	6.07861	10.2256	29.5131	16.1488	25.7530
iC4		0.734622*	0.678261	1.10753	6.42037	1.61212	6.38990
nC4		1.82663*	1.63988	2.60641	19.7374	3.60619	21.1227
iC5		0.327602*	0.268842	0.390284	5.18031	0.471505	6.60507
nC5		0.357384*	0.282160	0.399219	6.12603	0.460644	8.42993
C6		0.160823*	0.0958661	0.117109	3.48113	0.108406	7.18514
C7		0.0804113*	0.0339923	0.0355681	1.46908	0.0271617	5.09257
C8		0.0268038*	0.00676329	0.00602099	0.309412	0.00372709	2.18512
Benzene		0.00605567*	0.00378830	0.00487486	0.128346	0.00483976	0.251004
Toluene		0.00198546*	0.000830466	0.000913355	0.0372600	0.000732416	0.126670
Ethylbenzene		0.000198546*	4.88832E-05	4.60354E-05	0.00238749	2.99502E-05	0.0163161
para-Xylene		1.98546E-05*	4.69290E-06	4.34081E-06	0.000227583	2.79943E-06	0.00165240
CHEMTHERM 550		0*	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		0*	138.173	6.38892	0.0660591	2.70258	1.80354
H2S		29.9256*	29.1585	1.85522	0.0671637	1.10190	2.43325
CO2		26084.5*	25750.2	1282.96	16.5753	578.806	474.258
N2		13064.2*	13026.0	232.258	0.412647	30.3425	3.06381
C1		258706*	256960	8767.12	46.5795	2553.08	841.442
C2		78436.4*	76645.8	4664.01	150.615	2700.91	5211.36
C3		61020.1*	57862.3	3917.73	391.880	2418.31	15969.0
iC4		9372.98*	8510.11	559.302	112.369	318.213	5222.65
nC4		23305.8*	20575.5	1316.24	345.442	711.817	17264.2
iC5		5188.56*	4187.18	244.658	112.546	115.530	6701.34
nC5		5660.25*	4394.60	250.260	133.092	112.868	8552.79
C6		3042.30*	1783.38	87.6848	90.3331	31.7259	8707.09
C7		1768.74*	735.280	30.9661	44.3268	9.24294	7175.77
C8		672.113*	166.774	5.97576	10.6428	1.44584	3509.98
Benzene		103.837*	63.8790	3.30849	3.01887	1.28386	275.710
Toluene		40.1582*	16.5181	0.731190	1.03378	0.229180	164.123
Ethylbenzene		4.62717*	1.12031	0.0424642	0.0763250	0.0107984	24.3587
para-Xylene		0.462717*	0.107552	0.00400408	0.00727552	0.00100932	2.46690
CHEMTHERM 550		0*	0	0	0	0	0

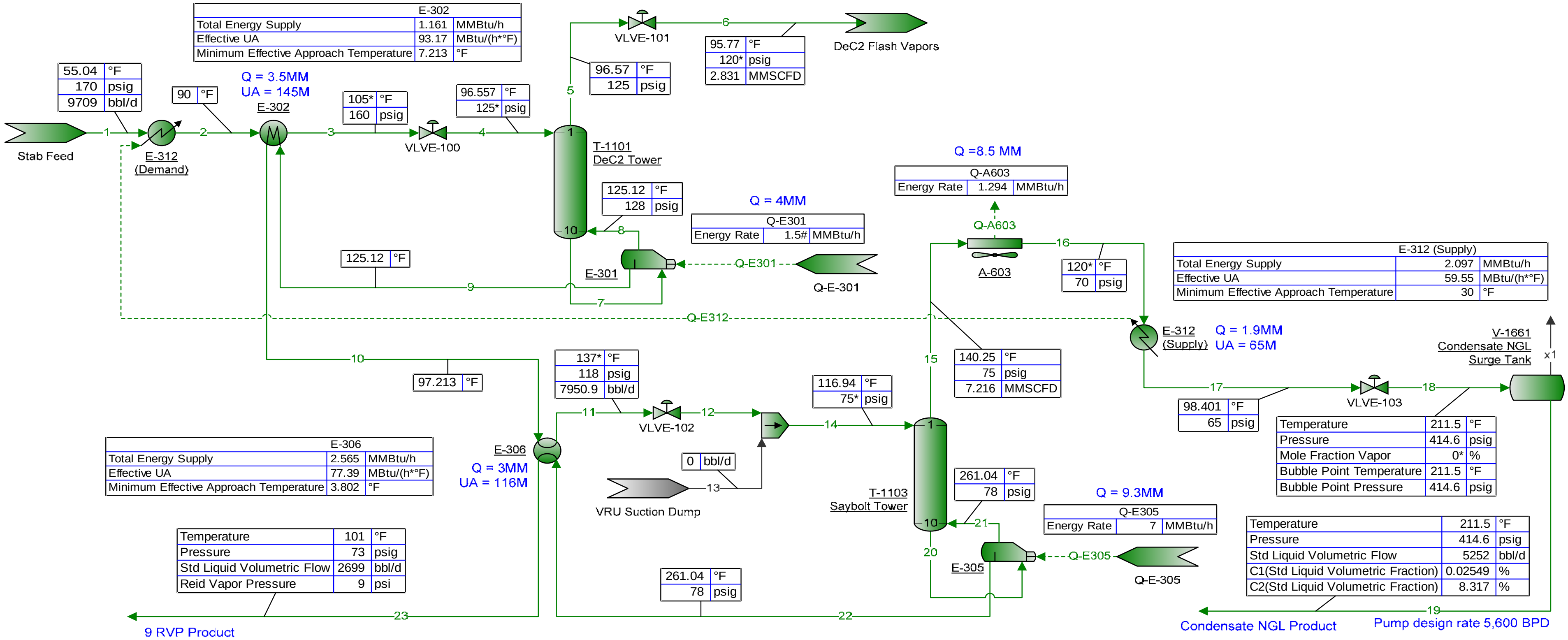
Process Streams		x1	x4	5	8	12	13
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	--	V-1000 Slug Catcher	VLVE-101	VRU Interstage Dumps	VLVE-103	V-1601 LP Condensate Flash Tank
	To Block:	SAT-1	--	HP Flash Vapors	VLVE-104	LP Flash Vapors	Stab Feed
Mass Fraction		%	%	%	%	%	%
H2O		0*	0.0293457	0.0298946	0.00452744	0.0281882	0.00225150
H2S		0.00615119*	0.00619278	0.00868083	0.00460314	0.0114930	0.00303762
CO2		5.36165*	5.46892	6.00315	1.13601	6.03702	0.592053
N2		2.68534*	2.76651	1.08677	0.0282812	0.316476	0.00382479
C1		53.1769*	54.5741	41.0225	3.19238	26.6289	1.05044
C2		16.1226*	16.2783	21.8235	10.3226	28.1708	6.50576
C3		12.5427*	12.2890	18.3316	26.8580	25.2233	19.9354
iC4		1.92661*	1.80741	2.61705	7.70133	3.31899	6.51985
nC4		4.79049*	4.36989	6.15886	23.6753	7.42434	21.5523
iC5		1.06651*	0.889289	1.14479	7.71344	1.20499	8.36581
nC5		1.16346*	0.933342	1.17100	9.12161	1.17723	10.6771
C6		0.625343*	0.378761	0.410288	6.19108	0.330904	10.8698
C7		0.363564*	0.156161	0.144894	3.03799	0.0964050	8.95808
C8		0.138152*	0.0354201	0.0279613	0.729416	0.0150803	4.38179
Benzene		0.0213436*	0.0135668	0.0154809	0.206902	0.0133908	0.344190
Toluene		0.00825450*	0.00350816	0.00342134	0.0708511	0.00239037	0.204887
Ethylbenzene		0.000951112*	0.000237935	0.000198696	0.00523102	0.000112629	0.0304088
para-Xylene		9.51112E-05*	2.28423E-05	1.87356E-05	0.000498636	1.05273E-05	0.00307963
CHEMTHERM 550		0*	0	0	0	0	0

Process Streams		x1	x4	5	8	12	13
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	V-1000 Slug Catcher	VLVE-101	VRU Interstage Dumps	VLVE-103	V-1601 LP Condensate Flash Tank
	To Block:	SAT-1	--	HP Flash Vapors	VLVE-104	LP Flash Vapors	Stab Feed
Property	**Units**						
Temperature	°F	60*	60	75.3042	94.6180	48.3807	55.0398
Pressure	psig	950*	950	450*	449	120*	170
Molecular Weight	lb/lbmol	22.1621	21.8114	24.5971	48.4548	28.2314	56.9637
Std Vapor Volumetric Flow	MMSCFD	199.929	196.608	7.91325	0.274251	3.09302	12.8074
Std Liquid Volumetric Flow	sgpm	2665.68	2602.91	112.236	5.54518	47.6292	283.180
Compressibility		0.734098	0.742746	0.843376	0.117615	0.929255	0.0516692
Specific Gravity			0.753090		0.513260	0.974758	0.586272
Mole Fraction Vapor	%	98.3014	100	99.9622	0	100	0
Molar Flow	lbmol/h	21951.9	21587.2	868.861	30.1123	339.608	1406.23
Mass Flow	lb/h	486501	470846	21371.5	1459.08	9587.62	80103.9
Mass Cp	Btu/(lb*°F)	0.677987	0.678614	0.529489	0.664196	0.438308	0.575733
Molar Density	lbmol/ft^3	0.235272	0.232533	0.0956645	0.660645	0.0262905	0.641900
Mass Density	lb/ft^3	5.21414	5.07187	2.35307	32.0114	0.742219	36.5650
API Gravity					129.714		111.243
Net Ideal Gas Heating Value	Btu/ft^3	1121.86	1103.33	1246.25	2498.37	1426.31	2932.31
Net Liquid Heating Value	Btu/lb	19144.8	19133.5	19140.9	19413.0	19062.3	19376.9
Gross Ideal Gas Heating Value	Btu/ft^3	1235.89	1216.02	1369.33	2712.24	1562.27	3177.35
Gross Liquid Heating Value	Btu/lb	21097.6	21094.5	21040.3	21088.4	20890.4	21009.8

Badger

Stabilizer

9 RVP Product



Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Temperature	°F	55.04	90	105*	96.56	96.57	95.77	108.7	125.1	125.1	97.21	137*	116.9		116.9	140.2	120*	98.4	211.5	211.5	237.6	261	261	101
Pressure	psig	170	165	160	125*	125	120*	128	128	128	123	118	75	119	75*	75	70	65	414.6	414.6	78	78	78	73
Mole Fraction Vapor	%	0	7.057	12.89	17.79	100	100	0	100	0	0	13.17	23.73		23.73	100	87.02	61.79	0*	0	0	100	0	0
Molecular Weight	lb/lbmol	56.96	56.96	56.96	56.96	37.97	37.97	60.48	44.25	62.35	62.35	62.35	62.35		62.35	53.14	53.14	53.14	53.14	53.14	81.01	78.37	86.46	86.46
Mass Density	lb/ft^3	36.57	15.8	10.47	6.896	0.985	0.9468	35.16	1.15	34.91	36.11	8.68	3.805		3.805	0.8175	0.9115	1.232	26.46	26.46	34.31	1.082	34.4	40.38
Specific Gravity		0.5863				1.311	1.311	0.5637	1.528	0.5597	0.579					1.835			0.4242	0.4242	0.5501	2.706	0.5516	0.6474
Molar Flow	lbmol/h	1406	1406	1406	1406	310.9	310.9	1222	126.8	1095	1095	1095	1095	0	1095	792.3	792.3	792.3	792.3	792.3	927.8	624.7	303.1	303.1
Mass Flow	lb/h	80104	80104	80104	80104	11802	11802	73913	5611.2	68302	68302	68302	68302	0	68302	42100	42100	42100	42100	42100	75162	48961	26202	26202
Std Vapor Volumetric Flow	MMSCFD	12.81	12.81	12.81	12.81	2.831	2.831	11.13	1.155	9.976	9.976	9.976	9.976	0	9.976	7.216	7.216	7.216	7.216	7.216	8.45	5.69	2.76	2.76
Std Liquid Volumetric Flow	sgpm	283.2	283.2	283.2	283.2	51.28	51.28	254.7	22.8	231.9	231.9	231.9	231.9	0	231.9	153.2	153.2	153.2	153.2	153.2	230.1	151.4	78.72	78.72
Std Liquid Volumetric Flow	bbl/d	9709	9709	9709	9709	1758.1	1758.1	8732.6	781.71	7950.9	7950.9	7950.9	7950.9	0	7950.9	5251.9	5251.9	5251.9	5251.9	5251.9	7890.7	5191.7	2699	2699

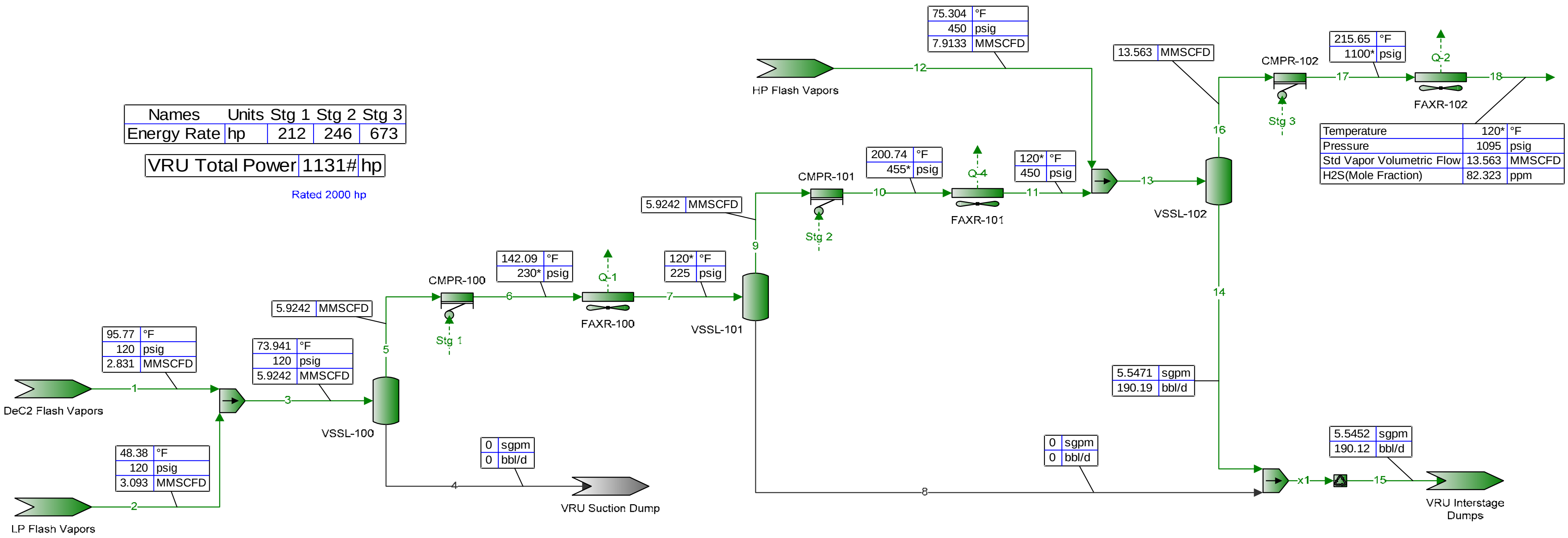
Process Streams		x1	1	5	18	19	23
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	V-1661 Condensate NGL Surge Tank	Stab Feed	T-1101 DeC2 Tower	VLVE-103	V-1661 Condensate NGL Surge Tank	E-306
	To Block:	--	E-312 (Demand)	VLVE-101	V-1661 Condensate NGL Surge Tank	--	--
Mole Fraction		%	%	%	%	%	%
H2O		0.00682478	0.00711919	0.0272234	0.00195457	0.00195457	0
H2S		0.00865743	0.00507717	0.0121597	0.00424045	0.00424045	4.73344E-12
CO2		0.859946	0.766325	2.80010	0.261511	0.261511	1.00045E-13
N2		1.97708E-08	0.00777751	0.0351832	2.56762E-09	2.56762E-09	0
C1		0.213846	3.72991	16.7556	0.0460836	0.0460836	0
C2		20.2566	12.3247	31.4623	9.53050	9.53050	4.05366E-09
C3		40.9968	25.7530	31.7483	33.2514	33.2514	9.79754E-05
iC4		8.15408	6.38990	4.01053	9.76015	9.76015	0.0194966
nC4		23.6724	21.1227	9.63686	33.2154	33.2154	1.28962
iC5		2.76197	6.60507	1.45208	5.71826	5.71826	14.2090
nC5		2.48230	8.42993	1.48085	5.65940	5.65940	22.8008
C6		0.464759	7.18514	0.421922	1.82798	1.82798	28.1277
C7		0.0892891	5.09257	0.117653	0.542714	0.542714	22.0903
C8		0.00956829	2.18512	0.0184043	0.0943325	0.0943325	9.87360
Benzene		0.0204799	0.251004	0.0176547	0.0713965	0.0713965	0.959909
Toluene		0.00242659	0.126670	0.00309926	0.0138960	0.0138960	0.548247
Ethylbenzene		7.78884E-05	0.0163161	0.000145955	0.000731342	0.000731342	0.0736461
para-Xylene		6.81866E-06	0.00165240	1.35946E-05	6.78179E-05	6.78179E-05	0.00747600
CHEMTHERM 550		0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		0	1.80354	1.52455	0.278988	0.278988	0
H2S		0	2.43325	1.28823	1.14503	1.14503	4.88898E-10
CO2		0	474.258	383.071	91.1862	91.1862	1.33436E-11
N2		0	3.06381	3.06381	5.69888E-07	5.69888E-07	0
C1		0	841.442	835.584	5.85748	5.85748	0
C2		0	5211.36	2940.83	2270.54	2270.54	3.69400E-07
C3		0	15969.0	4351.87	11617.1	11617.1	0.0130931
iC4		0	5222.65	724.608	4494.61	4494.61	3.43424
nC4		0	17264.2	1741.16	15295.9	15295.9	227.161
iC5		0	6701.34	325.670	3268.78	3268.78	3106.88
nC5		0	8552.79	332.124	3235.14	3235.14	4985.52
C6		0	8707.09	113.025	1248.09	1248.09	7345.95
C7		0	7175.77	36.6472	430.864	430.864	6708.24
C8		0	3509.98	6.53511	85.3747	85.3747	3418.07
Benzene		0	275.710	4.28685	44.1862	44.1862	227.236
Toluene		0	164.123	0.887683	10.1443	10.1443	153.090
Ethylbenzene		0	24.3587	0.0481681	0.615170	0.615170	23.6953
para-Xylene		0	2.46690	0.00448650	0.0570452	0.0570452	2.40537
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		x1	1	5	18	19	23
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	V-1661 Condensate NGL Surge Tank	Stab Feed	T-1101 DeC2 Tower	VLVE-103	V-1661 Condensate NGL Surge Tank	E-306
	To Block:	--	E-312 (Demand)	VLVE-101	V-1661 Condensate NGL Surge Tank	--	--
Mass Fraction		%	%	%	%	%	%
H2O		0.00259461	0.00225150	0.0129175	0.000662681	0.000662681	0
H2S		0.00622647	0.00303762	0.0109151	0.00271979	0.00271979	1.86590E-12
CO2		0.798656	0.592053	3.24576	0.216595	0.216595	5.09263E-14
N2		1.16878E-08	0.00382479	0.0259596	1.35366E-09	1.35366E-09	0
C1		0.0723960	1.05044	7.07989	0.0139133	0.0139133	0
C2		12.8537	6.50576	24.9176	5.39321	5.39321	1.40983E-09
C3		38.1494	19.9354	36.8733	27.5942	27.5942	4.99705E-05
iC4		10.0014	6.51985	6.13959	10.6761	10.6761	0.0131070
nC4		29.0353	21.5523	14.7528	36.3324	36.3324	0.866972
iC5		4.20523	8.36581	2.75940	7.76435	7.76435	11.8575
nC5		3.77942	10.6771	2.81408	7.68443	7.68443	19.0275
C6		0.845188	10.8698	0.957660	2.96460	2.96460	28.0362
C7		0.188806	8.95808	0.310511	1.02343	1.02343	25.6023
C8		0.0230649	4.38179	0.0553719	0.202791	0.202791	13.0452
Benzene		0.0337588	0.344190	0.0363224	0.104956	0.104956	0.867257
Toluene		0.00471824	0.204887	0.00752133	0.0240958	0.0240958	0.584277
Ethylbenzene		0.000174500	0.0304088	0.000408127	0.00146122	0.00146122	0.0904342
para-Xylene		1.52765E-05	0.00307963	3.80140E-05	0.000135500	0.000135500	0.00918019
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		x1	1	5	18	19	23
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	V-1661 Condensate NGL Surge Tank	Stab Feed	T-1101 DeC2 Tower	VLVE-103	V-1661 Condensate NGL Surge Tank	E-306
	To Block:	--	E-312 (Demand)	VLVE-101	V-1661 Condensate NGL Surge Tank	--	--
Property	Units						
Temperature	°F	211.494	55.0398	96.5699	211.494	211.494	101.014
Pressure	psig	414.643	170	125	414.643	414.643	73
Molecular Weight	lb/lbmol	47.3868	56.9637	37.9668	53.1358	53.1358	86.4567
Std Vapor Volumetric Flow	MMSCFD	0	12.8074	2.83116	7.21602	7.21602	2.76017
Std Liquid Volumetric Flow	sgpm	0	283.180	51.2780	153.181	153.181	78.7210
Compressibility			0.0516692	0.892406	0.119303	0.119303	0.0306738
Specific Gravity			0.586272	1.31089	0.424191	0.424191	0.647426
Mole Fraction Vapor	%	100	0	100	0*	0	0
Molar Flow	lbmol/h	0	1406.23	310.856	792.306	792.306	303.061
Mass Flow	lb/h	0	80103.9	11802.2	42099.9	42099.9	26201.7
Mass Cp	Btu/(lb*°F)		0.575733	0.447108	0.916687	0.916687	0.549576
Molar Density	lbmol/ft^3	0.0934150	0.641900	0.0259430	0.497899	0.497899	0.467045
Mass Density	lb/ft^3	4.42664	36.5650	0.984971	26.4563	26.4563	40.3791
API Gravity			111.243		118.779	118.779	80.0981
Net Ideal Gas Heating Value	Btu/ft^3	2457.03	2932.31	1942.30	2755.59	2755.59	4409.78
Net Liquid Heating Value	Btu/lb	19517.5	19376.9	19269.1	19519.9	19519.9	19195.8
Gross Ideal Gas Heating Value	Btu/ft^3	2668.15	3177.35	2115.69	2988.45	2988.45	4760.16
Gross Liquid Heating Value	Btu/lb	21208.7	21009.8	21002.7	21183.3	21183.3	20734.1

Badger

Stabilizer VRU



Names	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Temperature	°F	95.77	48.38	73.94		73.8	142.1	120*		119.9	200.7	120*	75.3	94.72	94.62	94.62	94.62	215.6	120*
Pressure	psig	120	120	120	119	119	230*	225	224	224	455*	450	450	450	449	449	449	1100*	1095
Mole Fraction Vapor	%	100	100	100		100	100	100		100	100	94.11	99.96	98.02	0	0	100	100	100
Molecular Weight	lb/lbmol	37.97	28.23	32.88		32.88	32.88	32.88		32.88	32.88	32.88	24.6	28.14	48.45	48.45	27.73	27.73	27.73
Mass Density	lb/ft^3	0.9468	0.7422	0.836		0.8294	1.389	1.431		1.425	2.564	3.348	2.353	2.739	32.01	32.01	2.647	5.285	7.847
Specific Gravity		1.311	0.9748	1.135		1.135	1.135	1.135		1.135	1.135				0.5133	0.5133	0.9576	0.9576	0.9576
Molar Flow	lbmol/h	310.9	339.6	650.5	0	650.5	650.5	650.5	0	650.5	650.5	650.5	868.9	1519	30.12	30.11	1489	1489	1489
Mass Flow	lb/h	11802	9587.6	21390	0	21390	21390	21390	0	21390	21390	21390	21371	42761	1459.6	1459.1	41302	41302	41302
Std Vapor Volumetric Flow	MMSCFD	2.831	3.093	5.924	0	5.924	5.924	5.924	0	5.924	5.924	5.924	7.913	13.84	0.2743	0.2743	13.56	13.56	13.56
Std Liquid Volumetric Flow	sgpm	51.28	47.63	98.91	0	98.91	98.91	98.91	0	98.91	98.91	98.91	112.2	211.1	5.547	5.545	205.6	205.6	205.6
Std Liquid Volumetric Flow	bbl/d	1758	1633	3391	0	3391	3391	3391	0	3391	3391	3391	3848	7239	190.2	190.1	7049	7049	7049

Process Streams		1	2	5	12	15	18
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	DeC2 Flash Vapors	LP Flash Vapors	VSSL-100	HP Flash Vapors	RCYL-1	FAXR-102
	To Block:	MIX-100	MIX-100	CMPR-100	MIX-101	VRU Interstage Dumps	--
Mole Fraction		%	%	%	%	%	%
H2O		0.0272234	0.0441732	0.0360729	0.0408165	0.0121772	0.0393239
H2S		0.0121597	0.00952039	0.0107817	0.00626520	0.00654455	0.00823229
CO2		2.80010	3.87266	3.36008	3.35519	1.25075	3.39990
N2		0.0351832	0.318939	0.183332	0.954233	0.0489180	0.635826
C1		16.7556	46.8614	32.4738	62.8978	9.64228	50.6863
C2		31.4623	26.4492	28.8449	17.8521	16.6343	22.6783
C3		31.7483	16.1488	23.6038	10.2256	29.5131	15.6788
iC4		4.01053	1.61212	2.75832	1.10753	6.42037	1.72110
nC4		9.63686	3.60619	6.48824	2.60641	19.7374	3.95543
iC5		1.45208	0.471505	0.940120	0.390284	5.18031	0.533559
nC5		1.48085	0.460644	0.948200	0.399219	6.12603	0.523174
C6		0.421922	0.108406	0.258235	0.117109	3.48113	0.110715
C7		0.117653	0.0271617	0.0704076	0.0355681	1.46908	0.0217950
C8		0.0184043	0.00372709	0.0107413	0.00602099	0.309412	0.00194758
Benzene		0.0176547	0.00483976	0.0109640	0.00487486	0.128346	0.00503730
Toluene		0.00309926	0.000732416	0.00186353	0.000913355	0.0372600	0.000593309
Ethylbenzene		0.000145955	2.99502E-05	8.53887E-05	4.60354E-05	0.00238749	1.58748E-05
para-Xylene		1.35946E-05	2.79943E-06	7.95843E-06	4.34081E-06	0.000227583	1.40667E-06
CHEMTHERM 550		0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2O		1.52455	2.70258	4.22713	6.38892	0.0660591	10.5500
H2S		1.28823	1.10190	2.39013	1.85522	0.0671637	4.17816
CO2		383.071	578.806	961.877	1282.96	16.5753	2228.26
N2		3.06381	30.3425	33.4063	232.258	0.412647	265.252
C1		835.584	2553.08	3388.66	8767.12	46.5795	12109.2
C2		2940.83	2700.91	5641.73	4664.01	150.615	10155.1
C3		4351.87	2418.31	6770.18	3917.73	391.880	10295.9
iC4		724.608	318.213	1042.82	559.302	112.369	1489.71
nC4		1741.16	711.817	2452.97	1316.24	345.442	3423.65
iC5		325.670	115.530	441.200	244.658	112.546	573.278
nC5		332.124	112.868	444.992	250.260	133.092	562.119
C6		113.025	31.7259	144.751	87.6848	90.3331	142.083
C7		36.6472	9.24294	45.8901	30.9661	44.3268	32.5228
C8		6.53511	1.44584	7.98096	5.97576	10.6428	3.31302
Benzene		4.28685	1.28386	5.57071	3.30849	3.01887	5.85961
Toluene		0.887683	0.229180	1.11686	0.731190	1.03378	0.814096
Ethylbenzene		0.0481681	0.0107984	0.0589664	0.0424642	0.0763250	0.0250983
para-Xylene		0.00448650	0.00100932	0.00549582	0.00400408	0.00727552	0.00222396
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		1	2	5	12	15	18
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	DeC2 Flash Vapors	LP Flash Vapors	VSSL-100	HP Flash Vapors	RCYL-1	FAXR-102
	To Block:	MIX-100	MIX-100	CMPR-100	MIX-101	VRU Interstage Dumps	--
Mass Fraction		%	%	%	%	%	%
H2O		0.0129175	0.0281882	0.0197623	0.0298946	0.00452744	0.0255436
H2S		0.0109151	0.0114930	0.0111741	0.00868083	0.00460314	0.0101162
CO2		3.24576	6.03702	4.49689	6.00315	1.13601	5.39507
N2		0.0259596	0.316476	0.156178	1.08677	0.0282812	0.642228
C1		7.07989	26.6289	15.8424	41.0225	3.19238	29.3188
C2		24.9176	28.1708	26.3758	21.8235	10.3226	24.5875
C3		36.8733	25.2233	31.6514	18.3316	26.8580	24.9284
iC4		6.13959	3.31899	4.87531	2.61705	7.70133	3.60690
nC4		14.7528	7.42434	11.4679	6.15886	23.6753	8.28935
iC5		2.75940	1.20499	2.06266	1.14479	7.71344	1.38802
nC5		2.81408	1.17723	2.08039	1.17100	9.12161	1.36101
C6		0.957660	0.330904	0.676728	0.410288	6.19108	0.344012
C7		0.310511	0.0964050	0.214542	0.144894	3.03799	0.0787442
C8		0.0553719	0.0150803	0.0373119	0.0279613	0.729416	0.00802151
Benzene		0.0363224	0.0133908	0.0260437	0.0154809	0.206902	0.0141873
Toluene		0.00752133	0.00239037	0.00522147	0.00342134	0.0708511	0.00197109
Ethylbenzene		0.000408127	0.000112629	0.000275675	0.000198696	0.00523102	6.07682E-05
para-Xylene		3.80140E-05	1.05273E-05	2.56936E-05	1.87356E-05	0.000498636	5.38467E-06
CHEMTHERM 550		0	0	0	0	0	0

