

**APPLICATION TO RENEW AND REVISE
TITLE V OPERATING PERMIT NO. P101-R3
MILAGRO GAS TREATING PLANT
SAN JUAN COUNTY, NM**

July 2024

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

Prepared for:
Harvest Four Corners. LLC
1755 Arroyo Drive
Bloomfield, New Mexico 87413
505-632-4600

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

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

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

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

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

Acknowledgements:

- ☒ I acknowledge that a pre-application meeting is available to me upon request. ☒ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
- ☐ \$500 NSR application Filing Fee enclosed **OR** ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
- ☐ Check No.: [REDACTED] in the amount of [REDACTED]
- ☒ 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: **20.2.70.300.B(2) NMAC** (e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information		AI # if known: 1277	Updating Permit/NOI #: P101-R2-M3
1	Facility Name: Milagro Gas Treating Plant	Plant primary SIC Code (4 digits): 1389	
		Plant NAIC code (6 digits): 211130	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 1754 Arroyo Drive, Bloomfield, New Mexico 87413		
2	Plant Operator Company Name: Harvest Four Corners, LLC	Phone/Fax: (505) 632-4600 / (505) 632-4782	

a	Plant Operator Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	
b	Plant Operator's New Mexico Corporate ID or Tax ID: Harvest Four Corners, LLC	
3	Plant Owner(s) name(s): Harvest Four Corners, LLC	Phone/Fax: (505) 324-5128 / (505) 632-4782
a	Plant Owner(s) Mailing Address(s): 1755 Arroyo Drive, Bloomfield, New Mexico 87413	
4	Bill To (Company): Harvest Four Corners, LLC	Phone/Fax: (505) 324-5128 / (505) 632-4782
a	Mailing Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	E-mail: jdeal@harvestmidstream.com>
5	☐ Preparer: ☒ Consultant: Laura Worthen-Lodes	Phone/Fax: 405.702.1618
a	Mailing Address: 525 Central Park Drive Suite 500 Oklahoma City, OK 73105	E-mail: Laura.Worthen-Lodes@Altamira-US.com
6	Plant Operator Contact: Efren Cardenas	Phone/Fax: (907) 385-3824
a	Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	E-mail: ecardenas@harvestmidstream.com
7	Air Permit Contact: Jennifer Deal	Title: Environmental Specialist
a	E-mail: jdeal@harvestmidstream.com>	Phone/Fax: (505) 324-5128 / (505) 632-4782
b	Mailing Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	
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-101-R3
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: PSD-0859-M10
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	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: 27 MMCF^(a)	Daily: 645 MMCF^(a)	Annually: 235,425 MMCF@10% CO₂^(a)
b	Proposed	Hourly: 27 MMCF^(a)	Daily: 645 MMCF^(a)	Annually: 235,425 MMCF@10% CO₂^(a)
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: N/A	Daily: N/A	Annually: N/A
b	Proposed	Hourly: N/A	Daily: N/A	Annually: N/A

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 36.73555	Longitude (decimal degrees): -107.94138	County: San Juan	Elevation (ft): 5,700
2	UTM Zone: ☐ 12 or ☒ 13		Datum: ☐ NAD 83 ☒ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 237,340		UTM N (in meters, to nearest 10 meters): 4,069,570	
3	Name and zip code of nearest New Mexico town: Bloomfield, New Mexico 87413			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Bloomfield drive north on Highway 550 to Arizona, turn right and drive 1.9 miles to Arroyo Drive, turn left and drive 0.25 miles to plant (on east side of the road).			
5	The facility is 3 (distance) miles northeast (direction) of Bloomfield (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: Bloomfield, Aztec, Navajo Tribe, San Juan County			
8	20.2.72 NMAC applications only : Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☐ Yes ☒ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:			
9	Name nearest Class I area: Mesa Verde National Park			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 64.20 km			
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: ≈1,610 m			
12	Method(s) used to delineate the Restricted Area: Fence "Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.			
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.			
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?			

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

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

Section 1-F: Other Facility Information

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

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

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." ☒ N/A (This is not a Streamline application.)
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Section 1-H: Current Title V Information - Required for all applications from TV Sources

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Nathan Work		Phone: (505) 215-6107
a	R.O. Title: Operations Manager	R.O. e-mail: nwork@harvestmidstream.com	
b	R. O. Address: 3746 CR 307, Durango, CO 81303		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): TBD		Phone: TBD
a	A. R.O. Title: TBD	A. R.O. e-mail: TBD	
b	A. R. O. Address: TBD		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): N/A		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): Harvest Midstream Company		
a	Address of Parent Company: 1111 Travis Street, Houston, Texas 77002		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: N/A		
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: Yes, Colorado (29 km), Navajo Tribe (5 km), Southern Ute Tribe (29 km), Mountain Ute Tribe (30 km) & Jicarilla Apache Tribe (66 km)		

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

- 1) One hard copy **original signed and notarized application package printed double sided 'head-to-toe' 2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be **head-to-head**. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. **Please include a copy of the check on a separate page.**
- 2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This **copy** should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.
- 3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two CD** copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a **single CD** submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☒ Secure electronic transfer. Air Permit Contact Name: **Laura Worthen Lodes**

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

Phone number: **405-702-1618**

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

- 4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.
- 5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling **summary report only** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.
- 6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
 - a. one additional CD copy for US EPA,
 - b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
 - c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

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

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

- 1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer

service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.

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

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Table 2-A: Regulated Emission Sources

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

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/ Reconstruction ²	Emissions vented to Stack #				
1	Boiler	Holman/Zurn	22M Keystone	98833	190 MMBtu/hr	190 MMBtu/hr	1973	N/A	10200601	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1993	1				
2	Boiler	Holman/Zurn	22M Keystone	98728	190 MMBtu/hr	190 MMBtu/hr	1973	N/A	10200601	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1993	2				
3	Boiler	Holman/Zurn	22M Keystone	98729	190 MMBtu/hr	190 MMBtu/hr	1973	N/A	10200601	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1993	3				
9a	Dehydrator Reboiler (Train 1)	Maloney Crawford			3.0 MMBtu/hr	3.0 MMBtu/hr	1980	N/A	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	9a				
9b	TEG Dehydrator Still Vent (Train 1)	Maloney Crawford		80-1-D-4484-OA	145 MMcf/d	145 MMcf/d	1980	N/A	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	9b				
10a	Dehydrator Reboiler (Train 2)	Sivalls			2.25 MMBtu/hr	2.25 MMBtu/hr	1991	N/A	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	10a				
10b	TEG Dehydrator Still Vent (Train 2)	Sivalls		27.140	145 MMcf/d	145 MMcf/d	1991	N/A	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	10b				
11a	Dehydrator Reboiler (Train 3)	Rama Fab			3.00 MMBtu/hr	3.00 MMBtu/hr	1976	N/A	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	11a				
11b	TEG Dehydrator Still Vent (Train 3)	Rama Fab		01798	145 MMcf/d	145 MMcf/d	1976	N/A	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	11b				
14	TEG Dehydrator Still Vent (Train 4)	Sivalls		28.454	90 MMcf/d	90 MMcf/d	1997	N/A	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1997	14				
15	TEG Dehydrator Still Vent (Train 5)	T.H. Russell		771-521	120 MMcf/d	120 MMcf/d	1994	N/A	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1996	15				
16a	Amine Regenerator Vent (Train 1)	General Welding Works		73-29	145 MMcf/d	145 MMcf/d	1974	N/A	31000201	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	16a				
16b	Amine Regenerator Vent (Train 2)	Belmas, Inc.		11396	145 MMcf/d	145 MMcf/d	1973	N/A	31000201	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	16b				
17	Amine Regenerator Vent (Train 3)	Belmas, Inc.		73-30	145 MMcf/d	145 MMcf/d	1973	N/A	31000201	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	17				

Table 2-A: Regulated Emission Sources

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

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/ Reconstruction ²	Emissions vented to Stack #				
18	Amine Regenerator Vent (Train 4)	Field Erection		F-1014	90 MMcfd	90 MMcfd	1965	N/A	31000201	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1991	18				
19	Amine Regenerator Vent (Train 5)	Fabwell Corp.		95-1004-1	120 MMcfd	120 MMcfd	1995	N/A	31000201	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1995	19				
20	Boiler	Rentech	N/A	2015-15	245 MMBtu/hr	245 MMBtu/hr	2015	N/A	10200601	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							10/14/2015	20				
31b	Emergency Generator	Caterpillar	C27	TBD	1,141 hp	1,140 hp	2014	N/A	20200102	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
							2017	31b				
SSM1	Amine Trains & Associated Piping Blowdown SSM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							N/A	N/A				
SSM2	Dehydrator SSM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							N/A	N/A				
F1	Fugitives	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							N/A	N/A				
M1	Malfunctions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							N/A	N/A				
T33	Produced Water Storage Tank				120 bbl	120 bbl	2006	N/A	31088811	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							2006	N/A				

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

² Specify dates required to determine regulatory applicability.

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

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

Table 2-B: Insignificant Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
21	Warehouse Heater			0.08	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
22	Warehouse Heater			0.08	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
23	Maintenance Heater			0.08	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
24	Maintenance Heater			0.08	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
25	Maintenance Heater			0.08	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
26	Maintenance Heater			0.08	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
27	Laboratory Heater			0.10	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
28	Office Heater			0.12	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
29	Water Heater			0.04	20.2.72.202.B.1		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#3		
30	Slug Catcher Heater			0.012	20.2.72.202.B.5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#1.a & #1.b		
30b	Slug Catcher Heater			0.012	20.2.72.202.B.5		☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	#1.a & #1.b		
T1	Lubrication Oil Storage Tank			2,300	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T2	Lubrication Oil Storage Tank			2,300	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		

Table 2-B: Insignificant Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
T3	Diesel Storage Tank			1,250	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T4	Diesel Storage Tank			1,175	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T5	Diesel Storage Tank			500	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T6	Solvent Storage Tank			300	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T7	Gasoline Storage Tank			500	20.2.72.202.B.5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #1.b		
T8	Used Oil Storage Tank			1,000	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T9	Skimmer Oil Storage Tank			1,000	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T10	Slop Oil Storage Tank			10,500	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T11	Slop Oil Storage Tank			10,500	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T12	Used Oil Storage Tank			4,200	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T13	TEG Storage Tank			4,200	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T14	TEG Storage Tank			4,200	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T15	TEG Storage Tank			4,200	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		

Table 2-B: Insignificant Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
T16	Ambitrol Mix Storage Tank			4,200	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T17	Amine/H2O Mix Storage Tank			21,000	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T18	Amine/H2O Mix Storage Tank			10,500	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T19	Amine Storage Tank			10,500	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T20	Optisperse HP 5454 Storage Tank			400	No VOC or HAP emissions		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal			
T21	Optisperse HP 5454 Storage Tank			400	No VOC or HAP emissions		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal			
T22	Cortrol Storage Tank			400	No VOC or HAP emissions		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal			
T23	Steamate (Amine) Storage Tank			400	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T24	Amine/H2O Mix Storage Tank			4,200	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T25	Condensate Storage Tank			4,200	20.2.72.202.B.5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #1.b		
T26	DI H2O Storage Tank			21,000	No VOC or HAP emissions		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal			
T27	Treated H2O Storage Tank			21,000	No VOC or HAP emissions		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal			
T28	Treated H2O Storage Tank			21,000	No VOC or HAP emissions		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal			

Table 2-B: Insignificant Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
T29	Condensate Storage Tank			200	20.2.72.202.B.5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #1.b		
T30	Condensate Storage Tank			200	20.2.72.202.B.5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #1.b		
T31	Amine/H ₂ O Mix Storage Tank			16,800	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T32	Amine/H ₂ O Mix Storage Tank			16,800	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T34	MDEA Storage Tank			5,000	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		
T35	MDEA Storage Tank			5,000	20.2.72.202.B.2		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#5		

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.

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.

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).

[illegible]

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 TSP unless TSP is set equal to PM10 and PM2.5.

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).

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 TSP unless TSP is set equal to PM10 and PM2.5.

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 scheduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

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

[illegible]

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.

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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:

Form Revision: 5/3/2016 Table 2-A: Page 1 Printed 7/11/2024 8:07 AM

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		Benzene HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Xylene ☑ HAP or ☐ TAP		Provide Pollutant Name Here HAP or ☐ TAP		Provide Pollutant Name Here HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.4	1.5	-	-	0.3	1.5	-	-	-	-								
2	2	0.4	1.5	-	-	0.3	1.5	-	-	-	-								
3	3	0.4	1.5	-	-	0.3	1.5	-	-	-	-								
9a	9a	-	-	-	-	-	-	-	-	-	-								
9b	9b	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2								
10a	10a	-	-	-	-	-	-	-	-	-	-								
10b	10b	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2								
11a	11a	-	-	-	-	-	-	-	-	-	-								
11b	11b	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2								
14	14	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2								
15	15	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2	w/SSM2								
16a	16a	14.0	18.9	7.1	10.2	0.1	0.1	4.6	5.7	1.9	2.2								
16b	16b	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a								
17	17	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a								
18	18	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a								
19	19	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a	w/16a								
20	20	0.5	2.0	-	-	0.4	1.9	-	-	-	-								
31b	31b	-	-	-	-	-	-	-	-	-	-								
SSM1	SSM1	unspecified	0.1	-	-	unspecified	0.1	-	-	-	-								
SSM2	SSM2	unspecified	2.6	unspecified	0.4	unspecified	0.1	unspecified	0.2	unspecified	1.8								
F1	F1	-	-	-	-	-	-	-	-	-	-								
M1	M1	unspecified	0.3	-	-	unspecified	0.2	unspecified	0.1	-	-								
T33	T33	unspecified	0.3	unspecified	0.1	unspecified	0.2	unspecified	0.1	-	-								
Total		15.5	28.9	7.1	10.8	1.5	7.0	4.6	6.0	1.9	4.0								

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

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T1	31088811	Lubrication Oil	Lubrication Oil	Exempt Source					
T2	31088811	Lubrication Oil	Lubrication Oil	Exempt Source					
T3	31088811	Diesel	Diesel	Exempt Source					
T4	31088811	Diesel	Diesel	Exempt Source					
T5	31088811	Diesel	Diesel	Exempt Source					
T6	31088811	Solvent	Solvent	Exempt Source					
T7	31088811	Gasoline	Gasoline	Exempt Source					
T8	31088811	Used Oil	Used Oil	Exempt Source					
T9	31088811	Skimmer Oil	Used Oil	Exempt Source					
T10	31088811	Slop Oil	Slop Oil	Exempt Source					
T11	31088811	Slop Oil	Slop Oil	Exempt Source					
T12	31088811	Used Oil	Used Oil	Exempt Source					
T13	31088811	TEG	TEG	Exempt Source					
T14	31088811	TEG	TEG	Exempt Source					
T15	31088811	TEG	TEG	Exempt Source					
T16	31088811	Ambitrol Mix	Ambitrol Mix	Exempt Source					
T17	31088811	Amine/H2O Mix	50% MDEA & 50% H2O	Exempt Source					
T18	31088811	Amine/H2O Mix	50% MDEA & 50% H2O	Exempt Source					
T19	31088811	Amine	MDEA	Exempt Source					
T20	31088811	Optisperse HP 5454	Optisperse HP 5454	No VOC or HAP Emissions					
T21	31088811	Optisperse HP 5454	Optisperse HP 5454	No VOC or HAP Emissions					
T22	31088811	Cortrol	Cortrol	No VOC or HAP Emissions					
T23	31088811	Steamate (Amine)	MDEA	Exempt Source					
T24	31088811	Amine/H2O Mix	50% MDEA & 50% H2O	Exempt Source					
T25	31088811	Condensate	Hydrocarbon Liquids	Exempt Source					
T26	31088811	De-ionized H2O	De-ionized H2O	No VOC or HAP Emissions					
T27	31088811	Treated H2O	Treated H2O	No VOC or HAP Emissions					
T28	31088811	Treated H2O	Treated H2O	No VOC or HAP Emissions					
T29	31088811	Condensate	Hydrocarbon Liquids	Exempt Source					
T30	31088811	Condensate	Hydrocarbon Liquids	Exempt Source					
T31	31088811	Amine/H2O Mix	50% MDEA & 50% H2O	Exempt Source					
T32	31088811	Amine/H2O Mix	50% MDEA & 50% H2O	Exempt Source					

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)
T33	31088811	Produced H2O	Produced H2O	8.34	18.02	Unknown	Unknown	Unknown	Unknown
T34	31088811	MDEA	MDEA	Exempt Source					
T35	31088811	MDEA	MDEA	Exempt Source					

Table 2-L: Tank Data

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

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M ³)			Roof	Shell			
T1		Lubrication Oil		FX	55		Exempt Source						
T2		Lubrication Oil		FX	55		Exempt Source						
T3		Diesel		FX	30		Exempt Source						
T4		Diesel		FX	28		Exempt Source						
T5		Diesel		FX	12		Exempt Source						
T6		Solvent		FX	7		Exempt Source						
T7		Gasoline		FX	12		Exempt Source						
T8		Used Oil		FX	24		Exempt Source						
T9		Skimmer Oil		FX	24		Exempt Source						
T10		Slop Oil		FX	250		Exempt Source						
T11		Slop Oil		FX	250		Exempt Source						
T12		Used Oil		FX	100		Exempt Source						
T13		TEG/H2O Mix		FX	100		Exempt Source						
T14		TEG/H2O Mix		FX	100		Exempt Source						
T15		TEG		FX	100		Exempt Source						
T16		Ambitrol Mix		FX	100		Exempt Source						
T17		Amine/H2O Mix		FX	500		Exempt Source						
T18		Amine/H2O Mix		FX	250		Exempt Source						
T19		Amine		FX	250		Exempt Source						
T20		Optisperse HP 5454		FX	10		No VOC or HAP Emissions						
T21		Optisperse HP 5454		FX	10		No VOC or HAP Emissions						
T22		Cortrol		FX	10		No VOC or HAP Emissions						
T23		Steamate (Amine)		FX	10		Exempt Source						
T24		Amine/H2O Mix		FX	100		Exempt Source						
T25		Condensate		FX	100		Exempt Source						
T26		De-ionized H2O		FX	500		No VOC or HAP Emissions						
T27		Treated H2O		FX	500		No VOC or HAP Emissions						
T28		Treated H2O		FX	500		No VOC or HAP Emissions						
T29		Condensate		FX	5		Exempt Source						
T30		Condensate		FX	5		Exempt Source						
T31		Amine/H2O Mix		FX	400		Exempt Source						
T32		Amine/H2O Mix		FX	400		Exempt Source						
T33		Produced H2O		FX	120		Unknown	N/A	Unknown	N/A	Unknown	630,000	125.00
T34		MDEA		FX	119		Exempt Source						
T35		MDEA		FX	119		Exempt Source						

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

Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	Mechanical Shoe Seal	Liquid-mounted resilient seal	Vapor-mounted resilient seal	Seal Type	WH: White	Good
IF: Internal Floating Roof	A: Primary only	A: Primary only	A: Primary only	A: Mechanical shoe, primary only	AS: Aluminum (specular)	Poor
EF: External Floating Roof	B: Shoe-mounted secondary	B: Weather shield	B: Weather shield	B: Shoe-mounted secondary	AD: Aluminum (diffuse)	
P: Pressure	C: Rim-mounted secondary	C: Rim-mounted secondary	C: Rim-mounted secondary	C: Rim-mounted secondary	LG: Light Gray	
Note: 1.00 bbl = 0.159 M ³ = 42.0 gal					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: $1.00 \text{ bbl} = 0.159 \text{ M}^3 = 42.0 \text{ gal}$

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

[illegible]

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.

[illegible]

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

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Table 2-P: Greenhouse Gas Emissions

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

		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²									Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWPs ¹	1	298	25	22,800	footnote 3										
1	mass GHG	107,938.19	2.03E-01	2.03											107,940.43	-
	CO ₂ e	107,938.19	60.62	50.86											-	108,049.67
2	mass GHG	107,938.19	2.03E-01	2.03											107,940.43	-
	CO ₂ e	107,938.19	60.62	50.86											-	108,049.67
3	mass GHG	107,938.19	2.03E-01	2.03											107,940.43	-
	CO ₂ e	107,938.19	60.62	50.86											-	108,049.67
9a	mass GHG	1,704.29	3.21E-03	3.21E-02											1,704.32	-
	CO ₂ e	1,704.29	9.57E-01	8.03E-01											-	1,706.05
9b	mass GHG	-	-	-											0	-
	CO ₂ e	-	-	-											-	0
10a	mass GHG	1,278.22	2.41E-03	2.41E-02											1,278.24	-
	CO ₂ e	1,278.22	7.18E-01	6.02E-01											-	1,279.54
10b	mass GHG	-	-	-											0	-
	CO ₂ e	-	-	-											-	0
11a	mass GHG	1,704.29	3.21E-03	3.21E-02											1,704.32	-
	CO ₂ e	1,704.29	9.57E-01	8.03E-01											-	1,706.05
11b	mass GHG	-	-	-											0	-
	CO ₂ e	-	-	-											-	0
14	mass GHG	-	-	-											0	-
	CO ₂ e	-	-	-											-	0
15	mass GHG	-	-	-											0	-
	CO ₂ e	-	-	-											-	0
16a	mass GHG	283,030.00	-	216.84											283,246.84	-
	CO ₂ e	283,030.00	-	5,421.00											-	288,451.00
16b	mass GHG	282,960.00	-	216.89											283,176.89	-
	CO ₂ e	282,960.00	-	5,422.25											-	288,382.25
17	mass GHG	282,960.00	-	216.89											283,176.89	-
	CO ₂ e	282,960.00	-	5,422.25											-	288,382.25
18	mass GHG	138,360.00	-	84.63											138,444.63	-
	CO ₂ e	138,360.00	-	2,115.75											-	140,475.75
19	mass GHG	242,800.00	-	193.04											242,993.04	-
	CO ₂ e	242,800.00	-	4,826.00											-	247,626.00

Table 2-P: Greenhouse Gas Emissions

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

		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²									Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWP _s ¹	1	298	25	22,800	footnote 3										
20	mass GHG	139,183.45	2.62E-01	2.62											139,186.34	-
	CO ₂ e	139,183.45	78.17	65.58											-	139,327.20
31b	mass GHG	2,015.94	1.64E-02	8.18E-02											2,016.04	-
	CO ₂ e	2,015.94	4.89	2.05											-	2,022.87
SSM1	mass GHG	236.93	-	721.56											958.49	-
	CO ₂ e	236.93	-	18,039.00											-	18,275.93
SSM2	mass GHG	1.55	-	4.40											5.95	-
	CO ₂ e	1.55	-	110.00											-	111.55
F1	mass GHG	28.25	-	86.16											114.41	-
	CO ₂ e	28.25	-	2,154.00											-	2,182.25
M1	mass GHG	299.81	-	913.05											1,212.86	-
	CO ₂ e	299.81	-	22,826.25											-	23,126.06
T33	mass GHG	-	-	-											0	-
	CO ₂ e	-	-	-											-	0
	mass GHG															
	CO ₂ e															
	mass GHG															
	CO ₂ e															
Total	mass GHG	1,700,377.29	8.98E-01	2,662.36											1,703,040.55	
	CO ₂ e	1,700,377.29	267.55	66,558.90												1,767,203.75

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

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

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

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

⁵ CO₂e means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

Section 3

Application Summary

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

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

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

Application Summary

The HFC Milagro Gas Treating Plant currently operates under construction and Title V permits issued by the NMAQB: construction permit number PSD-0859-M10, dated October 4, 2017, and Title V operating permit number P101-R3, dated January 17, 2020.