Process Streams		1	2	5	12	15	18
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	DeC2 Flash Vapors	LP Flash Vapors	VSSL-100	HP Flash Vapors	RCYL-1	FAXR-102
	To Block:	MIX-100	MIX-100	CMPR-100	MIX-101	VRU Interstage Dumps	--
Property	Units						
Temperature	°F	95.7699	48.3807	73.7956	75.3042	94.6180	120*
Pressure	psig	120	120	119	450	449	1095
Molecular Weight	lb/lbmol	37.9668	28.2314	32.8839	24.5971	48.4548	27.7341
Std Vapor Volumetric Flow	MMSCFD	2.83116	3.09302	5.92418	7.91325	0.274251	13.5631
Std Liquid Volumetric Flow	sgpm	51.2780	47.6292	98.9072	112.236	5.54518	205.596
Compressibility		0.896102	0.929255	0.915529	0.843376	0.117615	0.629599
Specific Gravity		1.31089	0.974758	1.13540		0.513260	0.957588
Mole Fraction Vapor	%	100	100	100	99.9622	0	100
Molar Flow	lbmol/h	310.856	339.608	650.464	868.861	30.1123	1489.20
Mass Flow	lb/h	11802.2	9587.62	21389.8	21371.5	1459.08	41301.8
Mass Cp	Btu/(lb*°F)	0.445399	0.438308	0.440159	0.529489	0.664196	0.812938
Molar Density	lbmol/ft^3	0.0249371	0.0262905	0.0252226	0.0956645	0.660645	0.282950
Mass Density	lb/ft^3	0.946782	0.742219	0.829418	2.35307	32.0114	7.84738
API Gravity						129.714	
Net Ideal Gas Heating Value	Btu/ft^3	1942.30	1426.31	1672.91	1246.25	2498.37	1407.28
Net Liquid Heating Value	Btu/lb	19269.1	19062.3	19176.4	19140.9	19413.0	19149.6
Gross Ideal Gas Heating Value	Btu/ft^3	2115.69	1562.27	1826.75	1369.33	2712.24	1541.96
Gross Liquid Heating Value	Btu/lb	21002.7	20890.4	20952.4	21040.3	21088.4	20993.1

G3616

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Waha Header Compressor Station

CATERPILLAR

ENGINE SPEED (rpm):	1000	RATING STRATEGY:	STANDARD
COMPRESSION RATIO:	7.6	RATING LEVEL:	CONTINUOUS
AFTERCOOLER TYPE:	SCAC	FUEL SYSTEM:	GAV
AFTERCOOLER - STAGE 2 INLET (°F):	130		WITH AIR FUEL RATIO CONTROL
AFTERCOOLER - STAGE 1 INLET (°F):	174	**SITE CONDITIONS:**	
JACKET WATER OUTLET (°F):	190	FUEL:	Waha Header Analysis (from OPL Waha 02-01-15)
ASPIRATION:	TA	FUEL PRESSURE RANGE(psig):	58.0-70.3
COOLING SYSTEM:	JW+1AC, OC+2AC	FUEL METHANE NUMBER:	83.0
CONTROL SYSTEM:	ADEM4	FUEL LHV (Btu/scf):	941
EXHAUST MANIFOLD:	DRY	ALTITUDE(ft):	2600
COMBUSTION:	LOW EMISSION	MAXIMUM INLET AIR TEMPERATURE(°F):	110
NOx EMISSION LEVEL (g/bhp-hr NOx):	0.5	STANDARD RATED POWER:	5000 bhp@1000rpm
SET POINT TIMING:	18		

				MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
RATING		**NOTES**	**LOAD**	**100%**	**100%**	**75%**	**50%**
ENGINE POWER	(WITHOUT FAN)	(1)	bhp	5000	5000	3750	2500
INLET AIR TEMPERATURE			°F	110	110	110	110
ENGINE DATA							
FUEL CONSUMPTION (LHV)		(2)	Btu/bhp-hr	6686	6686	6873	7343
FUEL CONSUMPTION (HHV)		(2)	Btu/bhp-hr	7415	7415	7622	8144
AIR FLOW (@inlet air temp, 14.7 psia)	(WET)	(3)(4)	ft3/min	12594	12594	9496	6497
AIR FLOW	(WET)	(3)(4)	lb/hr	52609	52609	39666	27139
FUEL FLOW (60ºF, 14.7 psia)			scfm	592	592	456	325
INLET MANIFOLD PRESSURE		(5)	in Hg(abs)	100.3	100.3	75.3	53.0
EXHAUST TEMPERATURE - ENGINE OUTLET		(6)	°F	840	840	900	968
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia)	(WET)	(7)(4)	ft3/min	30681	30681	24222	17434
EXHAUST GAS MASS FLOW	(WET)	(7)(4)	lb/hr	54221	54221	40909	28025
EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)		(8)(9)	g/bhp-hr	0.50	0.50	0.50	0.50
CO		(8)(9)	g/bhp-hr	2.21	2.21	2.21	2.21
THC (mol. wt. of 15.84)		(8)(9)	g/bhp-hr	3.94	3.94	4.28	4.49
NMHC (mol. wt. of 15.84)		(8)(9)	g/bhp-hr	0.47	0.47	0.51	0.53
NMNEHC (VOCs) (mol. wt. of 15.84)		(8)(9)(10)	g/bhp-hr	0.25	0.25	0.27	0.28
HCHO (Formaldehyde)		(8)(9)	g/bhp-hr	0.20	0.20	0.21	0.24
CO2		(8)(9)	g/bhp-hr	421	421	433	461
EXHAUST OXYGEN		(8)(11)	% DRY	11.2	11.2	10.9	10.4
HEAT REJECTION							
HEAT REJ. TO JACKET WATER (JW)		(12)	Btu/min	52814	52814	42661	35899
HEAT REJ. TO ATMOSPHERE		(12)	Btu/min	18845	18845	16811	15090
HEAT REJ. TO LUBE OIL (OC)		(12)	Btu/min	30643	30643	27062	23559
HEAT REJ. TO A/C - STAGE 1 (1AC)		(12)(13)	Btu/min	54222	54222	26981	6307
HEAT REJ. TO A/C - STAGE 2 (2AC)		(12)(13)	Btu/min	11925	11925	8129	4905

COOLING SYSTEM SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+1AC)	(13)(14)	Btu/min	115028
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (OC+2AC)	(13)(14)	Btu/min	49293
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.			

CONDITIONS AND DEFINITIONS

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

For notes information consult page three.

PREPARED BY: Karl Huston, Energy Transfer Company
Data generated by Gas Engine Rating Pro Version 5.04.01
Ref. Data Set EM0455-04-001, Printed 27Aug2015

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GAS COMPRESSION APPLICATION

Sendero Carlsbad Plant
GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Waha Header Compressor Station

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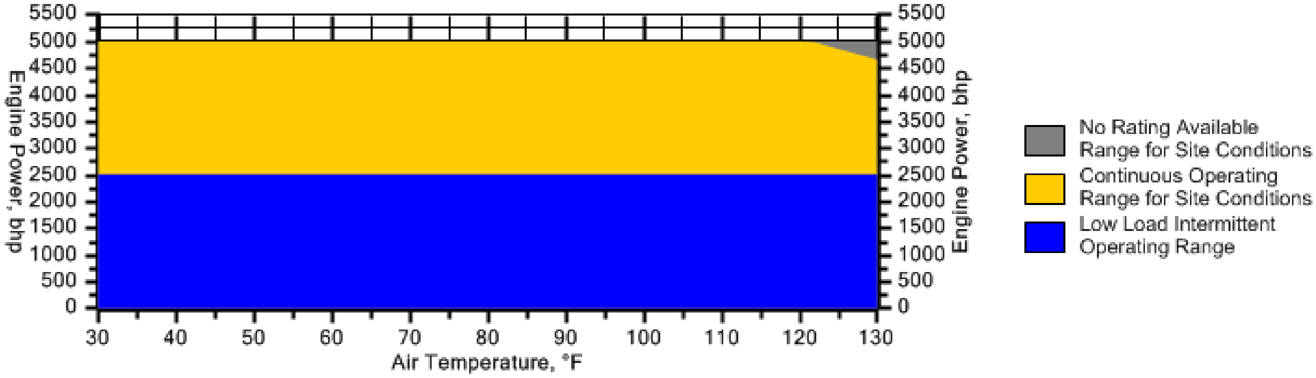
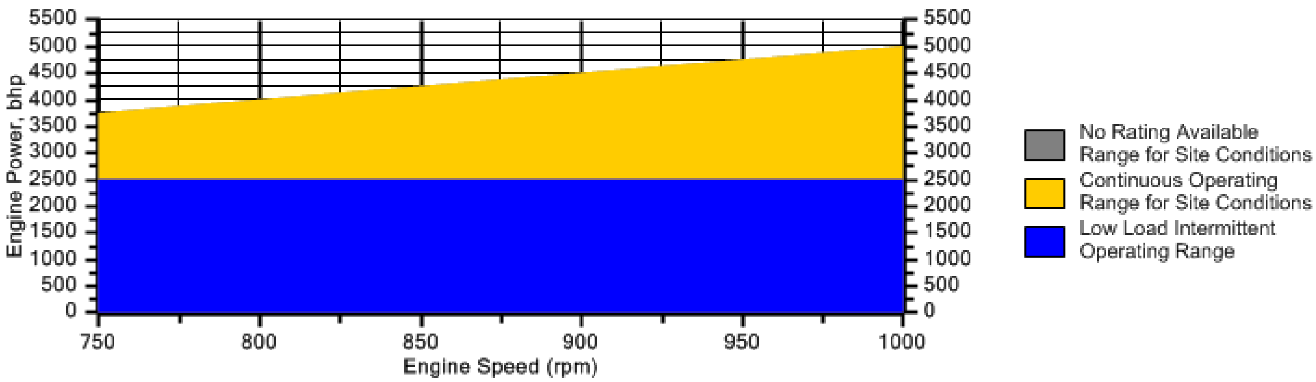
Engine Power vs. Inlet Air Temperature

Data represents temperature sweep at 2600 ft and 1000 rpm



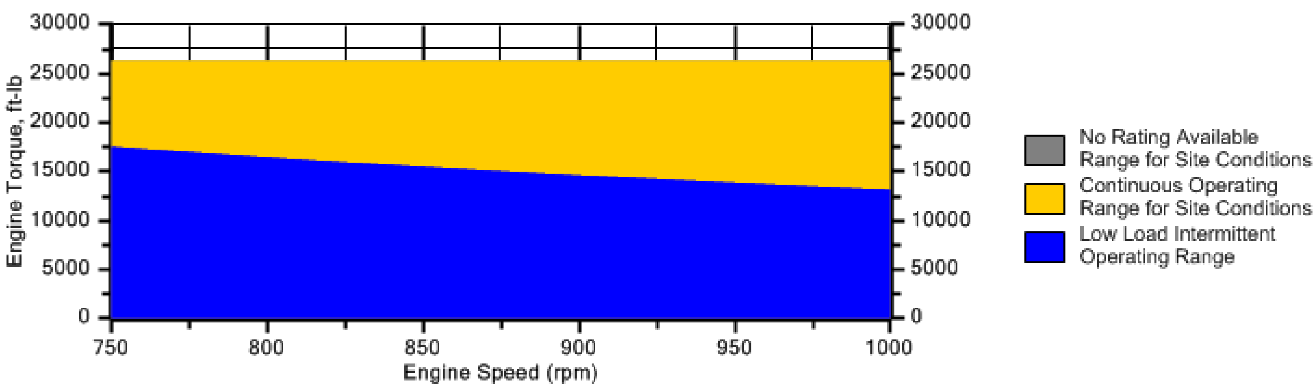
Engine Power vs. Engine Speed

Data represents speed sweep at 2600 ft and 110 °F



Engine Torque vs. Engine Speed

Data represents speed sweep at 2600 ft and 110 °F



Note: At site conditions of 2600 ft and 110°F inlet air temp., constant torque can be maintained down to 750 rpm. The minimum speed for loading at these conditions is 750 rpm.

PREPARED BY: Karl Huston, Energy Transfer Company
Data generated by Gas Engine Rating Pro Version 5.04.01
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G3616

GAS COMPRESSION APPLICATION

GAS ENGINE SITE SPECIFIC TECHNICAL DATA
Waha Header Compressor Station

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NOTES

1. Engine rating is with two engine driven water pumps. Tolerance is ± 3% of full load.

2. Fuel consumption tolerance is ± 2.5% of full load data.

3. Air flow value is on a 'wet' basis. Flow is a nominal value with a tolerance of ± 5 %.

4. Inlet and Exhaust Restrictions must not exceed A&I limits based on full load flow rates from the standard technical data sheet.

5. Inlet manifold pressure is a nominal value with a tolerance of ± 5 %.

6. Exhaust temperature is a nominal value with a tolerance of (+)63°F, (-)54°F.

7. Exhaust flow value is on a "wet" basis. Flow is a nominal value with a tolerance of ± 6 %.

8. Emissions data is at engine exhaust flange prior to any after treatment.

9. Emission values are based on engine operating at steady state conditions. Fuel methane number cannot vary more than ± 3. Values listed are higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations. They indicate "Not to Exceed" values. THC, NMHC, and NMNEHC do not include aldehydes. An oxidation catalyst may be required to meet Federal, State or local CO or HC requirements.

10. VOCs - Volatile organic compounds as defined in US EPA 40 CFR 60, subpart JJJJ

11. Exhaust Oxygen level is the result of adjusting the engine to operate at the specified NOx level. Tolerance is ± 0.5.

12. Heat rejection values are nominal. Tolerances, based on treated water, are ± 10% for jacket water circuit, ± 50% for radiation, ± 20% for lube oil circuit, and ± 5% for aftercooler circuit.

13. Aftercooler heat rejection includes an aftercooler heat rejection factor for the site elevation and inlet air temperature specified. Aftercooler heat rejection values at part load are for reference only. Do not use part load data for heat exchanger sizing.

14. Cooling system sizing criteria are maximum circuit heat rejection for the site, with applied tolerances.

PREPARED BY: Karl Huston, Energy Transfer Company
Data generated by Gas Engine Rating Pro Version 5.04.01
Ref. Data Set EM0455-04-001, Printed 27Aug2015

		Mole %	Norm
Water Vapor	H2O	0.0000	0.0000
Methane	CH4	92.3646	92.3648
Ethane	C2H6	5.0270	5.0270
Propane	C3H8	0.5303	0.5303
Isobutane	iso-C4H1O	0.0382	0.0382
Norbutane	nor-C4H1O	0.0777	0.0777
Isopentane	iso-C5H12	0.0165	0.0165
Norpentane	nor-C5H12	0.0158	0.0158
Hexane	C6H14	0.0108	0.0108
Heptane	C7H16	0.0108	0.0108
Nitrogen	N2	1.5913	1.5913
Carbon Dioxide	CO2	0.3168	0.3168
Hydrogen Sulfide	H2S	0.0000	0.0000
Carbon Monoxide	CO	0.0000	0.0000
Hydrogen	H2	0.0000	0.0000
Oxygen	O2	0.0000	0.0000
Helium	HE	0.0000	0.0000
Neopentane	neo-C5H12	0.0000	0.0000
Octane	C8H18	0.0000	0.0000
Nonane	C9H20	0.0000	0.0000
Ethylene	C2H4	0.0000	0.0000
Propylene	C3H6	0.0000	0.0000
TOTAL (Volume %)		99.9998	100.0000

Fuel Makeup:	Waha Header Analysis
Unit of Measure:	English

Calculated Fuel Properties

Caterpillar Methane Number:	83.0
Lower Heating Value (Btu/scf):	941
Higher Heating Value (Btu/scf):	1044
WOBBE Index (Btu/scf):	1219
THC: Free Inert Ratio:	51.41
Total % Inerts (% N2, CO2, He):	1.91%
RPC (%) (To 905 Btu/scf Fuel):	100%
Compressibility Factor:	0.998
Stoich A/F Ratio (Vol/Vol):	9.82
Stoich A/F Ratio (Mass/Mass):	16.49
Specific Gravity (Relative to Air):	0.596
Specific Heat Constant (K):	1.308

CONDITIONS AND DEFINITIONS

Caterpillar Methane Number represents the knock resistance of a gaseous fuel. It should be used with the Caterpillar Fuel Usage Guide for the engine and rating to determine the rating for the fuel specified. A Fuel Usage Guide for each rating is included on page 2 of its standard technical data sheet.

RPC always applies to naturally aspirated (NA) engines, and turbocharged (TA or LE) engines only when they are derated for altitude and ambient site conditions.

Project specific technical data sheets generated by the Caterpillar Gas Engine Rating Pro program take the Caterpillar Methane Number and RPC into account when generating a site rating.

Fuel properties for Btu/scf calculations are at 60F and 14.696 psia.

Caterpillar shall have no liability in law or equity, for damages, consequently or otherwise, arising from use of program and related material or any part thereof.

FUEL LIQUIDS

Field gases, well head gases, and associated gases typically contain liquid water and heavy hydrocarbons entrained in the gas. To prevent detonation and severe damage to the engine, hydrocarbon liquids must not be allowed to enter the engine fuel system. To remove liquids, a liquid separator and coalescing filter are recommended, with an automatic drain and collection tank to prevent contamination of the ground in accordance with local codes and standards.

To avoid water condensation in the engine or fuel lines, limit the relative humidity of water in the fuel to 80% at the minimum fuel operating temperature.

PREPARED BY: Karl Huston, Energy Transfer Company
Data generated by Gas Engine Rating Pro Version 5.04.01
Ref. Data Set EM0455-04-001, Printed 27Aug2015

MIRATECH

Proposal Number: JB-15-0632 Rev(2)

Application & Performance Warranty Data

Project Information

Site Location:	WTX
Project Name:	SEC - ETC Waha 3616s
Application:	Gas Compression
Number Of Engines:	1
Operating Hours per Year:	8760

Engine Specifications

Engine Manufacturer:	Caterpillar
Model Number:	G 3616 LE A4
Rated Speed:	1000 RPM
Type of Fuel:	Natural Gas
Type of Lube Oil:	0.6 wt% sulfated ash or less
Lube Oil Consumption:	0.1 % Fuel Consumption
Number of Exhaust Manifolds:	1

Engine Cycle Data

Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	NO_x	CO	NMHC	NMNEHC	CH_2O	O_2	H_2O
%		bhp	acfm (cfm)	F	btu/bhp-hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	g/bhp-hr	%	%
100	Rated	5,000	30,714	840	6,686	0.5	2.2	0.95	0.25	0.2	12.3	17

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	tons/yr	ppmvd @ 15% O_2	ppmvd	lb/MW-hr	g/kW-hr	g/bhp-hr	tons/yr	ppmvd @ 15% O_2	ppmvd	lb/MW-hr	g/kW-hr	
NO_x*	0.5	24.14	51	74	1.48	0.671							N/A
CO	2.2	106.22	368	537	6.5	2.95	0.15	7.44	26	38	0.46	0.207	93%
NMHC†	0.95	45.87	278	405	2.81	1.274							N/A
NMNEHC‡	0.25	12.07	73	107	0.74	0.335	0.12	5.79	35	51	0.35	0.161	52%
CH_2O	0.2	9.66	31	46	0.59	0.268	0.05	2.41	8	11	0.15	0.067	75%

System Specifications

Oxidation System Specifications (SP-RHSIGA-72S3624x61-30-XH4B2)

Design Exhaust Flow Rate:	30,714 acfm (cfm)
Design Exhaust Temperature[1]:	840°F
Housing Model Number:	SP-RHSIGA-72S3624x61-30-HSG
Element Model Number:	RXS-RE-304-S3624XH, RXS-RE-S3624BLIND
Number of Catalyst Elements:	4
Number of Spare Catalyst Tracks:	2
Maximum Wind Loading:	100 mph
System Pressure Loss:	8.0 inches of WC (Clean)
Sound Attenuation:	30-35 dBA insertion loss
Exhaust Temperature Limits:	550 – 1250°F (catalyst inlet); 1350°F (catalyst outlet)

*MW referenced as NO_2 †MW referenced as CH_4 ‡MW referenced as CH_4

MIRATECH Scope of Supply & Equipment Details

	Model Number	Quantity
Oxidation Housing & Catalyst	**SP-RHSIGA-72S3624x61-30-XH4B2**	**1 / engine**
NSCR Housing	SP-RHSIGA-72S3624x61-30-HSG	1 / engine
• Material	Carbon Steel	
• Paint	Standard High Temperature Black Paint	
• Approximate Diameter	72 inches	
• Inlet Pipe Size & Connection	30 inch FF Flange, 150# ANSI standard bolt pattern, reinforced and gusseted	
• Inlet Location	Side	
• Inlet Height	220 inches	
• Outlet Pipe Size & Connection	30 inch FF Flange, 150# ANSI standard bolt pattern	
• Outlet Location	Top	
• Overall Stack Height	648 inches	
• Instrumentation Ports	2 pre-catalyst / 2 post-catalyst / 1 outlet (2" NPT)	
• Shell	3/8" and 3/16" THK	
• Insulation Rings	1/4" THK, spaced less than 10 feet apart	
• Base Plate Flange	1" THK plate, bolted directly to foundation	
• Guy Wires	Not required for base mounted units	
Oxidation Catalyst	RXS-RE-304-S3624XH	4 / engine
Blind Catalyst	RXS-RE-S3624BLIND	2 / engine
Nut, Bolt, and Gasket Set	NBG-S3624-6	1 / engine
Top Outlet Stack Nut, Bolt, and Gasket Set	NBG-RXSIGA-TOP_STACK-30	1 / engine
Top Outlet Stack	SP-RXSIGA-TOP_STACK-30	1 / engine

Customer Scope Of Supply

Special Notes & Conditions

1. Carbon steel housings are suitable for use in all applications where the housing will not be insulated. Carbon steel housings may only be insulated in applications where the exhaust temperature does not exceed 900°F. If your application requires insulation with an engine exhaust temperature exceeding 900°F, a stainless steel housing is required. Customer installed insulation on carbon steel housings in applications where exhaust temperature exceeds 900°F voids any MIRATECH product warranty.

- A packed silencer installed upstream of the MIRATECH catalyst system will void MIRATECH's limited warranty.
- Final catalyst housings are dependent on engine output and required emission reductions. Changes may be made to optimize the system design at the time of order.
- Any drawings included with this proposal are preliminary in nature and could change depending on final product selection.
- Any sound attenuation listed in this proposal is based on housing with catalyst elements installed.
- Any emission reductions listed in this proposal are based on housing with catalyst elements installed.
- MIRATECH will confirm shipping location upon placement of order.

MIRATECH

Equipment Specification

Proposal Information				
	Proposal Number:	JB-24-001072 Rev(2)	Date:	**3/18/2024**
	Project Reference:	ETC - Goldsmith Station 3520 Gensets		

Engine Information

Engine Make:	Caterpillar	Speed:	Rated
Engine Model:	G 3520	Power Output:	3,628 bhp
Rated Speed:	1800 RPM	Exhaust Flow Rate:	20,294 acfm (cfm)
Fuel Description:	Natural Gas	Exhaust Temperature:	854 ° F
Hours Of Operation:	2000 Hours per year	O_2:	10.1%
Load:	100%	H_2O:	17%
Propane:	0.1186%		

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	*g/bhp-hr*	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	
NO_X*	*0.5*	4	45	82	0.671	1.48							
CO	*1.31*	10.48	194	355	1.757	3.87	0.09	0.73	14	25	0.123	0.27	*93%*
NMNEHC**	*0.25*	2	65	118	0.335	0.74	0.09	0.7	23	41	0.117	0.26	65%
CH_2O	*0.25*	2	35	63	0.335	0.74	0.06	0.5	9	16	0.084	0.18	*75%*

System Specifications

Oxidation (SP-RCSIGA-60-24030096)

Design Exhaust Flow Rate:	20294 acfm
Design Exhaust Temperature:	854°F
Housing Model Number:	SP-RCSIGA-60-24030096-HSG
Element Model Number:	APX3-OX-SB2700-2421-2338-291
Number of Catalyst Elements:	4
Number of Spare Catalyst Tracks:	2
Maximum Wind Loading:	100 mph
Exhaust Temperature Limits***:	550 – 1250°F (catalyst inlet); 1350°F (catalyst outlet) 288 – 677°C (catalyst inlet); 732°C (catalyst outlet)

* MW referenced as NO_2

** MW referenced as CH_4. Propane in the exhaust shall not exceed 15% by volume of the NMHC compounds in the exhaust, excluding aldehydes. The 15% (vol.) shall be established on a wet basis, reported on a methane molecular weight basis. The measurement of exhaust NMHC composition shall be based upon EPA method 320 (FTIR), and shall exclude formaldehyde.

*** General catalyst temperature operating range. Performance is based on the Design Exhaust Temperature.

Owner:	Sendero	Owner Ref.:	H-2600
Purchaser:	Kahuna Ventures	Purchaser Ref.:	TBD
Manufacturer:	Tulsa Heaters Midstream	THM Ref.:	P18-0613
Service:	Hot Oil Heater	Project:	Carlsbad II
Number:	1	Location:	Carlsbad, NM
SHO Duty:	64.38 MMBTU/ hr	SHO Model:	SHO5000

Guarantees:

NOx	0.0401	Lb/MMBTU	30	ppm
SOx	no quote	Lb/MMBTU	-	ppm
CO	0.0407	Lb/MMBTU	50	ppm
VOC	0.0192	Lb/MMBTU	15	ppm
UHC	0.007	Lb/MMBTU	15	ppm
SPM	0.0128	Lb/MMBTU	15	ppm

			Design Case			
Heat Release		LHV Basis	85.31	MMBTU/hr		
		HHV Basis	93.79	MMBTU/hr		
Products of Combus		MW				
	O2	32.00	2,091	Lbm/ hr		
	N2 + Ar	28.15	53,014	Lbm/ hr		
	CO2	44.01	9,524	Lbm/ hr		
	H2O	18.02	8,222	Lbm/ hr		
	NOx	46.01	2.99	Lbm/ hr /	30	ppm
	SOx	64.06	0.00	Lbm/ hr /	0	ppm
	CO	28.01	3.04	Lbm/ hr /	50	ppm
	VOC	44.10	1.43	Lbm/ hr /	15	ppm
	UHC	16.04	0.52	Lbm/ hr /	15	ppm
	SPM		0.96	Lbm/ hr /	15	ppm
	Total		72,860	Lbm/ hr		
Flue Gas Exit Temp.			515	°F		
Flue Gas Exit Velocity			47.4	Ft/sec		
Stack Height			35.2	ft		
Stack ID			48	in		

NOTE:

THM emissions guarantees applicable between 50-100% of Design Case combustion conditions w/ 15% excess air.

THM emissions guarantees applicable for firebox temperatures above 1100°F.

Emissions above are for Design Case operation with air and fuel in ratio control. Upset conditions, such as operation outside the design, high turndown or start-up are not considered as guaranteed emissions cases.

revision	date	description	by	chk'd	appv'd

TULSA HEATERS MIDSTREAM

USA Applications

SHO = Superior Quality, Flexibility, Dependability & Modularity

EMISSIONS PERMIT DATA SHEET

AMERICAN ENGINEERING SYSTEM of UNITS

P18-0613-Emissions- Pg 1 of 1

Owner:	Sendero	Owner Ref.:	H-5802
Purchaser:	Kahuna Ventures	Purchaser Ref.:	TBD
Manufacturer:	Tulsa Heaters Midstream	THM Ref.:	P18-0613
Service:	Hot Oil Heater	Project:	Carlsbad II
Number:	1	Location:	Carlsbad, NM
SHO Duty:	19.69 MMBTU/ hr	SHO Model:	SHO2000

Guarantees:

NOx	0.0401	Lb/MMBTU	30	ppm
SOx	no quote	Lb/MMBTU	-	ppm
CO	0.0407	Lb/MMBTU	50	ppm
VOC	0.0192	Lb/MMBTU	15	ppm
UHC	0.007	Lb/MMBTU	15	ppm
SPM	0.0128	Lb/MMBTU	15	ppm

			Design Case			
Heat Release		LHV Basis	24.84	MMBTU/hr		
		HHV Basis	27.31	MMBTU/hr		
Products of Combus		MW				
	O2	32.00	631	Lbm/ hr		
	N2 + Ar	28.15	15,990	Lbm/ hr		
	CO2	44.01	2,873	Lbm/ hr		
	H2O	18.02	2,480	Lbm/ hr		
	NOx	46.01	0.90	Lbm/ hr /	30	ppm
	SOx	64.06	0.00	Lbm/ hr /	0	ppm
	CO	28.01	0.92	Lbm/ hr /	50	ppm
	VOC	44.10	0.43	Lbm/ hr /	15	ppm
	UHC	16.04	0.16	Lbm/ hr /	15	ppm
	SPM		0.29	Lbm/ hr /	15	ppm
	Total		21,976	Lbm/ hr		
Flue Gas Exit Temp.			474	°F		
Flue Gas Exit Velocity			35.1	Ft/sec		
Stack Height			27.5	ft		
Stack ID			30	in		

NOTE:

THM emissions guarantees applicable between 50-100% of Design Case combustion conditions w/ 15% excess air.

THM emissions guarantees applicable for firebox temperatures above 1100°F.

Emissions above are for Design Case operation with air and fuel in ratio control. Upset conditions, such as operation outside the design, high turndown or start-up are not considered as guaranteed emissions cases.

revision	date	description	by	chk'd	appv'd

TULSA HEATERS MIDSTREAM

USA Applications

SHO = Superior Quality, Flexibility, Dependability & Modularity

EMISSIONS PERMIT DATA SHEET
AMERICAN ENGINEERING SYSTEM of UNITS

P18-0613-Emissions- Pg 1 of 1

Owner:	Sendero	Owner Ref.:	H-5801
Purchaser:	Kahuna Ventures	Purchaser Ref.:	TBD
Manufacturer:	Tulsa Heaters Midstream	THM Ref.:	P18-0613
Service:	Regen Gas Heater	Project:	Carlsbad II
Number:	1	Location:	Carlsbad, NM
SHO Duty:	16.10 MMBTU/ hr	SHO Model:	SHO1750

Guarantees:

NOx	0.0401	Lb/MMBTU	30	ppm
SOx	no quote	Lb/MMBTU	-	ppm
CO	0.0407	Lb/MMBTU	50	ppm
VOC	0.0192	Lb/MMBTU	15	ppm
UHC	0.007	Lb/MMBTU	15	ppm
SPM	0.0128	Lb/MMBTU	15	ppm

			Design Case			
Heat Release	LHV Basis		19.41	MMBTU/hr		
	HHV Basis		21.34	MMBTU/hr		
Products of Combus		MW				
	O2	32.00	514	Lbm/ hr		
	N2 + Ar	28.15	13,025	Lbm/ hr		
	CO2	44.01	2,340	Lbm/ hr		
	H2O	18.02	2,020	Lbm/ hr		
	NOx	46.01	0.74	Lbm/ hr /	30	ppm
	SOx	64.06	0.00	Lbm/ hr /	0	ppm
	CO	28.01	0.75	Lbm/ hr /	50	ppm
	VOC	44.10	0.35	Lbm/ hr /	15	ppm
	UHC	16.04	0.13	Lbm/ hr /	15	ppm
	SPM		0.24	Lbm/ hr /	15	ppm
	Total		17,901	Lbm/ hr		
Flue Gas Exit Temp.			461	°F		
Flue Gas Exit Velocity			32.4	Ft/sec		
Stack Height			25.7	ft		
Stack ID			28	in		

NOTE:

THM emissions guarantees applicable between 50-100% of Design Case combustion conditions w/ 15% excess air.

THM emissions guarantees applicable for firebox temperatures above 1100°F.

Emissions above are for Design Case operation with air and fuel in ratio control. Upset conditions, such as operation outside the design, high turndown or start-up are not considered as guaranteed emissions cases.

revision	date	description	by	chk'd	appv'd

USA Applications

TULSA HEATERS MIDSTREAM

SHO = Superior Quality, Flexibility, Dependability & Modularity

EMISSIONS PERMIT DATA SHEET

AMERICAN ENGINEERING SYSTEM of UNITS

P18-0613-Emissions-   Pg 1 of 1

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

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

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

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

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

Table 4. Average Emission Factors - Petroleum Industry.

Equipment/Service	Petroleum Marketing Terminal [1]	Oil and Gas Production Operations [2]				Refinery [3]
		Gas	Heavy Oil <20° API	Light Oil >20° API	Water/ Light Oil	
Valves		0.00992	0.0000185	0.0055	0.000216	
Gas/Vapor	0.0000287	0.00992				0.059
Light Liquid	0.0000948					0.024
Heavy Liquid	0.0000948					0.000510
Pumps		0.00529	0.0011300	0.02866	0.00005290	
Light Liquid	0.00119					0.251
Heavy Liquid	0.00119					0.046
Flanges/Connectors		0.000860	0.00000086	0.000243	0.00000617	0.000550
Gas/Vapor	0.000092604	0.000860				
Light Liquid	0.00001762					
Heavy Liquid	0.00001720					
Compressors		0.0194	0.0000683	0.0165	0.0309	1.399
Relief Valve Gas/Vapor		0.0194	0.0000683	0.0165	0.0309	0.35
Open-ended Lines [4]		0.00441	0.0003090	0.00309	0.0006	0.0051
Sampling Connections [5]						0.033
Connectors		0.000440	0.0000165	0.0004630	0.000243	
Other [6]		0.0194	0.0000683	0.0165	0.0309	
Gas/Vapor	0.000265					
Light/heavy Liquid	0.000287					
Process Drains		0.0194	0.0000683	0.0165	0.0309	0.07

All factors are in units of (lb/hr)/component.

Notes:
1. Factors taken from EPA document EPA-453/R-95-017; November, 1995; pp. 2-14.
2. Factors taken from EPA document EPA-453/R-95-017; November, 1995; pp. 2-15.
3. Factors taken from EPA document EPA-453/R-95-017; November, 1995; pp. 2-13.
4. The 28 Series quarterly LDAR programs require open-ended lines to be equipped with a cap, blind flange, plug, or a second valve. If so equipped, open-ended lines may be given a 100% control credit.
5. Factor for Sampling Connections is in terms of pounds per hour per sample taken.
6. For Petroleum Marketing Terminals, "Other" includes any component except fittings, pumps, and valves. For Oil & Gas Production Operations, "Other" includes diaphragms, dump arms, hatches, instruments, meters, polished rods, and vents.

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

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

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

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

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

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

[a] Reference 7. Factors represent uncontrolled levels. For NO_x, CO, and PM10, "uncontrolled" means no combustion or add-on controls; however, the factor may include turbocharged units. For all other pollutants, "uncontrolled" means no oxidation control; the data set may include units with control techniques used for NOx control, such as PCC and SCR for lean burn engines, and PSC for rich burn engines. Factors are based on large population of engines. Factors are for engines at all loads, except as indicated. SCC = Source Classification Code. TOC = Total Organic Compounds. PM-10 = Particulate Matter ≤ 10 microns (μm) aerodynamic diameter. A "<" sign in front of a factor means that the corresponding emission factor is based on one-half of the method detection limit.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

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

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

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

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

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

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

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

Flare Emission Factors

The usual flare destruction efficiencies and emission factors are provided in Table 4. The high-Btu waste streams referred to in the table have a heating value greater than 1,000 Btu/scf.

Flare Destruction Efficiencies

Claims for destruction efficiencies greater than those listed in Table 4 will be considered on a case-by-case basis. The applicant may make one of the three following demonstrations to justify the higher destruction efficiency: (1) general method, (2) 99.5 percent justification, or (3) flare stack sampling.

Table 4. Flare Factors

Waste Stream	**Destruction/Removal Efficiency (DRE)**		
VOC	98 percent (generic)		
	99 percent for compounds containing no more than 3 carbons that contain no elements other than carbon and hydrogen in addition to the following compounds: methanol, ethanol, propanol, ethylene oxide and propylene oxide		
H_2S	98 percent		
NH_3	case by case		
CO	case by case		
Air Contaminants	**Emission Factors**		
thermal NO_x	steam-assist:	high Btu	0.0485 lb/MMBtu
		low Btu	0.068 lb/MMBtu
	other:	high Btu	0.138 lb/MMBtu
		low Btu	0.0641 lb/MMBtu
fuel NO_x	NO_x is 0.5 wt percent of inlet NH_3, other fuels case by case		
CO	steam-assist:	high Btu	0.3503 lb/MMBtu
		low Btu	0.3465 lb/MMBtu
	other:	high Btu	0.2755 lb/MMBtu
		low Btu	0.5496 lb/MMBtu
PM	none, required to be smokeless		
SO_2	100 percent S in fuel to SO_2		

7.1.3.1 Routine Losses From Fixed Roof Tanks[8-14,22]

The following equations, provided to estimate standing and working loss emissions, apply to tanks with vertical cylindrical shells and fixed roofs and to tanks with horizontal cylindrical shells. These tanks must be substantially liquid- and vapor-tight. The equations are not intended to be used in estimating losses from tanks which have air or other gases injected into the liquid, or which store unstable or boiling stocks or mixtures of hydrocarbons or petrochemicals for which the vapor pressure is not known or cannot be readily predicted. Tanks containing aqueous mixtures in which phase separation has occurred, resulting in a free layer of oil or other volatile materials floating on top of the water, should have emissions estimated on the basis of the properties of the free top layer.

Total routine losses from fixed roof tanks are equal to the sum of the standing loss and working loss:

$$L_T = L_S + L_W \tag{1-1}$$

where:

L_T = total routine losses, lb/yr
L_S = standing losses, lb/yr, see Equation 1-2
L_W = working losses, lb/yr, see Equation 1-35

7.1.3.1.1 Standing Loss

The standing loss, L_S, for a fixed roof tank refers to the loss of stock vapors as a result of tank vapor space breathing. Fixed roof tank standing losses can be estimated from Equation 1-2.

$$L_S = 365\ V_V\ W_V\ K_E\ K_S \tag{1-2}$$

where:

L_S = standing loss, lb/yr
V_V = vapor space volume, ft^3, see Equation 1-3
W_V = stock vapor density, lb/ft^3
K_E = vapor space expansion factor, per day
K_S = vented vapor saturation factor, dimensionless
365 = constant, the number of daily events in a year, (days/year)

<u>Tank Vapor Space Volume, V_V</u> - The tank vapor space volume is calculated using the following equation:

$$V_V = \left(\frac{\pi}{4}D^2\right)H_{VO} \tag{1-3}$$

where:

V_V = vapor space volume, ft^3
D = tank diameter, ft, see Equation 1-14 for horizontal tanks
H_{VO} = vapor space outage, ft, see Equation 1-16

The standing loss equation can be simplified by combining Equation 1-2 with Equation 1-3. The result is Equation 1-4.

$$L_S = 365 K_E \left(\frac{\pi}{4} D^2 \right) H_{VO} K_S W_V \quad \textbf{(1-4)}$$

where:

- L_S = standing loss, lb/yr
- K_E = vapor space expansion factor, per day, see Equation 1-5, 1-12, or 1-13
- D = diameter, ft, see Equation 1-14 for horizontal tanks
- H_{VO} = vapor space outage, ft, see Equation 1-16; use $H_E/2$ from Equation 1-15 for horizontal tanks
- K_S = vented vapor saturation factor, dimensionless, see Equation 1-21
- W_V = stock vapor density, lb/ft^3, see Equation 1-22
- 365 = constant, the number of daily events in a year, (days/year)

Vapor Space Expansion Factor, K_E

The calculation of the vapor space expansion factor, K_E, depends upon the properties of the liquid in the tank and the breather vent settings, as shown in Equation 1-5. As shown in the equation, K_E is greater than zero. If K_E is less than zero, standing losses will not occur. In that K_E represents the fraction of vapors in the vapor space that are expelled by a given increase in temperature, a value of 1 would indicate that the entire vapor space has been expelled. Thus the value of K_E must be less than 1, in that it is not physically possible to expel more than 100% of what is present to begin with.

$$0 < K_E \leq 1$$

$$K_E = \frac{\Delta T_V}{T_{LA}} + \frac{\Delta P_V - \Delta P_B}{P_A - P_{VA}} \quad \textbf{(1-5)}$$

where:

- ΔT_V = average daily vapor temperature range, °R; see Note 1
- ΔP_V = average daily vapor pressure range, psi; see Note 2
- ΔP_B = breather vent pressure setting range, psi; see Note 3
- P_A = atmospheric pressure, psia
- P_{VA} = vapor pressure at average daily liquid surface temperature, psia; see Notes 1 and 2 for Equation 1-22
- T_{LA} = average daily liquid surface temperature, °R; see Note 3 for Equation 1-22

Notes:

1. The average daily vapor temperature range, ΔT_V, refers to the daily temperature range of the tank vapor space averaged over all of the days in the given period of time, such as one year, and should

not be construed as being applicable to an individual day. The average daily vapor temperature range is calculated for an uninsulated tank using Equation 1-6.

$$\Delta T_V = \left(1 - \frac{0.8}{2.2\,(H_S/D) + 1.9}\right)\Delta T_A + \frac{0.042\alpha_R I + 0.026(H_S/D)\alpha_S I}{2.2\,(H_S/D) + 1.9} \quad (1\text{-}6)$$

where:

ΔT_V = average daily vapor temperature range, °R

H_S = tank shell height, ft

D = tank diameter, ft,

ΔT_A = average daily ambient temperature range, °R; see Note 4

α_R = tank roof surface solar absorptance, dimensionless; see Table 7.1-6

α_S = tank shell surface solar absorptance, dimensionless; see Table 7.1-6

I = average daily total insolation factor, Btu/ft^2 d; see Table 7.1-7.

API assigns a default value of $H_s/D = 0.5$ and an assumption of $\alpha_R = \alpha_S$, resulting in the simplified equation shown below for an uninsulated tank:[22]

$$\Delta T_V = 0.7\,\Delta T_A + 0.02\,\alpha\,I \quad (1\text{-}7)$$

where:

α = average tank surface solar absorptance, dimensionless

For purposes of estimating emissions, a storage tank should be deemed insulated only if the roof and shell are both sufficiently insulated so as to minimize heat exchange with ambient air. If only the shell is insulated, and not the roof, the temperature equations are independent of H_s/D. Also, there likely will be sufficient heat exchange through the roof such that Equation 1-7 would be applicable.

A more accurate method of accounting for the average daily vapor temperature range, ΔT_V, in partially insulated scenarios is given below. When the tank shell is insulated but the tank roof is not, heat gain to the tank from insolation is almost entirely through the tank roof and thus the liquid surface temperature is not sensitive to H_S/D.

$$\Delta T_V = 0.6\,\Delta T_A + 0.02\,\alpha_R\,I \quad (1\text{-}8)$$

In the case of a fully insulated tank maintained at constant temperature, the average daily vapor temperature range, ΔT_V, should be taken as zero. This assumption that ΔT_V is equal to zero addresses only temperature differentials resulting from the diurnal ambient temperature cycle. In the case of cyclic heating of the bulk liquid, see Section 7.1.3.8.4.

2. The average daily vapor pressure range, ΔP_V, refers to the daily vapor pressure range at the liquid surface temperature averaged over all of the days in the given period of time, such as one year, and should not be construed as being applicable to an individual day. The average daily vapor pressure range can be calculated using the following equation:

$$\Delta P_V = P_{VX} - P_{VN} \quad (1\text{-}9)$$

where:

ΔP_V = average daily vapor pressure range, psia
P_{VX} = vapor pressure at the average daily maximum liquid surface temperature, psia; see Note 5
P_{VN} = vapor pressure at the average daily minimum liquid surface temperature, psia; see Note 5

See Section 7.1.6.1 for a more approximate equation for ΔP_V that was used historically, but which is no longer recommended.

In the case of a fully insulated tank maintained at constant temperature, the average daily vapor pressure range, ΔP_V, should be taken as zero, as discussed for the vapor temperature range in Note 1.

3. The breather vent pressure setting range, ΔP_B, is calculated using the following equation:

$$\Delta P_B = P_{BP} - P_{BV} \tag{1-10}$$

where:

ΔP_B = breather vent pressure setting range, psig
P_{BP} = breather vent pressure setting, psig
P_{BV} = breather vent vacuum setting, psig

If specific information on the breather vent pressure setting and vacuum setting is not available, assume 0.03 psig for P_{BP} and -0.03 psig for P_{BV} as typical values. If the fixed roof tank is of bolted or riveted construction in which the roof or shell plates are not vapor tight, assume that $\Delta P_B = 0$, even if a breather vent is used.

4. The average daily ambient temperature range, ΔT_A, refers to the daily ambient temperature range averaged over all of the days in the given period of time, such as one year, and should not be construed as being applicable to an individual day. The average daily ambient temperature range is calculated using the following equation:

$$\Delta T_A = T_{AX} - T_{AN} \tag{1-11}$$

where:

ΔT_A = average daily ambient temperature range, °R
T_{AX} = average daily maximum ambient temperature, °R
T_{AN} = average daily minimum ambient temperature, °R

Table 7.1-7 gives historical values of T_{AX} and T_{AN} in degrees Fahrenheit for selected cities in the United States. These values are converted to degrees Rankine by adding 459.7.

5. The vapor pressures associated with the average daily maximum and minimum liquid surface temperatures, P_{VX} and P_{VN}, respectively, are calculated by substituting the corresponding temperatures, T_{LX} and T_{LN}, into Equation 1-25 or 1-26 after converting the temperatures to the units indicated for the respective equation. If T_{LX} and T_{LN} are unknown, Figure 7.1-17 can be used to calculate their values. In

the case of a fully insulated tank maintained at constant temperature, the average daily vapor pressure range, ΔP_V, should be taken as zero.

If the liquid stored in the fixed roof tank has a true vapor pressure less than 0.1 psia and the tank breather vent settings are not greater than ±0.03 psig, Equation 1-12 or Equation 1-13 may be used with an acceptable loss in accuracy.

If the tank location and tank color and condition are known, K_E may be calculated using the following equation in lieu of Equation 1-5:

$$K_E = 0.0018 \, \Delta T_V = 0.0018 \left[0.7 \left(T_{AX} - T_{AN} \right) + 0.02 \, \alpha \, I \right] \quad (1\text{-}12)$$

where:

K_E = vapor space expansion factor, per day

ΔT_V = average daily vapor temperature range, °R

T_{AX} = average daily maximum ambient temperature, °R

T_{AN} = average daily minimum ambient temperature, °R

α = tank surface solar absorptance, dimensionless

I = average daily total insolation on a horizontal surface, Btu/(ft^2 day)

0.0018 = constant, (°R)$^{-1}$

0.7 = constant, dimensionless

0.02 = constant, (°R ft^2 day)/Btu

Average daily maximum and minimum ambient temperatures and average daily total insolation can be determined from historical meteorological data for the location or may be obtained from historical meteorological data for a nearby location. Historical meteorological data for selected locations are given in Table 7.1-7, where values of T_{AX} and T_{AN} are given in degrees Fahrenheit. These values are converted to degrees Rankine by adding 459.7.

If the tank location is unknown, a value of K_E can be calculated using typical meteorological conditions for the lower 48 states. The typical value for daily insolation is 1,370 Btu/(ft^2 day), the average daily range of ambient temperature is 21°R, and the tank surface solar absorptance is 0.25 for white paint in average condition. Substituting these values into Equation 1-12 results in a value of 0.04, as shown in Equation 1-13.

$$K_E = 0.04 \quad (1\text{-}13)$$

Diameter

For vertical tanks, the diameter is straightforward. If a user needs to estimate emissions from a horizontal fixed roof tank, some of the tank parameters can be modified before using the vertical tank emission estimating equations. First, by assuming that the tank is one-half filled, the surface area of the liquid in the tank is approximately equal to the length of the tank times the diameter of the tank. Next, assume that this area represents a circle, i.e., that the liquid is an upright cylinder. Therefore, the effective diameter, D_E, is then equal to:

$$D_E = \sqrt{\frac{LD}{\frac{\pi}{4}}} \quad \textbf{(1-14)}$$

where:

D_E = effective tank diameter, ft
L = length of the horizontal tank, ft (for tanks with rounded ends, use the overall length)
D = diameter of a vertical cross-section of the horizontal tank, ft

By assuming the volume of the horizontal tank to be approximately equal to the cross-sectional area of the tank times the length of the tank, an effective height, H_E, of an equivalent upright cylinder may be calculated as:

$$H_E = \frac{\pi}{4} D \quad \textbf{(1-15)}$$

D_E should be used in place of D in Equation 1-4 for calculating the standing loss (or in Equation 1-3, if calculating the tank vapor space volume). One-half of the effective height, H_E, should be used as the vapor space outage, H_{VO}, in these equations. This method yields only a very approximate value for emissions from horizontal storage tanks. For underground horizontal tanks, assume that no breathing or standing losses occur ($L_S = 0$) because the insulating nature of the earth limits the diurnal temperature change. No modifications to the working loss equation are necessary for either aboveground or underground horizontal tanks. However, standing losses from underground gasoline tanks, which can experience relatively fast vapor growth after the ingestion of air and dilution of the headspace, are addressed in Section 5.2 of AP-42.

Vapor Space Outage

The vapor space outage, H_{VO} is the height of a cylinder of tank diameter, D, whose volume is equivalent to the vapor space volume of a fixed roof tank, including the volume under the cone or dome roof. The vapor space outage, H_{VO}, is estimated from:

$$H_{VO} = H_S - H_L + H_{RO} \quad (1\text{-}16)$$

where:

H_{VO} = vapor space outage, ft; use $H_E/2$ from Equation 1-15 for horizontal tanks
H_S = tank shell height, ft
H_L = liquid height, ft; typically assumed to be at the half-full level, unless known to be maintained at some other level
H_{RO} = roof outage, ft; see Note 1 for a cone roof or Note 2 for a dome roof

Notes:

1. For a cone roof, the roof outage, H_{RO}, is calculated as follows:

$$H_{RO} = (1/3)\ H_R \tag{1-17}$$

where:

H_{RO} = roof outage (or shell height equivalent to the volume contained under the roof), ft
H_R = tank roof height, ft

$$H_R = S_R\ R_S \tag{1-18}$$

where: S_R = tank cone roof slope, ft/ft; if unknown, a standard value of 0.0625 is used
R_S = tank shell radius, ft

2. For a dome roof, the roof outage, H_{RO}, is calculated as follows:

$$H_{RO} = H_R \left[\frac{1}{2} + \frac{1}{6} \left[\frac{H_R}{R_S} \right]^2 \right] \tag{1-19}$$

where:

H_{RO} = roof outage, ft
R_S = tank shell radius, ft
H_R = tank roof height, ft

$$H_R = R_R - \left(R_R^2 - R_S^2 \right)^{0.5} \tag{1-20}$$

H_R = tank roof height, ft R_R = tank dome roof radius, ft R_S = tank shell radius,ft

The value of R_R usually ranges from 0.8D - 1.2D, where D = 2 R_S. If R_R is unknown, the tank diameter is used in its place. If the tank diameter is used as the value for R_R, Equations 1-19 and 1-20 reduce to H_{RO} = 0.137 R_S and H_R = 0.268 R_S.

Vented Vapor Saturation Factor, K_S

The vented vapor saturation factor, K_S, is calculated using the following equation:

$$K_S = \frac{1}{1 + 0.053 P_{VA}\ H_{VO}} \tag{1-21}$$

where:

K_S = vented vapor saturation factor, dimensionless
P_{VA} = vapor pressure at average daily liquid surface temperature, psia; see Notes 1 and 2 to Equation 1-22
H_{VO} = vapor space outage, ft, see Equation 1-16

0.053 = constant, $(\text{psia-ft})^{-1}$

Stock Vapor Density, W_V - The density of the vapor is calculated using the following equation:

$$W_V = \frac{M_V P_{VA}}{R T_V} \tag{1-22}$$

where:

W_V = vapor density, lb/ft^3

M_V = vapor molecular weight, lb/lb-mole; see Note 1

R = the ideal gas constant, 10.731 psia ft^3/lb-mole °R

P_{VA} = vapor pressure at average daily liquid surface temperature, psia; see Notes 1 and 2

T_V = average vapor temperature, °R; see Note 6

Notes:

1. The molecular weight of the vapor, M_V, can be determined from Table 7.1-2 and 7.1-3 for selected petroleum liquids and selected petrochemicals, respectively, or by analyzing vapor samples. Where mixtures of organic liquids are stored in a tank, M_V can be calculated from the liquid composition. The molecular weight of the vapor, M_V, is equal to the sum of the molecular weight, M_i, multiplied by the vapor mole fraction, y_i, for each component. The vapor mole fraction is equal to the partial pressure of component i divided by the total vapor pressure. The partial pressure of component i is equal to the true vapor pressure of component i (P) multiplied by the liquid mole fraction, (x_i). Therefore,

$$M_V = \sum M_i \, y_i = \sum M_i \left(\frac{P x_i}{P_{VA}} \right) \tag{1-23}$$

where:

P_{VA}, total vapor pressure of the stored liquid, by Raoult's Law[30], is:

$$P_{VA} = \sum P x_i \tag{1-24}$$

For more detailed information on Raoult's Law, please refer to Section 7.1.4. Frequently, however, the vapor pressure is not known for each component in a mixture. For more guidance on determining the total vapor pressure at a given temperature (*i.e.*, the true vapor pressure), see Note 2 below.

2. True vapor pressure is defined in various ways for different purposes within the industry, such as "bubble point" for transportation specifications, but for purposes of these emissions estimating methodologies it is the sum of the equilibrium partial pressures exerted by the components of a volatile organic liquid, as shown in Equation 1-24. True vapor pressure may be determined by ASTM D 2879 (or ASTM D 6377 for crude oils with a true vapor pressure greater than 3.6 psia) or obtained from standard reference texts. For certain petroleum liquids, true vapor pressure may be predicted from Reid vapor pressure, which is the absolute vapor pressure of volatile crude oil and volatile non-viscous petroleum

liquids, as determined by ASTM D 323. ASTM D 5191 may be used as an alternative method for determining Reid vapor pressure for petroleum products, however, it should not be used for crude oils.

Caution should be exercised when considering ASTM D 2879 for determining the true vapor pressure of certain types of mixtures. Vapor pressure is sensitive to the lightest components in a mixture, and the de-gassing step in ASTM D 2879 can remove lighter fractions from mixtures such as No. 6 fuel oil if it is not done with care (*i.e.* at an appropriately low pressure and temperature). In addition, any dewatering of a sample prior to measuring its vapor pressure must be done using a technique that has been demonstrated to not remove the lightest organic compounds in the mixture. Alternatives to the method may be developed after publication of this chapter.

True vapor pressure can be determined for crude oils from Reid vapor pressure using Figures 7.1-13a and 7.1-13b. However, the nomograph in Figure 7.1-13a and the correlation equation in Figure 7.1-13b for crude oil are known to have an upward bias, and thus use of ASTM D 6377 is more accurate for crude oils with a true vapor pressure greater than 3.6 psia. ASTM D 6377 may be used to directly measure true vapor pressure at a given temperature. In order to utilize ASTM D 6377 to predict true vapor pressure values over a range of temperatures, the method should be applied at multiple temperatures. A regression of the log-transformed temperature versus vapor pressure data thus obtained may be performed to obtain A and B constants for use in Equation 1-25. In order to determine true vapor pressure for purposes of estimating emissions of volatile organic compounds, ASTM D 6377 should be performed using a vapor-to-liquid ratio of 4:1, which is expressed in the method as $VPCR_4$.