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

- Three Holman 190 MMBtu/hr boilers (Units 1-3);
- Two 3 MMBtu/hr dehydrator reboilers (Units 9a & 11a);
- One 2.25 MMBtu/hr dehydrator reboiler (Unit 10a);
- Three 145 MMCFD dehydrators (Units 9b-11b);
- One 90 MMCFD dehydrator (Unit 14);
- One 120 MMCFD dehydrator (Unit 15);
- Three 145 MMCFD amine contactors (Units 16a, 16b & 17);
- One 90 MMCFD amine contactor (Unit 18);
- One 120 MMCFD amine contactor (Unit 19);
- One Rentech 245 MMBtu/hr boiler (Unit 20);
- One Caterpillar C27 standby generator (Unit 31b);
- Equipment leak emissions (Unit F1)
- One 500-gal gasoline storage tank (Unit T7);
- One 120 bbl produced water storage tank (Unit T33);

- SSM emissions from the amine trains (Unit SSM1);
- SSM emissions from the dehydrators (Unit SSM2) during maintenance on the vapor recovery unit (VRU); and
- Malfunction emissions (Unit M1).

This application is being submitted to renew the Title V operating permit. No modifications are being requested.

IMPORTANT NOTE: The Milagro Gas Treating Plant used to be an area HAP source; therefore, 40 Code of Federal Regulations (CFR), Part 63, Subpart CCCCCC was applicable to the gasoline storage tank (Unit T7). The Milagro Plant is now a major HAP source, and the Environmental Protection Agency (EPA) has reversed its once-in-always-in policy (see EPA Guidance Memorandum dated January 25, 2018). Therefore, Subpart CCCCCC is no longer applicable to Unit T7 and it is being identified as an insignificant source. This is not a modification since no changes to the facility or its operation are being requested.

The applicable regulation is 20.2.70 New Mexico Administrative Code (NMAC). The lowest level regulatory citation is 20.2.70.300.B(2) NMAC.

There are no changes proposed in this application that will affect plant operations, de-bottleneck impacts, or change the plant's major/minor source status, both prevention of significant deterioration (PSD) and Title V.

SSM

For the boilers, dehydrator reboilers, generator, amine contactors, and equipment leaks (valves, connectors, seals, etc.), it is concluded there are no SSM emissions in excess of those identified for steady-state operation as seen in Section 2, Table 2-E. Discussions justifying this conclusion are provided in Section 6.

Blowdown SSM emissions from the treating trains and associated piping were calculated from the estimated annual quantity of gas vented (based on historical data) and the composition of the gas. A safety factor was included.

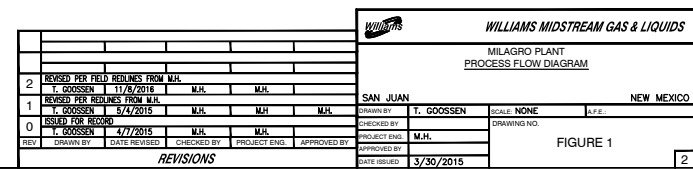
SSM emissions from the dehydrators during maintenance of the vapor recovery unit (VRU) were calculated using GRI-GLYCalc. A safety factor is included.

Section 4

Process Flow Sheet

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

A process flow diagram is provided in this section. Please see the following page.



Section 5

Plot Plan Drawn to Scale

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

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

Note that though the turbines and heat recovery steam generators (HRSGs) have been permanently shut down, the structures associated with this equipment will be on-site for an unknown length of time. Therefore, they have not been removed from the plot plan.

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

Boilers

Nitrogen dioxide (NO₂) and carbon monoxide (CO) emissions from the Holman boilers (Units 1-3) were calculated using manufacturer's data. Volatile organic compounds (VOC), sulfur dioxide (SO₂), particulate, and hazardous air pollutant (HAP) emissions were calculated using AP-42 emissions factors.

NO₂ emissions from the Rentech boiler (Unit 20) were calculated from stack test data. CO and VOC emissions were calculated using manufacturer's data. SO₂, particulate, and HAP emissions were calculated using AP-42 emissions factors.

Emissions from the boilers were calculated assuming each boiler operates at full capacity for 8,760 hours per year (hr/yr). Note that Units 1-3 are equipped with low NO_x burners and fuel induced recirculation. Unit 20 is equipped with a low NO_x burner and flue gas recirculation.

The boilers (uncontrolled) startup with less fuel input than during steady-state operation, so emissions should be lower than during steady-state operation. During shutdown, the fuel supply stops quickly, but air flow may not, causing the continued formation of NO_x. Even so, with no fuel, NO_x formation should be less than during steady-state operation. Emissions due to scheduled maintenance should be negligible as the units are not in operation.

The criteria pollutant emission rates for Units 1-3 & 20 were carried forward and not revised.

Dehydrator Reboilers

NO_x, CO, VOC, SO₂ and particulate emissions from the dehydrator reboilers (Units 9a-11a) were calculated using AP-42 emission factors. HAP emissions were calculated using GRI-GLYCalc. Emissions were calculated assuming each reboiler operates at full capacity for 8,760 hr/yr. Note that Units 14 & 15 are not equipped with reboilers; instead boiler-produced steam is used to regenerate the glycol.

The dehydrator reboilers (uncontrolled) start-up with less fuel input than during steady-state operation, so emissions should be lower than during steady-state operation. During shutdown, the fuel supply will stop quickly, but air flow may not, causing the continued formation of NO_x. Even so, with no fuel, NO_x formation should be less than during steady-state operation. Emissions due to scheduled maintenance should be negligible as the units are not in operation.

The criteria pollutant emission rates for Units 9a-11a were carried forward and not revised.

Dehydrator SSM

Emissions from the dehydrator still vents (Units 9b-11b, 14 & 15) are routed through a VRU to recover the hydrocarbons entrained in the stripped water. These hydrocarbons are then used for fuel within the facility, eliminating the VOC and HAP emissions from the dehydrator still vents. During scheduled maintenance; however, the VRU is bypassed and still vent emissions vent directly to the atmosphere. Note: The gas from the still vents is routed through a condenser before it is sent to the VRU. Also, Units 9b-11b & 15 are equipped with flash tanks. Unit 14 is not. The gas from the flash tanks is recovered.

The dehydrator still vent VOC and HAP emissions were calculated using GRI-GLYCalc and the extended gas analysis dated October 30, 2023. In order to identify uncontrolled emissions from the dehydrator still vents, it was assumed the dehydrators operate at design capacity, venting to atmosphere, for 8,760 hr/yr. HAP emissions were estimated using the GRI-GLYCalc estimated pounds per hour (pph) HAP emission rates and the number of hours of operation per year required to emit the 5.0 tpy VOC.

It is requested SSM emissions from all the dehydrator still vents (Unit SSM2) continue to be permitted under a single facility-wide emissions limit.

The VOC emission rate for Unit SSM2 was carried forward and not revised.

Amine Contactors

VOC and HAP emissions from the amine contactors (Units 16a, 16b & 17-19) were calculated using results from ProMax. Combined VOC emissions from all the amine units were limited to 34.0 tpy (obtained from the current construction permit). Emissions were calculated assuming each amine unit operates at full capacity for 8,760 hr/yr. Representative runs were prepared for each of the amine trains both during normal operation and during the receipt of rich gas during Ignacio plant outages. Normal operations were modeled using an extended gas analysis dated October 30, 2023 (obtained during normal operation). Operations during Ignacio plant outages were modeled using an extended gas analysis dated September 21, 2023 (obtained while Milagro was receiving rich gas during an Ignacio plant outage). These results and a balance of run hours for each operating mode were used to establish the requested pph and tpy emissions caps. To allow for variations in inlet gas composition, safety factors were included.

Flash tanks capture the amine regenerator emissions and they are injected into the facility fuel system.

It is requested SSM emissions from the amine trains and associated piping continue to be permitted under a single facility-wide emissions limit.

The VOC emission rates for Units 16a, 16b & 17-19 were carried forward and not revised.

Amine Trains & Associated Piping Blowdown SSM

SSM VOC and HAP emissions from the amine trains and associated piping (Unit SSM1) are the result of blowdowns. The emissions were calculated from the annual quantity of gas vented and the composition of the gas. The annual quantity of gas vented was estimated based on historical operations, both the number of events and the quantity of gas vented during each event as determined by HFC engineering. A safety factor was added because emissions from blowdowns are dependent on the composition of the gas and because the annual quantity of gas vented may vary. The use of the safety factor was also designed to ensure an adequate emissions limit, which includes any emissions from other miscellaneous startup, shutdown and maintenance activities.

Emissions during normal operation were determined using an extended gas analysis dated October 30, 2023 (obtained during normal operation). Emissions associated with Ignacio plant outages were determined using an extended gas analysis dated September 21, 2023 (obtained while Milagro was receiving rich gas during an Ignacio plant outage). It was estimated 73.9 percent of the SSM blow down volume would occur during normal operation and 26.1 percent of the SSM blow down volume would occur while receiving rich gas during Ignacio plant outages.

It is requested SSM emissions from the amine trains and associated piping continue to be permitted under a single facility-wide emissions limit.

The VOC emission rate for Unit SSM1 was carried forward and not revised.

Heaters

NO_x, CO, VOC, SO₂ and particulate emissions from the heaters (Units 21-30) were calculated using AP-42 emission factors. Emissions were calculated assuming each heater operates at full capacity for 8,760 hr/yr. Since the emission rate for each pollutant, from all heaters combined, is less than 0.5 tpy, the heaters are all exempt sources.

Emergency Generator

NO₂, CO, VOC and particulate emissions from the diesel generator (Unit 31b) were calculated using manufacturer's data. SO₂ and HAP emissions were calculated using AP-42 emission factors from Section 3.4. Emissions were calculated assuming the generator operates at full site capacity for 3,350 hr/yr (limiting the NO_x emissions to 26.5 tpy).

The engine will be started at no load with a rich fuel mixture. As a result, emissions during startup should be minimized. Moreover, because engines take only minutes to reach operating temperature, emissions during startup should not cause an exceedance of an allowable limit. Similarly, emissions during shutdown should not cause an exceedance of the allowable limit because fuel and air flow cease within seconds of shutdown. Emissions due to scheduled maintenance should be negligible as the unit is not in operation.

The criteria pollutant emission rates for Unit 31b were carried forward and not revised.

Equipment Leaks

Fugitive organic compound emissions from equipment leaks (Unit F1), valves, flanges, seals, etc., were calculated using a count of the Milagro pipeline components and emission factors from the 1995 Protocol for Equipment Leak Emission Estimates published by the EPA. VOC and HAP emissions were calculated as weight percentages of the total organic compound emissions.

Weight percentages during normal operation were determined using an extended gas analysis dated October 30, 2023 (obtained during normal operation). Weight percentages associated with receiving rich gas during Ignacio plant outages were determined using an extended gas analysis dated October 30, 2023 (obtained while Milagro was receiving rich gas during an Ignacio plant outage). It was assumed normal operation would occur for 6,475 hr/yr and operation during Ignacio plant outages would occur for 2,285 hr/yr. This is the maximum operating time for Ignacio plant outages such that emissions stay at or below the 34.0 tpy VOC cap on amine vent emissions.

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

The VOC emission rate for Unit F1 was carried forward and not revised.

Malfunctions

Malfunction (Unit M1) emissions were set at 10.0 tons of VOC per year to account for emissions that may occur during upsets and malfunctions (including, but not limited to, unscheduled blowdowns and relief valve release). The HAP emissions, in turn, were calculated as a weight percentage of the set VOC emission rate. HAP weight percentages during normal operation were determined using an extended gas analysis dated October 30, 2023 (obtained during normal operation). HAP weight percentages associated with Ignacio plant outages were determined using an extended gas analysis dated October 30, 2023 (obtained while Milagro was receiving rich gas during an Ignacio plant outage). For each individual HAP, the highest calculated HAP weight percent (from either the normal operation gas analysis or the Ignacio plant outage gas analysis) was used to determine the emission rate.

Note that these malfunction emissions include the venting of gas only, not combustion emissions.

The VOC emission rate for Unit M1 was carried forward and not revised.

Storage Tanks

Where appropriate, working/breathing losses from the storage tanks were calculated using the AP-42, Section 7. The following assumptions were made:

- Residual oil #6 was used to estimate lubrication oil, used oil, skimmer oil and slop oil emissions. As the vapor pressure of residual oil is less than 0.2 pounds per square inch absolute (psia), the tanks containing lubrication oil (Units T1 & T2), used oil (Units T8 & T12), skimmer oil (Unit T9) and slop oil (Units T10 & T11) were assumed to be exempt sources for a construction permit and insignificant sources for a Title V permit;
- Distillate fuel oil #2 was used to estimate diesel fuel emissions. As the vapor pressure of distillate fuel oil #2 is less than 0.2 psia, the tanks containing diesel fuel (Units T3-T5) were assumed to be exempt sources for a construction permit and insignificant sources for a Title V permit;
- Jet kerosene was used to estimate petroleum solvent emissions. As the vapor pressure of jet kerosene is less than 0.2 psia, the tank containing solvent (Unit T6) was assumed to be an exempt source for a construction permit and an insignificant source for a Title V permit;
- Gasoline (RVP 13) was used to estimate gasoline tank (Unit T7) emissions;
- As the vapor pressure of triethylene glycol (TEG) is less than 0.2 psia, the tanks containing TEG (Units T13-T15) were assumed to be exempt sources for a construction permit and insignificant sources for a Title V permit;
- As the vapor pressures of ethylene glycol and propylene glycol are less than 0.2 psia, the tank containing Ambitol (Unit T16) was assumed to be an exempt source for a construction permit and an insignificant source for a Title V permit. Note that Ambitol is an inhibited ethylene or propylene glycol coolant containing ethylene or propylene glycol, water, and less than 5% dipotassium hydrogen phosphate;
- As the vapor pressure of methyldiethanolamine (MDEA) is less than 0.2 psia, the tanks containing amine or amine/water (Units T17-T19, T23, T24, T31, T32, T34 & T35) were assumed to be exempt sources for a construction permit and insignificant sources for a Title V permit; and
- The natural gasoline liquid composition identified in HAPCalc 3.0 was used to estimate condensate tank (Units T25, T29 & T30) emissions.

The VOC emission rate for the gasoline storage tank (Unit T7) was calculated at 524.9 pounds per year. As such, the tank is an exempt source for a construction permit and an insignificant source for a Title V permit.

The combined VOC emission rate from the three condensate storage tanks (Units T25, T29 & T30) is 716.87 pounds per year. As such, the tanks are exempt sources for a construction permit and insignificant sources for a Title V permit.

Note that there are no criteria pollutant, GHG or HAP emissions associated with Units T20-T22 & T26-T28. See the applicable Material Safety Data Sheets.

VOC, benzene, and n-hexane emissions from the produced water tank (Unit T33) were calculated using emission factors from the CDPHE PS Memo 09-02 (Oil & Gas Produced Water Tank Batteries - Regulatory Definitions & Permitting Guidance). Ethylbenzene, toluene and xylene emissions from the produced water tank were calculated using emission factors from the TCEQ Project 2010-29 (Emission Factor Determination for Produced Water Storage Tanks) report.

Due to the nature of operations, startup and shutdown emissions from the storage tanks were assumed to be accounted for in the calculations described above. Emissions due to maintenance should be negligible.

The VOC emission rate for Unit T33 was carried forward and not revised.

Facility Total Projected Emissions (Criteria Pollutants)

Company: Harvest Four Corners, LLC

Facility: Milagro Gas Treating Plant

Date/Rev: July 2024 / Revision 0

Unit Number	Description	NOX,		CO,		VOC,		SOX,		TSP,		PM10,		PM2.5,		Lead,	
		pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
1	Boiler	15.20	66.58	13.30	58.25	1.16	5.09	1.27E-01	5.55E-01	1.60	7.03	1.60	7.03	1.60	7.03	1.06E-04	4.62E-04
2	Boiler	15.20	66.58	13.30	58.25	1.16	5.09	1.27E-01	5.55E-01	1.60	7.03	1.60	7.03	1.60	7.03	1.06E-04	4.62E-04
3	Boiler	15.20	66.58	13.30	58.25	1.16	5.09	1.27E-01	5.55E-01	1.60	7.03	1.60	7.03	1.60	7.03	1.06E-04	4.62E-04
9a	Reboiler (3 MMBtu/hr)	3.33E-01	1.46	2.80E-01	1.23	1.83E-02	8.03E-02	2.00E-03	8.76E-03	2.53E-02	1.11E-01	2.53E-02	1.11E-01	2.53E-02	1.11E-01	1.67E-06	7.30E-06
9b	Dehydrator					w/SSM2	w/SSM2										
10a	Reboiler (2.25 MMBtu/hr)	2.50E-01	1.10	2.10E-01	0.92	1.38E-02	6.02E-02	1.50E-03	6.57E-03	1.90E-02	8.32E-02	1.90E-02	8.32E-02	1.90E-02	8.32E-02	1.25E-06	5.48E-06
10b	Dehydrator					w/SSM2	w/SSM2										
11a	Reboiler (3 MMBtu/hr)	3.33E-01	1.46	2.80E-01	1.23	1.83E-02	8.03E-02	2.00E-03	8.76E-03	2.53E-02	1.11E-01	2.53E-02	1.11E-01	2.53E-02	1.11E-01	1.67E-06	7.30E-06
11b	Dehydrator					w/SSM2	w/SSM2										
14	Dehydrator					w/SSM2	w/SSM2										
15	Dehydrator					w/SSM2	w/SSM2										
16a	Amine Regenerator Vent					21.05	34.00										
16b	Amine Regenerator Vent					w/16a	w/16a										
17	Amine Regenerator Vent					w/16a	w/16a										
18	Amine Regenerator Vent					w/16a	w/16a										
19	Amine Regenerator Vent					w/16a	w/16a										
20	Boiler	9.80	42.92	20.55	90.00	1.03	4.51	1.63E-01	7.15E-01	2.07	9.06	2.07	9.06	2.07	9.06	1.36E-04	5.96E-04
31b	Caterpillar C27 Generator	15.83	26.52	1.51	2.53	2.20E-01	3.69E-01	1.12E-02	1.88E-02	3.30E-01	5.53E-01	3.30E-01	5.53E-01	3.30E-01	5.53E-01		
SSM1	Treating Train SSM					unspecified	16.80										
SSM2	Dehydrator VRU Bypass SSM					unspecified	5.00										
F1	Equipment Leaks					0.98	6.37										
M1	Malfunctions					unspecified	10.00										
T33	Produced Water Tank					unspecified	1.97										
Total		56.32	246.67	61.22	268.14	26.59	94.12	5.49E-01	2.40	6.95	30.45	6.95	30.45	6.95	30.45	4.57E-04	2.00E-03

Facility Total Projected Emissions (HAPs)

Company: Harvest Four Corners, LLC
Facility: Milagro Gas Treating Plant
Revision: July 2024 / Revision 0

Unit Number	Description	Total HAPs,		2,2,4-Trimethyl-pentane,		Acetaldehyde,		Acrolein		Benzene,		Dichlorobezene,		Ethylbenzene,		Formaldehyde,		n-Hexane,		Lead,		Methanol,		Naphthalene,		Polycyclic Organic Matter,		Toluene,		Xylenes,	
		pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
1	Boiler	3.51E-01	1.54							3.91E-04	1.71E-03	2.24E-04	9.79E-04			1.40E-02	6.12E-02	3.35E-01	1.47	1.06E-04	4.62E-04			1.14E-04	4.98E-04	1.64E-05	7.20E-05	6.33E-04	2.77E-03		
2	Boiler	3.51E-01	1.54							3.91E-04	1.71E-03	2.24E-04	9.79E-04			1.40E-02	6.12E-02	3.35E-01	1.47	1.06E-04	4.62E-04			1.14E-04	4.98E-04	1.64E-05	7.20E-05	6.33E-04	2.77E-03		
3	Boiler	3.51E-01	1.54							3.91E-04	1.71E-03	2.24E-04	9.79E-04			1.40E-02	6.12E-02	3.35E-01	1.47	1.06E-04	4.62E-04			1.14E-04	4.98E-04	1.64E-05	7.20E-05	6.33E-04	2.77E-03		
9a	Reboiler (3.0 MMBtu/hr)	4.32E-03	1.89E-02	9.13E-05	4.00E-04	8.68E-04	3.80E-03			2.28E-05	1.00E-04					1.05E-03	4.60E-03	9.69E-04	4.20E-03			1.30E-03	5.70E-03					2.28E-05	1.00E-04		
9b	Dehydrator	w/SSM2	w/SSM2							w/SSM2	w/SSM2					7.99E-04	3.50E-03	w/SSM2	w/SSM2			9.82E-04	4.30E-03			w/SSM2	w/SSM2	w/SSM2	w/SSM2		
10a	Reboiler (2.25 MMBtu/hr)	3.29E-03	1.44E-02	6.85E-05	3.00E-04	6.62E-04	2.90E-03			2.28E-05	1.00E-04							7.31E-04	3.20E-03							2.28E-05	1.00E-04				
10b	Dehydrator	w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2	w/SSM2	w/SSM2		
11a	Reboiler (3.0 MMBtu/hr)	4.32E-03	1.89E-02	9.13E-05	4.00E-04	8.68E-04	3.80E-03			2.28E-05	1.00E-04					1.05E-03	4.60E-03	9.69E-04	4.20E-03			1.30E-03	5.70E-03					2.28E-05	1.00E-04		
11b	Dehydrator	w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2	w/SSM2	w/SSM2		
14	Dehydrator	w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2	w/SSM2	w/SSM2		
15	Dehydrator	w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2							w/SSM2	w/SSM2	w/SSM2	w/SSM2		
16a	Amine Regenerator Vent	16.95	14.96							2.94	2.50			0.00E+00	5.36E-01			9.39E-03	7.99E-03							7.74	6.59	6.26	5.32		
16b	Amine Regenerator Vent	w/16a	w/16a							w/16a	w/16a			w/16a	w/16a			w/16a	w/16a							w/16a	w/16a	w/16a	w/16a		
17	Amine Regenerator Vent	w/16a	w/16a							w/16a	w/16a			w/16a	w/16a			w/16a	w/16a							w/16a	w/16a	w/16a	w/16a		
18	Amine Regenerator Vent	w/16a	w/16a							w/16a	w/16a			w/16a	w/16a			w/16a	w/16a							w/16a	w/16a	w/16a	w/16a		
19	Amine Regenerator Vent	w/16a	w/16a							w/16a	w/16a			w/16a	w/16a			w/16a	w/16a							w/16a	w/16a	w/16a	w/16a		
20	Boiler	4.52E-01	1.98							5.04E-04	2.21E-03	2.88E-04	1.26E-03			1.80E-02	7.89E-02	4.32E-01	1.89					1.47E-04	6.42E-04	2.12E-05	9.28E-05	8.17E-04	3.58E-03	1.43E-03	2.39E-03
31b	Caterpillar C27 Generator	1.26E-02	2.11E-02			1.86E-04	3.12E-04	5.83E-05	9.76E-05	5.74E-03	9.61E-03					5.84E-04	9.78E-04	unspecified	0.00E+00					9.62E-04	1.61E-03	1.57E-03	2.63E-03	2.08E-03	3.48E-03		
SSM1	Treating Train SSM	unspecified	9.64E-03							unspecified	9.64E-03							unspecified	6.50E-02							unspecified	0.00E+00	unspecified	0.00E+00		
SSM2	Dehydrator VRU Bypass SSM	unspecified	2.56	unspecified	1.29E-02					unspecified	3.87E-01			unspecified	1.16E-01			unspecified	0.00E+00							unspecified	2.07E-01	unspecified	1.78		
F1	Equipment Leaks	7.09E-04	2.30E-03							7.09E-04	2.30E-03							0.00E+00	0.00E+00							unspecified	0.00E+00	unspecified	0.00E+00		
M1	Malfunctions	unspecified	6.61E-04							unspecified	1.56E-04							unspecified	4.31E-06							unspecified	4.61E-04	unspecified	6.75E-02	unspecified	4.50E-02
T33	Produced Water Tank	unspecified	3.35E-01							unspecified	5.25E-02			unspecified	5.25E-03			unspecified	1.65E-01							unspecified		unspecified			
Total #1		18.47	24.51	2.51E-04	1.40E-02	2.40E-03	1.05E-02	0.00E+00	0.00E+00	2.94	2.96	9.59E-04	4.20E-03	0.00E+00	6.57E-01	6.28E-02	2.75E-01	1.45	6.55	3.17E-04	1.39E-03	3.58E-03	1.57E-02	4.87E-04	2.13E-03	7.05E-05	3.09E-04	7.75	6.87	6.26	7.14