For light refined stocks (gasolines and naphthas) for which the Reid vapor pressure and distillation slope are known, Figures 7.1-14a and 7.1-14b can be used. For refined stocks with Reid vapor pressure below the 1 psi applicability limit of Figures 7.1-14a and 7.1-14b, true vapor pressure can be determined using ASTM D 2879. In order to use Figures 7.1-13a, 7.1-13b, 7.1-14a, or 7.1-14b, the stored liquid surface temperature, T_{LA}, must be determined in degrees Fahrenheit. See Note 3 to determine T_{LA}.

Alternatively, true vapor pressure for selected petroleum liquid stocks, at the stored liquid surface temperature, can be determined using the following equation:

(1-25)

$$P_{VA} = \exp\left[A - \left(\frac{B}{T_{LA}}\right)\right]$$

where:

exp = exponential function

A = constant in the vapor pressure equation, dimensionless

B = constant in the vapor pressure equation, °R

T_{LA} = average daily liquid surface temperature, °R; see Note 3

P_{VA} = true vapor pressure, psia

For selected petroleum liquid stocks, physical property data including vapor pressure constants A and B for use in Equation 1-25 are presented in Table 7.1-2. For refined petroleum stocks with Reid vapor pressure within the limits specified in the scope of ASTM D 323, the constants A and B can be calculated from the equations presented in Figure 7.1-15 and the distillation slopes presented in Table 7.1-2. For crude oil stocks, the constants A and B can be calculated from Reid vapor pressure using the equations presented in Figure 7.1-16. However, the equations in Figure 7.1-16 are known to have an upward bias[29], and thus use of ASTM D 6377 is more accurate. Note that in Equation 1-25, T_{LA} is determined in degrees Rankine instead of degrees Fahrenheit.

The true vapor pressure of organic liquids at the stored liquid temperature can also be estimated by Antoine's equation:

$$\log\ P_{VA} = A - \left(\frac{B}{T_{LA} + C}\right) \quad \textbf{(1-26)}$$

where:

log = log 10
A = constant in vapor pressure equation, dimensionless
B = constant in vapor pressure equation, °C
C = constant in vapor pressure equation, °C
T_{LA} = average daily liquid surface temperature, °C
P_{VA} = vapor pressure at average liquid surface temperature, mm Hg

For selected pure chemicals, the values for the constants A, B, and C are listed in Table 7.1-3. Note that in Equation 1-26, T_{LA} is determined in degrees Celsius instead of degrees Rankine. Also, in Equation 1-26, P_{VA} is determined in mm of Hg rather than psia (760 mm Hg = 14.7 psia).

More rigorous thermodynamic equations of state are available in process simulation software packages. The use of such programs may be preferable in determining the true vapor pressure of mixtures that are not adequately characterized by Raoult's Law.

3. The average daily liquid surface temperature, T_{LA}, refers to the liquid surface temperature averaged over all of the days in the given period of time, such as one year, and should not be construed as being applicable to an individual day. While the accepted methodology is to use the average temperature, this approach introduces a bias in that the true vapor pressure, P_{VA}, is a non-linear function of temperature. However, the greater accuracy that would be achieved by accounting for this logarithmic function is not warranted, given the associated computational burden. The average daily liquid surface temperature is calculated for an uninsulated fixed roof tank using Equation 1-27.

$$T_{LA} = \left(0.5 - \frac{0.8}{4.4(H_S/D) + 3.8}\right) T_{AA} + \left(0.5 + \frac{0.8}{4.4(H_S/D) + 3.8}\right) T_B + \frac{0.021 \propto_R I + 0.013(H_S/D) \propto_S I}{4.4(H_S/D) + 3.8} \quad (1\text{-}27)$$

where:

T_{LA} = average daily liquid surface temperature, °R
H_S = tank shell height, ft
D = tank diameter, ft,
T_{AA} = average daily ambient temperature, °R; see Note 4
T_B = liquid bulk temperature, °R; see Note 5

α_R = tank roof surface solar absorptance, dimensionless; see Table 7.1-6
α_S = tank shell surface solar absorptance, dimensionless; see Table 7.1-6
I = average daily total insolation factor, Btu/(ft^2 day); see Table 7.1-7

API assigns a default value of $H_s/D = 0.5$ and an assumption of $\alpha_R = \alpha_S$, resulting in the simplified equation shown below for an uninsulated fixed roof tank:[22]

$$T_{LA} = 0.4T_{AA} + 0.6T_B + 0.005\,\alpha\,I \tag{1-28}$$

where:

α = average tank surface solar absorptance, dimensionless

Equation 1-27 and Equation 1-28 should not be used to estimate liquid surface temperature for insulated tanks. In the case of fully insulated tanks, the average liquid surface temperature should be assumed to equal the average liquid bulk temperature (see Note 5). For purposes of estimating emissions, a storage tank should be deemed insulated only if the roof and shell are both fully insulated so as to minimize heat exchange with ambient air. If only the shell is insulated, and not the roof, there likely will be sufficient heat exchange through the roof such that Equation 1-28 would be applicable.

A more accurate method of estimating the average liquid surface temperature, T_{LA}, in partially insulated fixed roof tanks is given below. When the tank shell is insulated but the tank roof is not, heat gain to the tank from insolation is almost entirely through the tank roof and thus the liquid surface temperature is not sensitive to H_S/D.

$$T_{LA} = 0.3\,T_{AA} + 0.7\,T_B + 0.005\,\alpha_R\,I \tag{1-29}$$

If T_{LA} is used to calculate P_{VA} from Figures 7.1-13a, 7.1-13b, 7.1-14a, or 7.1-14b, T_{LA} must be converted from degrees Rankine to degrees Fahrenheit (°F = °R – 459.7). If T_{LA} is used to calculate P_{VA} from Equation 1-26, T_{LA} must be converted from degrees Rankine to degrees Celsius (°C = [°R – 491.7]/1.8).

4. The average daily ambient temperature, T_{AA}, is calculated using the following equation:

$$T_{AA} = \left(\frac{T_{AX} + T_{AN}}{2}\right) \tag{1-30}$$

where:

T_{AA} = average daily ambient temperature, °R
T_{AX} = average daily maximum ambient temperature, °R
T_{AN} = average daily minimum ambient temperature, °R

Table 7.1-7 gives historical values of T_{AX} and T_{AN} in degrees Fahrenheit for selected U.S. cities. These values are converted to degrees Rankine by adding 459.7.

5. The liquid bulk temperature, T_B, should preferably be based on measurements or estimated from process knowledge. For uninsulated fixed roof tanks known to be in approximate equilibrium with

ambient air, heat gain to the bulk liquid from insolation is almost entirely through the tank shell; thus the liquid bulk temperature is not sensitive to H_S/D and may be calculated using the following equation:

$$T_B = T_{AA} + 0.003\ \alpha_S\ I \tag{1-31}$$

where:

T_B = liquid bulk temperature, °R
T_{AA} = average daily ambient temperature, °R, as calculated in Note 4
α_S = tank shell surface solar absorptance, dimensionless; see Table 7.1-6
I = average daily total insolation factor, Btu/(ft^2 day); see Table 7.1-7.

6. The average vapor temperature, T_V, for an uninsulated tank may be calculated using the following equation:

$$T_V = \frac{[2.2\ (H_S/D)+1.1]\ T_{AA} + 0.8\ T_B + 0.021\alpha_R I + 0.013(H_S/D)\alpha_S I}{2.2\ (H_S/D) + 1.9} \tag{1-32}$$

where:

H_S = tank shell height, ft
D = tank diameter, ft,
T_{AA} = average daily ambient temperature, °R
T_B = liquid bulk temperature, °R
α_R = tank roof surface solar absorptance, dimensionless
α_S = tank shell surface solar absorptance, dimensionless
I = average daily total insolation factor, Btu/(ft^2 day).

API assigns a default value of $H_s/D = 0.5$ and an assumption of $\alpha_R = \alpha_S$, resulting in the simplified equation shown below for an uninsulated tank:[22]

$$T_V = 0.7T_{AA} + 0.3T_B + 0.009\ \alpha\ I \tag{1-33}$$

where:

α = average tank surface solar absorptance, dimensionless

When the shell is insulated, but not the roof, the temperature equations are independent of H_s/D.

$$T_V = 0.6T_{AA} + 0.4T_B + 0.01\ \alpha_R\ I \tag{1-34}$$

When the tank shell and roof are fully insulated, the temperatures of the vapor space and the liquid surface are taken as equal to the temperature of the bulk liquid.

7.1.3.1.2 Working Loss

The fixed roof tank working loss, L_W, refers to the loss of stock vapors as a result of tank filling operations. Fixed roof tank working losses can be estimated from:

$$L_W = V_Q K_N K_P W_V K_B \quad \textbf{(1-35)}$$

where:

L_W = working loss, lb/yr

V_Q = net working loss throughput, ft^3/yr, see Note 1

K_N = working loss turnover (saturation) factor, dimensionless

for turnovers > 36, $K_N = (180 + N)/6N$

for turnovers ≤ 36, $K_N = 1$

for tanks that are vapor balanced and tanks in which flashing occurs, $K_N = 1$ regardless of the number of turnovers; further adjustment of K_N may be appropriate in the case of splash loading into a tank.

N = number of turnovers per year, dimensionless:

$$N = \Sigma H_{QI} / (H_{LX} - H_{LN}) \quad \textbf{(1-36)}$$

ΣH_{QI} = the annual sum of the increases in liquid level, ft/yr

If ΣH_{QI} is unknown, it can be estimated from pump utilization records. Over the course of a year, the sum of increases in liquid level, ΣH_{QI}, and the sum of decreases in liquid level, ΣH_{QD}, will be approximately the same. Alternatively, ΣH_{QI} may be approximated as follows:

$$\Sigma H_{QI} = (5.614\ Q) / ((\pi/4)\ D^2) \quad (1\text{-}37)$$

5.614 =the conversion of barrels to cubic feet, ft^3/bbl

Q = annual net throughput, bbl/yr

For horizontal tanks, use D_E (Equation 1-14) in place of D in Equation 1-37

H_{LX} = maximum liquid height, ft

If the maximum liquid height is unknown, for vertical tanks use one foot less than the shell height and for horizontal tanks use $(\pi/4)$ D where D is the diameter of a vertical cross-section of the horizontal tank

H_{LN} = minimum liquid height, ft

If the minimum liquid height is unknown, for vertical tanks use 1 and for horizontal tanks use 0

K_P = working loss product factor, dimensionless

for crude oils, $K_P = 0.75$; adjustment of K_P may be appropriate in the case of splash loading into a tank

for all other organic liquids, $K_P = 1$

W_V = vapor density, lb/ft^3, see Equation 1-22

K_B = vent setting correction factor, dimensionless, see Note 2 for open vents and for a vent setting range up to ± 0.03 psig, $K_B = 1$

1. Net Working Loss Throughput.

The net working loss throughput, V_Q, is the volume associated with increases in the liquid level, and is calculated as follows:

$$V_Q = (\Sigma H_{QI})(\pi/4)\, D^2 \tag{1-38}$$

where:

ΣH_{QI} = the annual sum of the increases in liquid level, ft/yr

D_E should be used for horizontal tanks in place of D in Equation 1-38.

If ΣH_{QI} is unknown, ΣH_{QI} can be estimated from pump utilization records. Over the course of a year, the sum of increases in liquid level, ΣH_{QI}, and the sum of decreases in liquid level, ΣH_{QD}, will be approximately the same. Alternatively, V_Q may be approximated as follows:

$$V_Q = 5.614\, Q \tag{1-39}$$

where:

5.614 = the conversion of barrels to cubic feet, ft^3/bbl

Q = annual net throughput, bbl/yr
Use of gross throughput to approximate the sum of increases in liquid level will significantly overstate emissions if pumping in and pumping out take place at the same time. However, use of gross throughput is still allowed, since it is clearly a conservative estimate of emissions.

2. Vent Setting Correction Factor

When the breather vent settings are greater than the typical values of ± 0.03 psig, and the condition expressed in Equation 1-40 is met, a vent setting correction factor, K_B, must be determined using Equation 1-41. This value of K_B will be used in Equation 1-35 to calculate working losses.

When:

(1-40)

$$K_N \left[\frac{P_{BP} + P_A}{P_I + P_A} \right] > 1.0$$

Then:

(1-41)

$$K_B = \left[\frac{\dfrac{P_I + P_A}{K_N} - P_{VA}}{P_{BP} + P_A - P_{VA}} \right]$$

where:

K_B = vent setting correction factor, dimensionless

P_I = pressure of the vapor space at normal operating conditions, psig
P_I is an actual pressure reading (the gauge pressure). If the tank is held at atmospheric pressure (not held under a vacuum or at a steady pressure) P_I would be 0.

P_A = atmospheric pressure, psia

K_N = working loss turnover (saturation) factor (dimensionless), see Equation 1-35

P_{VA} = vapor pressure at the average daily liquid surface temperature, psia; see Notes 1 and 2 to Equation 1-22

P_{BP} = breather vent pressure setting, psig.

See Section 7.1.6.2 for a more approximate equation for fixed roof tank working loss that was used historically, but which is no longer recommended.

Table 7.1-6. PAINT SOLAR ABSORPTANCE[a]

Surface Color	Shade or Type	Reflective Condition (see Note 1)		
		New	Average	Aged
White		0.17	0.25	0.34
Aluminum	Specular	0.39	0.44	0.49
Aluminum	Diffuse	0.60	0.64	0.68
Beige/Cream		0.35	0.42	0.49
Black		0.97	0.97	0.97
Brown		0.58	0.62	0.67
Gray	Light	0.54	0.58	0.63
Gray	Medium	0.68	0.71	0.74
Green	Dark	0.89	0.90	0.91
Red	Primer	0.89	0.90	0.91
Rust	red iron oxide	0.38	0.44	0.50
Tan		0.43	0.49	0.55
Aluminum (see Note 2)	mill finish, unpainted	0.10	0.12	0.15

NOTE 1 Reflective condition definitions:

New: For paint, paint still retains the fresh shine of having been recently applied; for mill-finish aluminum, surface is shiny. This was previously labeled "Good."

Average: For paint, paint is in good condition, but the initial shine has faded; for mill-finish aluminum, surface is oxidized but still bright. The value given in each case is the average of the New and the Aged values for that case, and does not represent new data.

Aged: For paint, paint is noticeably faded and dull; for mill-finish aluminum, surface is dull. This was previously labeled "Poor."

NOTE 2 This refers to aluminum as the base metal, rather than aluminum-colored paint.

Notes:

[a] Reference 22. If specific information is not available, a white shell and roof, with the paint in average condition, can be assumed to represent the most common or typical tank surface in use. If the tank roof and shell are painted a different color, α is determined from $\alpha = (\alpha_R + \alpha_S)/2$; where α_R is the tank roof paint solar absorptance and α_S is the tank shell paint solar absorptance.

Location	Symbol	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	T_{AX}	°F	39.6	42.1	50.5	62.0	72.0	81.3	85.7	84.2	76.7	65.2	54.6	43.8	63.1
	V	mi/hr	11.0	11.2	11.2	10.5	9.6	9.2	8.9	8.5	8.9	9.4	9.8	10.7	9.8
	I	Btu/ft²/day	602	887	1195	1502	1748	1854	1838	1629	1324	975	638	521	1226
	P_A	lb/in²													14.69
Albuquerque, NM	T_{AN}	°F	27.6	31.4	36.4	43.7	53.8	62.3	67.1	65.4	58.6	46.7	35.0	27.5	46.3
	T_{AX}	°F	48.1	53.7	61.2	69.4	79.8	88.8	90.5	87.8	81.4	69.9	56.6	47.1	69.5
	V	mi/hr	7.2	7.8	8.7	9.8	9.4	8.9	7.8	7.4	7.4	7.4	7.2	6.7	8.1
	I	Btu/ft²/day	1003	1270	1699	2126	2356	2479	2312	2082	1846	1469	1114	904	1722
	P_A	lb/in²													12.13
Gallup, NM	T_{AN}	°F	14.9	19.5	22.7	28.4	37.5	45.1	54.3	53.3	43.8	30.9	19.9	13.8	32.0
	T_{AX}	°F	44.1	48.7	56.4	64.0	74.3	83.9	87.5	84.3	78.5	67.0	54.2	44.0	65.6
	V	mi/hr	5.4	6.5	7.8	9.4	8.7	8.1	6.7	5.8	5.8	6.0	5.6	5.1	6.7
	I	Btu/ft²/day	930	1194	1654	2095	2350	2507	2187	1943	1806	1466	1072	825	1669
	P_A	lb/in²													11.63
Roswell, NM	T_{AN}	°F	27.8	32.5	38.5	46.1	56.4	64.5	68.5	67.0	59.5	47.9	35.2	27.7	47.6
	T_{AX}	°F	55.6	61.3	68.4	77.0	86.1	93.7	93.9	91.9	86.0	76.0	64.0	55.3	75.8
	V	mi/hr	7.6	8.7	9.6	10.5	10.1	10.1	8.5	7.6	7.8	7.8	7.6	7.4	8.7
	I	Btu/ft²/day	1013	1323	1744	2125	2301	2434	2302	2085	1822	1452	1127	939	1722
	P_A	lb/in²													12.88
Albany, NY	T_{AN}	°F	16.1	18.1	26.4	37.7	47.7	57.9	62.0	60.9	52.7	40.8	32.5	22.4	39.6
	T_{AX}	°F	31.0	34.1	43.8	57.8	68.7	77.6	81.3	80.0	72.0	59.3	47.7	35.9	57.4
	V	mi/hr	8.5	8.9	9.4	9.2	7.8	6.9	6.7	5.8	6.3	7.2	7.8	8.5	7.8
	I	Btu/ft²/day	532	789	1096	1496	1739	1853	1872	1640	1300	882	534	422	1180
	P_A	lb/in²													14.55
Binghamton, NY	T_{AN}	°F	16.6	17.6	25.1	36.3	46.5	56.1	59.9	59.1	51.3	40.9	32.0	22.0	38.6
	T_{AX}	°F	29.2	31.7	40.5	54.1	65.2	73.6	77.1	76.2	68.4	56.4	44.8	33.5	54.2
	V	mi/hr	9.8	9.8	9.8	9.6	8.5	7.8	7.4	6.9	7.8	8.5	8.9	9.6	8.7
	I	Btu/ft²/day	500	745	1056	1449	1722	1839	1818	1614	1224	833	498	406	1142
	P_A	lb/in²													13.87
Buffalo, NY	T_{AN}	°F	19.3	19.7	26.5	37.2	47.9	58.4	62.6	61.7	54.2	43.7	34.7	24.9	40.9
	T_{AX}	°F	31.5	32.9	41.3	54.7	66.1	75.3	78.9	78.1	71.1	58.7	47.4	36.1	56.0
	V	mi/hr	12.1	11.6	10.7	10.5	9.8	8.9	8.9	8.1	8.7	9.6	10.5	11.4	10.1
	I	Btu/ft²/day	447	730	1070	1453	1793	1939	1865	1643	1273	808	478	382	1157

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

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

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

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

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

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

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

where:

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

S = a saturation factor (see Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Section 7.1, "Organic Liquid Storage Tanks")
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")
T = temperature of bulk liquid loaded, °R (°F + 460)

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

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

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

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

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

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

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

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

[a] See discussion in text.

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

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (*C*) was obtained from EPA's MOBILE6.2 model [23]. The emission factor also varies with aerodynamic size range average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls[18-22]

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

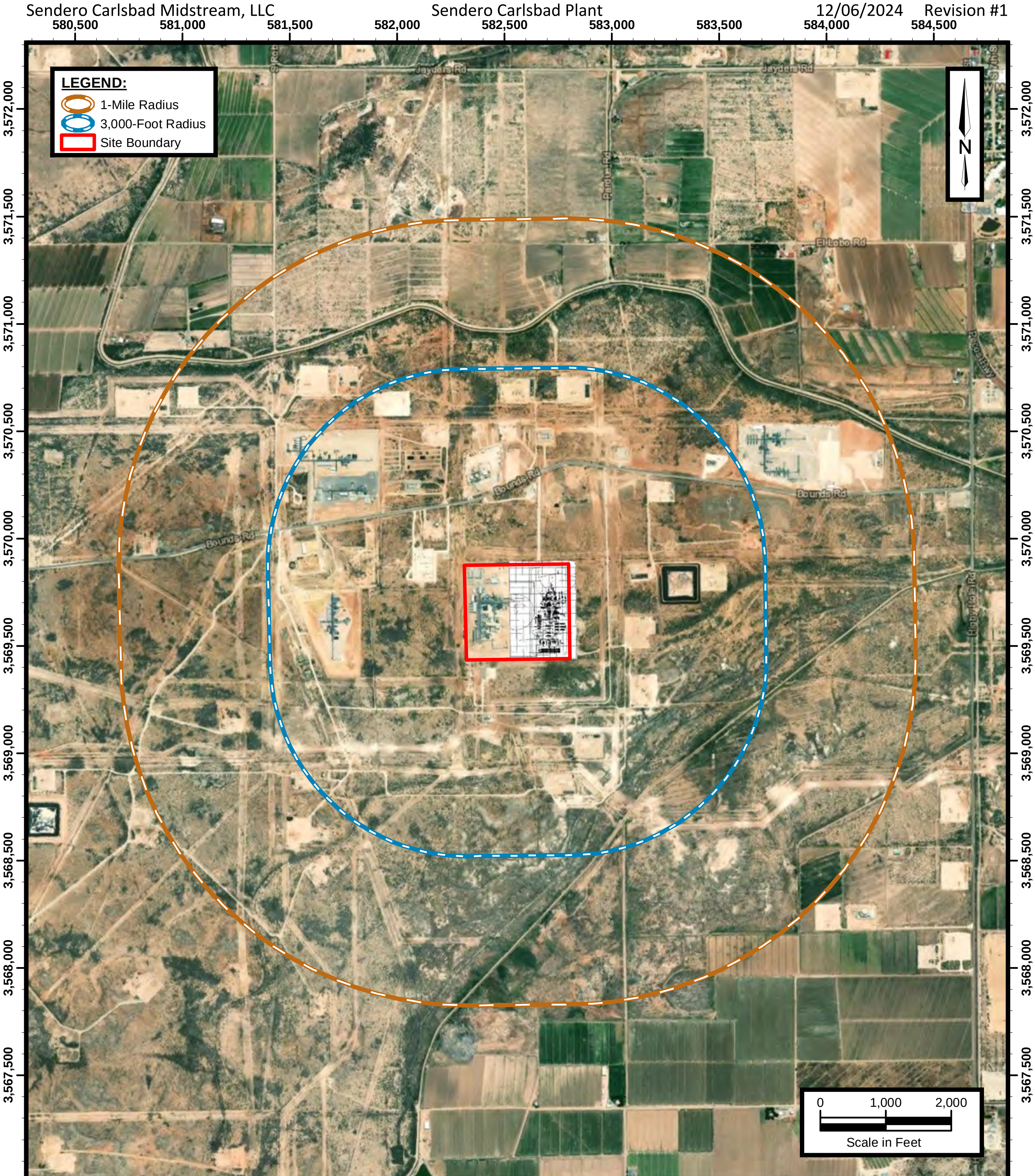
1. <u>Vehicle restrictions</u> that limit the speed, weight or number of vehicles on the road;

Section 8

Map(s)

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

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



Sendero Carlsbad Midstream, LLC
December 2024
Sendero Carlsbad Plant
Eddy County, New Mexico

Project No. ENE010-0202725-24005752

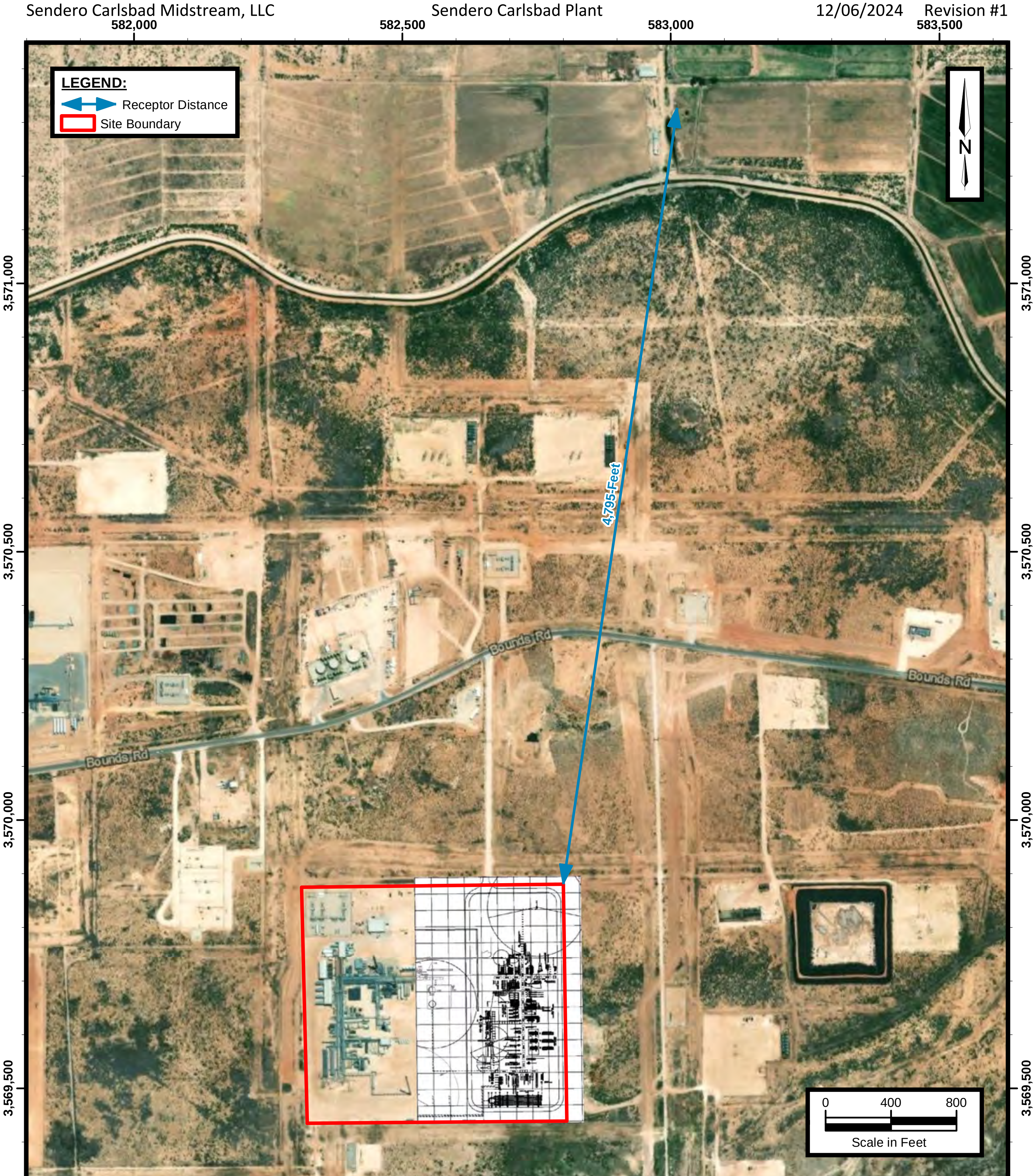
Apex Companies, LLC
2121 Midway Rd, Ste 100
Carrollton, TX 75006
Phone: (469) 365-1100
www.apexcos.com

FIGURE 8-1

Area Map

Service Layer Credits:
Esri, HERE, Garmin, (c) OpenStreetMap contributors, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community,

Modified 7/18/2024 by BMiller NAD 1983 UTM Zone 13N Coordinate System, Grid Listed in Meters



Sendero Carlsbad Midstream, LLC
December 2024
Sendero Carlsbad Plant
Eddy County, New Mexico

Project No. ENE010-0202725-24005752

Apex Companies, LLC
2121 Midway Rd, Ste 100
Carrollton, TX 75006
Phone: (469) 365-1100
www.apexcos.com

FIGURE 8-2

Receptor Map

Service Layer Credits:
Esri, HERE, Garmin, (c) OpenStreetMap contributors, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community,

Modified 7/18/2024 by BMiller NAD 1983 UTM Zone 13N Coordinate System, Grid Listed in Meters

Section 9

Proof of Public Notice

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

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

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

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

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

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

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

Public Notice Activities

Notices posted at the following locations: 9/19/2024

Facility Entrance
1025 Bounds Rd Loving, NM 88256

Carlsbad Public Library
101 S Halagueno St Carlsbad, NM 88220 575-885-6776

Village of Loving City Hall & Police Department
415 W Cedar St, Loving, NM 88256 575-745-3511

Family Dollar
112 S 8th St, Loving, NM 88256 575-689-3296

Classified/legal and display advertisements published in the following newspaper:

Carlsbad Current Argus Date of Publication: 10/3/2024

Public service announcement broadcast on the following station:

Carlsbad Radio Broadcast Date: 10/1/2024

Written notices mailed to the following: 9/27/2024

Municipalities Within 10 Miles of Site
Loving Loving Municipal Court, 415 W Cedar, PO Box 89 Loving, NM 88256
Carlsbad City of Carlsbad, 101 N Halagueno St Carlsbad, NM 88220

Counties Within 10 Miles of Site
Eddy Eddy County Administration Complex, 101 W Greene St, Rm 211 Carlsbad, NM 88220

Property Owners Within 0.5 Miles of Site
125 Brinkley Ln Elgin, TX 78621-5046
151 W Ogden Rd Loving, NM 88256
310 Old Santa Fe Trail Santa Fe, NM 87504
603 Elora Dr Carlsbad, NM 88220
910 Louisiana St Houston, TX 77002
1005 W Webster Ave #4W Chicago, IL 60614-3502
2302 Forehand Rd Carlsbad, NM 88220
Striegler, Harvey c/o 2505 E Villa Maria Rd, Apt 111 Bryan, TX 77802
3100 McKinnon St, Ste 800 Dallas, TX 75201-7014
5400 LBJ Freeway, Ste 1500 Dallas, TX 75240
6125 Luther Ln #188 Dallas, TX 75225
PO Box 92 Atlanta, KS 67008-0092
PO Box 597 Loving, NM 88256-0597

NOTICE

Sendero Carlsbad Midstream, LLC announces its application to the New Mexico Environment Department for an air quality permit for the construction of its natural gas processing facility. The expected date of application submittal to the Air Quality Bureau is September 20, 2024.