Boiler Exhaust Emissions Calculations

Unit Number: 1-3
Description: Holman Boiler

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

Fuel Consumption

190.00 MMBtu/hr	Capacity	Mfg. data
211,111 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760 hr/yr	Annual operating time	Harvest Four Corners, LLC
1,664,400 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
1,849.33 MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates,	
		pph	tpy
NOX	0.08	15.20	66.58
CO	0.07	13.30	58.25

Emission factors taken from manufacturers data

Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
VOC	5.50	1.16	5.09
SO2	0.60	1.27E-01	5.55E-01
TSP	7.60	1.60	7.03
PM10	7.60	1.60	7.03
PM2.5	7.60	1.60	7.03
Lead	5.00E-04	1.06E-04	4.62E-04

Emission factors taken from AP-42, Table 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x scf/hr / 1,000,000

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates,	
		pph	tpy
Benzene	2.06E-06	3.91E-04	1.71E-03
Dichlorobenzene	1.18E-06	2.24E-04	9.79E-04
Formaldehyde	7.35E-05	1.40E-02	6.12E-02
n-Hexane	1.76E-03	3.35E-01	1.47
Napthalene	5.98E-07	1.14E-04	4.98E-04
Polycyclics	8.65E-08	1.64E-05	7.20E-05
Toluene	3.33E-06	6.33E-04	2.77E-03

Emission factors taken from AP-42, Table 1.4-3, 07/98

Emission factors (lb/MMscf) divided by 1,020 (per AP-42) to convert to lb/MMBtu

Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

350.20 °F	Exhaust temperature	Previous application
46,770 acfm	Stack flowrate	Previous application
5.00 ft	Stack exit diameter	Harvest Four Corners LLC
19.64 ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
39.70 fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
46.50 ft	Stack height	Williams Four Corners LLC

Boiler Exhaust Emissions Calculations

Unit Number: **20**
 Description: Rentech Boiler

Fuel Consumption

245.00 MMBtu/hr
 272,222 scf/hr
8,760 hr/yr
 2,146,200 MMBtu/yr
 2,384.67 MMscf/yr
900 Btu/scf

Capacity
 Hourly fuel consumption
 Annual operating time
 Annual fuel consumption
 Annual fuel consumption
 Field gas heating value

Mfg. data
 $\text{MMBtu/hr} \times 1,000,000 / \text{Btu/scf}$
 Harvest Four Corners, LLC
 $\text{MMBtu/hr} \times \text{hr/yr}$
 $\text{scf/hr} \times \text{hr/yr} / 1,000,000$
 Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates,	
		pph	tpy
NOX	0.04	9.80	42.92
CO	0.08387	20.55	90.00
VOC	0.0042	1.03	4.51

Emission factors are taken from manufacturers data (with safety factor for NOX)

Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
SO2	0.6	1.63E-01	7.15E-01
TSP	7.60	2.07	9.06
PM10	7.60	2.07	9.06
PM2.5	7.60	2.07	9.06
Lead	5.00E-04	1.36E-04	5.96E-04

Emission factors taken from AP-42, Table 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x scf/hr / 1,000,000

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates,	
		pph	tpy
Benzene	2.06E-06	5.04E-04	2.21E-03
Dichlorobenzene	1.18E-06	2.88E-04	1.26E-03
Formaldehyde	7.35E-05	1.80E-02	7.89E-02
n-Hexane	1.76E-03	4.32E-01	1.89
Napthalene	5.98E-07	1.47E-04	6.42E-04
Polycyclics	8.65E-08	2.12E-05	9.28E-05
Toluene	3.33E-06	8.17E-04	3.58E-03

Emission factors taken from AP-42, Table 1.4-3, 07/98

Emission factors (lb/MMscf) divided by 1,020 (per AP-42) to convert to lb/MMBtu

Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

276.00 °F
70,552 acfm
5.17 ft
 20.97 ft²
 56.08 fps
60.00 ft

Exhaust temperature
 Stack flowrate
 Stack exit diameter
 Stack exit area
 Stack exit velocity
 Stack height

Mfg. data
 Mfg. data
 Mfg. data
 $3.1416 \times ((\text{ft} / 2) ^2)$
 $\text{acfm} / \text{ft}^2 / 60 \text{ sec/min}$
 Harvest Four Corners LLC

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 9a & 11a
Description: Reboiler Burner

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

Fuel Consumption

3.00 MMBtu/hr	Capacity	Mfg. data
3,333 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760 hr/yr	Annual operating time	Harvest Four Corners, LLC
26,280 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
29.20 MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
NOX	100	3.33E-01	1.46
CO	84	2.80E-01	1.23
VOC	5.5	1.83E-02	8.03E-02
SO2	0.6	2.00E-03	8.76E-03
TSP	7.6	2.53E-02	1.11E-01
PM10	7.6	2.53E-02	1.11E-01
PM2.5	7.6	2.53E-02	1.11E-01
Lead	5.00E-04	1.67E-06	7.30E-06

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

650.00 °F	Exhaust temperature	Previous application
954 cfm	Stack flowrate	Previous application
1.50 ft	Stack diameter	Previous application
1.77 ft^2	Stack exit area	$3.1416 \times ((ft / 2) ^2)$
9.00 fps	Stack velocity	acfm / ft^2 / 60 sec/min
30.00 ft	Stack height	Previous application

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 10a
Description: Reboiler Burner

Fuel Consumption

2.25 MMBtu/hr
2,500 scf/hr
8,760 hr/yr
19,710 MMBtu/yr
21.90 MMscf/yr
900 Btu/scf

Capacity
Hourly fuel consumption
Annual operating time
Annual fuel consumption
Annual fuel consumption
Field gas heating value

Mfg. data
MMBtu/hr x 1,000,000 / Btu/scf
Harvest Four Corners, LLC
MMBtu/hr x hr/yr
scf/hr x hr/yr / 1,000,000
Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph tpy	
NOX	100	2.500E-01	1.10
CO	84	2.100E-01	9.20E-01
VOC	5.5	1.38E-02	6.02E-02
SO2	0.6	1.50E-03	6.57E-03
TSP	7.60	1.900E-02	8.32E-02
PM10	7.60	1.90E-02	8.32E-02
PM2.5	7.60	1.90E-02	8.32E-02
Lead	5.00E-04	1.25E-06	5.48E-06

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

650.00 °F
954 cfm
1.50 ft
1.77 ft^2
9.00 fps
30.00 ft

Exhaust temperature
Stack flowrate
Stack diameter
Stack exit area
Stack velocity
Stack height

Previous application
Previous application
Previous application
3.1416 x ((ft / 2) ^2)
acfm / ft^2 / 60 sec/min
Previous application

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Milagro TEG Dehydrators

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV
Renewal\2023 Gas Analysis\GRI-GLYCalc\new\Milagro_TitleV_Units9b.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Units 9b & 10b
 Capcaity: 145 MMSCFD
 Train 2 extended gas analysis sampled
 10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 100.00 deg. F
 Pressure: 876.10 psig
 Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Nitrogen	0.0137
Methane	98.1900
Ethane	1.1763
Propane	0.2609
Isobutane	0.0379
n-Butane	0.0341
Isopentane	0.0120
n-Pentane	0.0095
Cyclopentane	0.0003
n-Hexane	0.0002
Cyclohexane	0.0008
Other Hexanes	0.0022
Heptanes	0.0009
Methylcyclohexane	0.0019
2,2,4-Trimethylpentane	0.0001
Benzene	0.0001
Xylenes	0.0003
C8+ Heavies	0.0010

DRY GAS:

Flow Rate: 145.0 MMSCF/day
 Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
 Water Content: 1.5 wt% H2O
 Flow Rate: 33.2 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 100.0 deg. F
Pressure: 60.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Milagro TEG Dehydrators

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV Renewal\2023 Gas Analysis\GRI-GLYCalc\new\Milagro_TitleV_Units9b.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Units 9b & 10b

Capcaity: 145 MMSCFD

Train 2 extended gas analysis sampled

10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	4.8277	115.865	21.1454
Ethane	1.0781	25.874	4.7220
Propane	0.9582	22.996	4.1968
Isobutane	0.3211	7.706	1.4064
n-Butane	0.4229	10.149	1.8522
Isopentane	0.1957	4.696	0.8570
n-Pentane	0.2152	5.165	0.9427
Cyclopentane	0.0348	0.836	0.1526
n-Hexane	0.0102	0.244	0.0446
Cyclohexane	0.1979	4.749	0.8667
Other Hexanes	0.0815	1.957	0.3571
Heptanes	0.1055	2.533	0.4622
Methylcyclohexane	0.6031	14.473	2.6414
2,2,4-Trimethylpentane	0.0053	0.127	0.0232
Benzene	0.1914	4.593	0.8382
Xylenes	1.8257	43.816	7.9965
C8+ Heavies	0.8284	19.883	3.6286
Total Emissions	11.9026	285.663	52.1336
Total Hydrocarbon Emissions	11.9026	285.663	52.1336
Total VOC Emissions	5.9968	143.924	26.2662
Total HAP Emissions	2.0325	48.781	8.9026
Total BTEX Emissions	2.0171	48.410	8.8347

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	49.0354	1176.850	214.7751

Ethane	2.8235	67.764	12.3669
Propane	1.0840	26.016	4.7479
Isobutane	0.2234	5.361	0.9784
n-Butane	0.2174	5.218	0.9523
Isopentane	0.0834	2.003	0.3655
n-Pentane	0.0711	1.707	0.3116
Cyclopentane	0.0029	0.070	0.0128
n-Hexane	0.0017	0.041	0.0076
Cyclohexane	0.0083	0.200	0.0365
Other Hexanes	0.0187	0.449	0.0820
Heptanes	0.0081	0.193	0.0353
Methylcyclohexane	0.0186	0.447	0.0815
2,2,4-Trimethylpentane	0.0008	0.020	0.0037
Benzene	0.0010	0.023	0.0042
Xylenes	0.0020	0.047	0.0086
C8+ Heavies	0.0059	0.142	0.0258

Total Emissions	53.6063	1286.551	234.7956

Total Hydrocarbon Emissions	53.6063	1286.551	234.7956
Total VOC Emissions	1.7474	41.937	7.6535
Total HAP Emissions	0.0055	0.132	0.0240
Total BTEX Emissions	0.0029	0.070	0.0128

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	3.32 lbs. H2O/MMSCF
Temperature:	100.0 deg. F
Pressure:	876.1 psig
Dry Gas Flow Rate:	145.0000 MMSCF/day
Glycol Losses with Dry Gas:	1.4904 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	63.72 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	5.46 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol

Water	5.20%	94.80%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.93%	0.07%
Propane	99.89%	0.11%
Isobutane	99.85%	0.15%
n-Butane	99.80%	0.20%
Isopentane	99.80%	0.20%
n-Pentane	99.74%	0.26%
Cyclopentane	98.88%	1.12%
n-Hexane	99.57%	0.43%

Cyclohexane	98.08%	1.92%
Other Hexanes	99.67%	0.33%
Heptanes	99.21%	0.79%
Methylcyclohexane	97.91%	2.09%
2,2,4-Trimethylpentane	99.66%	0.34%
Benzene	84.58%	15.42%
Xylenes	64.06%	35.94%
C8+ Heavies	96.93%	3.07%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 100.0 deg. F
Flash Pressure: 60.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.99%	0.01%
Nitrogen	8.66%	91.34%
Methane	8.96%	91.04%
Ethane	27.63%	72.37%
Propane	46.92%	53.08%
Isobutane	58.97%	41.03%
n-Butane	66.04%	33.96%
Isopentane	70.25%	29.75%
n-Pentane	75.28%	24.72%
Cyclopentane	92.27%	7.73%
n-Hexane	85.59%	14.41%
Cyclohexane	96.09%	3.91%
Other Hexanes	81.52%	18.48%
Heptanes	92.94%	7.06%
Methylcyclohexane	97.13%	2.87%
2,2,4-Trimethylpentane	86.45%	13.55%
Benzene	99.53%	0.47%
Xylenes	99.91%	0.09%
C8+ Heavies	99.38%	0.62%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	43.41%	56.59%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.71%	99.29%
n-Pentane	0.66%	99.34%
Cyclopentane	0.54%	99.46%
n-Hexane	0.58%	99.42%
Cyclohexane	3.33%	96.67%
Other Hexanes	1.23%	98.77%

Heptanes	0.54%	99.46%
Methylcyclohexane	4.12%	95.88%
2,2,4-Trimethylpentane	1.74%	98.26%
Benzene	5.02%	94.98%
Xylenes	12.93%	87.07%
C8+ Heavies	12.10%	87.90%

STREAM REPORTS:

WET GAS STREAM

Temperature: 100.00 deg. F
 Pressure: 890.80 psia
 Flow Rate: 6.05e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.34e-001	3.86e+002
Nitrogen	1.37e-002	6.13e+001
Methane	9.83e+001	2.51e+005
Ethane	1.18e+000	5.65e+003
Propane	2.61e-001	1.84e+003
Isobutane	3.79e-002	3.52e+002
n-Butane	3.41e-002	3.16e+002
Isopentane	1.20e-002	1.38e+002
n-Pentane	9.51e-003	1.09e+002
Cyclopentane	3.00e-004	3.36e+000
n-Hexane	2.00e-004	2.75e+000
Cyclohexane	8.01e-004	1.08e+001
Other Hexanes	2.20e-003	3.03e+001
Heptanes	9.01e-004	1.44e+001
Methylcyclohexane	1.90e-003	2.98e+001
2,2,4-Trimethylpentane	1.00e-004	1.82e+000
Benzene	1.00e-004	1.25e+000
Xylenes	3.00e-004	5.09e+000
C8+ Heavies	1.00e-003	2.72e+001
Total Components	100.00	2.60e+005

DRY GAS STREAM

Temperature: 100.00 deg. F
 Pressure: 890.80 psia
 Flow Rate: 6.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.00e-003	2.01e+001
Nitrogen	1.37e-002	6.13e+001
Methane	9.84e+001	2.51e+005
Ethane	1.18e+000	5.64e+003
Propane	2.61e-001	1.84e+003
Isobutane	3.79e-002	3.51e+002
n-Butane	3.41e-002	3.16e+002
Isopentane	1.20e-002	1.38e+002

n-Pentane	9.50e-003	1.09e+002
Cyclopentane	2.97e-004	3.32e+000
n-Hexane	2.00e-004	2.74e+000
Cyclohexane	7.87e-004	1.05e+001
Other Hexanes	2.20e-003	3.02e+001
Heptanes	8.95e-004	1.43e+001
Methylcyclohexane	1.87e-003	2.92e+001
2,2,4-Trimethylpentane	9.99e-005	1.82e+000
Benzene	8.48e-005	1.05e+000
Xylenes	1.93e-004	3.26e+000
C8+ Heavies	9.72e-004	2.64e+001

Total Components	100.00	2.60e+005

LEAN GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 3.32e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	1.84e+004
Water	1.50e+000	2.80e+002
Nitrogen	7.76e-015	1.45e-012
Methane	9.68e-018	1.81e-015
Ethane	9.85e-009	1.84e-006
Propane	4.45e-010	8.31e-008
Isobutane	8.74e-011	1.63e-008
n-Butane	8.49e-011	1.59e-008
Isopentane	7.50e-006	1.40e-003
n-Pentane	7.70e-006	1.44e-003
Cyclopentane	1.02e-006	1.90e-004
n-Hexane	3.20e-007	5.98e-005
Cyclohexane	3.65e-005	6.82e-003
Other Hexanes	5.42e-006	1.01e-003
Heptanes	3.05e-006	5.71e-004
Methylcyclohexane	1.39e-004	2.59e-002
2,2,4-Trimethylpentane	5.01e-007	9.37e-005
Benzene	5.42e-005	1.01e-002
Xylenes	1.45e-003	2.71e-001
C8+ Heavies	6.10e-004	1.14e-001

Total Components	100.00	1.87e+004

RICH GLYCOL STREAM

Temperature: 100.00 deg. F
Pressure: 890.80 psia
Flow Rate: 3.41e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.63e+001	1.84e+004
Water	3.38e+000	6.46e+002
Nitrogen	7.58e-005	1.45e-002
Methane	2.82e-001	5.39e+001
Ethane	2.04e-002	3.90e+000

Propane	1.07e-002	2.04e+000
Isobutane	2.85e-003	5.44e-001
n-Butane	3.35e-003	6.40e-001
Isopentane	1.47e-003	2.81e-001
n-Pentane	1.50e-003	2.88e-001
Cyclopentane	1.98e-004	3.80e-002
n-Hexane	6.25e-005	1.20e-002
Cyclohexane	1.11e-003	2.13e-001
Other Hexanes	5.29e-004	1.01e-001
Heptanes	5.97e-004	1.14e-001
Methylcyclohexane	3.39e-003	6.48e-001
2,2,4-Trimethylpentane	3.26e-005	6.24e-003
Benzene	1.06e-003	2.02e-001
Xylenes	1.10e-002	2.10e+000
C8+ Heavies	4.96e-003	9.48e-001

Total Components	100.00	1.91e+004

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 74.70 psia
Flow Rate: 1.21e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.87e-002	5.67e-002
Nitrogen	1.48e-002	1.32e-002
Methane	9.58e+001	4.90e+001
Ethane	2.94e+000	2.82e+000
Propane	7.71e-001	1.08e+000
Isobutane	1.20e-001	2.23e-001
n-Butane	1.17e-001	2.17e-001
Isopentane	3.63e-002	8.34e-002
n-Pentane	3.09e-002	7.11e-002
Cyclopentane	1.31e-003	2.93e-003
n-Hexane	6.27e-004	1.72e-003
Cyclohexane	3.10e-003	8.32e-003
Other Hexanes	6.81e-003	1.87e-002
Heptanes	2.52e-003	8.05e-003
Methylcyclohexane	5.94e-003	1.86e-002
2,2,4-Trimethylpentane	2.32e-004	8.46e-004
Benzene	3.83e-004	9.55e-004
Xylenes	5.78e-004	1.96e-003
C8+ Heavies	1.09e-003	5.90e-003

Total Components	100.00	5.37e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 3.40e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.65e+001	1.84e+004
Water	3.39e+000	6.46e+002
Nitrogen	6.59e-006	1.26e-003
Methane	2.53e-002	4.83e+000

Ethane	5.65e-003	1.08e+000
Propane	5.02e-003	9.58e-001
Isobutane	1.68e-003	3.21e-001
n-Butane	2.22e-003	4.23e-001
Isopentane	1.03e-003	1.97e-001
n-Pentane	1.14e-003	2.17e-001
Cyclopentane	1.84e-004	3.50e-002
n-Hexane	5.37e-005	1.02e-002
Cyclohexane	1.07e-003	2.05e-001
Other Hexanes	4.33e-004	8.25e-002
Heptanes	5.56e-004	1.06e-001
Methylcyclohexane	3.30e-003	6.29e-001
2,2,4-Trimethylpentane	2.83e-005	5.40e-003
Benzene	1.06e-003	2.02e-001
Xylenes	1.10e-002	2.10e+000
C8+ Heavies	4.94e-003	9.42e-001

Total Components	100.00	1.91e+004

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 7.86e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.80e+001	3.65e+002
Nitrogen	2.17e-004	1.26e-003
Methane	1.45e+000	4.83e+000
Ethane	1.73e-001	1.08e+000
Propane	1.05e-001	9.58e-001
Isobutane	2.67e-002	3.21e-001
n-Butane	3.51e-002	4.23e-001
Isopentane	1.31e-002	1.96e-001
n-Pentane	1.44e-002	2.15e-001
Cyclopentane	2.40e-003	3.48e-002
n-Hexane	5.70e-004	1.02e-002
Cyclohexane	1.14e-002	1.98e-001
Other Hexanes	4.57e-003	8.15e-002
Heptanes	5.09e-003	1.06e-001
Methylcyclohexane	2.97e-002	6.03e-001
2,2,4-Trimethylpentane	2.24e-004	5.30e-003
Benzene	1.18e-002	1.91e-001
Xylenes	8.31e-002	1.83e+000
C8+ Heavies	2.35e-002	8.28e-001

Total Components	100.00	3.77e+002

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Milagro TEG Dehydrators

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV
Renewal\2023 Gas Analysis\GRI-GLYCalc\new\unit 11.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Unit 11b
Capacity: 145 MMSCFD
Train 3 extended gas analysis sampled
10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 71.10 deg. F
Pressure: 875.60 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
-----	-----
Carbon Dioxide	1.0592
Nitrogen	0.0078
Methane	97.2186
Ethane	1.1628
Propane	0.4588
Isobutane	0.0490
n-Butane	0.0272
Isopentane	0.0067
n-Pentane	0.0028
Cyclopentane	0.0002
n-Hexane	0.0001
Cyclohexane	0.0004
Other Hexanes	0.0010
Heptanes	0.0005
Methylcyclohexane	0.0008
2,2,4-Trimethylpentane	0.0001

DRY GAS:

Flow Rate: 145.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 33.2 gpm

PUMP:

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 100.0 deg. F
Pressure: 60.0 psig

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Milagro TEG Dehydrators

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV Renewal\GRI-CLYCa\unit 11.ddf

Date: March 15, 2024

DESCRIPTION:

Description: Unit 11b

Capacity: 145 MMSCFD

Train 3 extended gas analysis sampled

10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 71.10 deg. F

Pressure: 875.60 psig

Wet Gas Water Content: Saturated

Component	Conc. (vol %)
-----------	------------------

Carbon Dioxide	1.0592
Nitrogen	0.0078
Methane	97.2186
Ethane	1.1628
Propane	0.4588
Isobutane	0.0490
n-Butane	0.0272
Isopentane	0.0067
n-Pentane	0.0028
Cyclopentane	0.0002
n-Hexane	0.0001
Cyclohexane	0.0004
Other Hexanes	0.0010
Heptanes	0.0005
Methylcyclohexane	0.0008
2,2,4-Trimethylpentane	0.0001

DRY GAS:

Flow Rate:	145.0 MMSCF/day
Water Content:	7.0 lbs. H ₂ O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H₂O
Flow Rate: 33.2 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 100.0 deg. F
Pressure: 60.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Milagro TEG Dehydrators

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV
Renewal\2023 Gas Analysis\GRI-GLYCalc\new\unit 11.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Unit 11b

Capacity: 145 MMSCFD

Train 3 extended gas analysis sampled
10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	4.5284	108.681	19.8343
Ethane	1.1288	27.092	4.9443
Propane	1.8224	43.738	7.9823
Isobutane	0.4820	11.567	2.1110
n-Butane	0.4055	9.732	1.7760
Isopentane	0.1357	3.258	0.5945
n-Pentane	0.0816	1.960	0.3576
Cyclopentane	0.0312	0.749	0.1367
n-Hexane	0.0070	0.168	0.0307
Cyclohexane	0.1419	3.406	0.6216
Other Hexanes	0.0496	1.191	0.2174
Heptanes	0.0862	2.068	0.3775
Methylcyclohexane	0.3752	9.005	1.6434
2,2,4-Trimethylpentane	0.0073	0.174	0.0318
Total Emissions	9.2829	222.789	40.6590
Total Hydrocarbon Emissions	9.2829	222.789	40.6590
Total VOC Emissions	3.6257	87.016	15.8804
Total HAP Emissions	0.0143	0.343	0.0625

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	49.3759	1185.021	216.2663
Ethane	3.0853	74.048	13.5137
Propane	2.2373	53.696	9.7995
Isobutane	0.3607	8.657	1.5799
n-Butane	0.2243	5.383	0.9823

Isopentane	0.0618	1.484	0.2708
n-Pentane	0.0288	0.691	0.1262
Cyclopentane	0.0027	0.065	0.0118
n-Hexane	0.0013	0.030	0.0055
Cyclohexane	0.0061	0.146	0.0267
Other Hexanes	0.0120	0.289	0.0527
Heptanes	0.0068	0.164	0.0300
Methylcyclohexane	0.0118	0.283	0.0517
2,2,4-Trimethylpentane	0.0012	0.029	0.0053

Total Emissions	55.4161	1329.986	242.7224
Total Hydrocarbon Emissions	55.4161	1329.986	242.7224
Total VOC Emissions	2.9549	70.917	12.9424
Total HAP Emissions	0.0025	0.059	0.0108

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	0.97 lbs. H2O/MMSCF
Temperature:	71.1 deg. F
Pressure:	875.6 psig
Dry Gas Flow Rate:	145.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.4150 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	26.42 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	12.95 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol

Water	3.66%	96.34%
Carbon Dioxide	99.64%	0.36%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.92%	0.08%
Propane	99.87%	0.13%
Isobutane	99.81%	0.19%
n-Butane	99.75%	0.25%
Isopentane	99.74%	0.26%
n-Pentane	99.66%	0.34%
Cyclopentane	98.48%	1.52%
n-Hexane	99.40%	0.60%
Cyclohexane	97.24%	2.76%
Other Hexanes	99.55%	0.45%
Heptanes	98.83%	1.17%
Methylcyclohexane	96.91%	3.09%
2,2,4-Trimethylpentane	99.53%	0.47%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 100.0 deg. F
Flash Pressure: 60.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.99%	0.01%
Carbon Dioxide	57.37%	42.63%
Nitrogen	8.23%	91.77%
Methane	8.40%	91.60%
Ethane	26.79%	73.21%
Propane	44.89%	55.11%
Isobutane	57.19%	42.81%
n-Butane	64.39%	35.61%
Isopentane	68.86%	31.14%
n-Pentane	74.05%	25.95%
Cyclopentane	92.10%	7.90%
n-Hexane	84.89%	15.11%
Cyclohexane	96.01%	3.99%
Other Hexanes	80.67%	19.33%
Heptanes	92.68%	7.32%
Methylcyclohexane	97.07%	2.93%
2,2,4-Trimethylpentane	85.98%	14.02%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	64.57%	35.43%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.73%	99.27%
n-Pentane	0.68%	99.32%
Cyclopentane	0.54%	99.46%
n-Hexane	0.59%	99.41%
Cyclohexane	3.33%	96.67%
Other Hexanes	1.24%	98.76%
Heptanes	0.54%	99.46%
Methylcyclohexane	4.12%	95.88%
2,2,4-Trimethylpentane	1.75%	98.25%

STREAM REPORTS:

WET GAS STREAM

 Temperature: 71.10 deg. F
 Pressure: 890.30 psia
 Flow Rate: 6.05e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	5.57e-002	1.60e+002
Carbon Dioxide	1.06e+000	7.42e+003
Nitrogen	7.80e-003	3.48e+001
Methane	9.72e+001	2.48e+005
Ethane	1.16e+000	5.57e+003
Propane	4.59e-001	3.22e+003
Isobutane	4.90e-002	4.54e+002
n-Butane	2.72e-002	2.52e+002
Isopentane	6.70e-003	7.70e+001
n-Pentane	2.80e-003	3.22e+001
Cyclopentane	2.00e-004	2.23e+000
n-Hexane	9.99e-005	1.37e+000
Cyclohexane	4.00e-004	5.36e+000
Other Hexanes	9.99e-004	1.37e+001
Heptanes	5.00e-004	7.98e+000
Methylcyclohexane	8.00e-004	1.25e+001
2,2,4-Trimethylpentane	9.99e-005	1.82e+000
-----	-----	-----
Total Components	100.00	2.66e+005

DRY GAS STREAM

 Temperature: 71.10 deg. F
 Pressure: 890.30 psia
 Flow Rate: 6.04e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	2.04e-003	5.84e+000
Carbon Dioxide	1.06e+000	7.40e+003
Nitrogen	7.80e-003	3.48e+001
Methane	9.72e+001	2.48e+005
Ethane	1.16e+000	5.56e+003
Propane	4.58e-001	3.22e+003
Isobutane	4.89e-002	4.53e+002
n-Butane	2.71e-002	2.51e+002
Isopentane	6.68e-003	7.68e+001
n-Pentane	2.79e-003	3.21e+001
Cyclopentane	1.97e-004	2.20e+000
n-Hexane	9.94e-005	1.36e+000
Cyclohexane	3.89e-004	5.21e+000
Other Hexanes	9.96e-004	1.37e+001
Heptanes	4.94e-004	7.89e+000
Methylcyclohexane	7.75e-004	1.21e+001
2,2,4-Trimethylpentane	9.96e-005	1.81e+000
-----	-----	-----
Total Components	100.00	2.65e+005

LEAN GLYCOL STREAM

Temperature: 71.10 deg. F
Flow Rate: 3.32e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.84e+004
Water	1.50e+000	2.80e+002
Carbon Dioxide	1.44e-011	2.69e-009
Nitrogen	4.56e-015	8.52e-013
Methane	9.69e-018	1.81e-015
Ethane	1.06e-008	1.99e-006
Propane	8.84e-010	1.65e-007
Isobutane	1.35e-010	2.53e-008
n-Butane	8.36e-011	1.56e-008
Isopentane	5.31e-006	9.94e-004
n-Pentane	2.97e-006	5.55e-004
Cyclopentane	9.12e-007	1.70e-004
n-Hexane	2.23e-007	4.16e-005
Cyclohexane	2.62e-005	4.89e-003
Other Hexanes	3.34e-006	6.23e-004
Heptanes	2.50e-006	4.68e-004
Methylcyclohexane	8.63e-005	1.61e-002
2,2,4-Trimethylpentane	6.90e-007	1.29e-004
Total Components	100.00	1.87e+004

RICH GLYCOL STREAM

Temperature: 71.10 deg. F
Pressure: 890.30 psia
Flow Rate: 3.37e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.72e+001	1.84e+004
Water	2.29e+000	4.34e+002
Carbon Dioxide	1.42e-001	2.69e+001
Nitrogen	4.51e-005	8.55e-003
Methane	2.85e-001	5.39e+001
Ethane	2.23e-002	4.21e+000
Propane	2.14e-002	4.06e+000
Isobutane	4.45e-003	8.43e-001
n-Butane	3.33e-003	6.30e-001
Isopentane	1.05e-003	1.99e-001
n-Pentane	5.86e-004	1.11e-001
Cyclopentane	1.80e-004	3.41e-002
n-Hexane	4.39e-005	8.31e-003
Cyclohexane	8.07e-004	1.53e-001
Other Hexanes	3.29e-004	6.23e-002
Heptanes	4.94e-004	9.35e-002
Methylcyclohexane	2.13e-003	4.03e-001
2,2,4-Trimethylpentane	4.54e-005	8.60e-003
Total Components	100.00	1.89e+004

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
 Pressure: 74.70 psia
 Flow Rate: 1.33e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.59e-002	4.16e-002
Carbon Dioxide	7.43e+000	1.15e+001
Nitrogen	7.99e-003	7.85e-003
Methane	8.78e+001	4.94e+001
Ethane	2.93e+000	3.09e+000
Propane	1.45e+000	2.24e+000
Isobutane	1.77e-001	3.61e-001
n-Butane	1.10e-001	2.24e-001
Isopentane	2.44e-002	6.18e-002
n-Pentane	1.14e-002	2.88e-002
Cyclopentane	1.10e-003	2.69e-003
n-Hexane	4.16e-004	1.26e-003
Cyclohexane	2.07e-003	6.10e-003
Other Hexanes	3.98e-003	1.20e-002
Heptanes	1.95e-003	6.84e-003
Methylcyclohexane	3.43e-003	1.18e-002
2,2,4-Trimethylpentane	3.01e-004	1.20e-003
Total Components	100.00	6.69e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
 Flow Rate: 3.36e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.76e+001	1.84e+004
Water	2.30e+000	4.34e+002
Carbon Dioxide	8.18e-002	1.54e+001
Nitrogen	3.73e-006	7.04e-004
Methane	2.40e-002	4.53e+000
Ethane	5.98e-003	1.13e+000
Propane	9.66e-003	1.82e+000
Isobutane	2.55e-003	4.82e-001
n-Butane	2.15e-003	4.05e-001
Isopentane	7.25e-004	1.37e-001
n-Pentane	4.36e-004	8.22e-002
Cyclopentane	1.66e-004	3.14e-002
n-Hexane	3.74e-005	7.06e-003
Cyclohexane	7.78e-004	1.47e-001
Other Hexanes	2.66e-004	5.03e-002
Heptanes	4.59e-004	8.66e-002
Methylcyclohexane	2.07e-003	3.91e-001
2,2,4-Trimethylpentane	3.92e-005	7.39e-003
Total Components	100.00	1.89e+004

FLASH GAS EMISSIONS

Control Method: Recycle/recompression

Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

 Temperature: 212.00 deg. F
 Pressure: 14.70 psia
 Flow Rate: 3.52e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	9.21e+001	1.54e+002
Carbon Dioxide	3.78e+000	1.54e+001
Nitrogen	2.71e-004	7.04e-004
Methane	3.04e+000	4.53e+000
Ethane	4.04e-001	1.13e+000
Propane	4.45e-001	1.82e+000
Isobutane	8.93e-002	4.82e-001
n-Butane	7.52e-002	4.05e-001
Isopentane	2.03e-002	1.36e-001
n-Pentane	1.22e-002	8.16e-002
Cyclopentane	4.79e-003	3.12e-002
n-Hexane	8.77e-004	7.02e-003
Cyclohexane	1.82e-002	1.42e-001
Other Hexanes	6.20e-003	4.96e-002
Heptanes	9.26e-003	8.62e-002
Methylcyclohexane	4.12e-002	3.75e-001
2,2,4-Trimethylpentane	6.85e-004	7.26e-003
-----	-----	-----
Total Components	100.00	1.79e+002

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Milagro TEG Dehydrator

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV
Renewal\2023 Gas Analysis\GRI-GLYCalc\new\unit14.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Unit 14
Capacity: 90 MMSCFD
Train 4 extended gas analysis sampled
10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 84.70 deg. F
Pressure: 864.60 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.0016
Nitrogen	0.0057
Methane	98.3155
Ethane	1.2113
Propane	0.2628
Isobutane	0.0392
n-Butane	0.0318
Isopentane	0.0070
n-Pentane	0.0044
Cyclopentane	0.0001
Cyclohexane	0.0004
Other Hexanes	0.1200
Heptanes	0.0005
Methylcyclohexane	0.0012
2,2,4-Trimethylpentane	0.0001
Benzene	0.0001
Toluene	0.0004
Xylenes	0.0004
C8+ Heavies	0.0008

DRY GAS:

Flow Rate: 90.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 10.4 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Milagro TEG Dehydrator

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV Renewal\2023 Gas Analysis\GRI-GLYCalc\new\unit14.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Unit 14

Capacity: 90 MMSCFD

Train 4 extended gas analysis sampled
10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	16.4861	395.665	72.2089
Ethane	1.2733	30.559	5.5769
Propane	0.6770	16.247	2.9650
Isobutane	0.1906	4.574	0.8348
n-Butane	0.2054	4.929	0.8995
Isopentane	0.0568	1.363	0.2488
n-Pentane	0.0470	1.128	0.2059
Cyclopentane	0.0045	0.107	0.0195
Cyclohexane	0.0379	0.909	0.1659
Other Hexanes	1.9681	47.236	8.6205
Heptanes	0.0237	0.568	0.1037
Methylcyclohexane	0.1469	3.525	0.6433
2,2,4-Trimethylpentane	0.0022	0.054	0.0098
Benzene	0.0812	1.949	0.3557
Toluene	0.5723	13.736	2.5068
Xylenes	1.1609	27.861	5.0846
C8+ Heavies	0.1830	4.393	0.8017
Total Emissions	23.1167	554.802	101.2513
Total Hydrocarbon Emissions	23.1167	554.802	101.2513
Total VOC Emissions	5.3574	128.578	23.4655
Total HAP Emissions	1.8166	43.599	7.9568
Total BTEX Emissions	1.8144	43.545	7.9470

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 2.31 lbs. H2O/MMSCF
 Temperature: 84.7 deg. F
 Pressure: 864.6 psig
 Dry Gas Flow Rate: 90.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.4660 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 40.83 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 4.32 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.64%	94.36%
Carbon Dioxide	99.84%	0.16%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.94%	0.06%
Isobutane	99.92%	0.08%
n-Butane	99.89%	0.11%
Isopentane	99.89%	0.11%
n-Pentane	99.85%	0.15%
Cyclopentane	99.36%	0.64%
Cyclohexane	98.86%	1.14%
Other Hexanes	99.81%	0.19%
Heptanes	99.52%	0.48%
Methylcyclohexane	98.74%	1.26%
2,2,4-Trimethylpentane	99.80%	0.20%
Benzene	89.48%	10.52%
Toluene	84.29%	15.71%
Xylenes	72.34%	27.66%
C8+ Heavies	98.64%	1.36%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	37.79%	62.21%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.50%	99.50%
n-Pentane	0.50%	99.50%
Cyclopentane	0.50%	99.50%
Cyclohexane	3.20%	96.80%
Other Hexanes	1.00%	99.00%
Heptanes	0.50%	99.50%
Methylcyclohexane	4.00%	96.00%
2,2,4-Trimethylpentane	1.50%	98.50%
Benzene	5.00%	95.00%
Toluene	7.90%	92.10%

Xylenes	12.92%	87.08%
C8+ Heavies	12.04%	87.96%

STREAM REPORTS:

WET GAS STREAM

Temperature: 84.70 deg. F
 Pressure: 879.30 psia
 Flow Rate: 3.75e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.60e-002	1.53e+002
Carbon Dioxide	1.60e-003	6.96e+000
Nitrogen	5.69e-003	1.58e+001
Methane	9.82e+001	1.56e+005
Ethane	1.21e+000	3.60e+003
Propane	2.63e-001	1.15e+003
Isobutane	3.92e-002	2.25e+002
n-Butane	3.18e-002	1.83e+002
Isopentane	6.99e-003	4.99e+001
n-Pentane	4.40e-003	3.14e+001
Cyclopentane	9.99e-005	6.93e-001
Cyclohexane	4.00e-004	3.33e+000
Other Hexanes	1.20e-001	1.02e+003
Heptanes	5.00e-004	4.95e+000
Methylcyclohexane	1.20e-003	1.16e+001
2,2,4-Trimethylpentane	9.99e-005	1.13e+000
Benzene	9.99e-005	7.72e-001
Toluene	4.00e-004	3.64e+000
Xylenes	4.00e-004	4.20e+000
C8+ Heavies	7.99e-004	1.35e+001
Total Components	100.00	1.62e+005

DRY GAS STREAM

Temperature: 84.70 deg. F
 Pressure: 879.30 psia
 Flow Rate: 3.75e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.86e-003	8.65e+000
Carbon Dioxide	1.60e-003	6.95e+000
Nitrogen	5.70e-003	1.58e+001
Methane	9.83e+001	1.56e+005
Ethane	1.21e+000	3.60e+003
Propane	2.63e-001	1.14e+003
Isobutane	3.92e-002	2.25e+002
n-Butane	3.18e-002	1.82e+002
Isopentane	6.99e-003	4.99e+001
n-Pentane	4.39e-003	3.13e+001
Cyclopentane	9.94e-005	6.89e-001

Cyclohexane	3.95e-004	3.29e+000
Other Hexanes	1.20e-001	1.02e+003
Heptanes	4.98e-004	4.93e+000
Methylcyclohexane	1.18e-003	1.15e+001
2,2,4-Trimethylpentane	9.98e-005	1.13e+000
Benzene	8.95e-005	6.91e-001
Toluene	3.37e-004	3.07e+000
Xylenes	2.89e-004	3.04e+000
C8+ Heavies	7.89e-004	1.33e+001

Total Components	100.00	1.62e+005

LEAN GLYCOL STREAM

Temperature: 84.70 deg. F
Flow Rate: 1.04e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.85e+001	5.77e+003
Water	1.50e+000	8.78e+001
Carbon Dioxide	1.92e-014	1.13e-012
Nitrogen	3.16e-015	1.85e-013
Methane	9.46e-018	5.54e-016
Ethane	1.03e-008	6.01e-007
Propane	4.71e-010	2.76e-008
Isobutane	9.76e-011	5.72e-009
n-Butane	8.70e-011	5.09e-009
Isopentane	4.87e-006	2.85e-004
n-Pentane	4.03e-006	2.36e-004
Cyclopentane	3.82e-007	2.24e-005
Cyclohexane	2.14e-005	1.25e-003
Other Hexanes	3.40e-004	1.99e-002
Heptanes	2.03e-006	1.19e-004
Methylcyclohexane	1.05e-004	6.12e-003
2,2,4-Trimethylpentane	5.80e-007	3.40e-005
Benzene	7.30e-005	4.27e-003
Toluene	8.39e-004	4.91e-002
Xylenes	2.94e-003	1.72e-001
C8+ Heavies	4.28e-004	2.50e-002

Total Components	100.00	5.86e+003

RICH GLYCOL STREAM

Temperature: 84.70 deg. F
Pressure: 879.30 psia
Flow Rate: 1.07e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.58e+001	5.77e+003
Water	3.86e+000	2.32e+002
Carbon Dioxide	1.87e-004	1.13e-002
Nitrogen	3.07e-005	1.85e-003
Methane	2.74e-001	1.65e+001
Ethane	2.11e-002	1.27e+000

Propane	1.12e-002	6.77e-001
Isobutane	3.16e-003	1.91e-001
n-Butane	3.41e-003	2.05e-001
Isopentane	9.48e-004	5.71e-002
n-Pentane	7.85e-004	4.72e-002
Cyclopentane	7.43e-005	4.48e-003
Cyclohexane	6.50e-004	3.91e-002
Other Hexanes	3.30e-002	1.99e+000
Heptanes	3.95e-004	2.38e-002
Methylcyclohexane	2.54e-003	1.53e-001
2,2,4-Trimethylpentane	3.76e-005	2.26e-003
Benzene	1.42e-003	8.55e-002
Toluene	1.03e-002	6.21e-001
Xylenes	2.21e-002	1.33e+000
C8+ Heavies	3.46e-003	2.08e-001

Total Components	100.00	6.02e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 3.48e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	8.76e+001	1.45e+002
Carbon Dioxide	2.79e-003	1.13e-002
Nitrogen	7.21e-004	1.85e-003
Methane	1.12e+001	1.65e+001
Ethane	4.62e-001	1.27e+000
Propane	1.67e-001	6.77e-001
Isobutane	3.58e-002	1.91e-001
n-Butane	3.85e-002	2.05e-001
Isopentane	8.59e-003	5.68e-002
n-Pentane	7.11e-003	4.70e-002
Cyclopentane	6.93e-004	4.45e-003
Cyclohexane	4.91e-003	3.79e-002
Other Hexanes	2.49e-001	1.97e+000
Heptanes	2.58e-003	2.37e-002
Methylcyclohexane	1.63e-002	1.47e-001
2,2,4-Trimethylpentane	2.13e-004	2.23e-003
Benzene	1.13e-002	8.12e-002
Toluene	6.78e-002	5.72e-001
Xylenes	1.19e-001	1.16e+000
C8+ Heavies	1.17e-002	1.83e-001

Total Components	100.00	1.68e+002

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Milagro TEG Dehydrator

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV
Renewal\2023 Gas Analysis\GRI-GLYCalc\new\Unit15.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Unit 15
Capacity: 120 MMSCFD
Train 5 extended gas analysis sampled
10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 81.50 deg. F
Pressure: 870.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	2.4252
Nitrogen	0.0647
Methane	95.9629
Ethane	1.1753
Propane	0.2686
Isobutane	0.0401
n-Butane	0.0375
Isopentane	0.0111
n-Pentane	0.0077
Cyclopentane	0.0001
n-Hexane	0.0001
Cyclohexane	0.0003
Heptanes	0.0006
Methylcyclohexane	0.0008
Benzene	0.0001
Toluene	0.0003
Xylenes	0.0004
C8+ Heavies	0.0010

DRY GAS:

Flow Rate: 120.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 28.4 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 100.0 deg. F
Pressure: 60.0 psig

Case Name: Milagro TEG Dehydrator

File Name: P:\HarvestMidstream\New Mexico\Milagro\Title V Renewal - Milagro\2024 TV Renewal\2023 Gas Analysis\GRI-GLYCalc\new\Unit15.ddf

Date: June 21, 2024

DESCRIPTION:

Description: Unit 15
 Capacity: 120 MMSCFD
 Train 5 extended gas analysis sampled
 10/30/2023

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.5531	85.275	15.5628
Ethane	0.8896	21.349	3.8963
Propane	0.8422	20.212	3.6887
Isobutane	0.3072	7.374	1.3457
n-Butane	0.4332	10.396	1.8973
Isopentane	0.1733	4.159	0.7591
n-Pentane	0.1714	4.113	0.7507
Cyclopentane	0.0120	0.287	0.0524
n-Hexane	0.0053	0.127	0.0231
Cyclohexane	0.0797	1.914	0.3492
Heptanes	0.0767	1.840	0.3358
Methylcyclohexane	0.2789	6.693	1.2215
Benzene	0.2171	5.210	0.9508
Toluene	1.1028	26.467	4.8302
Xylenes	2.6562	63.750	11.6343
C8+ Heavies	0.6048	14.515	2.6490
Total Emissions	11.4034	273.681	49.9468
Total Hydrocarbon Emissions	11.4034	273.681	49.9468
Total VOC Emissions	6.9607	167.056	30.4877
Total HAP Emissions	3.9814	95.553	17.4384
Total BTEX Emissions	3.9761	95.426	17.4153

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
 Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	41.7464	1001.913	182.8492
Ethane	2.6387	63.328	11.5573