The exact location for the proposed facility, known as Sendero Carlsbad Plant, is at 1025 Bounds Road, Loving, NM 88256, latitude 32 deg, 15 min, 44 sec and longitude -104 deg, 7 min, 20 sec. The approximate location of this facility is 1.7 miles west-southwest of the intersection of US Highway 285 and Higby Hole Road in Eddy county.

The proposed construction consists of the addition of a second natural gas processing train at the existing authorized facility.

The estimated maximum quantities of any regulated air contaminants will be as follows in pounds per hour (pph) and tons per year (tpy). These reported emissions could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	14.17	26.91
$PM_{2.5}$	10.77	22.46
Sulfur Dioxide (SO_2)	62.02	249.22
Nitrogen Oxides (NO_x)	222.04	164.22
Carbon Monoxide (CO)	436.46	249.50
Volatile Organic Compounds (VOC)	366.58	187.80
Total sum of all Hazardous Air Pollutants (HAPs)	27.65	41.23
Green House Gas Emissions as Total CO_2e	n/a	355,124.7

The standard and maximum operating schedules of the facility will be 24 hours per day, 7 days per week, and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is: Sendero Carlsbad Midstream, LLC; 2564 Pecos Hwy, Carlsbad, NM, 88220.

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attencion

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

General Posting of Notices – Certification

I, __________Miranda Milwee______________________, the undersigned, certify that on **09/20/2024,** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the towns of Loving and Carlsbad of Eddy County, State of New Mexico on the following dates:

1. Facility entrance {09/16/24}
2. Village of Loving City Hall & Police Department {09/19/24}
3. Family Dollar (112 S 8th St Loving, NM) {09/19/24}
4. Carlsbad Public Library {09/19/24}

Signed this ___20th__ day of September 2024,

Miranda Milwee____________________ ______09/20/24_________
Signature Date

___Miranda Milwee________________________________
Printed Name

___Environmental Specialist____
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}


SALESMAN BY
APPOINTMENT
ONLY
575-359-7110
ENERGY
TRANSFER
Carlsbad Gas Plant
1025 Bounds Rd
Loving NM 88256
IN AN EMERGENCY CALL 1-800-375-5702
ENERGY TRANSFER COMPANY
Loving, 88256, NM, United States
Latitude
32.262646°
Longitude
-104.122432°
Local 09:11:39 AM
GMT 03:11:39 PM
Altitude 950.0 meters
Monday, 09/30/2024


NOTICE
Bounds Rd, Loving, 88256, NM, United States
Latitude
32.262615°
Longitude
-104.122445°
Local 09:11:47 AM
GMT 03:11:47 PM
Altitude 949.6 meters
Monday, 09/30/2024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Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.
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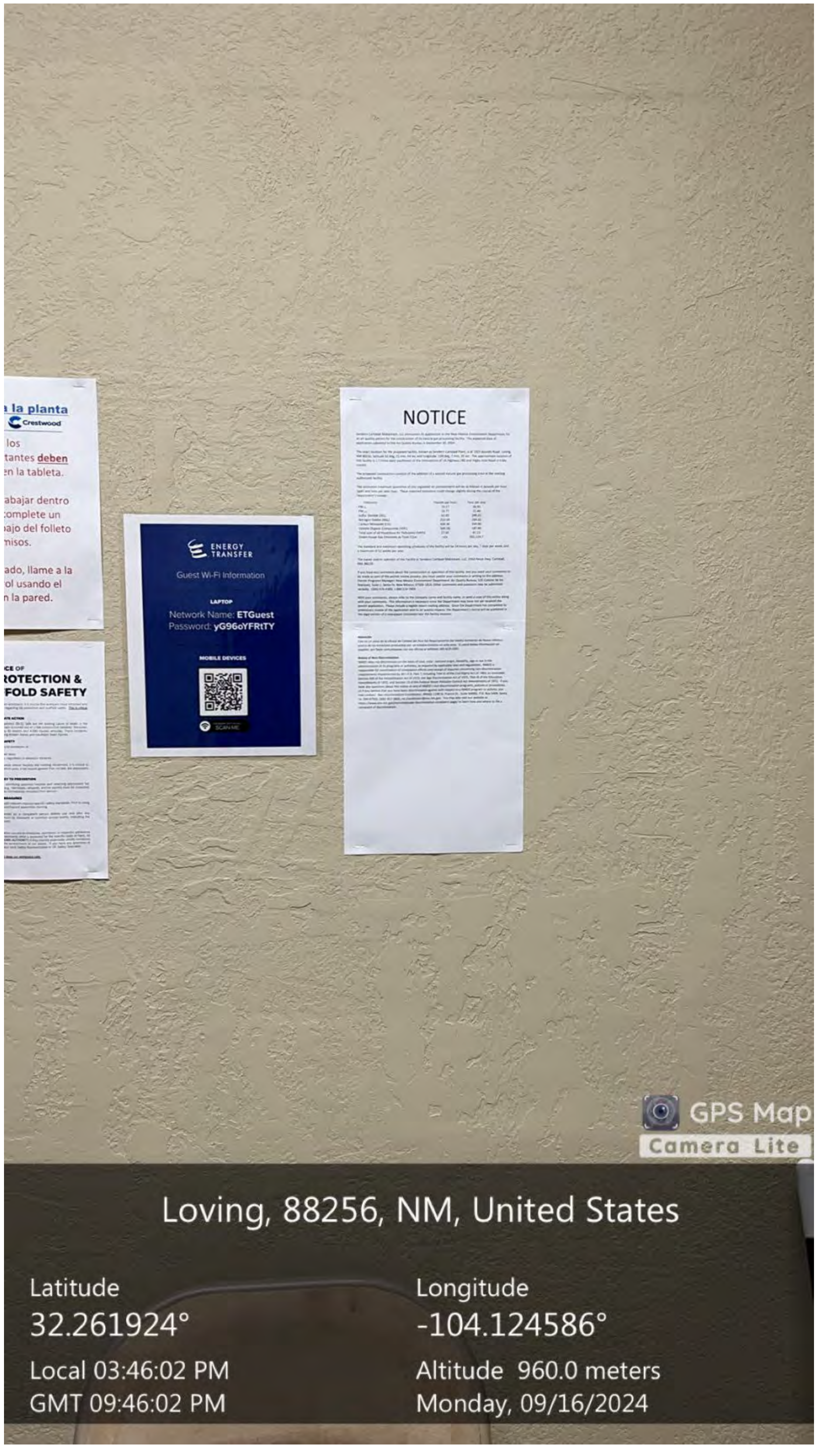
Bounds Rd, Loving, 88256, NM, United States
Latitude
32.262614°
Longitude
-104.122442°
Local 09:11:55 AM
GMT 03:11:55 PM
Altitude 949.3 meters
Monday, 09/30/2024


NOTICE
GPS Map
Camera Lite
Loving, 88256, NM, United States
Latitude
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Longitude
-104.124586°
Local 03:46:02 PM
GMT 09:46:02 PM
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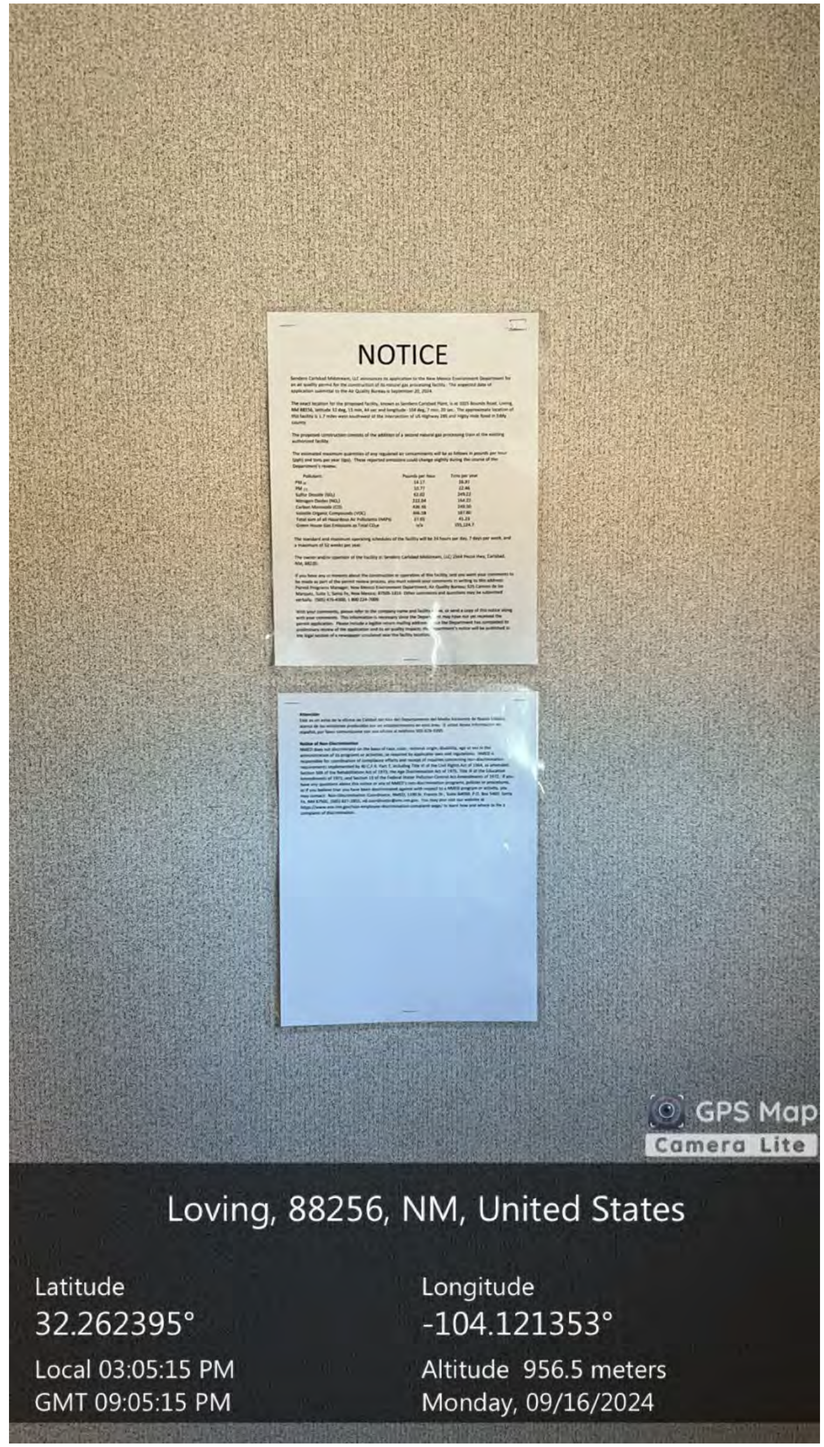
Monday, 09/16/2024


NOTICE
GPS Map
Camera Lite
Loving, 88256, NM, United States
Latitude
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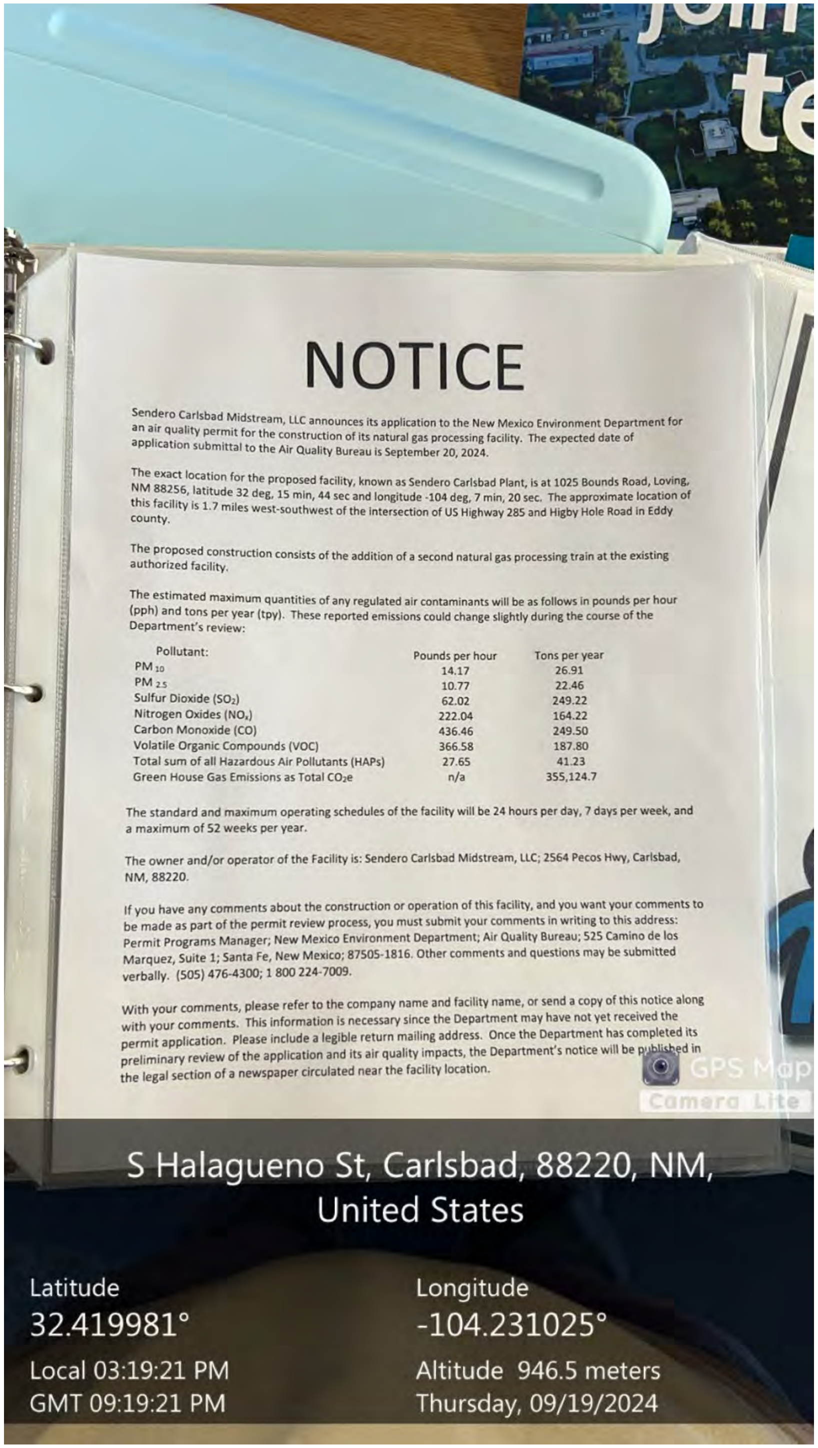
Longitude
-104.121353°
Local 03:05:15 PM
GMT 09:05:15 PM
Altitude 956.5 meters
Monday, 09/16/2024



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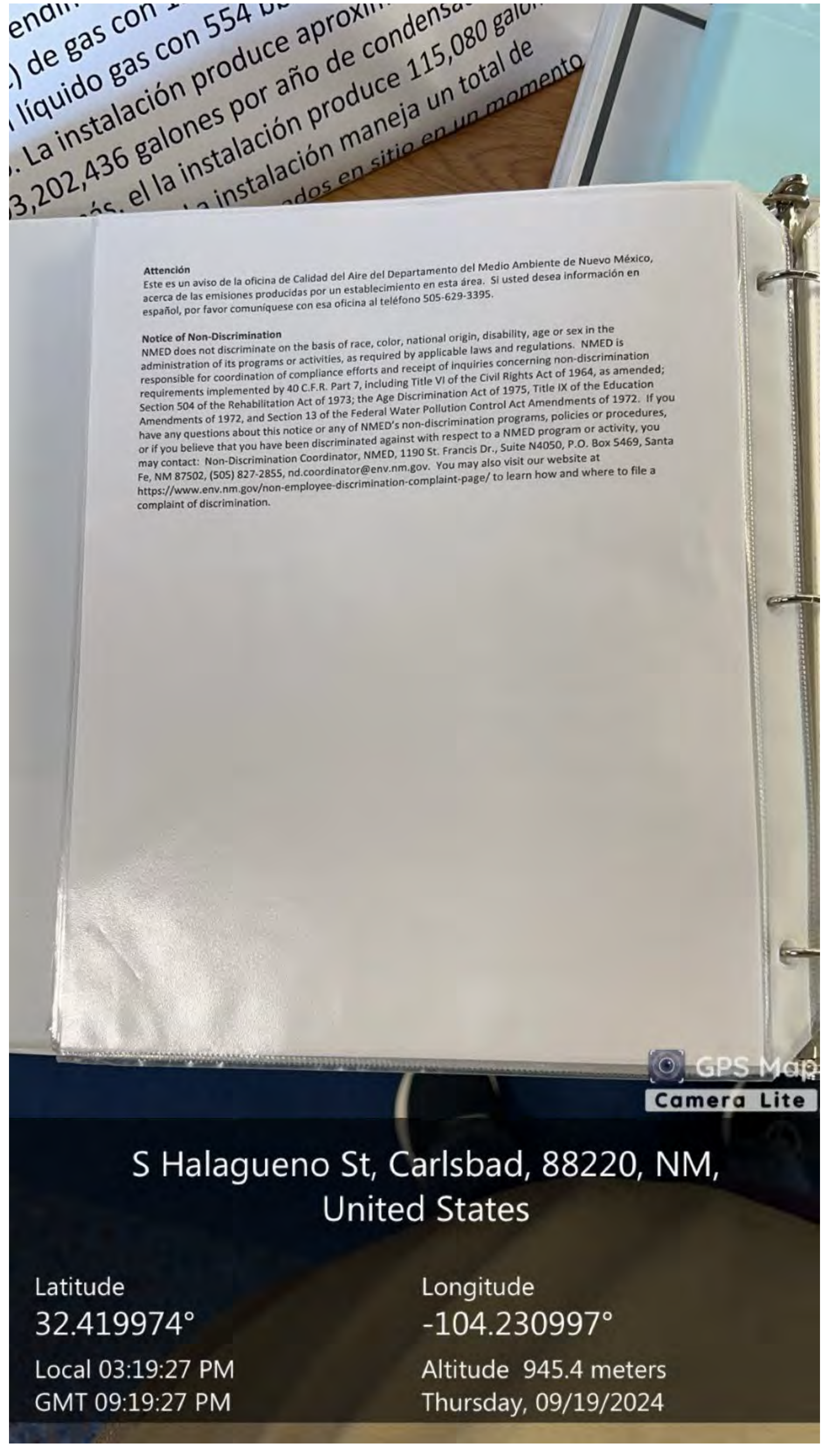
With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.



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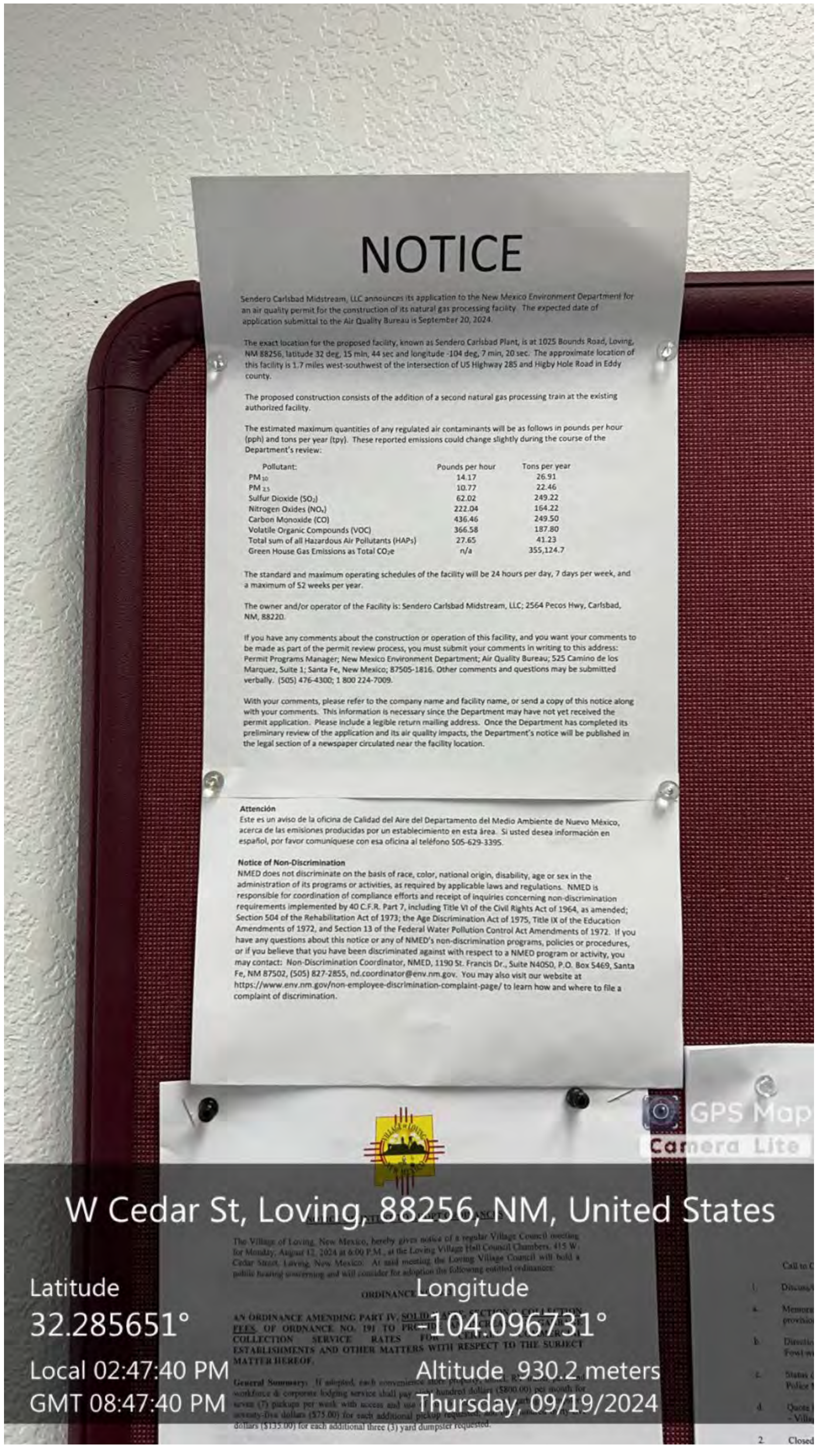
NOTICE
GPS Map Camera Lite
W Cedar St, Loving, 88256, NM, United States
Latitude
32.285651°
Longitude
-104.096731°
Local 02:47:40 PM
GMT 08:47:40 PM
Altitude 930.2 meters
Thursday, 09/19/2024


NOTICE
GPS Map Camera Lite
S Eighth St, Loving, 88256, NM, United States
Latitude
32.285195°
Longitude
-104.100696°
Local 02:56:21 PM
GMT 08:56:21 PM
Altitude 934.0 meters
Thursday, 09/19/2024

Students power up for an electrifying career

By Juno Ogle
Silver City Daily Press

SILVER CITY — Silver High School students with tall aspirations have the opportunity to get an early start on their careers in a new program spearheaded by the Public Service Company of New Mexico.

PNM and its employee union, International Brotherhood of Electrical Workers Local 611, have powered up a $1 million job training program that gives students hands-on training while in high school that will allow them to get a start on careers as linemen in the electric utility industry.

PNM Power Pros is being piloted at three schools in the state — Tularosa High School, ACE Leadership High School in Albuquerque and Silver High.

Employees of PNM, along with PNM CEO Don Tarry and Lt. Gov. Howie Morales — both Silver High alumni — and Joaquin Garcia, assistant business manager of the union, were at the school Sept. 19 to introduce the program and talk about careers with the utility.

Four Silver High students are already enrolled in the elective course taught by Erin Brown-Meeks. Three are seniors on senior release,

PHOTO BY JUNO OGLE/SILVER CITY DAILY PRESS

Silver High School students and staff watch as Justin Donnel climbs a utility pole as part of a $1 million job training program.

meaning they have already met graduation requirements.

"They don't need this class to graduate, but they were excited about it and they came," Associate Superintendent Cindy Barris said.

Two of those seniors, Angel Macien and Brandon Kimberly, told the Daily Press the class fit with their career interests.

"I was thinking of being a lineman before this class, and when it came up, I thought it was a good opportunity," Macien said.

"I wanted to learn more about it, so I decided to take the class and then actually ended up liking it, so I want to stick with it," Kimberly said.

The students in the class are working toward a safety certification with the U.S. Occupational Safety and Health Administration that is required before becoming an apprentice in a trade.

Some of their classwork has involved building models of electrical systems, Macien said.

"We had lines going through and built it all and put batteries in it, and then got the lights going and sirens going," he said.

"It taught us more about the transformers and all that stuff," Kimberly said.

The students said they learned a lot from the presentation as well.

In addition to talking about their work, PNM linemen Brent Hall and Justin Donnel demonstrated aspects of their work such as climbing utility poles, and using bucket trucks and safety equipment. Hall also showed what can happen when Mylar balloons get caught in electric wires.

"There was a lot of stuff that we didn't know much of, and we learned a lot today," Macien said." You can tell how dangerous it is. It seems pretty fun, as long as we're safe."

"We're pretty excited to have this opportunity, the real-world experience, in the hands of our kids," Silver Schools Superintendent Will Hawkins said.

Tarry said the $1 million the company is putting into the program is an investment in the state's future — something he said he learned about from his parents, who were teachers.

"It allows the ability to be able to learn, hands on, absolutely critical skills about being linemen, keeping the power going," Tarry said. "Electricity is the lifeline of our country."

Programs such as Power Pros should also help with issues faced by the state's education system," Morales said.

"When we talk about truancy, when we talk about absenteeism, when we talk about graduation rates," the lieutenant governor said, "these are the programs right here that engage students to want to come to school, to want to learn."

NEW MEXICO ROUNDUP

Fifth-grader wins for direct-to-market essay

The New Mexico Cattle Growers' Association has announced that Gage Greeman of Silver City has been awarded the 2024 Heritage buckle in Grant County.

Greeman is a fifth-grader at Cliff Schools. In his essay on the topic of new traditions to establish in today's agriculture, Gage wrote that he would like to implement direct to market sales for his family and his neighbors in marketing their livestock.

He wants to take marketing livestock all the way to the dinner plate so ranchers will receive the margins middlemen receive today.

State Rep. Luis Terrazas presented the award to Gage, who is a son of Michelle and Ty Greeman and lives on the family ranch near Silver City.

—Clovis Livestock Market News

Taos Ski Valley hires new village administrator

TAOS — The Village of Taos Ski Valley Council has voted unanimously to hire Breck Craig as the municipality's new administrator.

Not much was revealed about Craig's background during a Sept. 13 special council meeting, except that he will — assuming he accepts the position — arrive in New Mexico from Alaska, where he is currently a senior project manager. According to Mayor Chris Stanek, Craig is a certified project management professional.

Reached by phone Sept. 17, Craig told the Taos News he's from Colorado originally and is familiar with the Taos area because his sister has lived here for 25 years.

"I'm honored and humbled and excited with the opportunity," he said, indicating he looks forward to working in a community that's highly engaged with its local government and politics.

"It's nice to have a well-informed and involved constituency," he said. "It could be challenging, but it makes sure you're doing what the people want you to do instead of following another agenda."

Craig was among three finalists competing for the position. An avid skier, he said he expects to take the reins in mid-October.

—The Taos News

State Auditor says no evidence of misuse at utility

The New Mexico Office of the State Auditor released the findings of an investigation into a troubled southern New Mexico utility on Sept. 24, concluding that there was no evidence of misuse of $5.3 million in public funds.

The New Mexico Environment Department called for multiple state agencies to take a closer look at the Camino Real Regional Utility Authority in March, alleging potential "fraud, waste and abuse" of $5.3 million awarded by the Water Trust Board in 2013.

New Mexico environmental officials requested the investigation after a series of drinking water disasters in late 2023 revealed that the utility had been sending water with "high levels of arsenic" to people living in Sunland Park and Santa Teresa for more than a year, without alerting the public.

The most recent tests show that CRRUA's drinking water arsenic levels remain within federal limits, but community trust has eroded.

The board granted the funding for the construction and operation of the Santa Teresa Arsenic Community Treatment Plant, and the allegations were that the money was not spent for the correct purpose, or went unspent entirely.

The auditor's office reviewed documents provided by the New Mexico Finance authority and the utility, according to a Sept. 24 statement. All loans and grants related to the $5.3 million were used for construction and spent between August 2015 and July 2017, the auditor's findings said.

—Source New Mexico

ENERGY TRANSFER

Sendero Midstream (Energy Transfer) – Groundwater Discharge Permit Application – Carlsbad Gas Plant

Public Notice

Sendero Midstream has submitted an application to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (NMOCD) for a groundwater discharge plan permit for their Carlsbad Plant Facility, a 53-acre facility located at 1025 Bounds Rd, Loving, NM 88256. The facility provides midstream oil and natural gas compression and processing and the does not engage in any intentional discharges.

Materials stored or used at the facility include Triethylene glycol, amines, transformer oils, slop oil, methanols, condensate, compressor oils, sanitary wastewater, and waste waters from facility operations. Average daily throughputs for the facility in 2023 include 236 million cubic feet (MMcf) of gas with 190 MMcf of residue, and an average daily production of 28,244 barrels (bbl) of liquid natural gas with 554 bbl of condensate. Megawatt (MW) cogeneration for the facility is zero. The facility produces approximately 4,192,020 gallons per year of stabilized condensate and 193,202,436 gallons per year of natural gas condensate through the natural gas compression process. Additionally, the facility produces 115,080 gallons used oil and 421,554 gallons per year of other produced fluids. The facility manages a total of approximately 268,128 gallons of various aforementioned liquid materials on site at a given time.

All waste streams on site are classified as exempt per the Resource Conservation and Recovery Act (RCRA) Subtitle C regulations listed in 40 CFR261.4(b)(5), or subsequently classified as RCRA-exempt through recycling and disposal protocols. Sendero manages, transports, and disposes of these wastes using appropriate contractors. All liquids utilized at the facility are stored in dedicated above-ground storage tanks constructed of appropriate materials. All storage tanks are verified as properly engineered and have OCD approved secondary containments.

The aquifer most likely to be affected in the event of a discharge is the Capitan Reef Aquifer, a minor aquifer encompassing the southerly regions of Eddy and Lea counties, New Mexico. The depth to groundwater for this aquifer is approximately 60 feet. The total dissolved solids concentration is approximately 3,000 milligrams per liter (mg/L).

Any interested person or persons may obtain information, submit comments, or request to be placed on a facility-specific mailing list for future notices by contacting Leigh Barr at the New Mexico OCD at 1220 South St. Francis Drive, Santa Fe, New Mexico 87505, telephone (505) 795-1722, or email LeighP.Barr@emnrd.gov. The OCD will accept comments and statements of interest regarding this discharge application and will create a facility-specific mailing list for persons who wish to receive future notices.

Sendero Midstreamha presentado una solicitud al Departamento de Energía, Minerales y Naturales de Nuevo México Departamento de Recursos de la División de Conservación de Petróleo (NMOCD) para un permiso de plan de descarga de agua subterránea para su instalación de planta de Carlsbad, una instalación de 53 acres ubicada en 1025 BoundsRd, Loving, NM 88256. La instalación proporciona compresión y procesamiento de petróleo y gas natural y no participa en ninguna Descargas intencionadas.

Los materiales almacenados o utilizados en la instalación incluyen trietilenglicol, aminas, aceites de transformadores, aceite de desecho, metanolles, condensado, aceites de compresores, aguas residuales sanitarias y aguas residuales de las instalaciones operaciones. El rendimiento diario promedio de la instalación en 2023 incluye 236 millones de pies cúbicos (MMpc) de gas con 190 MMpc/a de residuo, y una producción media diaria de 28.244 barriles (bbl) de gas natural líquido gas con 554 bblde condensado. La cogeneración de megavatios (MW) para la instalación es cero. La instalación produce aproximadamente 4,192,020 galones por año de condensado estabilizado y 193,202,436 galones por año de condensado de gas natural a través del proceso de compresión de gas natural. Además, el la instalaciónproduce 115,080 galones de aceite usado y 421,554 galones por año de otros fluidos producidos. La instalación maneja un total de aproximadamente 268,128 galones de varios materiales líquidos antes mencionados en sitio en un momento dado.

Todos los flujos de residuos en el sitio están clasificados como exentos según la Ley de Conservación y Recuperación de Recursos (RCRA) Las regulaciones del subtítulo C enumeradas en 40 CFR261.4(b)(5), o posteriormente clasificadas como exento de RCRA a través de protocolos de reciclaje y eliminación. Sendero gestiona, transporta y dispone de estos residuos utilizando contratistas adecuados. Todos los líquidos utilizados en la instalación se almacenan en un espacio dedicado a la superficie tanques de almacenamiento construidos con materiales apropiados. Todos los tanques de almacenamiento se verifican correctamente diseñado y tener contenciones secundarias aprobadas por OCD.

El acuífero con mayor probabilidad de verse afectado en caso de descarga es el Acuífero del Arrecife Capitán, un acuífero menor acuífero que abarca las regiones meridionales de los condados de Eddy y Lea, Nuevo México. La profundidad a el agua subterránea de este acuífero es de aproximadamente 60 pies. La concentración total de sólidos disueltos es aproximadamente 3.000 miligramos por litro (mg/L).

Cualquier persona o personas interesadas pueden obtener información, presentar comentarios o solicitar que se le una lista de correo específica de la instalación para avisos futuros comunicándose con Leigh Barr en el OCD de Nuevo México al 1220 South St. Francis Drive, Santa Fe, Nuevo México 87505, teléfono (505) 795-1722, o correo electrónico LeighP.Barr@emnrd.gov. La OCD aceptará comentarios y declaraciones de interés al respectsolicitud de alta y creará una lista de correo específica de la instalación para las personas que deseen recibir avisos.

ER-ERM13310

HELP WANTED

LEGISLATIVE DIRECTOR POSITION

The NM Legislative Education Study Committee is hiring a director. For job posting and application procedure, please visit: www.nmlegis.gov/Entity/LESC/Employment. Application deadline: October 9, 2024.

BUSINESS & SERVICES

Tree Services

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NOTICE OF HEARING REGARDING APPLICATION FOR A TRANSFER OF LOCATION ONLY OF RESTAURANT LIQUOR LICENSE NO RES 000822

Notice is hereby given that a public hearing will be held by the City of Carlsbad, New Mexico in the Council Chambers of the Municipal Annex, 114 S Halagueno Street, Carlsbad, NM at 6:00 p.m. on November 12 2024.

The purpose of the hearing will be to accept public comment on whether the City Council should approve or disapprove an application for Transfer of Location Only of Restaurant Liquor License No RES-000822.

Applicant: Rosys Mexican Restaurant, LLC
D/B/A: Rosys Mexican Restaurant
Address: 1511 S Canal Street, Carlsbad, NM 88220

Only questions relating to the Liquor License will be considered.

Written comments regarding this matter maybe directed to the office of the City Administrator, City of Carlsbad, 101 N. Halagueno Street, PO Box 1569, Carlsbad, New Mexico, 88220, or by email to oeramirez@cityofcarlsbadnm.com and will be accepted until 5:00 p.m. on November 5, 2024.

/s/Wendy Austin
City Administrator

16280-Published in the Carlsbad Current-Argus on Oct 3 and Oct 17, 2024.

NOTIFICACIÓN DE SOLICITUD DE PERMISO DE CALIDAD DEL AIRE

Sendero Carlsbad Midstream, LLC anuncia la presentación de su solicitud al Departamento de Medio Ambiente de Nuevo México para obtener un permiso de calidad del aire para la construcción de su planta de procesamiento de gas natural. La fecha prevista para la presentación de la solicitud a la Oficina de Calidad del Aire es el 27 de septiembre de 2024.

La ubicación exacta de la instalación propuesta, conocida como Planta Sendero Carlsbad, es en 1025 Bounds Road, Loving, NM 88256, latitud 32 grados, 15 minutos, 44 segundos y longitud -104 grados, 7 minutos, 20 segundos. La ubicación aproximada de esta instalación es de 1.7 millas al oeste-suroeste de la intersección de la autopista US 285 y Higby Hole Road en el condado de Eddy.

La construcción propuesta consiste en la adición de un segundo tren de procesamiento de gas natural en la instalación existente autorizada.

Las cantidades máximas estimadas de cualquier contaminante atmosférico regulado serán las siguientes en libras por hora (pph) y toneladas por año (tpy) y podrían cambiar ligeramente en el transcurso de la revisión del Departamento:

Contaminante:	Libras por hora	Toneladas por año
Materia Particulada (PM10)	13.65	26.77
Materia Particulada (PM2.5)	10.77	22.46
Dióxido de azufre (SO2)	60.93	244.43
Óxidos de nitrógeno (NOx)	222.04	164.22
Monóxido de carbono (CO)	436.46	249.50
Compuestos orgánicos volátiles (VOC)	366.58	187.80
Suma total de todos los contaminantes atmosféricos peligrosos (HAPs)	27.65	41.23
Emisiones de gases de efecto invernadero como total CO_2e	n/a	355,124.8

Los horarios estándar y máximos de funcionamiento de la instalación serán de 24 horas al día, 7 días a la semana y un máximo de 52 semanas al año.

El propietario y/o operador de la Instalación es: Sendero Carlsbad Midstream, LLC; 2564 Pecos Hwy, Carlsbad, NM, 88220.

Si tiene algún comentario sobre la construcción o operación de esta instalación, y desea que sus comentarios se realicen como parte del proceso de revisión del permiso, debe enviar sus comentarios por escrito a esta dirección: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Otros comentarios y preguntas pueden presentarse verbalmente. (505) 476-4300; +1 800 224-7009.

Por favor, haga referencia al nombre de la empresa y al nombre del emplazamiento, o envíe una copia de este aviso junto con sus comentarios, ya que es posible que el Departamento aún no haya recibido la solicitud de permiso. Por favor, incluya una dirección de correo legible con sus comentarios. En cuanto el Departamento haya realizado una revisión preliminar de la solicitud y de sus repercusiones sobre la calidad del aire, el aviso del Departamento se publicará en la sección legal de un periódico de circulación cercana a la ubicación de la instalación.

Puede encontrar información general sobre la calidad del aire y el proceso de concesión de permisos, así como enlaces a la normativa, en la página web de la Oficina de Calidad del Aire: www.env.nm.gov/air-quality/permitting-section-home-page/. La regulación que trata con la participación del público en el proceso de revisión de permisos es la 20.2.72.206 NMAC.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Aviso de no discriminación
NMED no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo requerido por las leyes y reglamentos aplicables. NMED es responsable de la coordinación de los esfuerzos de cumplimiento y la recepción de consultas relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, incluyendo el Título VI de la Ley de Derechos Civiles de 1964, en su versión modificada; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975, el Título IX de las Enmiendas de Educación de 1972, y la Sección 13 de las Enmiendas de la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene alguna pregunta sobre este aviso o cualquiera de los programas, políticas o procedimientos de no discriminación de NMED, o si cree que ha sido discriminado con respecto a un programa o actividad de NMED, puede ponerse en contacto con: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. También puede visitar nuestro sitio web https://www.env.nm.gov/non-employee-discrimination-complaint-page/ para saber cómo y dónde presentar una denuncia por discriminación.

NOTICE OF AIR QUALITY PERMIT APPLICATION

Sendero Carlsbad Midstream, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the construction of its natural gas processing facility. The expected date of application submittal to the Air Quality Bureau is September 27, 2024.

The exact location for the proposed facility, known as Sendero Carlsbad Plant, is at 1025 Bounds Road, Loving, NM 88256, latitude 32 deg, 15 min, 44 sec and longitude -104 deg, 7 min, 20 sec. The approximate location of this facility is 1.7 miles west-southwest of the intersection of US Highway 285 and Higby Hole Road in Eddy county.

The proposed construction consists of the addition of a second natural gas processing train at the existing authorized facility.

The estimated maximum quantities of any regulated air contaminant will be as follows in pounds per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	13.65	26.77
$PM_{2.5}$	10.77	22.46
Sulfur Dioxide (SO_2)	60.93	244.43
Nitrogen Oxides (NO_x)	222.04	164.22
Carbon Monoxide (CO)	436.46	249.50
Volatile Organic Compounds (VOC)	366.58	187.80
Total sum of all Hazardous Air Pollutants (HAPs)	27.65	41.23
Green House Gas Emissions as Total CO_2e	n/a	355,124.8

The standard and maximum operating schedules of the facility will be 24 hours per day, 7 days per week, and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is: Sendero Carlsbad Midstream, LLC; 2564 Pecos Hwy, Carlsbad, NM, 88220.

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and site name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

General information about air quality and the permitting process, and links to the regulations can be found at the Air Quality Bureau's website: www.env.nm.gov/air-quality/permitting-section-home-page/. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

ER-ERM16530

NOTICE OF ADOPTED ORDINANCE

TO WHOM IT MAY CONCERN:
Notice is hereby given that at its regular meeting at the Municipal Annex at 6:30 p.m. on Tuesday, September 24, 2024 the Carlsbad City Council adopted the following ordinance:

ORDINANCE NO. 2024-23

AN ORDINANCE CREATING SECTION 22-7 BANNING THE DISTRIBUTION OF SINGLE-USE PLASTIC CARRYOUT BAGS; ESTABLISHING IMPLEMENTATION BEGINNING FEBRUARY 1, 2025; AND MAKING OTHER SUCH CHANGES AS NECESSARY TO IMPLEMENT THE PURPOSE OF THIS ORDINANCE AND TO PROMOTE THE USE OF REUSABLE BAGS

A copy of the ordinance is available to all interested persons during normal and regular business hours at the Municipal Building, 101 N. Halagueno Street, Carlsbad, NM.

Copies of the ordinance will be available at a fee of fifty (50) cents per page or on the City of Carlsbad official website: www.cityofcarlsbadnm.com

16460-Published in the Carlsbad Current-Argus on Oct 3, 2024.

STATE OF NEW MEXICO
EDDY COUNTY
FIFTH JUDICIAL
DISTRICT COURT

PENASCO SERVICES, LLC
V.
BRANBO SERVICES, LLC

No. D-503-CV-2022-00823
Judge Anne Marie C. Lewis

NOTICE OF PENDENCY OF ACTION

THE STATE OF NEW MEXICO TO: BRANBO SERVICES, LLC

You are hereby notified that on November 14, 2022, a lawsuit was filed against you in the Fifth Judicial District Court of Eddy County, New Mexico. The lawsuit alleges you breached your contract with the Plaintiff, and you owe the Plaintiff money as a result of your breach. You must file an answer or other responsive pleading with the Fifth Judicial District Court of Eddy County, New Mexico, located at 102 N. Canal St. in Carlsbad, within thirty (30) days of the publication of this notice if you wish to contest or object to Plaintiffs Complaint for Breach of Contract and Money Due. You must also serve the Answer or the responsive pleading on the attorney for the Plaintiff, Lane T. Martin, of the Martin, Dugan & Martin Law firm at the address stated below. A failure to file and serve an Answer or other responsive pleading may result in the Court entering a judgment against you,

Witness the hand and seal of the District Court of Eddy County, New Mexico this 26 day of September 2024.

Martha Huereque
Fifth Judicial District Court

By: /s/Lasey Garcia, Deputy

Martin, Dugan & Martin

By: /s/Lane T. Martin
P.O. Box 2168
Carlsbad, New Mexico 88221-2168
(575) 887-3528
Fax (575) 887-2136

Published in the Carlsbad Current-Argus on Oct 3, Oct 10, and Oct 17, 2024.

NOTICE OF FORECLOSURE SALE
STATE OF NEW MEXICO
COUNTY OF EDDY
FIFTH JUDICIAL DISTRICT

Case No.: D-503-CV-2023-00438

WELLS FARGO BANK, N.A., Plaintiff,
vs.
ZACHARIAH CORONA; ANTHONY CORONA; UNKNOWN HEIRS, DEVISEES OR LEGATEES OF LUPE C CORONA, DECEASED; ZULEMA CORONA; ASHLEY CORONA; AIMEE CORONA; Defendants.

PLEASE TAKE NOTICE that the above-entitled Court, having appointed me or my designee as Special Master in this matter with the power to sell, has ordered me to sell the real property (the "Property") situated in Eddy County, New Mexico, commonly known as 2103 Mckinley St, Carlsbad, NM 88220, and more particularly described as follows: LOT 4, BLOCK 2, MOUNTAIN VIEW ESTATES NO. 1, A SUBDIVISION IN THE NORTH HALF OF THE SW 1 /4 OF SECTION 13, TOWNSHIP 22 SOUTH, RANGE 26 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO, AS SHOWN ON THE OFFICIAL PLAT THEREOF ON FILE IN THE OFFICE OF THE COUNTY CLERK OF EDDY COUNTY, NEW MEXICO. Including any mobile home, and any and all improvements, fixtures, and attachments. If there is a conflict between the legal description and the street address, the legal description shall control. The sale is to begin at 12:00 PM on November 12, 2024, Outside the front entrance of the Eddy County Courthouse, 102 North Canal, City of Carlsbad, County of Eddy, State of New Mexico, at which time I will sell to the highest and best bidder for cash, in lawful currency of the United States of America, the Property to pay expenses of sale, and to satisfy the foreclosure Judgment granted on August 28, 2024, in the total amount of $43,303.06, with interest at a variable rate per annum from July 3, 2024 through the date of the sale. The sale is subject to the entry of an Order by this Court approving the sale. NOTICE IS FURTHER GIVEN that the real property and improvements concerned with herein will be sold subject to any and all patent reservations, easements, and all taxes and utility liens, special assessments and taxes that may be due. Wells Fargo Bank, N.A., its attorneys, and the undersigned Special Master, disclaim all responsibility for, and the purchaser at the sale takes the property "as is," in its present condition, subject to the valuation of the property by the County Assessor as real or personal property, affixture of any mobile or manufactured home to the land, deactivation of title to a mobile or manufactured home on the property, if any, environmental contamination on the property, if any, and zoning violations concerning the property, if any. NOTICE IS FURTHER GIVEN that the purchaser at such sale shall take title to the above described real property subject to a one (1) month right of redemption. PROSPECTIVE PURCHASERS AT SALE ARE ADVISED TO MAKE THEIR OWN EXAMINATION OF THE TITLE AND THE CONDITION OF THE PROPERTY AND TO CONSULT THEIR OWN ATTORNEY BEFORE BIDDING.

By: Margaret Lake
201 Eubank NE Suite #A1, Albuquerque, NM 87123
1 NM-23-955070-JUD IDSPub #0224624

16380-Published in the Carlsbad Current-Argus on Oct 3, Oct 10, Oct 17 and Oct 24, 2024.

NOTICE OF HEARING

Members of the public are invited to provide comments on hearings for the issuance of or transfers of liquor licenses as outlined below. This Hearing will be conducted telephonically via Microsoft Teams. If you wish to provide a comment prior to the hearing for this Application, please contact Hearing Officer, Desirae Griego who can be contacted by email at Desirae.Griego@rld.nm.gov. To attend the public hearing telephonically please call 1-505-312-4308 and use this designated Phone Conference ID: 268 290 149# on the date and time of the hearing.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Dispenser Liquor License #DIS-000182 to New Mexico Company Operations LLC, doing business as Loving Shell, to be located at 100 N 8th St, Loving, NM 88256.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Retailer Liquor License #RET-000063 to New Mexico Company Operations LLC, doing business as Northgate Shell, to be located at 1311 W Pierce, Carlsbad, NM 88220.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Dispenser Liquor License #DIS-000233 to New Mexico Company Operations LLC, doing business as South Y Shell, to be located at 3024 National Parks HWY, Carlsbad, NM 88220.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Dispenser Liquor License #DIS-000193 to New Mexico Company Operations LLC, doing business as Church St Shell, to be located at 713 N Canal St, Carlsbad, NM 88220.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Dispenser Liquor License #DIS-000197 to New Mexico Company Operations LLC, doing business as Fiesta Shell, to be located at 1725 S Canal St, Carlsbad, NM 88220.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Dispenser Liquor License #DIS-000036 to New Mexico Company Operations LLC, doing business as Windmill Shell, to be located at 3628 National Parks Highway, Carlsbad, NM 88220.

A hearing will be held on October 8, 2024, at 11:00 a.m. regarding an Application for a Transfer of Ownership of Dispenser Liquor License #DIS-000214 to New Mexico Company Operations LLC, doing business as La Huerta Shell, to be located at 1401 N Canal St, Carlsbad, NM 88220.

16390-Published in the Carlsbad Current-Argus on Oct 3, 2024.

Mountain West finalizes addition of UTEP

FIELD LEVEL MEDIA

PROVIDED BY UTEP ATHLETICS

University of Texas El Paso quarterback Skyler Locklear. The Miners have agreed to join the Mountain West Conference.

The Mountain West Conference added UTEP as its seventh full-time member on Tuesday.

The Miners of El Paso, Texas, will begin competition in all sports in the 2026-27 academic year. They have been members of Conference USA since 2005.

"There's no doubt this will be better for our student-athletes, our fans, and for El Paso," UTEP president Heather Wilson said. "We look forward to rekindling former rivalries and welcoming teams and their fans to El Paso."

The Mountain West is rebuilding following the recent departures of five schools to the Pac-12: Boise State, Fresno State, San Diego State, Colorado State and Utah State.

That left the MWC with six full-time members -- Air Force, Nevada, New Mexico, San Jose State, UNLV and Wyoming -- with Hawaii as a partial (non-football) member. To be recognized as a conference under NCAA rules, the league needed to add two more schools by 2028.

"We are excited to welcome The University of Texas at El Paso to the Mountain West as the next step in our strategic membership initiatives," MWC commissioner Gloria Nevarez said. "The addition of UTEP restores historic rivalries with several of our member institutions within the geographic footprint and provides valuable exposure in the great state of Texas. We welcome and look forward to competing against the student-athletes of UTEP."

Bringing aboard UTEP still leaves the Mountain West one member short. Earlier reports said the league has made a verbal offer to Texas State, which reportedly also has drawn interest from the Pac-12.

The Miners' football program (0-4, 0-1 CUSA) has been to 15 bowl games, most recently the New Mexico Bowl in 2021. The men's basketball program has been to the NCAA Tournament 17 times, including a national championship in 1966.

STATE OF NEW MEXICO
COUNTY OF EDDY
FIFTH JUDICIAL DISTRICT COURT

D-503-CV-2024-00771

PAULA F. JACKSON
WEST BEND ENERGY PARTNERS III, LLC and MILESTONE OIL, LLC
PLAINTIFFS,
vs.
THE UNKNOWN HEIRS OF THE FOLLOWING DECEASED PERSONS: ROBERT B. MEE, a.k.a. ROBERT BRUCE MEE, a.k.a. ROBERT BRUCE MEE, JR., and CHARLEEN F. MEE, a.k.a. CHARLEEN FARLEY MEE
and
ANY AND ALL UNKNOWN PERSONS WHO MAY CLAIM A LIEN, INTEREST OR TITLE IN THE PREMISES ADVERSE TO THE PLAINTIFFS,
DEFENDANTS.

SUMMONS AND NOTICE OF SUIT PENDING

TO: DEFENDANTS THE UNKNOWN HEIRS OF THE FOLLOWING DECEASED PERSONS: ROBERT B. MEE, a.k.a. ROBERT BRUCE MEE, a.k.a. ROBERT BRUCE MEE, JR., and CHARLEEN F. MEE, a.k.a. CHARLEEN FARLEY MEE, and ANY AND ALL UNKNOWN PERSONS WHO MAY CLAIM A LIEN, INTEREST, OR TITLE IN THE PREMISES ADVERSE TO THE PLAINTIFFS

GREETINGS:
You and each of you are notified that there has been filed in the District Court of Eddy County, New Mexico, the above entitled cause of action wherein Paula F. Jackson, West Bend Energy Partners III, LLC, and Milestone Oil, LLC are Plaintiffs and you are Defendants. The objects and purposes of said suit are to quiet title to Plaintiffs undivided royalty interests in all the oil, gas, and other minerals in and under the property in Eddy County, New Mexico described as follows:

Township 22 South, Range 31 East, N.M.P.M.
Section 24: ALL

containing 640 acres, more or less, and issued by the United States Bureau of Land Management on August 1, 1975, under the serial number NMNM 025876;

hereinafter referred to as the Subject Property. The Subject Property is located approximately 0.64 miles south-southwest from the intersection of Wipp Road and Mills Ranch Road.

You, and each of you, are further notified that unless you enter your appearance within thirty (30) days after the date of last publication pursuant to NMRA 1-004(B)(2) and file a responsive pleading or motion within such time, judgment by default may be rendered in said cause against each of you so failing to appear and the Plaintiffs will apply to the Court for the relief demanded in this Complaint to Quiet Title.

The name of Plaintiffs attorneys is Hinkle Shanor LLP (Jared A. Hembree and Melinda A. Branin), whose address is P. O. Box 10, Roswell, New Mexico 88202, and whose phone number is (575) 6226510.

WITNESS my hand and Seal of the Court this 27 day of September, 2024.

MARTHA HUEREQUE
CLERK OF THE DISTRICT COURT

By: /s/Deputy Clerk

16350-Published in the Carlsbad Current-Argus on Oct 3, Oct 10, Oct 17, and Oct 24, 2024.

AFFIDAVIT OF PUBLICATION

CARLSBAD CURRENT-ARGUS
PO BOX 507
HUTCHINSON, KS 67504-0507

STATE OF NEW MEXICO }
COUNTY OF EDDY } SS

Account Number:	1183
Ad Number:	16530
Description:	Sendero Air Qual Permit ENG
Ad Cost:	$224.46

Nicole Bitton, being first duly sworn, says:

That she is the Agent of the the Carlsbad Current-Argus, a Weekly newspaper of general circulation, printed and published in Carlsbad, Eddy County, New Mexico; that the publication, a copy of which is attached hereto, was published in said newspaper on the following dates:

October 3, 2024

That said newspaper was regularly issued and circulated on those dates.
SIGNED:

N Bitton

Agent

Subscribed to and sworn to me this 3rd day of October 2024.

Latisha Romine

Notary Public
State of NM County Eddy
ID#: 1076338
My commission expires: 5/12/27

LATISHA ROMINE
Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

MALISSA PARRISH
APEX COMPANIES LLC
2121 MIDWAY RD, STE 100
CARROLLTON, TX 75006

NOTICE OF AIR QUALITY PERMIT APPLICATION

Sendero Carlsbad Midstream, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the construction of its natural gas processing facility. The expected date of application submittal to the Air Quality Bureau is September 27, 2024.

The exact location for the proposed facility, known as Sendero Carlsbad Plant, is at 1025 Bounds Road, Loving, NM 88256, latitude 32 deg, 15 min, 44 sec and longitude -104 deg, 7 min, 20 sec. The approximate location of this facility is 1.7 miles west-southwest of the intersection of US Highway 285 and Higby Hole Road in Eddy county.