Propane	1.1057	26.536	4.8428
Isobutane	0.2465	5.916	1.0797
n-Butane	0.2568	6.164	1.1248
Isopentane	0.0847	2.034	0.3712
n-Pentane	0.0650	1.559	0.2845
Cyclopentane	0.0011	0.027	0.0049
n-Hexane	0.0010	0.024	0.0045
Cyclohexane	0.0037	0.090	0.0163
Heptanes	0.0066	0.158	0.0288
Methylcyclohexane	0.0096	0.229	0.0418
Benzene	0.0012	0.030	0.0055
Toluene	0.0037	0.090	0.0164
Xylenes	0.0033	0.079	0.0143
C8+ Heavies	0.0047	0.114	0.0207

Total Emissions	46.1787	1108.290	202.2629

Total Hydrocarbon Emissions	46.1787	1108.290	202.2629
Total VOC Emissions	1.7937	43.049	7.8564
Total HAP Emissions	0.0093	0.223	0.0406
Total BTEX Emissions	0.0083	0.198	0.0362

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 1.50 lbs. H2O/MMSCF

Temperature: 81.5 deg. F
 Pressure: 870.0 psig
 Dry Gas Flow Rate: 120.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.5570 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 37.06 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 9.58 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol

Water	4.04%	95.96%
Carbon Dioxide	99.66%	0.34%
Nitrogen	99.97%	0.03%
Methane	99.98%	0.02%
Ethane	99.92%	0.08%
Propane	99.88%	0.12%
Isobutane	99.82%	0.18%
n-Butane	99.76%	0.24%
Isopentane	99.76%	0.24%
n-Pentane	99.68%	0.32%
Cyclopentane	98.58%	1.42%
n-Hexane	99.45%	0.55%
Cyclohexane	97.49%	2.51%

Heptanes	98.95%	1.05%
Methylcyclohexane	97.21%	2.79%
Benzene	78.80%	21.20%
Toluene	69.63%	30.37%
Xylenes	52.49%	47.51%
C8+ Heavies	97.28%	2.72%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 100.0 deg. F
Flash Pressure: 60.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.99%	0.01%
Carbon Dioxide	55.56%	44.44%
Nitrogen	7.66%	92.34%
Methane	7.84%	92.16%
Ethane	25.21%	74.79%
Propane	43.24%	56.76%
Isobutane	55.48%	44.52%
n-Butane	62.78%	37.22%
Isopentane	67.33%	32.67%
n-Pentane	72.65%	27.35%
Cyclopentane	91.48%	8.52%
n-Hexane	83.91%	16.09%
Cyclohexane	95.67%	4.33%
Heptanes	92.13%	7.87%
Methylcyclohexane	96.82%	3.18%
Benzene	99.46%	0.54%
Toluene	99.69%	0.31%
Xylenes	99.89%	0.11%
C8+ Heavies	99.32%	0.68%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	57.40%	42.60%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.74%	99.26%
n-Pentane	0.69%	99.31%
Cyclopentane	0.55%	99.45%
n-Hexane	0.60%	99.40%
Cyclohexane	3.34%	96.66%
Heptanes	0.54%	99.46%
Methylcyclohexane	4.13%	95.87%

Benzene	5.03%	94.97%
Toluene	7.93%	92.07%
Xylenes	12.92%	87.08%
C8+ Heavies	12.11%	87.89%

STREAM REPORTS:

WET GAS STREAM

Temperature: 81.50 deg. F
 Pressure: 884.70 psia
 Flow Rate: 5.01e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.81e-002	1.86e+002
Carbon Dioxide	2.42e+000	1.41e+004
Nitrogen	6.47e-002	2.39e+002
Methane	9.59e+001	2.03e+005
Ethane	1.17e+000	4.66e+003
Propane	2.68e-001	1.56e+003
Isobutane	4.01e-002	3.07e+002
n-Butane	3.75e-002	2.87e+002
Isopentane	1.11e-002	1.06e+002
n-Pentane	7.69e-003	7.32e+001
Cyclopentane	9.99e-005	9.24e-001
n-Hexane	9.99e-005	1.14e+000
Cyclohexane	3.00e-004	3.33e+000
Heptanes	6.00e-004	7.93e+000
Methylcyclohexane	7.99e-004	1.04e+001
Benzene	9.99e-005	1.03e+000
Toluene	3.00e-004	3.64e+000
Xylenes	4.00e-004	5.60e+000
C8+ Heavies	9.99e-004	2.25e+001
Total Components	100.00	2.24e+005

DRY GAS STREAM

Temperature: 81.50 deg. F
 Pressure: 884.70 psia
 Flow Rate: 5.00e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.16e-003	7.50e+000
Carbon Dioxide	2.42e+000	1.40e+004
Nitrogen	6.47e-002	2.39e+002
Methane	9.60e+001	2.03e+005
Ethane	1.17e+000	4.66e+003
Propane	2.68e-001	1.56e+003
Isobutane	4.00e-002	3.07e+002
n-Butane	3.74e-002	2.87e+002
Isopentane	1.11e-002	1.05e+002
n-Pentane	7.68e-003	7.30e+001

Cyclopentane	9.86e-005	9.11e-001
n-Hexane	9.95e-005	1.13e+000
Cyclohexane	2.93e-004	3.24e+000
Heptanes	5.94e-004	7.84e+000
Methylcyclohexane	7.78e-004	1.01e+001

Benzene	7.88e-005	8.11e-001
Toluene	2.09e-004	2.54e+000
Xylenes	2.10e-004	2.94e+000
C8+ Heavies	9.73e-004	2.18e+001

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Total Components	100.00	2.24e+005

LEAN GLYCOL STREAM

Temperature: 81.50 deg. F
Flow Rate: 2.84e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.85e+001	1.57e+004
Water	1.50e+000	2.40e+002
Carbon Dioxide	3.02e-011	4.82e-009
Nitrogen	3.74e-014	5.98e-012
Methane	9.52e-018	1.52e-015
Ethane	1.04e-008	1.67e-006
Propane	4.96e-010	7.93e-008
Isobutane	1.04e-010	1.66e-008
n-Butane	1.07e-010	1.71e-008
Isopentane	8.11e-006	1.30e-003
n-Pentane	7.43e-006	1.19e-003
Cyclopentane	4.11e-007	6.57e-005
n-Hexane	1.98e-007	3.16e-005
Cyclohexane	1.73e-005	2.76e-003
Heptanes	2.62e-006	4.18e-004
Methylcyclohexane	7.52e-005	1.20e-002
Benzene	7.19e-005	1.15e-002
Toluene	5.94e-004	9.49e-002
Xylenes	2.47e-003	3.94e-001
C8+ Heavies	5.21e-004	8.33e-002
-----	-----	-----
Total Components	100.00	1.60e+004

RICH GLYCOL STREAM

Temperature: 81.50 deg. F
Pressure: 884.70 psia
Flow Rate: 2.90e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.68e+001	1.57e+004
Water	2.57e+000	4.18e+002
Carbon Dioxide	2.96e-001	4.82e+001
Nitrogen	3.68e-004	5.98e-002
Methane	2.78e-001	4.53e+001
Ethane	2.17e-002	3.53e+000
Propane	1.20e-002	1.95e+000

Isobutane	3.40e-003	5.54e-001
n-Butane	4.24e-003	6.90e-001
Isopentane	1.59e-003	2.59e-001
n-Pentane	1.46e-003	2.38e-001
Cyclopentane	8.08e-005	1.31e-002
n-Hexane	3.89e-005	6.33e-003
Cyclohexane	5.30e-004	8.62e-002
Heptanes	5.14e-004	8.37e-002
Methylcyclohexane	1.85e-003	3.00e-001
Benzene	1.41e-003	2.30e-001
Toluene	7.38e-003	1.20e+000
Xylenes	1.88e-002	3.05e+000
C8+ Heavies	4.26e-003	6.93e-001

Total Components	100.00	1.63e+004

FLASH TANK OFF GAS STREAM

Temperature: 100.00 deg. F
Pressure: 74.70 psia
Flow Rate: 1.22e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	7.45e-002	4.32e-002
Carbon Dioxide	1.51e+001	2.14e+001
Nitrogen	6.13e-002	5.52e-002
Methane	8.09e+001	4.17e+001
Ethane	2.73e+000	2.64e+000
Propane	7.79e-001	1.11e+000
Isobutane	1.32e-001	2.47e-001
n-Butane	1.37e-001	2.57e-001
Isopentane	3.65e-002	8.47e-002
n-Pentane	2.80e-002	6.50e-002
Cyclopentane	4.96e-004	1.12e-003
n-Hexane	3.67e-004	1.02e-003
Cyclohexane	1.38e-003	3.73e-003
Heptanes	2.04e-003	6.59e-003
Methylcyclohexane	3.02e-003	9.55e-003
Benzene	4.97e-004	1.25e-003
Toluene	1.26e-003	3.73e-003
Xylenes	9.59e-004	3.28e-003
C8+ Heavies	8.64e-004	4.74e-003

Total Components	100.00	6.77e+001

FLASH TANK GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 2.88e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.72e+001	1.57e+004
Water	2.58e+000	4.18e+002
Carbon Dioxide	1.65e-001	2.68e+001
Nitrogen	2.83e-005	4.58e-003
Methane	2.19e-002	3.55e+000

Ethane	5.49e-003	8.90e-001
Propane	5.20e-003	8.42e-001
Isobutane	1.90e-003	3.07e-001
n-Butane	2.67e-003	4.33e-001
Isopentane	1.08e-003	1.75e-001
n-Pentane	1.06e-003	1.73e-001
Cyclopentane	7.42e-005	1.20e-002
n-Hexane	3.28e-005	5.31e-003
Cyclohexane	5.09e-004	8.25e-002
Heptanes	4.76e-004	7.71e-002
Methylcyclohexane	1.80e-003	2.91e-001
Benzene	1.41e-003	2.29e-001
Toluene	7.39e-003	1.20e+000
Xylenes	1.88e-002	3.05e+000
C8+ Heavies	4.25e-003	6.88e-001

Total Components	100.00	1.62e+004

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.11e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)

Water	9.13e+001	1.78e+002
Carbon Dioxide	5.63e+000	2.68e+001
Nitrogen	1.51e-003	4.58e-003
Methane	2.05e+000	3.55e+000
Ethane	2.73e-001	8.90e-001
Propane	1.76e-001	8.42e-001
Isobutane	4.88e-002	3.07e-001
n-Butane	6.88e-002	4.33e-001
Isopentane	2.22e-002	1.73e-001
n-Pentane	2.19e-002	1.71e-001
Cyclopentane	1.58e-003	1.20e-002
n-Hexane	5.66e-004	5.28e-003
Cyclohexane	8.75e-003	7.97e-002
Heptanes	7.07e-003	7.67e-002
Methylcyclohexane	2.62e-002	2.79e-001
Benzene	2.57e-002	2.17e-001
Toluene	1.11e-001	1.10e+000
Xylenes	2.31e-001	2.66e+000
C8+ Heavies	3.28e-002	6.05e-001

Total Components	100.00	2.16e+002

Amine Vent Emissions Calculations

Unit Number: **16a, 16b, 17-19**
 Description: Train 1-5 Amine Vents

Operating Time

34.0 tpy VOC

0 %

4.56 pph VOC

4.56 pph VOC

21.05 pph VOC

21.05 pph VOC

1,701 hr/yr

Allowable annual amine vent emissions

Safety factor

Normal short-term emission rate

Normal short-term emission rate w/safety factor

Ignacio plant outage short-term emission rate

Ignacio plant outage short-term emission rate w/safety factor

$$Z = [(A \times (2,000 \text{ lb/ton})) - (N \times (8,760 \text{ hr/yr}))] / (XH - N)$$

Z = Maximum Ignacio plant outage operating time (hr/yr)

A = Allowable annual amine vent emissions (tpy)

N = Normal short-term emission rate w/safety factor (pph)

XH = Ignacio plant outage short-term emission rate w/safety factor (pph)

Current NSR permit

Estimated

See table below

pph x (1 + (% / 100))

See table below

pph x (1 + (% / 100))

7,059 hr/yr

Minimum normal operating time (hr/yr) = 8,760 hr/yr

- Maximum Ignacio plant outage operating time (hr/yr)

Steady-State Emission Rates

Normal Amine Vent Emissions Calculations(Milagro Plant Inlet 10/30/2023)						
Pollutants	Uncontrolled Emission Rates					
	Train 1, pph	Train 2, pph	Train 3, pph	Train 4, pph	Train 5, pph	Total, pph
H2S	0.000	0.000	0.000	0.000	0.000	0.000
CO2	64618.163	64603.355	64603.355	31587.972	55432.956	280845.801
MDEA	0.000	0.000	0.000	0.000	0.000	0.000
H2O	1875.352	1874.924	1874.924	916.345	1608.911	8150.456
N2	0.000	0.000	0.000	0.000	0.000	0.000
C1	49.507	49.518	49.518	19.322	44.072	211.937
C2	2.507	2.508	2.508	0.906	2.261	10.691
C3	0.871	0.872	0.872	0.306	0.789	3.710
i-C4	0.060	0.060	0.060	0.020	0.055	0.254
n-C4	0.108	0.108	0.108	0.037	0.098	0.460
i-C5	0.032	0.032	0.032	0.011	0.029	0.137
n-C5	0.000	0.000	0.000	0.000	0.000	0.001
Hexanes	0.000	0.000	0.000	0.000	0.000	0.000
Heptanes	0.000	0.000	0.000	0.000	0.000	0.000
Octanes	0.000	0.000	0.000	0.000	0.000	0.000
2,2,4-Trimeth	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	0.000	0.000	0.000	0.000	0.000	0.000
n-Hexane	0.000	0.000	0.000	0.000	0.000	0.000
Toluene	0.000	0.000	0.000	0.000	0.000	0.000
Xylenes	0.000	0.000	0.000	0.000	0.000	0.000
VOC	1.072	1.072	1.072	0.373	0.972	4.561
HAP	0.000	0.000	0.000	0.000	0.000	0.000

Emission rates obtained from Promax results

Amine Vent Emissions Calculations

Unit Number: 16a, 16b, 17-19

Description: Train 1-5 Amine Vents

Ignacio Plant Outage Amine Vent Emissions Calculations (09/21/2023 Plant Inlet Gas Composition)						
Pollutants	Uncontrolled Emission Rates					
	Train 1, pph	Train 2, pph	Train 3, pph	Train 4, pph	Train 5, pph	Total, pph
H2S	0.000	0.000	0.000	0.000	0.000	0.000
CO2	66003.417	65991.489	65991.303	31579.886	56658.342	286224.438
MDEA	0.000	0.000	0.000	0.000	0.000	0.000
H2O	1915.448	1915.104	1915.098	916.134	1644.382	8306.166
N2	0.000	0.000	0.000	0.000	0.000	0.000
C1	48.550	48.559	48.559	19.322	43.234	208.224
C2	2.721	2.722	2.722	1.018	2.455	11.637
C3	0.583	0.583	0.583	0.212	0.528	2.490
i-C4	0.070	0.070	0.070	0.024	0.064	0.297
n-C4	0.133	0.133	0.133	0.047	0.121	0.567
i-C5	0.012	0.012	0.012	0.004	0.011	0.050
n-C5	0.014	0.014	0.014	0.005	0.013	0.059
Hexanes	0.000	0.000	0.000	0.000	0.000	0.000
Heptanes	0.000	0.000	0.000	0.000	0.000	0.000
Octanes	0.000	0.000	0.000	0.000	0.000	0.000
2,2,4-Trimeth	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	0.686	0.686	0.686	0.268	0.616	2.942
Ethylbenzene	0.147	0.147	0.147	0.057	0.132	0.630
n-Hexane	0.002	0.002	0.002	0.001	0.002	0.009
Toluene	1.808	1.809	1.809	0.686	1.633	7.744
Xylenes	1.457	1.457	1.457	0.577	1.308	6.257
VOC	4.911	4.913	4.913	1.881	4.427	21.045
HAP	4.101	4.101	4.102	1.588	3.691	17.583

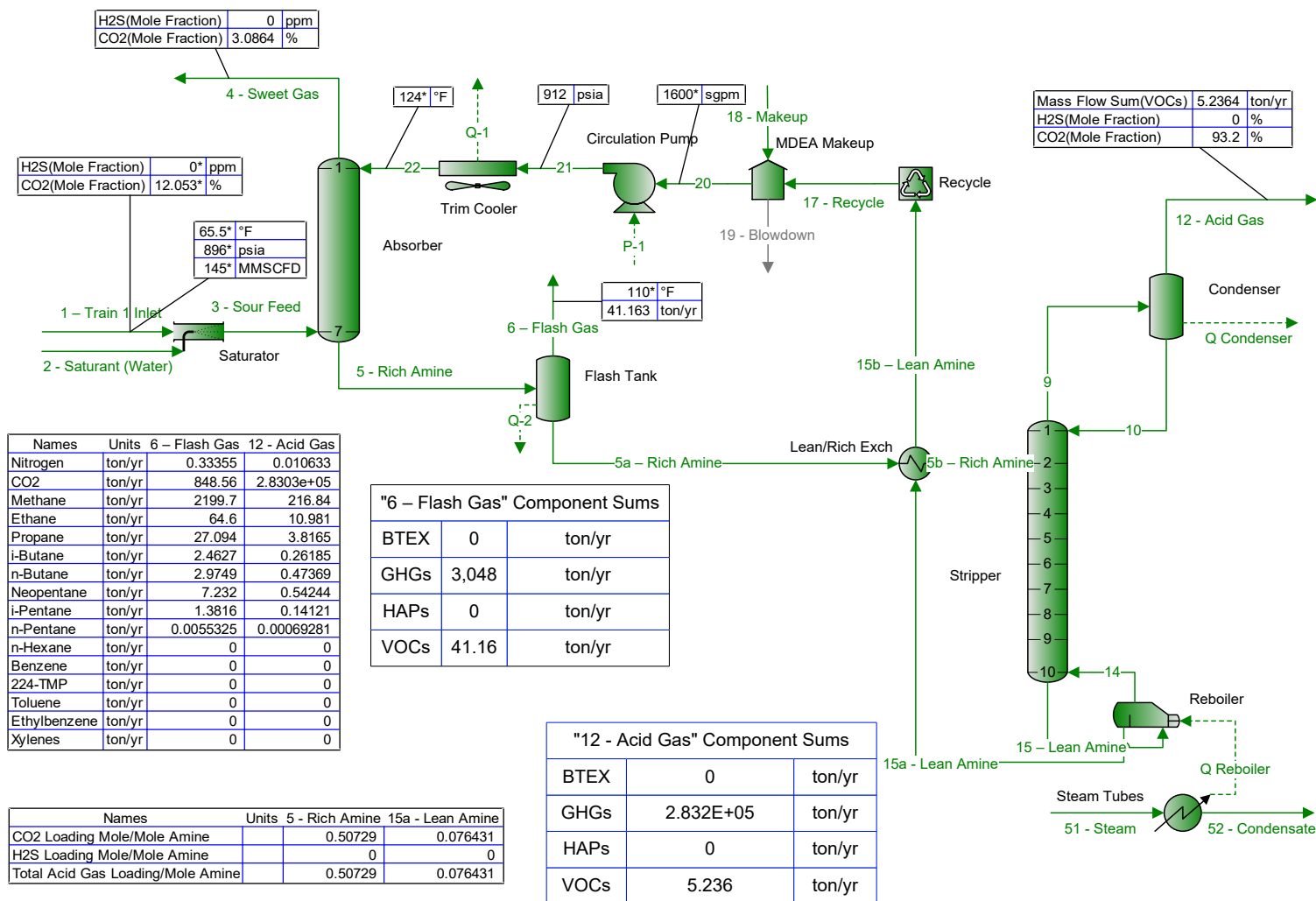
Emission rates obtained from ProMax results

Pollutants	Uncontrolled Emission Rates		
	Normal, pph	Ignacio Outage, pph	Total, tpy
2,2,4-Trimeth	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	2.942	2.50
Ethylbenzene	0.00E+00	6.30E-01	5.36E-01
n-Hexane	0.00E+00	9.39E-03	7.99E-03
Toluene	0.00E+00	7.744	6.59
Xylenes	0.00E+00	6.257	5.32
Total HAP	0.00E+00	17.583	14.96

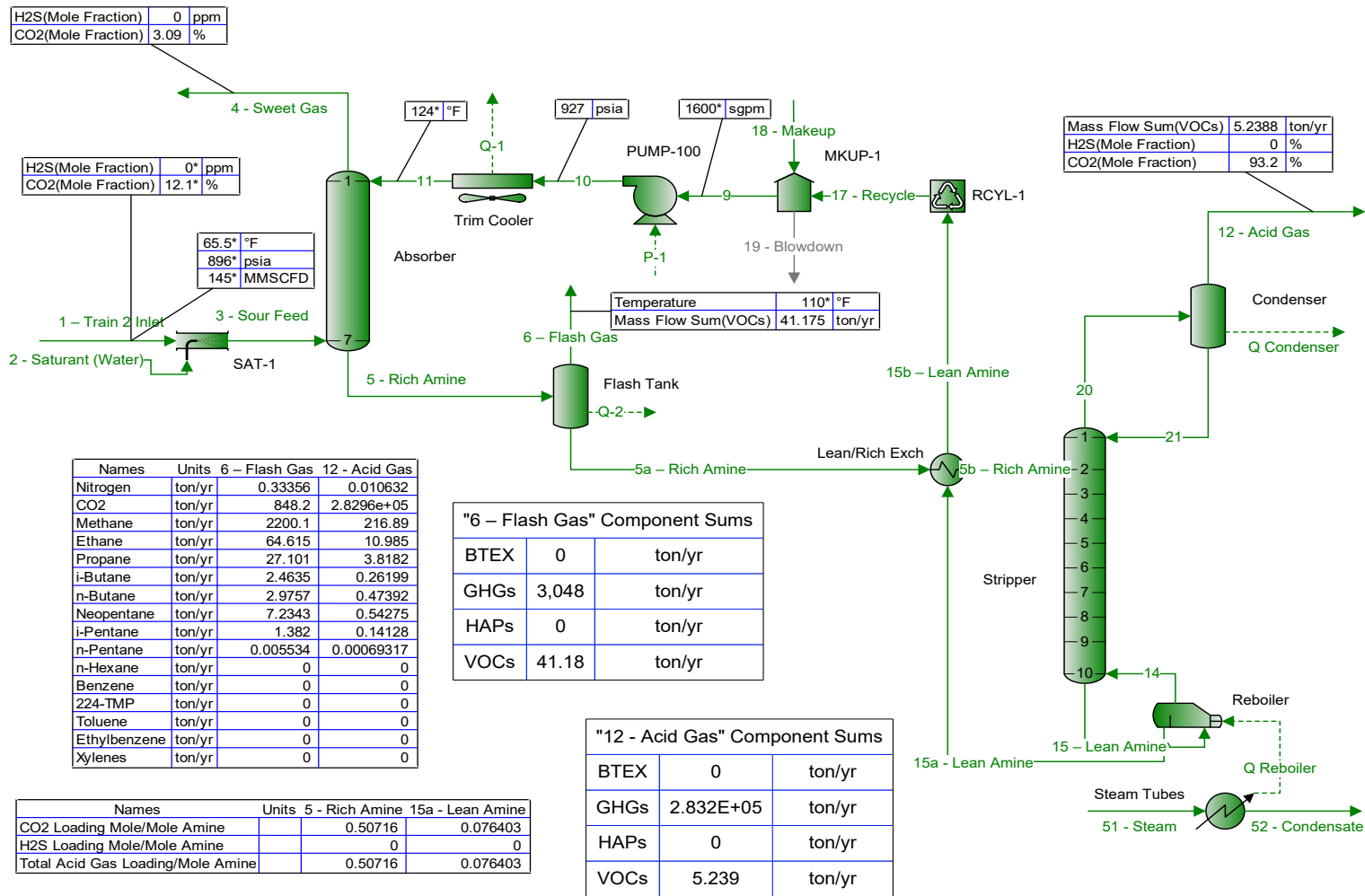
Normal and Ignacio plant outage emission rates (pph) obtained from the tables above