The proposed construction consists of the addition of a second natural gas processing train at the existing authorized facility.

The estimated maximum quantities of any regulated air contaminant will be as follows in pounds per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	13.65	26.77
$PM_{2.5}$	10.77	22.46
Sulfur Dioxide (SO_2)	60.93	244.43
Nitrogen Oxides (NO_x)	222.04	164.22
Carbon Monoxide (CO)	436.46	249.50
Volatile Organic Compounds (VOC)	366.58	187.80
Total sum of all Hazardous Air Pollutants (HAPs)	27.65	41.23
Green House Gas Emissions as Total CO_2e	n/a	355,124.8

The standard and maximum operating schedules of the facility will be 24 hours per day, 7 days per week, and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is: Sendero Carlsbad Midstream, LLC; 2564 Pecos Hwy, Carlsbad, NM, 88220.

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and site name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

General information about air quality and the permitting process, and links to the regulations can be found at the Air Quality Bureau's website: www.env.nm.gov/air-quality/permitting-section-home-page/. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC.

Atención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuniquese con esa oficina al teléfono 505-629-3395.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

ER-ER4416530

AFFIDAVIT OF PUBLICATION

CARLSBAD CURRENT-ARGUS
PO BOX 507
HUTCHINSON, KS 67504-0507

STATE OF NEW MEXICO } SS
COUNTY OF EDDY }

Account Number:	1183
Ad Number:	16540
Description:	Sendero Air Qual Permit ESP
Ad Cost:	$248.08

Nicole Bitton, being first duly sworn, says:

That she is the Agent of the the Carlsbad Current-Argus, a Weekly newspaper of general circulation, printed and published in Carlsbad, Eddy County, New Mexico; that the publication, a copy of which is attached hereto, was published in said newspaper on the following dates:

October 3, 2024

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SIGNED:

N Bitton

Agent

Subscribed to and sworn to me this 3rd day of October 2024.

Latisha Romine

Notary Public
State of NM County Eddy
ID#: 1076338
My commission expires: 5/12/27

LATISHA ROMINE
Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

MALISSA PARRISH
APEX COMPANIES LLC
2121 MIDWAY RD, STE 100
CARROLLTON, TX 75006

NOTIFICACIÓN DE SOLICITUD DE PERMISO DE CALIDAD DEL AIRE

Sendero Carlsbad Midstream, LLC anuncia la presentación de su solicitud al Departamento de Medio Ambiente de Nuevo México para obtener un permiso de calidad del aire para la construcción de su planta de procesamiento de gas natural. La fecha prevista para la presentación de la solicitud a la Oficina de Calidad del Aire es el 27 de septiembre de 2024.

La ubicación exacta de la instalación propuesta, conocida como Planta Sendero Carlsbad, es en 1025 Bounds Road, Loving, NM 88256, latitud 32 grados, 15 minutos, 44 segundos y longitud -104 grados, 7 minutos, 20 segundos. La ubicación aproximada de esta instalación es de 1.7 millas al oeste-suroeste de la intersección de la autopista US 285 y Higby Hole Road en el condado de Eddy.

La construcción propuesta consiste en la adición de un segundo tren de procesamiento de gas natural en la instalación existente autorizada.

Las cantidades máximas estimadas de cualquier contaminante atmosférico regulado serán las siguientes en libras por hora (pph) y toneladas por año (tpy) y podrían cambiar ligeramente en el transcurso de la revisión del Departamento:

Contaminante:	Libras por hora	Toneladas por año
Materia Particulada (PM10)	13.65	26.77
Materia Particulada (PM2.5)	10.77	22.46
Dióxido de azufre (SO2)	60.93	244.43
Oxidos de nitrógeno (NOx)	222.04	164.22
Monóxido de carbono (CO)	436.46	249.50
Compuestos orgánicos volátiles (VOC)	366.58	187.80
Suma total de todos los contaminantes atmosféricos peligrosos (HAPs)	27.65	41.23
Emisiones de gases de efecto invernadero como total CO_2e	n/a	355,124.8

Los horarios estándar y máximos de funcionamiento de la instalación serán de 24 horas al día, 7 días a la semana y un máximo de 52 semanas al año.

El propietario y/o operador de la Instalación es: Sendero Carlsbad Midstream, LLC; 2564 Pecos Hwy, Carlsbad, NM, 88220.

Si tiene algún comentario sobre la construcción o operación de esta instalación, y desea que sus comentarios se realicen como parte del proceso de revisión del permiso, debe enviar sus comentarios por escrito a esta dirección: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Otros comentarios y preguntas pueden presentarse verbalmente. (505) 476-4300; +1 800 224-7009.

Por favor, haga referencia al nombre de la empresa y al nombre del emplazamiento, o envíe una copia de este aviso junto con sus comentarios, ya que es posible que el Departamento aún no haya recibido la solicitud de permiso. Por favor, incluya una dirección de correo legible con sus comentarios. En cuanto el Departamento haya realizado una revisión preliminar de la solicitud y de sus repercusiones sobre la calidad del aire, el aviso del Departamento se publicará en la sección legal de un periódico de circulación cercana a la ubicación de la instalación.

Puede encontrar información general sobre la calidad del aire y el proceso de concesión de permisos, así como enlaces a la normativa, en la página web de la Oficina de Calidad del Aire: www.env.nm.gov/air-quality/permitting-section-home-page/. La regulación que trata con la participación del público en el proceso de revisión de permisos es la 20.2.72.206 NMAC.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Aviso de no discriminación

NMED no discrimina por motivos de raza, color, origen nacional, discapacidad, edad o sexo en la administración de sus programas o actividades, según lo requerido por las leyes y reglamentos aplicables. NMED es responsable de la coordinación de los esfuerzos de cumplimiento y la recepción de consultas relativas a los requisitos de no discriminación implementados por 40 C.F.R. Parte 7, incluyendo el Título VI de la Ley de Derechos Civiles de 1964, en su versión modificada; la Sección 504 de la Ley de Rehabilitación de 1973; la Ley de Discriminación por Edad de 1975, el Título IX de las Enmiendas de Educación de 1972, y la Sección 13 de las Enmiendas de la Ley Federal de Control de la Contaminación del Agua de 1972. Si tiene alguna pregunta sobre este aviso o cualquiera de los programas, políticas o procedimientos de no discriminación de NMED, o si cree que ha sido discriminado con respecto a un programa o actividad de NMED, puede ponerse en contacto con: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. También puede visitar nuestro sitio web https://www.env.nm.gov/non-employee-discrimination-complaint-page/ para saber cómo y dónde presentar una denuncia por discriminación.

PUBLIC SERVICE ANNOUNCEMENT

Sendero Carlsbad Midstream, LLC is applying for an air quality permit for the construction of a second natural gas processing train at its existing Sendero Carlsbad Plant, at 1025 Bounds Road in Loving. Public notices have been posted and are available for viewing at the Plant entrance and the following locations: the Carlsbad Public Library, the Loving City Hall & Police Department, and the Family Dollar at 112 South 8th Street in Loving.

If you have any comments about the construction or operation of this facility, you may submit your comments in writing to: Permit Programs Manager, New Mexico Environment Department, Air Quality Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505-1816. You may also call the Department at (505) 476-4300 or 1-800-224-7009.

Submittal of Public Service Announcement – Certification

I, Rebecca Beatty, the undersigned, certify that on 9/27/2024, submitted a public service announcement to Carlsbad Radio that serves the Village of Loving, Eddy County, New Mexico, in which the source is or is proposed to be located and that Carlsbad Radio responded that it would air the announcement.

Signed this 27th day of September 2024,

Signature — Date: 9/27/2024

Rebecca Beatty
Printed Name

Consultant
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Dallas, TX 75225
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $1.29
Total Postage and Fees $10.24
0160 16
Postmark Here
SEP 27 2024
09/27/2024
Sent To
Property Owner
6125 Luther Ln #188
Dallas, TX 75225
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions
9589 0710 5270 1342 2283 26

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Atlanta, KS 67008
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $1.29
Total Postage and Fees $10.24
0160 16
Postmark Here
SEP 27 2024
09/27/2024
Sent To
Property Owner
PO Box 92
Atlanta, KS 67008-0092
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions
9589 0710 5270 1342 2283 19

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For delivery information, visit our website at www.usps.com®.
Dallas, TX 75240
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $1.01
Total Postage and Fees $9.96
0160 16
Postmark Here
09/27/2024
Sent To
Property Owner
5400 LBJ Freeway, Ste 1500
Dallas, TX 75240
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions
9589 0710 5270 1342 2283 33

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Dallas, TX 75201
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $1.57
Total Postage and Fees $10.52
0160 16
Postmark Here
09/27/2024
Sent To
Property Owner
3100 McKinnon St, Ste 800
Dallas, TX 75201-7014
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions
9589 0710 5270 1342 2283 64

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Loving, NM 88256
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $1.29
Total Postage and Fees $10.24
0160 16
Postmark Here
SEP 27 2024
09/27/2024
Sent To
Property Owner
PO Box 597
Loving, NM 88256-0597
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions
9589 0710 5270 1342 2283 02

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For delivery information, visit our website at www.usps.com®.
Bryan, TX 77802
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $1.29
Total Postage and Fees $10.24
0160 16
Postmark Here
SEP 27 2024
TX 75160
09/27/2024
Sent To
Property Owner c/o Striegler, Harvey
2505 E Villa Maria Rd, Apt 111
Bryan, TX 77802
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions
9589 0710 5270 1342 2283 71

9589 0710 5270 2394 6194 45

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Santa Fe, NM 87504
OFFICIAL USE

Certified Mail Fee $ $4.85	0160
Extra Services & Fees (check box, add fee as appropriate) $4.10	16
☐ Return Receipt (hardcopy) $ $0.00	Postmark Here
☐ Return Receipt (electronic) $ $0.00	SEP 27 2024
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $ $1.29	09/27/2024
Total Postage and Fees $ $10.24	

Sent To: Property Owner
310 Old Santa Fe Trail
Santa Fe, NM 87504 87501

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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Loving, NM 88256
OFFICIAL USE

Certified Mail Fee $ $4.85	0160
Extra Services & Fees (check box, add fee as appropriate) $4.10	16
☐ Return Receipt (hardcopy) $ $0.00	Postmark Here
☐ Return Receipt (electronic) $ $0.00	
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $ $0.73	09/27/2024
Total Postage and Fees $9.68	

Sent To: Property Owner
151 W Ogden Rd
Loving, NM 88256

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 2394 6194 69

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Houston, TX 77002
OFFICIAL USE

Certified Mail Fee $ $4.85	0160
Extra Services & Fees (check box, add fee as appropriate) $4.10	16
☐ Return Receipt (hardcopy) $ $0.00	Postmark Here
☐ Return Receipt (electronic) $ $0.00	SEP 27 2024
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $ $0.00	
Postage $ $1.29	09/27/2024
Total Postage and Fees $10.24	

Sent To: Property Owner
910 Louisiana St
Houston, TX 77002

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 2394 6194 52

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For delivery information, visit our website at www.usps.com®.

Carlsbad, NM 88220
OFFICIAL USE

Certified Mail Fee $ $4.85	0160
Extra Services & Fees (check box, add fee as appropriate) $4.10	16
☐ Return Receipt (hardcopy) $ $0.00	Postmark Here
☐ Return Receipt (electronic) $ $0.00	
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $ $1.29	09/27/2024
Total Postage and Fees $10.24	

Sent To: Property Owner
603 Elora Dr
Carlsbad, NM 88220

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 1342 2283 40

U.S. Postal Service™
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Carlsbad, NM 88220
OFFICIAL USE

Certified Mail Fee $ $4.85	0160
Extra Services & Fees (check box, add fee as appropriate) $4.10	16
☐ Return Receipt (hardcopy) $ $0.00	Postmark Here
☐ Return Receipt (electronic) $ $0.00	SEP 27 2024
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $ $1.29	09/27/2024
Total Postage and Fees $10.24	

Sent To: Property Owner
2302 Forehand Rd
Carlsbad, NM 88220

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 1342 2283 57

U.S. Postal Service™
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Domestic Mail Only

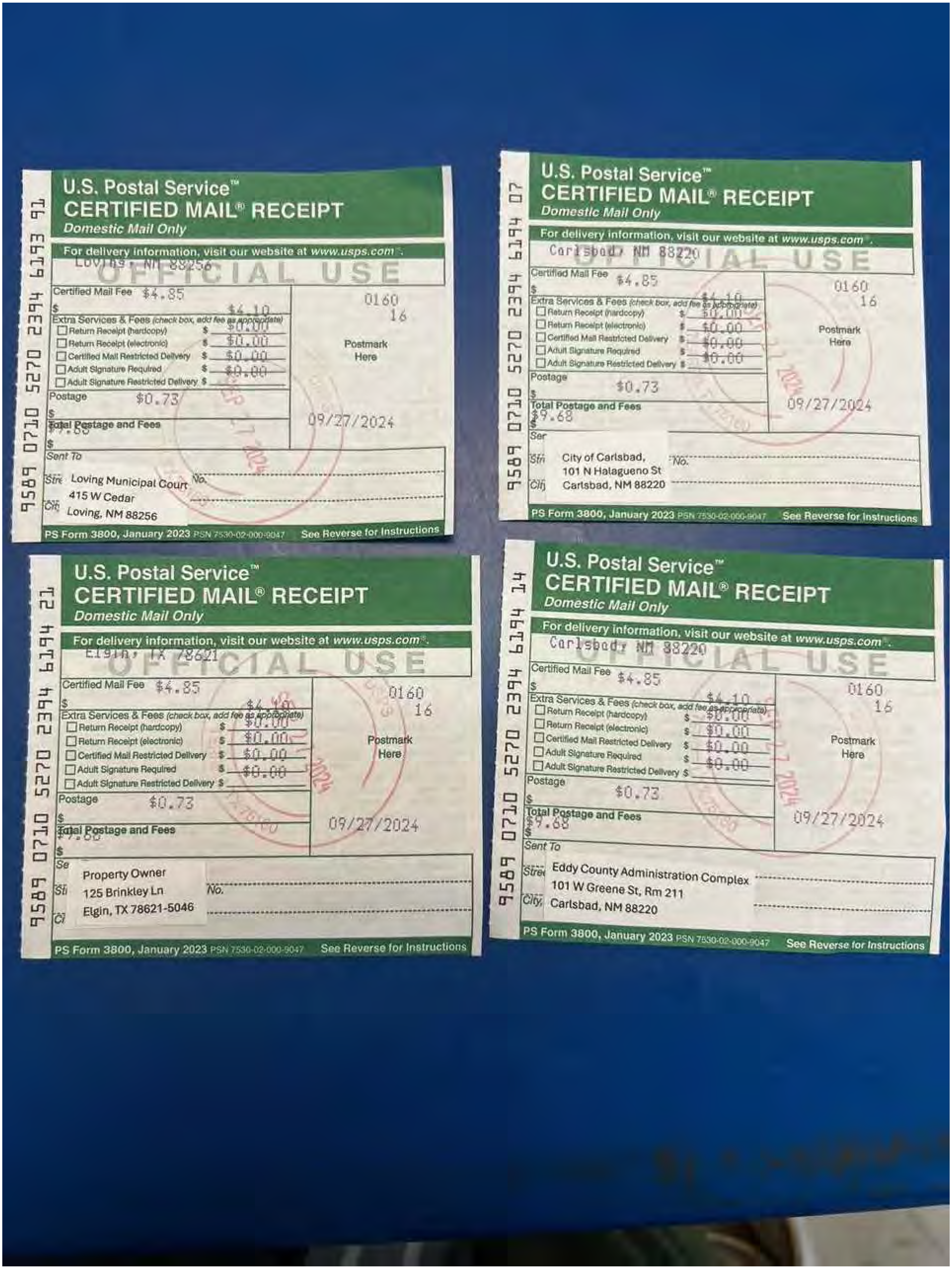
For delivery information, visit our website at www.usps.com®.

Chicago, IL 60614
OFFICIAL USE

Certified Mail Fee $ $4.85	0160
Extra Services & Fees (check box, add fee as appropriate) $4.10	16
☐ Return Receipt (hardcopy) $ $0.00	Postmark Here
☐ Return Receipt (electronic) $ $0.00	SEP 27 2024
☐ Certified Mail Restricted Delivery $ $0.00	
☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $ $1.29	09/27/2024
Total Postage and Fees $10.24	

Sent To: Property Owner
1005 W Webster Ave #4W
Chicago, IL 60614-3502

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions



9589 0710 5270 2394 6193 91

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Loving, NM 88256
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $9.68
0160
16
Postmark Here
09/27/2024
Sent To
Loving Municipal Court
415 W Cedar
Loving, NM 88256
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 2394 6194 07

U.S. Postal Service™
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For delivery information, visit our website at www.usps.com®.
Carlsbad, NM 88220
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $9.68
0160
16
Postmark Here
09/27/2024
City of Carlsbad,
101 N Halagueno St
Carlsbad, NM 88220
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 2394 6194 21

U.S. Postal Service™
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Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Elgin, TX 78621
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $9.68
0160
16
Postmark Here
09/27/2024
Property Owner
125 Brinkley Ln
Elgin, TX 78621-5046
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 2394 6194 14

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Carlsbad, NM 88220
OFFICIAL USE
Certified Mail Fee $4.85
Extra Services & Fees (check box, add fee as appropriate) $4.10
☐ Return Receipt (hardcopy) $ $0.00
☐ Return Receipt (electronic) $ $0.00
☐ Certified Mail Restricted Delivery $ $0.00
☐ Adult Signature Required $ $0.00
☐ Adult Signature Restricted Delivery $
Postage $0.73
Total Postage and Fees $9.68
0160
16
Postmark Here
09/27/2024
Sent To
Eddy County Administration Complex
101 W Greene St, Rm 211
Carlsbad, NM 88220
PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

September 23, 2024

CERTIFIED MAIL XXXX XXXX XXXX XXXX

Dear municipal official:

Sendero Carlsbad Midstream, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the construction of its natural gas processing facility. The expected date of application submittal to the Air Quality Bureau is September 27, 2024.

The exact location for the proposed facility, known as Sendero Carlsbad Plant, is at 1025 Bounds Road, Loving, NM 88256, latitude 32 deg, 15 min, 44 sec and longitude -104 deg, 7 min, 20 sec. The approximate location of this facility is 1.7 miles west-southwest of the intersection of US Highway 285 and Higby Hole Road in Eddy county.

The proposed construction consists of the addition of a second natural gas processing train at the existing authorized facility.

The estimated maximum quantities of any regulated air contaminant will be as follows in pounds per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	13.65	26.77
$PM_{2.5}$	10.77	22.46
Sulfur Dioxide (SO_2)	60.93	244.43
Nitrogen Oxides (NO_x)	222.04	164.22
Carbon Monoxide (CO)	436.46	249.50
Volatile Organic Compounds (VOC)	366.58	187.80
Total sum of all Hazardous Air Pollutants (HAPs)	27.65	41.23
Green House Gas Emissions as Total CO_2e	n/a	355,124.8

The standard and maximum operating schedules of the facility will be 24 hours per day, 7 days per week, and a maximum of 52 weeks per year.

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other comments and questions may be submitted verbally. (505) 476-4300; 1 800 224-7009.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attencion

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Sincerely,

Sendero Carlsbad Midstream, LLC
2564 Pecos Hwy, Carlsbad, NM, 88220

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

September 23, 2024

CERTIFIED MAIL XXXX XXXX XXXX XXXX

Dear Neighbor:

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Sincerely,

Sendero Carlsbad Midstream, LLC
2564 Pecos Hwy, Carlsbad, NM, 88220

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Property Record Card

Eddy Assessor

COUNTY OF EDDY
101 W GREENE ST
CARLSBAD, NM 88220

Account: R201028
Tax Area: CO_NR - CARLSBAD-OUT (Nonresidential)
Acres: 121.720

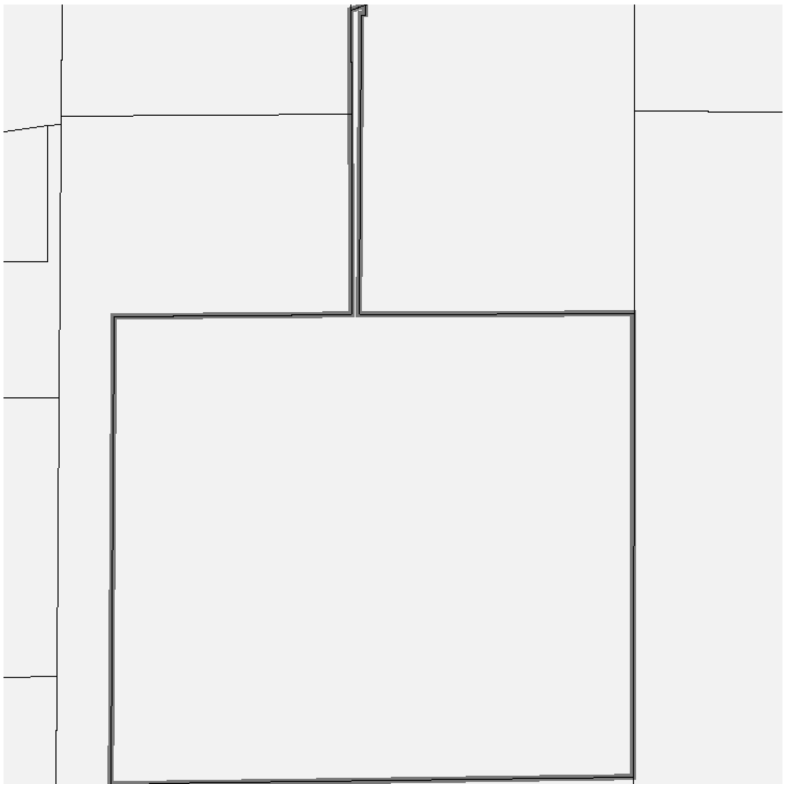
Parcel: 4-163-138-416-332
Situs Address:
1025 BOUNDS ROAD
CARLSBAD, 88220

Value Summary

Value By:	Market	Override
Land (1)	$304,299	N/A
Total	**$304,299**	**$304,299**

Legal Description

Subd: SENDERO/CONNALLY BOUNDARY LINE ADJ Tract: C Quarter: SE S: 31 T: 23S R: 28E Quarter: NE S: 31 T: 23S R: 28E



Public Remarks

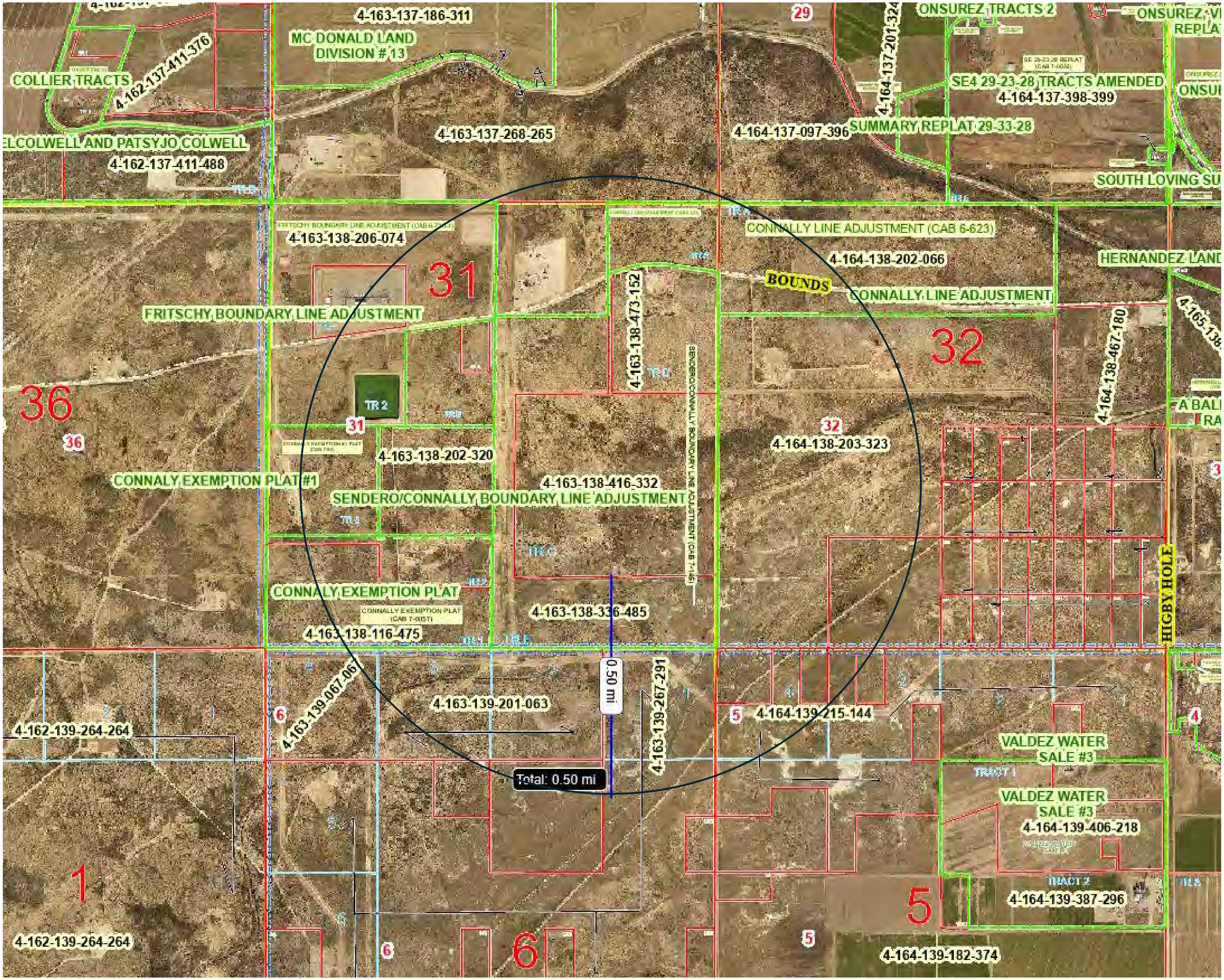
Entry Date	Model	Remark
10/08/2018		BK 1115 PG 490 - SENDERO CARLSBAD MIDSTREAM TO EDDY COUNTY
06/18/2019		1124/590 - AMENDMENT TO SPECIAL WD - SENDERO CARLSBAD MIDSTREAM TO EDDY COUNTY

Land Occurrence 1

Property Code	9200 - EXEMPT NON-RESIDENTIAL LAND	Land Code	159_2499_99 - Commercial Land CO - 2499.99
Description	EXEMPT NON RES LAND	Measure	A - Acres

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override
9200	EXEMPT NON-RESIDENTIAL LAND	$304,299	$101,433	NA	NA
Total		**$304,299**	**$101,433**	**NA**	**NA**


4-163-137-186-311
MC DONALD LAND DIVISION # 13
COLLIER TRACTS
4-162-137-411-376
ELCOLWELL AND PATSYJO COLWELL
4-162-137-411-488
4-163-137-268-265
29
4-164-137-201-324
ONSUREZ TRACTS 2
SE4 29-23-28 TRACTS AMENDED
4-164-137-398-399
4-164-137-097-396
SUMMARY REPLAT 29-33-28
SOUTH LOVING SU
4-163-138-206-074
CONNALLY LINE ADJUSTMENT (CAB 6-623)
4-164-138-202-066
HERNANDEZ LAND
BOUNDS
CONNALLY LINE ADJUSTMENT
31
FRITSCHY BOUNDARY LINE ADJUSTMENT
4-163-138-473-152
SENDERO/CONNALLY BOUNDARY LINE ADJUSTMENT
32
4-164-138-467-180
36
TR 2
31
36
4-164-138-203-323
4-163-138-202-320
CONNALY EXEMPTION PLAT #1
4-163-138-416-332
SENDERO/CONNALLY BOUNDARY LINE ADJUSTMENT
CONNALY EXEMPTION PLAT
4-163-138-336-485
4-163-138-116-475
HIGBY HOLE
0.50 mi
4-163-139-267-291
4-163-139-067-061
4-163-139-201-063
6
5
4-164-139-215-144
4
4-162-139-264-264
VALDEZ WATER SALE #3
Total: 0.50 mi
VALDEZ WATER SALE #3
4-164-139-406-218
1
4-164-139-387-296
5
6
6
5
4-162-139-264-264
4-164-139-182-374

Section 10

Written Description of the Routine Operations of the Facility

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

See Section 3 for a written description of the facility operations.

Section 11

Source Determination

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

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

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

A. Identify the emission sources evaluated in this section (list and describe)**:**
There are no contiguous or adjacent sources under the same 2-digit industrial grouping and under common ownership or control.

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

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

☐ **Yes** ☐ **No**

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

☐ **Yes** ☐ **No**

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

☐ **Yes** ☐ **No**

C. Make a determination:

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

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

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

The Facility site-wide potential emissions before and after the project are below PSD major source thresholds.

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

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

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

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

State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to this NSR construction permit application.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	The Facility will produce carbon monoxide (CO) and oxides of nitrogen (NO_X) emissions.
20.2.7 NMAC	Excess Emissions	Yes	Facility	The Facility will have emission units subject to emissions limits in a permit and/or numerical emissions standards in federal and/or state regulations.
20.2.38 NMAC	Hydrocarbon Storage Facility	Yes	3-7, 21, 51-54	The Facility has more than 65,000 gallons of storage capacity for hydrocarbon liquids and the condensate tanks are equipped with vapor recovery systems.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	1, 2, 12, 15, 19, 21, 23-25, 26-33, 36, 38-42, 44, 47, 57, 59	This regulation establishes emission standards for volatile organic compounds (VOC) and NOx for oil and gas production, processing, compression, and transmission sources. Check the box for the subparts that are applicable: ☒113 – Engines and Turbines: Units 26-33 (new) ☒114 – Compressor Seals: Units 23, 24 (existing) and 26-29, 47, 59 (new) ☒115 – Control Devices and Closed Vent Systems: Units 2 (existing) and 39, 40, 41 (new) ☒116 – Equipment Leaks and Fugitive Emissions: Units 12 (existing) and 25 (new) ☐ 117 – Natural Gas Well Liquid Unloading ☒ 118 – Glycol Dehydrators: Units 19/V-2440 (existing) and 44/42 (new) ☒ 119 – Heaters: Units 1, 15 (existing) and 36, 38 (new) ☒ 120 – Hydrocarbon Liquid Transfers: Unit 57 (new) ☐121 – Pig Launching and Receiving ☐122 – Pneumatic Controllers and Pumps ☐ 123 – Storage Vessels: ☐124 – Well Workovers ☐ 125 – Small Business Facilities ☐126 – Produced Water Management Unit ☐127 – Flowback Vessels and Preproduction Operations
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1, 15-17, 34-38, 26-33, 2, 39, 40, 41	This regulation limits opacity to 20% for the Facility's Stationary Combustion Equipment, such as engines, boilers, heaters, and flares.
20.2.70 NMAC	Operating Permits	Yes	Facility	Proposed allowable emissions exceed 100 tpy each for VOC, NO_X, CO, and sulfur dioxide (SO_2). Proposed allowable formaldehyde (CH_2O) emissions exceed 10 tpy and total hazardous air pollutant (HAP) emissions exceed 25 tpy. SMC will submit an operating permit application within 12 months of startup of the second train operations.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	The Facility will become a Title V Major Source as defined at 20.2.70.7.R NMAC, subject to operating permit fees.
20.2.72 NMAC	Construction Permits	Yes	Facility	Proposed allowable emissions exceed the thresholds to require an NSR construction permit. Construction on the proposed new equipment will not begin until a permit has been issued.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Facility will become a Title V Major Source as defined at 20.2.70.7.R NMAC, subject to Emissions Inventory Reporting.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	Proposed allowable emissions are less than the PSD major source thresholds.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This is an application pursuant to 20.2.72, subject to 20.2.75.10, 11 permit fee.
20.2.77 NMAC	New Source Performance	Yes	1, 12, 15-17, 23-33, 35, 36, 38, 45, 49-54, 59	The Facility has several units subject to the requirements of 40 CFR Part 60, as discussed under Federal Regulations.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	The Facility will be a major source of hazardous air pollutants but does not have any equipment/operations potentially subject to the requirements of 40 CFR Part 61.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	1, 15-17, 19, 26-38, 44	The Facility will be a major source of hazardous air pollutants, subject to the requirements of 40 CFR Part 63, as discussed under Federal Regulations.

Federal Regulations:

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	The Facility is subject to 20.2.72 NMAC and therefore subject to this regulation.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	1, 12, 15-17, 23-33, 35, 36, 38, 45, 49-54, 59	Several other Subparts in 40 CFR 60 are applicable to units at the Facility; therefore, this Subpart is applicable to these units as well.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Yes	1, 15-17, 35, 36, 38	The Facility has steam generating units for which construction, modification or reconstruction commenced after June 9, 1989 and that have a maximum design heat input capacity of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). This regulation applies to units 1, 15, 16, 17, 35, 36, and 38.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification	No	N/A	This facility has storage vessels with a capacity greater than or equal to 75 cubic meters (m^3) used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification commenced after July 23, 1984. However, the storage vessels are not subject to this Subpart due to the capacity and/or true vapor pressure limits in 40 CFR 110b(a) and (b).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Commenced After July 23, 1984			
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015, and before December 6, 2022	Yes	12, 23, 24	Potentially "affected" facilities constructed, modified, or reconstructed at the Facility after September 18, 2015 and before December 6, 2022 include: reciprocating compressors, equipment leaks at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. Unit 23 (reciprocating compressors, 60.5385a), Unit 12 (equipment leaks, 60.5400a), and Unit 18 (sweetening units, 60.5405a) are subject to this Subpart. However, Units 3-7 and 21 (storage vessels, 60.5395a) have potential VOC emissions below 6 tpy each and are not subject to this Subpart.
NSPS 40 CFR Part 60 Subpart OOOOb	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022	Yes	25-29, 40, 41, 45, 49-54, 59	Potentially "affected" facilities constructed, modified, or reconstructed at the Facility after December 6, 2022 will include: reciprocating compressors, equipment leaks at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. Units 26-29 and 59 (reciprocating compressors, 60.5385b), Unit 25 (equipment leaks, 60.5400b), and Unit 45 (sweetening unit, 60.5405b) will be subject to this Subpart. Units 40 and 41 will be used to control emissions from Unit 45 and will comply with applicable requirements. Units 49-54 (storage vessels, 60.5395b) have potential VOC emissions below 6 tpy each and require operating and production limitations to make these potential emissions legally and practicably enforceable to avoid applicability under this Subpart.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	26-33	Units 26-33 will be new 4SLB stationary spark ignition internal combustion engines rated >500 hp subject to Table 1 emission limits. The engines will comply with the applicable compliance requirements of this Subpart.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	1, 15-17, 19, 26-38, 44	Several other Subparts in 40 CFR 63 are applicable to units at the Facility; therefore, this Subpart is applicable to these units as well.
MACT 40 CFR 63.760 Subpart HH	NESHAP for Oil and Natural Gas Production Facilities	Yes	19, 44	The Facility will be a major source of HAP emissions and Unit 19 will be a large glycol dehydration unit under this Subpart. Unit 44 will be a new small glycol dehydration unit with actual average annual benzene emissions <0.9 Mg/yr.
MACT 40 CFR 63 Subpart DDDDD	NESHAP for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	Yes	1, 15-17, 34-38	The Facility will be a major source of HAP emissions and Units 1 and 15-17 will be existing process heaters designed to burn gas 1 fuels and will come into compliance within 3 years of the Facility becoming a major source. Units 34-38 will be new process heaters designed to burn gas 1 fuels and will be in compliance upon startup.
MACT 40 CFR 63 Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion	Yes	26-33	The Facility will be a major source of HAP emissions and Units 26-33 will be new 4SLB stationary RICE rated >500 hp. The engines will comply with the emission limits in Table 2a and the operating limits in Table 2b, as well as all other applicable compliance requirements of this Subpart.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Engines (RICE MACT)			
40 CFR 64	Compliance Assurance Monitoring	Yes	TBD	The Facility will become a Title V Major Source and SCM will determine any required CAM and include it in the future Operating Permit application.
40 CFR 68	Chemical Accident Prevention	Yes	Facility	An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	Yes	Facility	40 CFR 82 may apply if you: **(40 CFR 82.1 and 82.100)** produce, transform, destroy, import or export a controlled substance or import or export a controlled product; **(40 CFR 82.150)** if you service, maintain, or repair appliances, dispose of appliances, refrigerant reclaimers, if you are an owner or operator of an appliance. **Note:** Owners and operators of appliances subject to 40 CFR 82.150 Recycling and Emissions Reduction have recordkeeping and reporting requirements even if the owner/operator is not performing the actual work.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

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Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios

Existing processing train

- During normal operations, the TEG flash gas (V-2440) is piped to the inlet. In the first AOS, this gas may be routed to the flare (Unit 2) when the flash gas compressor is down.
- During normal operations, the amine flash gas (V-2200) is piped to the inlet. In the second AOS, this gas may be routed to the flare (Unit 2) when the flash gas compressor is down.
- During normal operations, the closed drain skid (Z-2110) is part of a closed system. In the third AOS, if the closed drain skid over-pressurizes, vapors from the closed drain skid may be routed to the flare (Unit 2).
- During normal operations, residue gas (Res Gas) is compressed and sent out via pipeline. In the fourth AOS, under residue pipeline curtailment, residue gas may be routed to the flare (Unit 2).

Proposed second process train

- During normal operations, the glycol flash gas (Unit 42) is routed to the fuel system. Under AOS, this gas may be routed to the process flare (Unit 39).
- During normal operations, the amine flash gas (Unit 43) is routed to the fuel system. Under AOS, this gas may be routed to the process flare (Unit 39).
- During normal operations, the glycol still vent vapors (Unit 44) are routed through a condenser and then to the thermal oxidizer (Unit 41) for destruction. Under AOS, the vapors from the condenser may be controlled by the acid gas flare (Unit 40).
- During normal operations, the amine still vent acid gas (Unit 45) is routed to the thermal oxidizer (Unit 41) for destruction. Under AOS, the acid gas may be controlled by the acid gas flare (Unit 40).
- During normal operations, stabilized condensate storage vapors (Units 51 – 54) are captured by a VRU (Unit 59) and routed to inlet. As an AOS, during VRU downtime these vapors may be controlled by the process flare (Unit 39).
- During normal operations, overhead vapors from the stabilization unit (Unit 47) are piped to inlet. As an AOS, a portion of the vapors may be controlled by the process flare (Unit 39) when an overhead vapor compressor is taken down for maintenance.
- The condensate stabilization unit may be used to produce stabilized product ranging from RVP2 through RVP9, as the market dictates. Potential emissions for stabilized condensate storage and loading, as well as stabilizer overhead vapors during overhead vapor compressor downtime, are estimated for the high and low ends of the range (RVP9 and RVP2) and the highest potential emissions are included in the proposed allowables.

Construction Scenarios

The existing processing train is currently authorized under GCP-O&G 7220M3 and will continue to operate while the proposed second processing train is constructed and after it is operational.

Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

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

Sendero Carlsbad Midstream, LLC
November 2024
Sendero Carlsbad Plant
Eddy County, New Mexico

Project No. ENE010-0202725-24005752

Apex Companies, LLC
2121 Midway Rd, Ste 100
Carrollton, TX 75006
Phone: (469) 365-1100
www.apexcos.com

FIGURE 16-1

Plot Plan

Service Layer Credits:
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community,

Modified 8/27/2024 by BMiller NAD 1983 UTM Zone 13N Coordinate System, Grid Listed in Meters

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
N/A	N/A	N/A

Section 20

Other Relevant Information

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

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

Section 22: Certification

Company Name: __Sendero Carlsbad Midstream, LLC____

I, __Jeff Weiler________, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this _6th__ day of _December_____________, _2024____, upon my oath or affirmation, before a notary of the State of

__________________________________.

____   ________________________
*Signature   Date

____   ________________________
Printed Name   Title

Scribed and sworn before me on this ____ day of _______________________, ________.

My authorization as a notary of the State of ____________________________ expires on the

_______________ day of ____________________, ____________.

____   ________________________
Notary's Signature   Date

____
Notary's Printed Name

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

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the “Air Dispersion Modeling Report”, only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-A: Identification		
1	Name of facility:	Sendero Carlsbad Plant
2	Name of company:	Sendero Carlsbad Midstream, LLC
3	Current Permit number:	GCP-O&G 7220M3
4	Name of applicant’s modeler:	Leon Fang
5	Phone number of modeler:	469-365-1140
6	E-mail of modeler:	Leon.Fang@apexcos.com

16-B: Brief			
1	Was a modeling protocol submitted and approved?	Yes☐	No☒
2	Why is the modeling being done?	Adding New Equipment	
3	Describe the permit changes relevant to the modeling.		
	Existing train currently permitted under GCP, installation of additional train requires permitting entire site under new NSR.		
4	What geodetic datum was used in the modeling?	NAD83	
5	How long will the facility be at this location?	Permanent	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒

7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155

8	List the PSD baseline dates for this region (minor or major, as appropriate).	
	NO2	3/19/1988
	SO2	7/28/1978
	PM10	2/20/1979
	PM2.5	11/13/2013
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).	
	Carlsbad Caverns National Park	

10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
11	Describe any special modeling requirements, such as streamline permit requirements.		

16-C: Modeling History of Facility

1. Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	None		
NO_2	None		
SO_2	None		
H_2S	None		
PM2.5	None		
PM10	None		
Lead	None		
Ozone (PSD only)	None		
NM Toxic Air Pollutants (20.2.72.402 NMAC)	None		

16-D: Modeling performed for this application

1. For each pollutant, indicate the modeling performed and submitted with this application.
Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
CO	☒	☒	☐	☐	☐
NO_2	☐	☐	☒	☐	☐
SO_2	☐	☐	☒	☐	☐

	H_2S	☐	☐	☐	☐	☐
	PM2.5	☐	☐	☒	☐	☐
	PM10	☐	☐	☒	☐	☐
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☐
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

16-E: New Mexico toxic air pollutants modeling

1 List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application.
N/A

2 List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes☒	No☐

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	8/30/24

2 If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.

AQB Source ID	Description of Corrections
1767E1	Nearby source coordinates are incorrect. Updated nearby source location for PM2.5 and PM10.
1119E2	Nearby source coordinates are incorrect. Updated nearby source location for SO2.
1119E2	Nearby source coordinates are incorrect. Updated nearby source location for SO2.

16-H: Building and structure downwash

1	How many buildings are present at the facility?	4
2	How many above ground storage tanks are present at the facility?	12

3	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes☒	No☐
4	Building comments	Awnings/hollow structures were not modeled as buildings.	

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.		
	A metal fence surrounds the entire property.		
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?	Yes☐	No☒
3	Are restricted area boundary coordinates included in the modeling files?	Yes☐	No☒

4 Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.

Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
Very Fine	Cartesian	50 meters	Fenceline	500 meters	
Fine	Cartesian	100 meters	100 meters	1 km	
Intermediate	Cartesian	500 meters	500 meters	5 km	
Rough	Cartesian	1000 meters	1000 meters	50 km	

5	Describe receptor spacing along the fence line.
	50 meter spacing along the fenceline.
6	Describe the PSD Class I area receptors.
	Receptors at Carlsbad Caverns National Park have 1000 meter spacing.

16-J: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).
	Plant dehy and amine still vent emissions are routed to the thermal oxidizer (Stack 41) during normal operation. However, during thermal oxidizer downtime the emissions are routed to the acid gas flare (Stack 40). Two scenarios were modeled.

	AOS1 – Thermal oxidizer (Stack 41) short-term emissions were modeled. Thermal oxidizer annual emissions were modeled assuming the thermal oxidizer operates for the entire year. AOS2 – Acid gas flare (Stack 40) short-term emissions were modeled. Both thermal oxidizer (Stack 41) and acid gas flare (Stack 40) annual emissions were modeled based on maximum thermal oxidizer downtime.
2	Which scenario produces the highest concentrations? Why?
	Each scenario produced higher concentrations in different averaging periods. The more conservative concentration between the two scenarios was used for each averaging period.

3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes☐	No☒
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It’s ok to put the table below section 16-K if it makes formatting easier.) Sources:		

	Hour of Day	Factor	Hour of Day	Factor								
5	1		13									
	2		14									
	3		15									
	4		16									
	5		17									
	6		18									
	7		19									
	8		20									
	9		21									
	10		22									
	11		23									
	12		24									
	If hourly, variable emission rates were used that were not described above, describe them below.											

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☒	No☐
	Maximum short-term emission rates and maximum annual emission rates were modeled using worst-case emission rates to more accurately reflect each modeling scenario.		

16-K: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
	Describe the NO_2 modeling.	

2	Background concentrations were added to the modeled 1-hour NO2 H1H and annual concentrations for the cumulative/culpability analysis. No surrounding sources were modeled for NO2.		
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	Yes☒	No☐
4	Describe the design value used for each averaging period modeled.		
	1-hour: High first high Annual: Other (Describe): Maximum annual results averaged over 5 years.		

16-L: Ozone Analysis

1	NMED has performed a generic analysis that demonstrates sources that are minor with respect to PSD do not cause or contribute to any violations of ozone NAAQS. The analysis follows. The basis of the ozone SIL is documented in *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, EPA, April 17, 2018 and associated documents. NMED accepts this SIL basis and incorporates it into this permit record by reference. Complete documentation of the ozone concentration analysis using MERPS is included in the New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines.		
2	The MERP values presented in Table 10 and Table 11 of the NM AQB Modeling Guidelines that produce the highest concentrations indicate that facilities emitting no more than 250 tons/year of NO_X and no more than 250 tons/year of VOCs will cause less formation of O_3 than the O_3 significance level. $$[O_3]_{8-hour} = \left(\frac{250\frac{ton}{yr}}{340_{MERP_{NOX}}} + \frac{250\frac{ton}{yr}}{4679_{MERP_{VOC}}}\right) \times 1.96\ \mu g/m^3$$ =1.546 μg/m³, which is below the significance level of 1.96 μg/m³. Sources that produce ozone concentrations below the ozone SIL do not cause or contribute to air contaminant levels exceeding the ozone NAAQS.		
3	Does the facility emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs? Sources that emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs are covered by the analysis above and require an individual analysis.	Yes☐	No☒

5	For new PSD Major Sources or PSD major modifications, if MERPs were used to account for ozone fill out the information below. If another method was used describe below.				
	NO_X (ton/yr)	$MERP_{NOX}$	VOCs (ton/yr)	$MERP_{VOC}$	$[O_3]_{8-hour}$

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☐	PM10
	☒	None
2	Describe the particle size distributions used. Include the source of information.	

3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☒	No☐
4	Was secondary PM modeled for PM2.5?	Yes☐	No☒

5	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.			
	Pollutant	NO_X	SO_2	$[PM2.5]_{24\text{-hour}}$
	$MERP_{annual}$	26780	14978	0.1742
	$MERP_{24\text{-hour}}$	7331	1981	$[PM2.5]_{annual}$
	Emission rate (ton/yr)	163.13	243.57	0.0045

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	NA
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	NA

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☒	No☐

Unit Number in UA-2	Unit Number in Modeling Files
22	22_001 through 22_0063

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes☒	No☐
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	No☒

4	Which units consume increment for which pollutants?				
	Unit ID	NO_2	SO_2	PM10	PM2.5
	1	X	X	X	X
	15	X	X	X	X
	16	X	X	X	X

	17	X	X	X	X
	2	X	X	X	X
	26	X	X	X	X
	27	X	X	X	X
	28	X	X	X	X
	29	X	X	X	X
	30	X	X	X	X
	31	X	X	X	X
	32	X	X	X	X
	33	X	X	X	X
	34	X	X	X	X
	35	X	X	X	X
	36	X	X	X	X
	37	X	X	X	X
	38	X	X	X	X
	41	X	X	X	X
	39	X	X	X	X
	40	X	X	X	X
	22			X	X

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).		
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☒	No☐

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	39	28.94	36340412.0	5.1920

	40	37.51	3212615.9	1.5060
	2	20.60	58906191.8	6.7877

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☐	No☒
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	Unit 22 is 22_001 to 22_063 in the modeling runs		
4	Describe any open pits.		
5	Describe emission units included in each open pit.		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes☒	No☒
	CO: N/A		
	NO_2: Outside Carlsbad (350151005)		
	PM2.5: Hobbs-Jefferson (350450019)		
	PM10: Hobbs-Jefferson (350250008)		
	SO_2: N/A		
	Other:		
	Comments: The greatest annual background concentration of the most recent three years 2021 – 2023 was used for PM2.5 annual NAAQs.		
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	No☒

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so select the station used. Carlsbad	Yes☒	No☐

2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
2	What was the source of the terrain data?		
	https://apps.nationalmap.gov/downloader/		

16-U: Modeling Files

1	Describe the modeling files: Descriptions of all folders containing the applicable modeling files are provided in the table below.		
	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
	Folder: AERMOD -> CO	CO 1hr, CO 8hr	SIA, cumulative
	Folder: AERMOD -> NO2 -> 1-HR-SIL	NO2 1hr	SIA, cumulative
	Folder: AERMOD -> NO2 -> ANNUAL-SIL	NO2 annual	SIA, cumulative
	Folder: AERMOD -> PM2.5 -> 24-HR-SIL	PM2.5 24hr	SIA, cumulative, culpability
	Folder: AERMOD -> PM2.5 -> 24-HR with Nearby Sources-AOS1	PM2.5 24hr	cumulative, culpability
	Folder: AERMOD -> PM2.5 -> 24-HR with Nearby Sources-AOS2	PM2.5 24hr	cumulative, culpability
	Folder: AERMOD -> PM2.5 -> ANNUAL-SIL	PM2.5 annual	SIA, cumulative
	Folder: AERMOD -> PM2.5 -> ANNUAL with Nearby Sources-AOS1	PM2.5 annual	cumulative, culpability
	Folder: AERMOD -> PM2.5 -> ANNUAL with Nearby Sources-AOS2	PM2.5 annual	cumulative, culpability
	Folder: AERMOD -> PM10 -> 24-HR-SIL	PM10 24hr	SIA, cumulative
	Folder: AERMOD -> PM10 -> 24-HR with Nearby Sources-AOS1	PM10 24hr	cumulative, culpability
	Folder: AERMOD -> PM10 -> 24-HR with Nearby Sources-AOS2	PM10 24hr	cumulative, culpability
	Folder: AERMOD -> PM10 -> ANNUAL-SIL	PM10 annual	SIA, cumulative
	Folder: AERMOD -> PM10 -> ANNUAL with Nearby Sources-AOS1	PM10 annual	cumulative, culpability
	Folder: AERMOD -> PM10 -> ANNUAL with Nearby Sources-AOS2	PM10 annual	cumulative, culpability
	Folder: AERMOD -> SO2 -> 1-HR-SIL	SO2 1hr	SIA
	Folder: AERMOD -> SO2 -> 1HR - With Nearby Sources - AOS1	SO2 1hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> 1HR - With Nearby Sources – AOS2	SO2 1hr	cumulative, culpability

	Folder: AERMOD -> SO2 -> 3HR and 24HR-SIL	SO2 3hr, SO2 24hr	SIA
	Folder: AERMOD -> SO2 -> 3HR - With Nearby Sources - AOS1	SO2 3hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> 3HR - With Nearby Sources – AOS2	SO2 3hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> 24HR - With Nearby Sources - AOS1	SO2 24hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> 24HR - With Nearby Sources – AOS2	SO2 24hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> 3HR and 24HR - Class I - SIL	SO2 3hr	SIA
	Folder: AERMOD -> SO2 -> 3HR - With Nearby Sources - Class I Increment - AOS1	SO2 3hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> 3HR - With Nearby Sources - Class I Increment – AOS2	SO2 3hr	cumulative, culpability
	24HR - With Nearby Sources - Class I Increment - AOS1	SO2 24hr	cumulative, culpability
	24HR - With Nearby Sources - Class I Increment - AOS2	SO2 24hr	cumulative, culpability
	Folder: AERMOD -> SO2 -> ANNUAL-SIL	SO2 annual	SIA
	Folder: AERMOD -> SO2 -> ANNUAL - With Nearby Sources - AOS1	SO2 annual	cumulative, culpability
	Folder: AERMOD -> SO2 -> ANNUAL - With Nearby Sources – AOS2	SO2 annual	cumulative, culpability
	Folder: AERMAP	All	other
	Folder: BPIP	All	other
	Folder: Surrounding Sources	All	other
	Folder: Terrain Data	All	other

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	No☐
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	No☐
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☐	No☐

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes☐	No☒
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
NO_2 1hr NAAQS	83.33 (H1H)	--	--	54.5 (5ZR)	137.83	188.03	73.30%	582850.00	3569450.00	3104.92
NO_2 24-hour NMAAQS	Demonstrated by compliance with NO_2 1-hour NAAQS									
NO_2 Annual NAAQS	Demonstrated by compliance with NO_2 Annual NMAAQS									
NO_2 Annual NMAAQS	3.79	--	--	9.3 (5ZR)	13.09	94.02	13.92%	582900.00	3569600.00	3107.81
NO_2 Annual PSD Class I Significance Level	0.00431	--	--	--	--	0.1	4.5%	558000.00	3559000.00	3607.51
NO2 Annual PSD Class II	3.79	--	--	9.3 (5ZR)	13.09	25	52.36%	582900.00	3569600.00	3107.81
CO 1-hour Significance Level	157.47 (H1H)	--	--	--	--	2000	7.87%	582806.21	3569440.43	3104.59
CO 8-hour Significance Level	98.22 (H1H)	--	--	--	--	500	19.64%	582850.00	3569750.00	3112.60

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
PM2.5 24-hour NAAQS	2.14 (H8H)	4.51 (H8H)	0.1742	16.5 (5ZS)	21.18	35	60.53%	582605.23	3569878.29	3119.29
PM2.5 24-hour PSD Class II Increment	2.83 (H2H)	4.03 (H2H)	0.1742	--	4.20	9.00	46.71%	582556.53	3569877.55	3117.62
PM2.5 24-hour PSD Class I Significance Level	0.023 (H1H)	--	--	--	0.023	0.27	8.52%	558000.00	3559000.00	3607.51
PM2.5 Annual NAAQS	0.56	1.91	0.0046	6.6 (5ZS) Based on 2021-2023 average	8.51	9.00	94.56%	582605.23	3569878.29	3119.29
PM2.5 Annual PSD Class II Increment	0.56	1.62	0.0046	--	1.62	4.00	40.60%	582605.23	3569878.29	3119.29
PM2.5 Annual PSD Class I Significance Level	0.0007	--	--	--	0.0007	0.05	1.4%	558000.00	3559000.00	3607.51
PM10 24-hour NAAQS	5.03 (H2H)	11.05 (H2H)	--	37.3 (5ZS)	48.35	150	32.23%	582850.00	3569750.00	3112.60
PM10 24-hour PSD Class II Increment	5.03 (H2H)	8.32 (H2H)	--	--	8.32	30	27.73%	582850.00	3569750.00	3112.60
PM10 24-hour PSD Class I Significance Level	0.037	--	--	--	0.037	0.3	12.33%	558000.00	3559000.00	3607.51

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
PM10 Annual PSD Class II Increment	1.21	3.68	--	--	3.68	17	21.65%	582556.53	3569877.55	3117.62
PM10 Annual PSD Class I Significance Level	0.0008	--	--	--	0.0008	0.2	0.4%	558000.00	355900 0.00	3607.51
SO_2 1-hour NAAQS	137.52 (H4H)	138.07 (H4H)	--	--	138.07	196.4	70.30%	582850.00	3569750.00	3112.60
SO_2 3-hour NAAQS	Demonstrated by compliance with SO_2 1-hour NAAQS									
SO_2 3-hour PSD Class II Increment	165.74 (H2H)	165.77 (H2H)	--	--	165.77	512	32.38%	582850.00	3569800.00	3115.06
SO_2 3-hour PSD Class I Increment	<5 (H2H)	<5 (H2H)	--	--	<5	25	<20%	West / Southwest of Source		
SO_2 24-hour NMAAQS	Demonstrated by compliance with SO_2 1-hour NAAQS									
SO_2 24-hour Class II PSD Increment	71.39 (H2H)	71.60 (H2H)	--	--	71.60	91	78.68%	582900.00	3569800.00	3115.06
SO_2 24-hour PSD Class I Increment	<1 (H2H)	<1 (H2H)	--	--	<1	5	<20%	West / Southwest of Source		
SO_2 Annual NMAAQS	Demonstrated by compliance with SO_2 1-hour NAAQS									
SO_2 Annual PSD Class II Increment	5.50	6.10	--	--	6.10	20	30.50%	582600.00	3569900.00	3121.26

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
SO_2 Annual PSD Class I Significance Level	0.008	--	--	--	0.008	0.1	8.00%	558000.00	3559000.00	3607.51

16-X: Summary/conclusions	
1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	Results of this modeling show the facility is in compliance with applicable ambient air quality standards and PSD increments.