Uncontrolled Emission Rates (tpy) = [(Uncontrolled normal emission rates (pph) x Minimum normal operating time (hr/yr))
+ (Uncontrolled Ignacio plant outage emission rates (pph)
x Maximum Ignacio plant outage operating time (hr/yr))]
/ 2,000 lb/ton

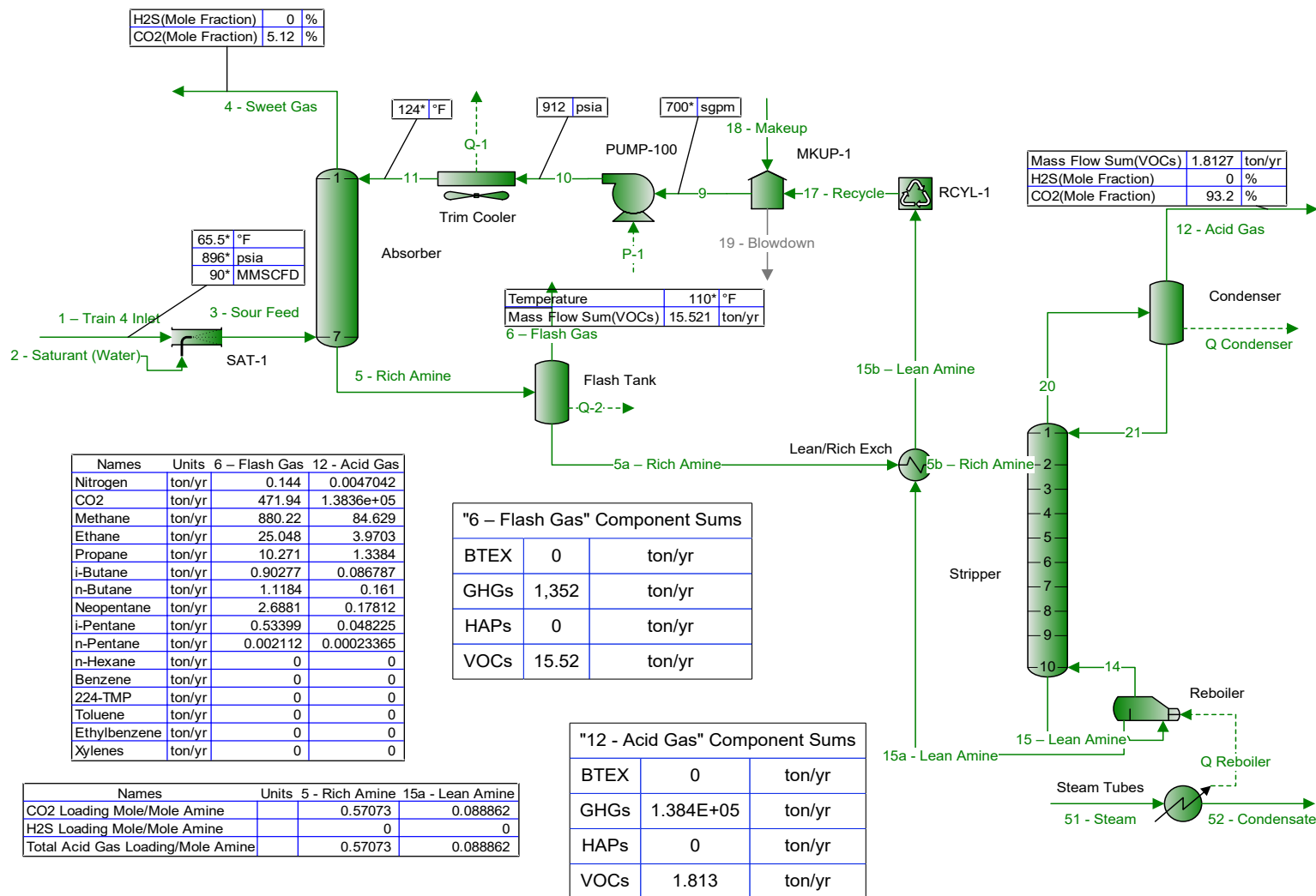
T1 Amine Unit = 145 MMSCFD



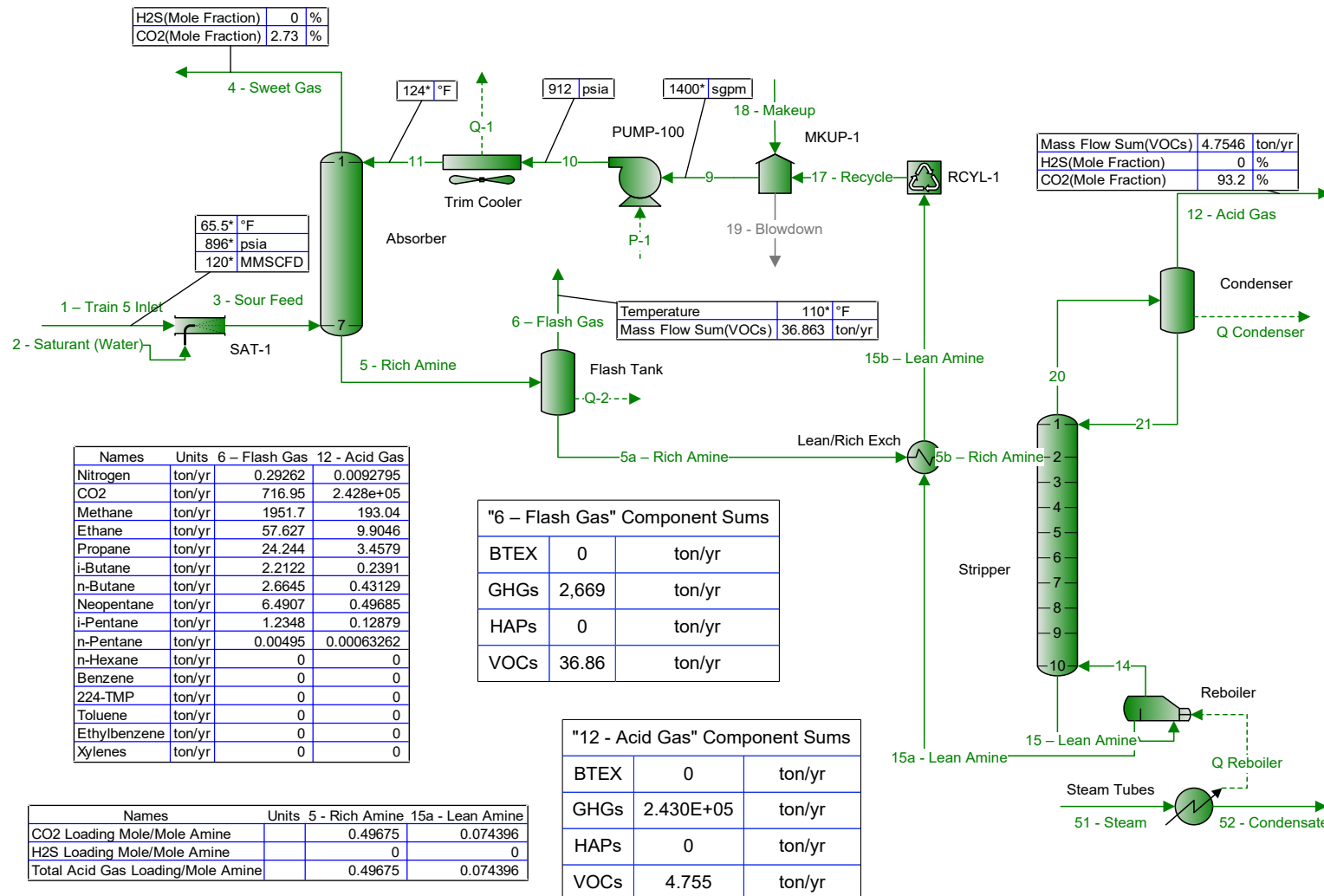
T2 Amine Unit = 145 MMSCFD



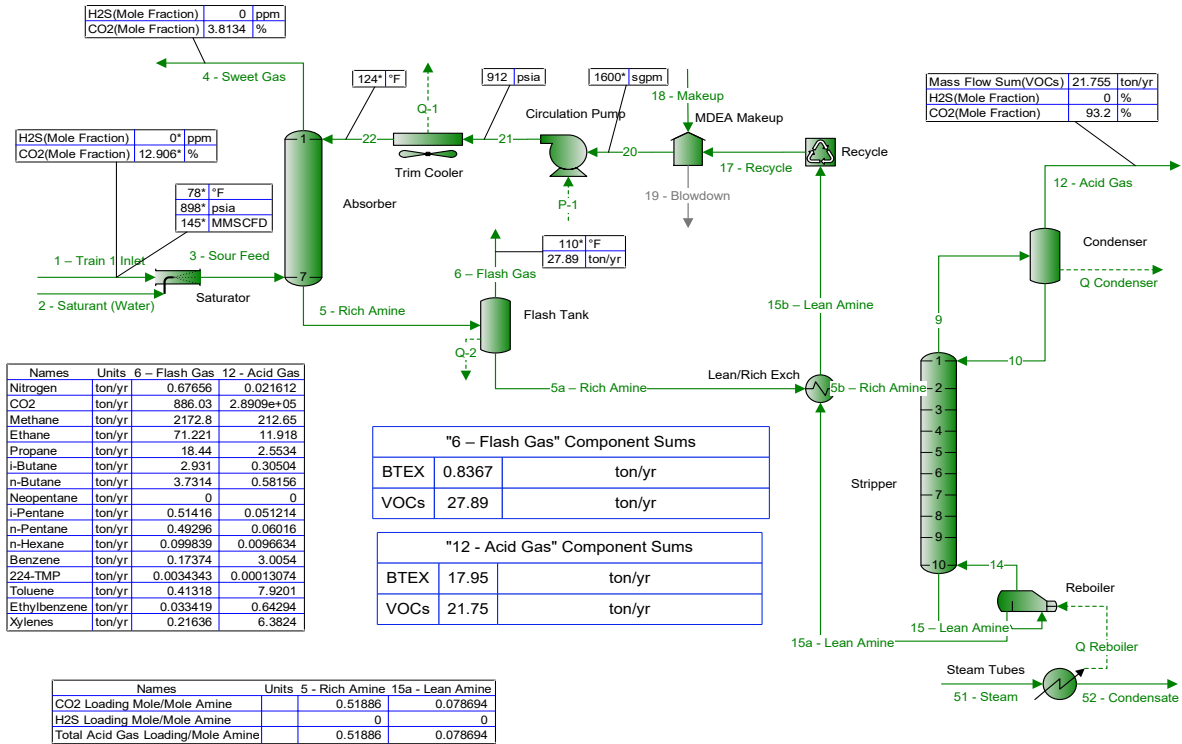
T4 Amine Unit = 90 MMSCFD



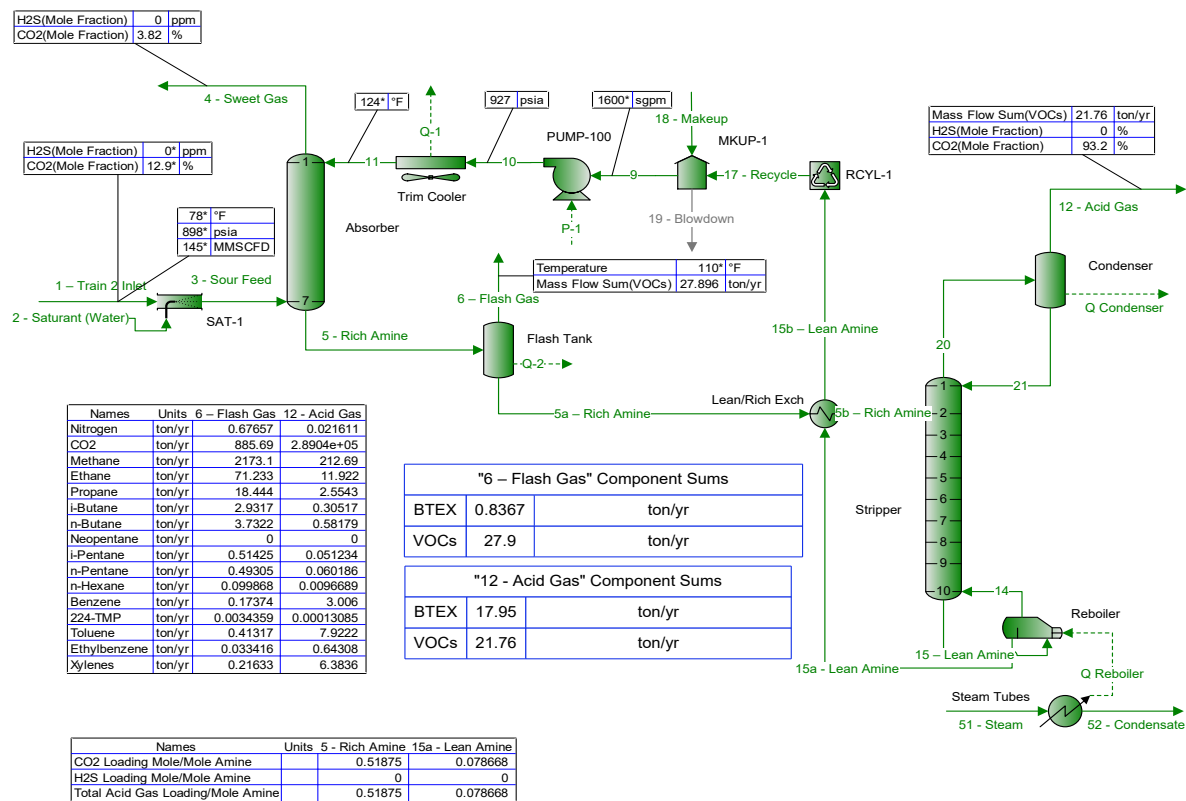
T5 Amine Unit = 120 MMSCFD



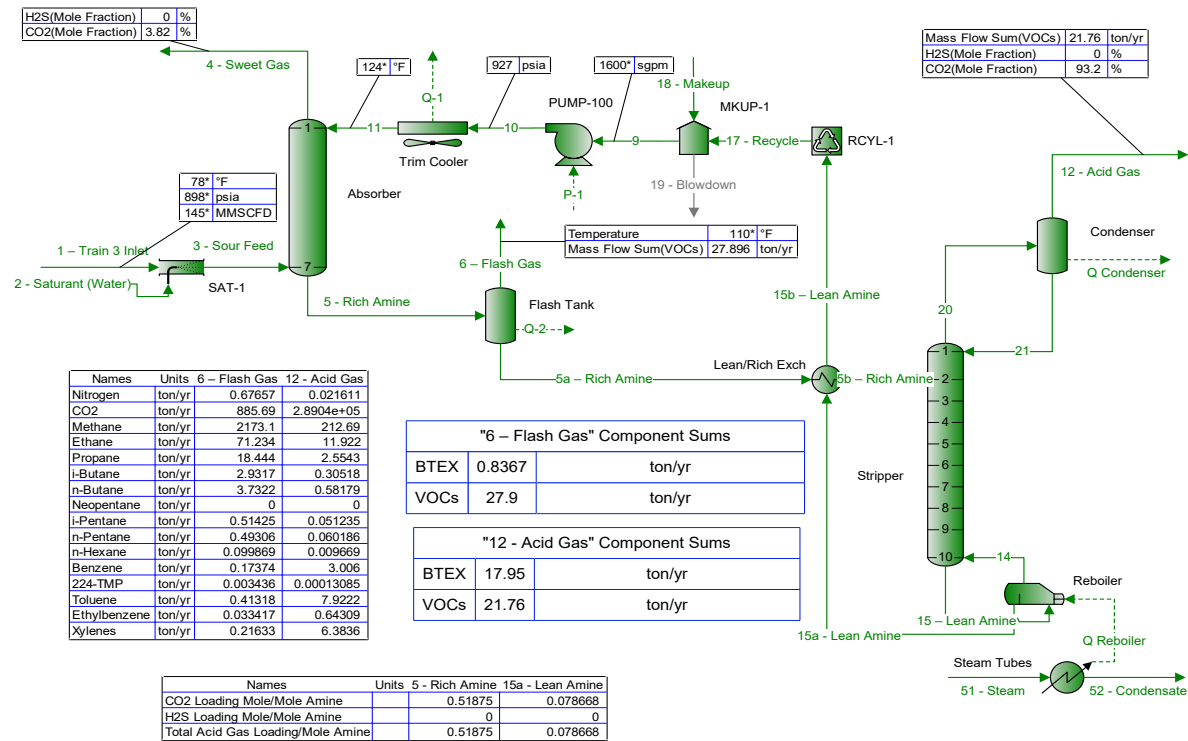
T1 Amine Unit = 145 MMSCFD



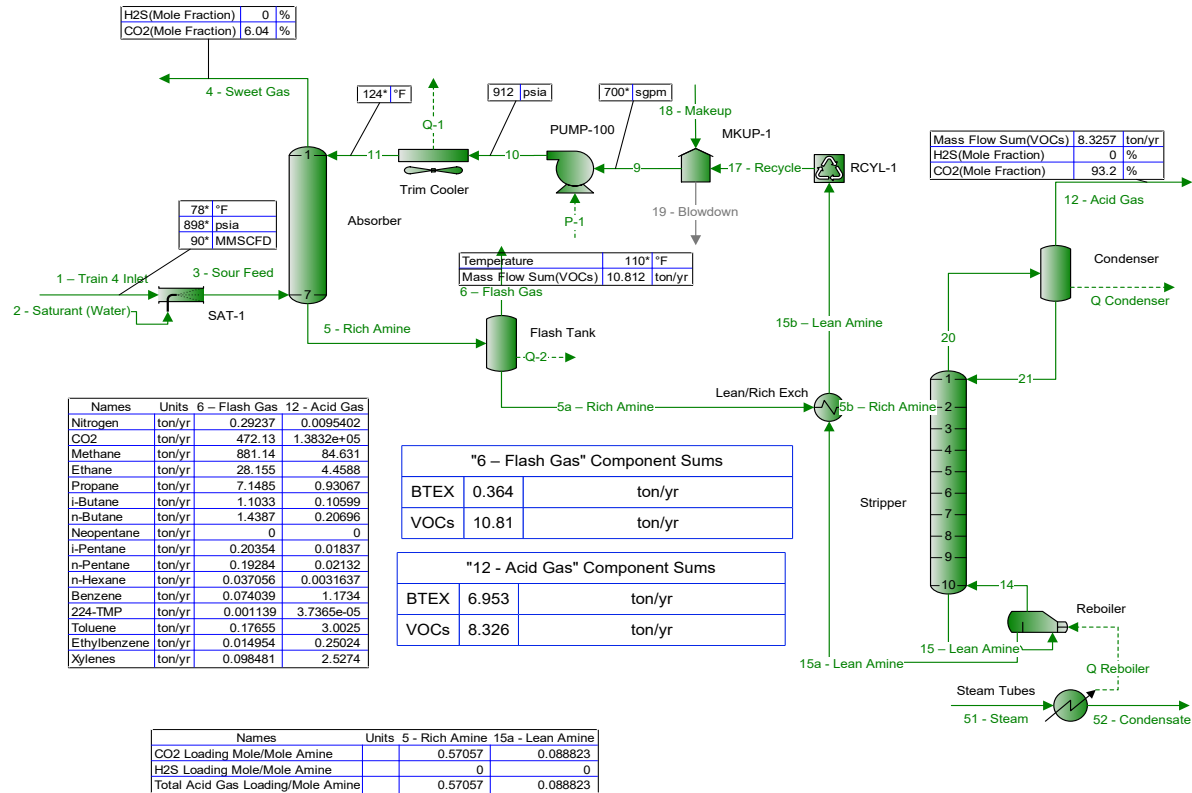
T2 Amine Unit = 145 MMSCFD



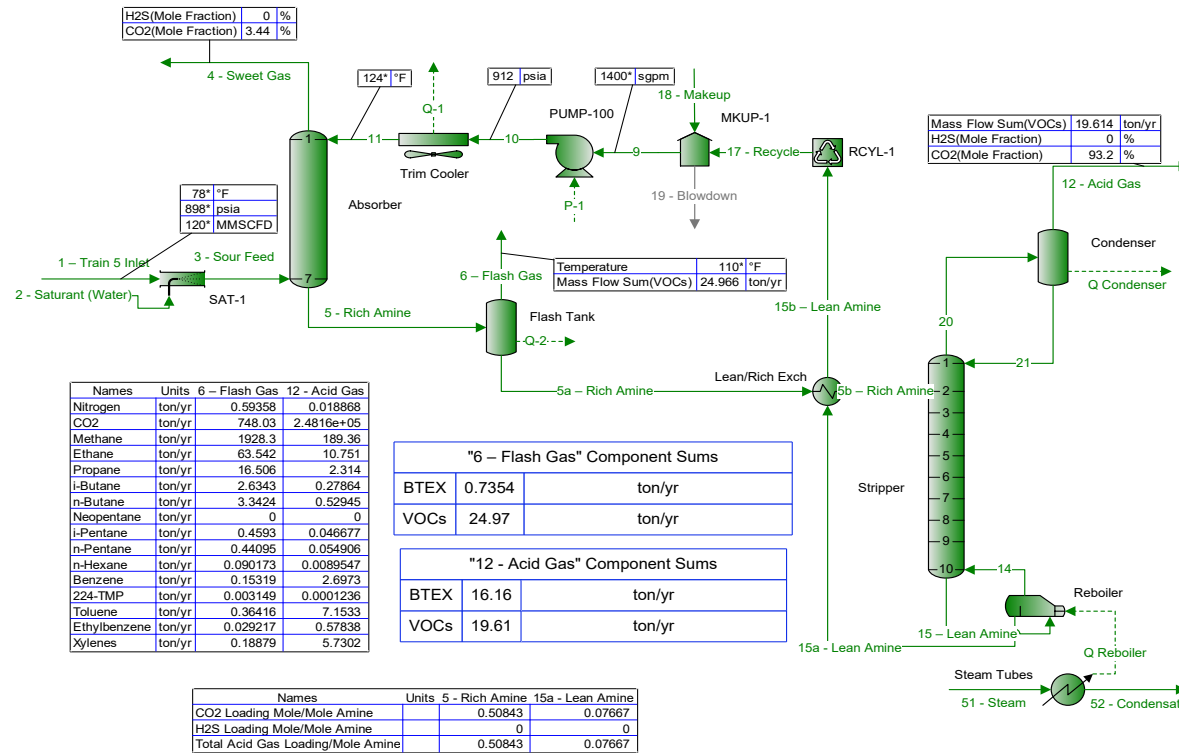
T3 Amine Unit = 145 MMSCFD



T4 Amine Unit = 90 MMSCFD



T5 Amine Unit = 120 MMSCFD



Heater Exhaust Emissions Calculations

Unit Number: 21-29

Description: Warehouse Heaters (2X), Maintenance Heaters (4X), Lab Heater (1X), Office Heater (1X), and Water Heater (1X)

Note: The fuel consumption and emission rate data on this worksheet applies to the combination of all heaters listed above

Fuel Consumption

0.74 MMBtu/hr
822.22 scf/hr
8,760 hr/yr
6,482.40 MMBtu/yr
7.20 MMscf/yr
900 Btu/scf

Capacity
Hourly fuel consumption
Annual operating time
Annual fuel consumption
Annual fuel consumption
Field gas heating value

Mfg. data
MMBtu/hr x 1,000,000 / Btu/scf
Harvest Four Corners, LLC
MMBtu/hr x hr/yr
scf/hr x hr/yr / 1,000,000
Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
NOX	100	8.22E-02	3.60E-01
CO	84	6.91E-02	3.03E-01
VOC	5.5	4.52E-03	1.98E-02
SO2	0.6	4.93E-04	2.16E-03
TSP	7.6	6.25E-03	2.74E-02
PM10	7.6	6.25E-03	2.74E-02
PM2.5	7.6	6.25E-03	2.74E-02
Lead	5.00E-04	4.11E-07	1.80E-06

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Heater Exhaust Emissions Calculations

Unit Number: 30
Description: Slug Catcher Heater

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

Fuel Consumption

0.012 MMBtu/hr	Capacity	Mfg. data
13.33 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760 hr/yr	Annual operating time	Harvest Four Corners, LLC
105.12 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
0.12 MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
NOX	100	1.33E-03	5.84E-03
CO	84	1.12E-03	4.91E-03
VOC	5.5	7.33E-05	3.21E-04
SO2	0.6	8.00E-06	3.50E-05
TSP	7.6	1.01E-04	4.44E-04
PM10	7.6	1.01E-04	4.44E-04
PM2.5	7.6	1.01E-04	4.44E-04
Lead	5.00E-04	6.67E-09	2.92E-08

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Heater Exhaust Emissions Calculations

Unit Number: **30b**

Description: Slug Catcher Heater

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

Fuel Consumption

0.012 MMBtu/hr	Capacity	Mfg. data
13.33 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760 hr/yr	Annual operating time	Harvest Four Corners, LLC
105.12 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
0.12 MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
NOX	100	1.33E-03	5.84E-03
CO	84	1.12E-03	4.91E-03
VOC	5.5	7.33E-05	3.21E-04
SO2	0.6	8.00E-06	3.50E-05
TSP	7.6	1.01E-04	4.44E-04
PM10	7.6	1.01E-04	4.44E-04
PM2.5	7.6	1.01E-04	4.44E-04
Lead	5.00E-04	6.67E-09	2.92E-08

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2, 07/98

Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Engine Exhaust Emissions Calculations

Unit Number: **31b**

Description: Caterpillar C27 Generator Engine

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

Horsepower Calculations

5,700 ft above MSL**1,141** hp**1,141** hp

Elevation

Nameplate hp

Caterpillar Site-rated hp

Mfg. data

Mfg. data

Fuel Consumption

53.6 gal/hr

7.40 MMBtu/hr

3,350 hr/yr

179,560 gal/yr

24,779 MMBtu/yr

138,000 Btu/gal

Hourly fuel consumption

Hourly fuel consumption

Annual operating time

Hourly fuel consumption

Annual fuel consumption

Field gas heating value

Mfg. data

gal/hr x Btu/gal / 1,000,000

Harvest Four Corners, LLC

gal/hr x hr/yr

MMBtu/hr x hr/yr

Nominal heat content

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates,	
	pph	tpy
NOX	15.83	26.52
CO	1.51	2.53
VOC	2.20E-01	3.69E-01
TSP	3.30E-01	5.53E-01
PM10	3.30E-01	5.53E-01
PM2.5	3.30E-01	5.53E-01

Emission factors (pph) taken from manufacturer's data

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates,	
		pph	tpy
SO2	1.52E-03	1.12E-02	1.88E-02
Acetaldehyde	2.52E-05	1.86E-04	3.12E-04
Acrolein	7.88E-06	5.83E-05	9.76E-05
Benzene	7.76E-04	5.74E-03	9.61E-03
Formaldehyde	7.89E-05	5.84E-04	9.78E-04
Naphthalene	1.30E-04	9.62E-04	1.61E-03
Polycyclics	2.12E-04	1.57E-03	2.63E-03
Toluene	2.81E-04	2.08E-03	3.48E-03
Xylene	1.93E-04	1.43E-03	2.39E-03

Emission factors taken from AP-42, Tables 3.4-1, 3.4-3 & 3.4-4, 10/96

The sulfur content is estimated at 0.0015 percent (15 ppm)

Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

948.70 °F**5,610.2** acfm**0.67** ft

0.35 ft^2

267.87 fps

30.00 ft

Stack exit temperature

Stack flowrate

Stack exit diameter

Stack exit area

Stack exit velocity

Stack height

Mfg. data

Mfg. data

Williams Four Corners LLC

3.1416 x ((ft / 2) ^2)

acfm / ft^2 / 60 sec/min

Williams Four Corners LLC

SSM Blowdown Emissions Calculations

Unit Number: **SSM1**
 Description: Treating Trains SSM

Throughput

38,731,000 scf/yr
 7,059 hr/yr
 1,701 hr/yr
 31,209,215 scf/yr
 7,521,785 scf/yr

Annual gas loss
 Minimum normal operating time
 Maximum operating time during Ignacio plant outages
 Annual gas loss during normal operations
 Annual gas loss during Ignacio plant outages

Harvest Four Corners, LLC
 Calculated on Amine Units tab
 Calculated on Amine Units tab
 scf/yr x (hr/yr / 8,760 hr/yr)
 scf/yr x (hr/yr / 8,760 hr/yr)

Emission Rates

Pollutants	Emission Factors		Uncontrolled Emission Rates		
	Normal, lb/scf	Ignacio Plant Outages, lb/scf	Normal, tpy	Ignacio Plant Outages, tpy	Total, tpy
VOC	9.419E-04	5.578E-04	14.70	2.10	16.80
2,2,4-Trimethylpentane	7.926E-07	2.642E-07	1.24E-02	9.94E-04	1.34E-02
Benzene	6.178E-07	8.237E-07	9.64E-03	3.10E-03	1.27E-02
Ethylbenzene	0.000E+00	2.799E-07	0.00E+00	1.05E-03	1.05E-03
n-Hexane	0.000E+00	2.272E-07	0.00E+00	8.54E-04	8.54E-04
Toluene	0.000E+00	2.429E-06	0.00E+00	9.14E-03	9.14E-03
Xylene	0.000E+00	2.239E-06	0.00E+00	8.42E-03	8.42E-03

Emission factors calculated from gas compositions (see tables below)

Normal and Ignacio Plant Outages Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Total Uncontrolled Emission Rates (tpy) = Normal Uncontrolled Emission Rates (tpy)

+ Ignacio Plant Outages Uncontrolled Emission Rates (tpy)

Gas Composition (During Normal Operations)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	12.0531	44.01	1.399E-02
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0223	28.01	1.647E-05
Methane	86.1310	16.04	3.642E-02
Ethane	1.0883	30.07	8.628E-04
Propane	0.4190	44.09	4.870E-04
Isobutane	0.0393	58.12	6.022E-05
n-Butane	0.2137	58.12	3.275E-04
Isopentane	0.0332	72.15	6.315E-05
n-Pentane	0.0000	72.15	0.000E+00
Cyclopentane	0.0000	70.14	0.000E+00
n-Hexane	0.0000	86.17	0.000E+00
Cyclohexane	0.0000	84.16	0.000E+00
Other hexanes	0.0000	86.18	0.000E+00
Heptanes	0.0000	100.20	0.000E+00
Methylcyclohexane	0.0000	98.19	0.000E+00
2,2,4-Trimethylpentane	0.0003	100.21	7.926E-07
Benzene	0.0003	78.11	6.178E-07
Toluene	0.0000	92.14	0.000E+00
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0000	106.17	0.000E+00
C8+ Heavies	0.0009	110.00	2.610E-06
Total	100.00		
Total VOC			9.419E-04

Gas stream composition obtained from Milagro (Plant Inlet) extended gas analysis dated 10/30/2023.

Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.3 scf/lb-mole

SSM Blowdown Emissions Calculations

Unit Number: **SSM1**

Description: Treating Trains SSM

Gas Composition (During Ignacio Plant Outages)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	12.9065	44.01	1.498E-02
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0454	28.01	3.353E-05
Methane	85.4178	16.04	3.612E-02
Ethane	1.2127	30.07	9.614E-04
Propane	0.2875	44.09	3.342E-04
Isobutane	0.0468	58.12	7.171E-05
n-Butane	0.0456	58.12	6.987E-05
Isopentane	0.0127	72.15	2.416E-05
n-Pentane	0.0091	72.15	1.731E-05
Cyclopentane	0.0003	70.14	5.548E-07
n-Hexane	0.0001	86.17	2.272E-07
Cyclohexane	0.0003	84.16	6.656E-07
Other hexanes	0.0010	86.18	2.272E-06
Heptanes	0.0010	100.20	2.642E-06
Methylcyclohexane	0.0019	98.19	4.919E-06
2,2,4-Trimethylpentane	0.0001	100.21	2.642E-07
Benzene	0.0004	78.11	8.237E-07
Toluene	0.0010	92.14	2.429E-06
Ethylbenzene	0.0001	106.17	2.799E-07
Xylenes	0.0008	106.17	2.239E-06
C8+ Heavies	0.0080	110.00	2.320E-05
Total	100.00		
Total VOC			5.578E-04

Gas stream composition obtained from **Milagro (Plant Inlet)** extended gas analysis dated **9/21/2023**

Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.3 scf/lb-mole

Equipment Leaks Emissions Calculations

Unit Number: **F1**

Description: Valves, Connectors, Seals & Open-Ended Lines (During Normal Operation)

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates,	
				pph	tpy
Valves	3176	0.0045	0.0099	31.44	101.79
Connectors	3517	0.0002	0.0004	1.55	5.01
Pump Seals	118	0.0024	0.0053	0.62	2.02
Compressor Seals	15	0.0088	0.0194	0.29	0.94
Pressure Relief Valves	229	0.0088	0.0194	4.43	14.35
Open-Ended Lines	1264	0.0020	0.0044	5.56	18.01
Total				43.90	142.12

Number of components are provided by WFC

Emission factors taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"

Emission factors (lb/hr/source) = Emission factors (kg/hr/source) x 2.2 lb/kg

Uncontrolled TOC Emission Rates (pph) = lb/hr/source x # of sources

Uncontrolled TOC Emission Rates (tpy) = Uncontrolled TOC Emission Rates (pph) x 6,475 hr/yr / 2,000 lb/ton

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of TOC, %	Uncontrolled Emission Rates,	
					pph	tpy
Carbon dioxide	12.0531	44.010				
Hydrogen sulfide	0.0000	34.070				
Nitrogen	0.0223	28.013				
Methane	86.1310	16.043	1381.800	95.279		
Ethane	1.0883	30.070	32.725	2.257		
Propane	0.4190	44.097	18.477	1.274	5.59E-01	1.81E+00
Isobutane	0.0393	58.123	2.284	0.158	6.91E-02	2.24E-01
n-Butane	0.2137	58.123	12.421	0.856	3.76E-01	1.22E+00
Isopentane	0.0332	72.150	2.395	0.165	7.25E-02	2.35E-01
n-Pentane	0.0000	72.150	0.000	0.000	0.00E+00	0.00E+00
Cyclopentane	0.0000	70.134	0.000	0.000	0.00E+00	0.00E+00
n-Hexane	0.0000	86.177	0.000	0.000	0.00E+00	0.00E+00
Cyclohexane	0.0000	84.161	0.000	0.000	0.00E+00	0.00E+00
Other hexanes	0.0000	86.177	0.000	0.000	0.00E+00	0.00E+00
Heptanes	0.0000	100.204	0.000	0.000	0.00E+00	0.00E+00
Methylcyclohexane	0.0000	98.188	0.000	0.000	0.00E+00	0.00E+00
2,2,4-Trimethylpentane	0.0003	114.231	0.034	0.002	1.04E-03	3.36E-03
Benzene	0.0003	78.114	0.023	0.002	7.09E-04	2.30E-03
Toluene	0.0000	92.141	0.000	0.000	0.00E+00	0.00E+00
Ethylbenzene	0.0000	106.167	0.000	0.000	0.00E+00	0.00E+00
Xylenes	0.0000	106.167	0.000	0.000	0.00E+00	0.00E+00
C8+ Heavies	0.0009	114.231	0.103	0.007	3.11E-03	1.01E-02
Total	100.00		1450.262			
Total VOC				2.464	1.08E+00	3.50

Gas stream composition obtained from Milagro (Plant Inlet) extended gas analysis dated 10/30/2023

Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)

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

Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)

Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

Unit Number: **F1**

Description: Valves, Connectors, Seals & Open-Ended Lines (During Ignacio Plant Outages)

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates,	
				pph	tpy
Valves	3176	0.0045	0.0099	31.44	35.92
Connectors	3517	0.0002	0.0004	1.55	1.77
Pump Seals	118	0.0024	0.0053	0.62	0.71
Compressor Seals	15	0.0088	0.0194	0.29	0.33
Pressure Relief Valves	229	0.0088	0.0194	4.43	5.07
Open-Ended Lines	1264	0.0020	0.0044	5.56	6.35
Total				43.90	50.15

Number of components are provided by WFC

Emission factors taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"

Emission factors (lb/hr/source) = Emission factors (kg/hr/source) x 2.2 lb/kg

Uncontrolled TOC Emission Rates (pph) = lb/hr/source x # of sources

Uncontrolled TOC Emission Rates (tpy) = Uncontrolled TOC Emission Rates (pph) x 2,285 hr/yr / 2,000 lb/ton

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of TOC, %	Uncontrolled Emission Rates,	
					pph	tpy
Carbon dioxide	12.9065	44.010				
Hydrogen sulfide	0.0000	34.070				
Nitrogen	0.0454	28.013				
Methane	85.4178	16.043	1370.358	95.962		
Ethane	1.2127	30.070	36.466	2.554		
Propane	0.2875	44.097	12.678	0.888	3.90E-01	4.45E-01
Isobutane	0.0468	58.123	2.720	0.190	8.36E-02	9.55E-02
n-Butane	0.0456	58.123	2.650	0.186	8.15E-02	9.31E-02
Isopentane	0.0127	72.150	0.916	0.064	2.82E-02	3.22E-02
n-Pentane	0.0091	72.150	0.657	0.046	2.02E-02	2.31E-02
Cyclopentane	0.0003	70.134	0.021	0.001	6.47E-04	7.39E-04
n-Hexane	0.0001	86.177	0.009	0.001	2.65E-04	3.03E-04
Cyclohexane	0.0003	84.161	0.025	0.002	7.76E-04	8.87E-04
Other hexanes	0.0010	86.177	0.086	0.006	2.65E-03	3.03E-03
Heptanes	0.0010	100.204	0.100	0.007	3.08E-03	3.52E-03
Methylcyclohexane	0.0019	98.188	0.187	0.013	5.73E-03	6.55E-03
2,2,4-Trimethylpentane	0.0001	114.231	0.011	0.001	3.51E-04	4.01E-04
Benzene	0.0004	78.114	0.031	0.002	9.61E-04	1.10E-03
Toluene	0.0010	92.141	0.092	0.006	2.83E-03	3.24E-03
Ethylbenzene	0.0001	106.167	0.011	0.001	3.26E-04	3.73E-04
Xylenes	0.0008	106.167	0.085	0.006	2.61E-03	2.98E-03
C8+ Heavies	0.0080	114.231	0.914	0.064	2.81E-02	3.21E-02
Total	100.00		1428.017			
Total VOC				1.484	0.65	0.74

Gas stream composition obtained from Milagro (Plant Inlet) extended gas analysis dated 9/21/2023

Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)

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

Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)

Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

Malfunction Emissions Data and Calculations

Unit Number: **M1**
 Description: **Malfunctions**

Emission Rates

Pollutants	Weight Percents, %	Uncontrolled Emission Rates, tpy
VOC	2.52	10
2,2,4-Trimethylpentane	0.002	0.0002
Benzene	0.002	0.0002
Ethylbenzene	-	-
n-Hexane	0.000	0.0000
Toluene	0.005	0.0005
Xylene	0.004	0.0004

Weight percents calculated from gas compositions (see tables below). For each pollutant, the highest available weight percent was selected (from either normal operation or during Ignacio plant outages)

Uncontrolled Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

Gas Composition (During Normal Operation)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent, %	TOC Weight Percent %
Carbon dioxide	12.0531	44.01		26.776	
Hydrogen sulfide	0.0000	34.07		0.000	
Nitrogen	0.0223	28.01		0.032	
Methane	86.1310	16.04		69.737	97.54
Ethane	1.0883	30.07		1.652	2.31
Propane	0.4190	44.09	18.4737	0.933	1.30
Isobutane	0.0393	58.12	2.2841	0.115	0.16
n-Butane	0.2137	58.12	12.4202	0.627	0.88
Isopentane	0.0332	72.15	2.3954	0.121	0.17
n-Pentane	0.0000	72.15	0.0000	0.000	0.000
Cyclopentane	0.0000	70.14	0.0000	0.000	0.000
n-Hexane	0.0000	86.17	0.0000	0.000	0.000
Cyclohexane	0.0000	84.16	0.0000	0.000	0.000
Other hexanes	0.0000	86.18	0.0000	0.000	0.000
Heptanes	0.0000	100.20	0.0000	0.000	0.000
Methylcyclohexane	0.0000	98.19	0.0000	0.000	0.000
2,2,4-Trimethylpentane	0.0003	100.21	0.0301	0.002	0.002
Benzene	0.0003	78.11	0.0234	0.001	0.002
Toluene	0.0000	92.14	0.0000	0.000	0.000
Ethylbenzene	0.0000	106.17	0.0000	0.000	0.000
Xylenes	0.0000	106.17	0.0000	0.000	0.000
C8+ Heavies	0.0009	110.00	0.0990	0.005	0.01
Total	100.00				
Total VOC			35.73	1.80	2.52

Gas stream composition obtained from **Milagro (Plant Inlet)** extended gas analysis dated **10/30/2023**

Component Weights (lb/lb-mole) = (% / 100) x Molecular Weights (lb/lb-mole)

Weight Percents (%) = 100 x Component Weights (lb/lb-mole) / Total VOC Weight (lb/lb-mole)

Malfunction Emissions Data and Calculations

Unit Number: **M1**Description: **Malfunctions**

Gas Composition (During Ignacio Plant Outages)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent, %	TOC Weight % Percent %
Carbon dioxide	12.9065	44.01		28.443	
Hydrogen sulfide	0.0000	34.07		0.000	
Nitrogen	0.0454	28.01		0.064	
Methane	85.4178	16.04		68.608	95.96
Ethane	1.2127	30.07		1.826	2.55
Propane	0.2875	44.09	0.1268	0.635	0.89
Isobutane	0.0468	58.12	0.0272	0.136	0.19
n-Butane	0.0456	58.12	0.0265	0.133	0.19
Isopentane	0.0127	72.15	0.0092	0.046	0.06
n-Pentane	0.0091	72.15	0.0066	0.033	0.05
Cyclopentane	0.0003	70.14	0.0002	0.001	0.001
n-Hexane	0.0001	86.17	0.0001	0.000	0.001
Cyclohexane	0.0003	84.16	0.0003	0.001	0.002
Other hexanes	0.0010	86.18	0.0009	0.004	0.01
Heptanes	0.0010	100.20	0.0010	0.005	0.01
Methylcyclohexane	0.0019	98.19	0.0019	0.009	0.01
2,2,4-Trimethylpentane	0.0001	100.21	0.0001	0.001	0.001
Benzene	0.0004	78.11	0.0003	0.002	0.002
Toluene	0.0010	92.14	0.0009	0.005	0.01
Ethylbenzene	0.0001	106.17	0.0001	0.001	0.001
Xylenes	0.0008	106.17	0.0008	0.004	0.01
C8+ Heavies	0.0080	110.00	0.0088	0.044	0.06
Total	100.00				
Total VOC			0.21	1.06	1.48

Gas stream composition obtained from **Milagro (Plant Inlet)** extended gas analysis dated **09/21/2023**

Component Weights (lb/lb-mole) = (% / 100) x Molecular Weights (lb/lb-mole)

Weight Percents (%) = 100 x Component Weights (lb/lb-mole) / Total VOC Weight (lb/lb-mole)

Storage Tank Emissions Calculations

Unit Number: **T33**

Description: Produced Water Tank

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

Throughput

120 bbl/turnover
125 turnover/yr
15,000 bbl/yr

Tank capacity
Turnovers per year
Annual liquid throughput

Harvest Four Corners LLC
Harvest Four Corners LLC
bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	1.97
Benzene	0.007	5.25E-02
Ethylbenzene	0.0007	5.25E-03
n-Hexane	0.022	1.65E-01
Toluene	0.009	6.75E-02
Xylene	0.006	4.50E-02

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

POTENTIAL EMISSIONS SUMMARY- T7, T25, T29 & T30
AP-42 SECTION 7 FIXED-ROOF TANK EMISSIONS

Tank Identification	T7	T25	T29 & T30
Actual Location	Bloomfield, New Mexico	Bloomfield, New Mexico	Bloomfield, New Mexico
Location for Calculation Purposes	Roswell, New Mexico	Roswell, New Mexico	Midland, Texas
Contents of Tank	Gasoline (RVP 12)	Gasoline (RVP 9)	Gasoline (RVP 9)
Tank/Roof Type	Cone	Cone	Cone
Underground?	Aboveground	Aboveground	Aboveground
Will flashing occur at the tank?	No	No	No
Are the tanks vapor balanced?	No	No	No
Diameter, ft	10.0	7.0	2.6
Shell Height or Length, ft	15.0	15.0	5.0
Nominal Capacity, gal	210	4,200	200
Throughput, gallons/yr	11,200	1,533,000	360
Tank Paint Color	Gray/Light	Gray/Light	Gray/Light
Tank Paint Condition	Average	Average	Average
Effective Diameter, ft	10.0	7.0	2.6
Geometric Capacity, gal	8,225	4,030	318
Maximum Liquid Height, ft	14.0	14.0	8.0
Average Liquid Height, ft	7.0	7.0	4.0
Minimum Liquid Height, ft	1.0	1.0	1.0
Cone Tank Roof Slope, ft/ft	0.0625	0.0625	0.0625
Dome Tank Roof Radius, ft	N/A	N/A	N/A
Dome Tank Roof Height, ft	N/A	N/A	N/A
Roof Outage, ft	0.104	0.073	0.027
Vapor Space Outage, ft	8.10	8.07	1.03
Vapor Space Volume, ft ³	636	311	5
Average Daily Minimum Ambient Temperature, F	47.60	47.60	51.40
Average Daily Maximum Ambient Temperature, F	75.80	75.80	76.70
Daily Maximum Ambient Temperature, F	93.90	93.90	93.80
Daily Total Solar Insolation Factor, Btu/ft ² /day	1722	1722	1698
Daily Average Ambient Temperature, F	61.7	61.7	64.1
Tank Paint Solar Absorbance, dimensionless	0.580	0.580	0.580
Daily Vapor Temperature Range, R	39.4	39.5	36.8
Daily Average Liquid Surf. Temperature, F	67.3	67.1	69.4
Daily Minimum Liquid Surf. Temperature, F	57.5	57.2	60.2
Daily Maximum Liquid Surf. Temperature, F	77.2	77.0	78.6
Liquid Bulk Temperature	64.70	64.70	67.00
Vapor Molecular Weight, lb/lbmol	64.0	67.0	67.0
Antoine's Coefficient A	N/A	N/A	N/A
Antoine's Coefficient B	N/A	N/A	N/A
Antoine's Coefficient C	N/A	N/A	N/A
Type of Substance (for use in calculations)	Gas	Gas	Gas
Vapor Pressure at Daily Av. Liquid Surf. Temp., psia	7.284	5.289	5.532
Vapor Pressure at Daily Min. Liquid Surf. Temp., psia	6.057	4.361	4.631
Vapor Pressure at Daily Max. Liquid Surf. Temp., psia	8.701	6.370	6.567
Vapor Pressure Calculation Method	AP-42 Figure 7.1-14b: RVP=12 ASTM Slope=3	AP-42 Figure 7.1-14b: RVP=9 ASTM Slope=3	AP-42 Figure 7.1-14b: RVP=9 ASTM Slope=3
Vapor Density, lb/ft ³	0.082436	0.062698	0.065277
Daily Vapor Pressure range, psi	2.645	2.009	1.936
Breather Vent Pressure Setting, psig	0.0300	0.0300	0.0300
Breather Vent Vacuum Setting, psig	-0.0300	-0.0300	-0.0300
Breather Vent Pressure Setting Range, psi	0.0600	0.0600	0.0600
Ambient Pressure, psia	12.9	12.9	13.3
Vapor Space Expansion Factor	0.5367	0.3319	0.3123
Vented Vapor Saturation Factor	0.242	0.306	0.769
Annual Turnovers	1.47	409.58	1.29
Turnover Factor	1.00	0.24	1.00
Working Loss K _B Factor	0.99	1.00	0.99
Working Loss Product Factor	1.00	1.00	1.00
Standing Storage Loss, lb/yr	2,489.45	723.11	31.18
Working Loss, lb/yr	122.42	3,082.27	3.12
Total Losses, lb/yr	2,611.87	3,805.38	34.30
Standing Storage Loss, TPY	1.24472	0.36155	0.01559
Working Loss, TPY	0.06121	1.54114	0.00156
Total Losses, TPY	1.30593	1.90269	0.01715

Based on AP-42, June 2020, Section 7.1.3.1.

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

Global Warming Potentials (GWP):

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

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

Metric to Short Ton Conversion:

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

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

Greenhouse Gases

Carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) emissions from the combustion sources were calculated using emission factors from 40 CFR 98, Subpart C, Tables C-1 & C-2 and the boiler, reboiler and engine higher heating value (HHV) design heat rates. The boilers and reboilers were assumed to operate 8,760 hr/yr. The engine was assumed to operate 3,350 hr/yr.

CO₂ and CH₄ emissions from the amine contactors were calculated using ProMax. The rates were taken from the output files for normal operation (rather than operation during an Ignacio plant outage) since this results in the highest projected emission rates and since the operating time for the Ignacio plant outages is variable and unknown. The operating time for each amine unit was assumed to be 8,760 hr/yr.

CO₂ and CH₄ SSM emissions from the treating trains and associated piping were calculated from the estimated annual quantity of gas vented (based on historical data) and the composition of the gas. The composition of the gas associated with normal operation was used (rather than the composition of the stream associated with an Ignacio plant outage), since it results in the highest projected emission rates and since the operating time for the Ignacio plant outages is variable and unknown. A safety factor was included.

CO₂ and CH₄ SSM emissions from the dehydrators during maintenance of the VRU were calculated using GRI-GLYCalc. A safety factor was included.

CO₂ and CH₄ emissions from equipment leaks were calculated using a count of the Milagro pipeline components, emission factors from 40 CFR 98, Subpart W, Table W-1A (Western U.S. - Gas Service), and the composition of the gas. The composition of the gas associated with normal operation was used (rather than the composition of the stream associated with an Ignacio plant outage), since it results in the highest projected emission rates and since the operating time for the Ignacio plant outages is variable and unknown. Note that there are no natural gas driven pneumatic devices or pumps at the plant.

Based on the permitted VOC emission limit of 10 tpy, CO₂ and CH₄ malfunction emissions were calculated from the composition of the plant inlet gas. The composition of the gas associated with normal operation was used (rather than the composition of the stream associated with an Ignacio plant outage), since it results in the highest projected emission rates and since the operating time for the Ignacio plant outages is variable and unknown.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO ₂ , tpy	CH ₄ , tpy	N ₂ O, tpy	GHG, tpy	CO ₂ e, tpy
Engine & Turbine Exhaust Emissions	2,015.94	8.18E-02	1.64E-02	2,016.04	2,022.86
SSM Emissions	270.83	705.36	--	976.19	17,904.78
Heater & Boiler Exhaust Emissions	462,998.02	8.73	8.73E-01	463,007.62	463,476.20
Dehydrator Emissions	4.92	4.28	--	9.20	111.94
Reboiler Exhaust Emissions	4686.79	8.83E-02	8.83E-03	4,686.89	4,691.63
Acid Gas Removal Emissions	1,230,110.00	928.29	--	1,231,038.29	1,253,317.23
Equipment Leak Emissions	32.29	84.23	--	116.52	2,138.00
Malfunction Emissions	148.48	386.71	--	535.18	9,816.11
Total	1,700,267.27	2,117.76	8.98E-01	1,702,385.93	1,753,478.76

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO ₂ , kg/MMBtu	CH ₄ , kg/MMBtu	N ₂ O, kg/MMBtu	CO ₂ , tpy	CH ₄ , tpy	N ₂ O, tpy
31b	Caterpillar C27	73.96	3.00E-03	6.00E-04	2,015.94	8.18E-02	1.64E-02

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	HHV	
				Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
31b	Caterpillar C27	Diesel	3,350	7.40	24,779

The fuel type and operating time are provided by Harvest

The diesel HHV design heat rates are calculated from manufacturer's data

HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rates (MMBtu/hr) x hr/yr

SSM Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO ₂ Emission Factors, lb/scf	CH ₄ Emission Factors, lb/scf	Emission Rates	
					CO ₂ , tpy	CH ₄ , tpy
SSM1	SSM	38,731,000	0.0140	0.0364	270.83	705.36

The annual blowdown volume is calculated from data provided by Harvest

The CO₂ and CH₄ emission factors are calculated from the facility extended gas analysis. The values are taken from the gas stream for normal operation (rather than during Ignacio plant outages), since this produces the highest emission rates and since the operating time for Ignacio plant outages is variable and unknown

Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Green House Gas Emissions Data and Calculations

Heater & Boiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
1	Holman Boiler	53.06	1.00E-03	1.00E-04	107,938.19	2.03	2.03E-01
2	Holman Boiler	53.06	1.00E-03	1.00E-04	107,938.19	2.03	2.03E-01
3	Holman Boiler	53.06	1.00E-03	1.00E-04	107,938.19	2.03	2.03E-01
20	Rentech Boiler	53.06	1.00E-03	1.00E-04	139,183.45	2.62	2.62E-01
Total					462,998.02	8.73	8.73E-01

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
1	Holman Boiler	Nat. Gas	8,760	190.0	211.111	1,849,333
2	Holman Boiler	Nat. Gas	8,760	190.0	211.111	1,849,333
3	Holman Boiler	Nat. Gas	8,760	190.0	211.111	1,849,333
20	Rentech Boiler	Nat. Gas	8,760	245.0	272.222	2,384,667

The fuel types and operating times are provided by Harvest

The LHV design heat rates are taken from manufacturers data

HHV Design Heat Rates (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) x hr/yr

Dehydrator Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
9b	Dehydrator (145 MMSCFD)	0.00E+00	6.04E-01
10b	Dehydrator (145 MMSCFD)	0.00E+00	6.04E-01
11b	Dehydrator (145 MMSCFD)	1.56E+00	5.64E-01
14	Dehydrator (90 MMSCFD)	1.63E-03	2.06
15	Dehydrator (120 MMSCFD)	3.35E+00	4.45E-01
Total		4.92	4.28

The emission rates are taken from the GRI-GLYCalc output file

Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
9a	Reboiler (145 MMSCFD)	53.06	1.00E-03	1.00E-04	1704.29	3.21E-02	3.21E-03
10a	Reboiler (145 MMSCFD)	53.06	1.00E-03	1.00E-04	1278.22	2.41E-02	2.41E-03
11a	Reboiler (145 MMSCFD)	53.06	1.00E-03	1.00E-04	1704.29	3.21E-02	3.21E-03
Total					4686.79	8.83E-02	8.83E-03

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
9a	Reboiler (145 MMSCFD)	Nat. Gas	8,760	3.0	3.333	29,200
10a	Reboiler (145 MMSCFD)	Nat. Gas	8,760	2.25	2.500	21,900
11a	Reboiler (145 MMSCFD)	Nat. Gas	8,760	3.0	3.333	29,200

The fuel types and operating times are provided by Harvest

The LHV design heat rates are taken from manufacturers data

HHV Design Heat Rates (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) x hr/yr

Green House Gas Emissions Data and Calculations

Acid Gas Removal Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
16a	Amine Unit	283,030.00	216.84
16b	Amine Unit	282,960.00	216.89
17	Amine Unit	282,960.00	216.89
18	Amine Unit	138,360.00	84.63
19	Amine Unit	242,800.00	193.04
Total		1,230,110.00	928.29

The emission rates are taken from the ProMax output files. The rates are taken from the output files for normal operation (rather than during Ignacio plant outages), since this produces the highest emission rates and since the operating time for Ignacio plant outages is variable and unknown

Equipment Leaks Emissions (Normal Operation)

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Valves	23.53	61.37
NA	Connectors	3.66	9.55
NA	Open-Ended Lines	2.40	6.26
NA	Pressure Relief Valves	2.71	7.06
Total		32.29	84.23

A combination of equations W-31 & W-36 (Subpart W) is used to calculate uncombusted CO2 & CH4 emissions

As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36

CO2 Emission Rate (tpy) = # x scf/hr/component x (CO2 Content (mole %) / 100) x hr/yr x CO2 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

CH4 Emission Rate (tpy) = # x scf/hr/component x (CH4 Content (mole %) / 100) x hr/yr x CH4 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	3176	0.121	12.05	86.13	8,760	0.0526	0.0192
NA	Connectors	3517	0.017	12.05	86.13	8,760	0.0526	0.0192
NA	Open-Ended Lines	1264	0.031	12.05	86.13	8,760	0.0526	0.0192
NA	Pressure Relief Valves	229	0.193	12.05	86.13	8,760	0.0526	0.0192

The number of sources are calculated based on the number of compressors and dehydrators at the station (see criteria pollutant and HAP equipment leaks calculations)

The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)

The facility CO2 and CH4 contents are taken from the facility extended gas analysis

All the operating time is assigned to normal operation (rather than during Ignacio plant outages), since this produces the highest emission rates and since the operating time for Ignacio plant outages is variable and unknown

The CO2 & CH4 densities are taken from Subpart W, Paragraph 98.233(v)

Malfunction Emissions

Unit Number	Description	Emission Rates		
		VOC, tpy	CO2, tpy	CH4, tpy
M1	Malfunctions	10.00	148.48	386.71

The VOC emission rate is estimated (see calculations workbook)

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

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

Green House Gas Emissions Data and Calculations

Unit Number	Description	Total Component Weight, lb/lb-mole	VOC Component Weight, lb/lb-mole	CO2 Weight % of Total, %	CH4 Weight % of Total, %
M1	Malfunctions	19.81	0.36	26.78	69.74

The total & VOC component weights and CO2 & CH4 weight % of totals are calculated from the facility extended gas analysis. The values are taken from the gas stream for normal operation (rather than during Ignacio plant outages), since this produces the highest emission rates and since the operating time for Ignacio plant outages is variable and unknown

Gas Stream Composition (During Normal Operation)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	12.0531	44.01	5.30	26.7762	0.0140
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.0223	28.01	0.01	0.0315	0.0000
Methane	86.1310	16.04	13.82	69.7370	0.0364
Ethane	1.0883	30.07	0.33	1.6519	0.0009
Propane	0.4190	44.09	0.18	0.9325	0.0005
IsoButane	0.0393	58.12	0.02	0.1153	0.0001
Normal Butane	0.2137	58.12	0.12	0.6269	0.0003
IsoPentane	0.0332	72.15	0.02	0.1209	0.0001
Normal Pentane	0.0000	72.15	0.00	0.0000	0.0000
Cyclopentane	0.0000	70.14	0.00	0.0000	0.0000
n-Hexane	0.0000	86.17	0.00	0.0000	0.0000
Cyclohexane	0.0000	84.16	0.00	0.0000	0.0000
Other Hexanes	0.0000	86.18	0.00	0.0000	0.0000
Heptanes	0.0000	100.20	0.00	0.0000	0.0000
Methylcyclohexane	0.0000	98.19	0.00	0.0000	0.0000
2,2,4-Trimethylpentane	0.0003	100.21	0.00	0.0015	0.0000
Benzene	0.0003	78.11	0.00	0.0012	0.0000
Toluene	0.0000	92.14	0.00	0.0000	0.0000
Ethylbenzene	0.0000	106.17	0.00	0.0000	0.0000
Xylenes	0.0000	106.17	0.00	0.0000	0.0000
C8+ heavies	0.0009	110.00	0.00	0.0050	0.0000
Total	100.00		19.81	100.0000	0.0522
VOC			0.36	—	0.0009

Gas stream composition obtained from **Milagro (Plant Inlet)** extended gas analysis dated **10/30/2023**

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

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

Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.3 scf/lb-mole

Green House Gas Emissions Data and Calculations

Gas Stream Composition (During Ignacio Plant Outages)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	12.9065	44.01	5.68	28.6721	0.0150
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.0454	28.01	0.01	0.0642	0.0000
Methane	85.4178	16.04	13.70	69.1595	0.0361
Ethane	1.2127	30.07	0.36	1.8407	0.0010
Propane	0.2875	44.09	0.13	0.6398	0.0003
IsoButane	0.0468	58.12	0.03	0.1373	0.0001
Normal Butane	0.0456	58.12	0.03	0.1338	0.0001
IsoPentane	0.0127	72.15	0.01	0.0463	0.0000
Normal Pentane	0.0091	72.15	0.01	0.0331	0.0000
Cyclopentane	0.0003	70.14	0.00	0.0011	0.0000
n-Hexane	0.0001	86.17	0.00	0.0004	0.0000
Cyclohexane	0.0003	84.16	0.00	0.0013	0.0000
Other Hexanes	0.0010	86.18	0.00	0.0044	0.0000
Heptanes	0.0010	100.20	0.00	0.0051	0.0000
Methylcyclohexane	0.0019	98.19	0.00	0.0094	0.0000
2,2,4-Trimethylpentane	0.0001	100.21	0.00	0.0005	0.0000
Benzene	0.0004	78.11	0.00	0.0016	0.0000
Toluene	0.0010	92.14	0.00	0.0047	0.0000
Ethylbenzene	0.0001	106.17	0.00	0.0005	0.0000
Xylenes	0.0008	106.17	0.00	0.0043	0.0000
C8+ heavies	0.0080	110.00	0.01	0.0444	0.0000
Total	100.00		19.97	100.8044	0.0526
VOC			0.21	--	0.0006

Gas stream composition obtained from **Milagro (Plant Inlet)** extended gas analysis dated 9/21/2023

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

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

Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.3 scf/lb-mole

Section 7

Information Used to Determine Emissions

Information Used to Determine Emissions shall include the following:

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

I. TECHNICAL**A. General Design Criteria**

The equipment included in this proposal is for your single boiler, a Zurn 22M Keystone type. The burner selected for this application is classified as our "state-of-the-art" LoNOx F.I.R. unit. This burner utilizes an exclusive induction system which inspirates flue gas into the fuel stream. No external, mechanical means of recirculation is required - no increase in fan sizing for induced FGR or costly forced FGR systems. With the addition of a minimal customer supplied duct from the stack to the burner, the unit is completely self contained. The burner and associated equipment included in our scope of supply have been sized on the following provided data:

Steam output, maximum (lb/hr)	150,000
Steam pressure design	525 psig
Steam pressure operating	400 psig
Steam temperature	570 F
Combustion air temperature	80 F
Feedwater temperature	316 F
Furnace exit temperature	<2600°F
Number of burners required per boiler	1
Total heat input required (MM Btu/hr)	190
Regulated gas pressure at burner	20 psig
Regulated control air pressure available	80 psig
Site elevation (approximately)	5300' ASL



Williams Field Service

John Zink Proposal No. BB9303-244BED
April 6, 19931. TECHNICAL, cont'd

B. Scope of Supply and Description

Item Qty Description

- | | | |
|---|----|--|
| 1 | 1 | John Zink LoNOx F.I.R. burner consisting of the following features or components: |
| | 1. | 60% Al ₂ O ₃ burner tile. |
| | 2. | Dual internal gas manifold assemblies for firing natural gas with fuel induced recirculation. |
| | 3. | Electric ignition gas pilot. |
| | 4. | One (1) swivel scanner mount bracket. |
| | 5. | One (1) surface-mounted sight port. |
| | 6. | One (1) pneumatic cylinder type air register open/closed actuator with limit switches. |
| | 7. | One (1) ignition transformer housed in a NEMA-4 panel to be mounted within 20 feet of the pilot. |

Operating Data:

Gas Burner

Maximum heat release (MM Btu/hr)	190
Burner gas pressure	20 psig
Fuel gas HHV	1055 Btu/scf
Fuel gas temperature	60 F
Combustion air temperature	80 F
Maximum air draft loss through burner	8" w.c.
Turndown	10:1
Excess air	10%



Williams Field Service

John Zink Proposal No. BB9303-244BED

April 6, 1993

I. TECHNICAL, cont'dEmission Prediction Contingent Upon The Following Tabulated Criteria And Notes Below:**TABLE I**

Fuel Fired	(Natural Gas)
Furnace Exit Temperature, °F	<2600
Combustion Air Temperature, °F	80 _e
Excess Air %	10
NO _x Technique of Burner	Staged Fuel/FIR
Emissions	Guaranteed/Predicted
NO _x , lbs/MM Btu	≤0.08/≤0.06
CO, lbs/MM Btu	≤0.07/≤0.04

1. Emission predictions are based on 0% fuel bound nitrogen and boiler at 100% MCR.
2. NO_x values calculated based on the HHV.
3. Any sulfur contained in the fuel will pass through the system. The combustion process will neither add nor subtract the quantity of SO_x in the flue gas.
4. If the data listed in Table I and/or Table II is not in accordance with the actual criteria, John Zink reserves the right to void our stated guarantee and recalculate new guarantees.

I. TECHNICAL, cont'dFuel AnalysisTABLE II

Constituent	Natural Gas (Assumed)
Methane (CH ₄)	95
Ethane (C ₂ H ₆)	2
Propane (C ₃ H ₈)	1
Butane (C ₄ H ₁₀)	---
Ethylene (C ₂ H ₄)	---
Propene (C ₃ H ₆)	---
Butene (C ₄ H ₈)	---
Carbon Monoxide (CO)	---
Carbon Dioxide (CO ₂)	0.5
Nitrogen (N ₂)	1.5
Hydrogen (H ₂)	---
Water Vapor (H ₂ O)	---
Molecular Weight	---
Specific Gravity	0.59

NOx

Measured by EPA Method 7 or chemiluminescent NOx analyzer calibrated with a sample gas containing NOx levels within 25% of the measured levels and calibrated on the same scale as the measured level.

Excess Oxygen

Measured by paramagnetic analyzer or zirconium oxide cell, calibrated with sample gas containing oxygen levels within 25% of the measured levels and calibrated on the same scale as the measured level.



"RENTECH Boilers for people who know and care."®

Williams Milagro Gas Plant Emissions Data

Fuel Fired		#1 Flash Gas
DESCRIPTION	UNITS	
System Performance		
Steam Flow	Lb/hr	186,500
Steam Pressure	PSIG	400
System Efficiency (HHV)	%	84.16
Total Heat Input (HHV)	MMBtu/Hr	245
Stack Gas Temperature	°F	276
Stack Gas Flow	Lbs/hr	218,518
Stack Gas Flow	ACFM	70,552
Stack Diameter	in	62
Stack Exit Velocity	Ft/sec	56.1
Furnace Volume	Ft ³	2897.7
Furnace Heat Release Rate	Btu/Hr-Ft ³	84,541
Emissions (Based on Low NOx Burner and FGR)		
NOx	Ton/Year	35
	Lbs/MMBtu	0.0326
	PPM (Ref 3% O ₂)	27
CO	Ton/Year	90
	Lbs/MMBtu	0.0838
	PPM (Ref 3% O ₂)	113
VOC	Ton/Year	4.5
	Lbs/MMBtu	0.0042
	PPM (Ref 3% O ₂)	10

Notes:

1. Feedwater temperature to boiler is 230°F.
2. Ambient temperature is 80°F.

Average	0.025087
Standard Deviation	0.0022569
StdDev Multiple for Test	3
Pct Inside Avg +/- 3 StDev	99.07%

Average + 3 StDev	0.036
(Average + 3 StDev) x SF*	0.043

* SF = Safety Factor (20%)

Extracted from PI.w/:

```
SELECT tc.time,[NOx Calculated]
FROM [Environmental].[Asset].[ElementHierarchy] eh
INNER JOIN [Environmental].[Data].[t.TransposeArchive_inpw_enviro_correlation_sandboxTemplate] tc ON tc.ElementID = eh.ElementID
WHERE tc.StartTime = DATE('1-Mar-16') AND tc.EndTime = DATE('5-May-16')
AND [NOx Calculated] is not null
AND [NOx Calculated] <> 0
OPTION (FORCE ORDER, IGNORE ERRORS)
```

Normal Distribution (for reference):

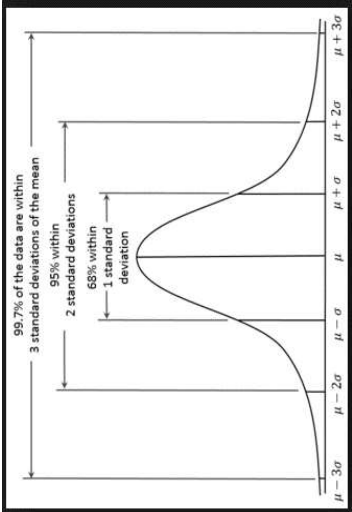


Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO)
FROM NATURAL GAS COMBUSTION^a

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/10⁶ scf to kg/10⁶ m³, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from 1b/10⁶ 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_x. 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 ₂ O (Uncontrolled)	2.2	E
N ₂ O (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/10⁶ scf to kg/10⁶ m³, multiply by 16. To convert from lb/10⁶ 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. TOC = Total Organic Compounds.

VOC = Volatile Organic Compounds.

^b Based on approximately 100% conversion of fuel carbon to CO₂. CO₂[lb/10⁶ scf] = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO₂, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2x10⁴ lb/10⁶ scf.

^c All PM (total, condensable, 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 PM₁₀, PM_{2.5} or PM₁ emissions. Total PM is the sum of the filterable PM and condensable PM. Condensable 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 SO₂.

Assumes sulfur content is natural gas of 2,000 grains/10⁶ scf. The SO₂ emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO₂ emission factor by the ratio of the site-specific sulfur content (grains/10⁶ scf) to 2,000 grains/10⁶ 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-Methylchloranthrene ^{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
205-82-3	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

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
74-98-6	Propane	1.6E+00	E
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/10⁶ scf to kg/10⁶ m³, multiply by 16. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. Emission Factors preceded with a less-than symbol are based on method detection limits.

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

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

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

Table 3.4-1. GASEOUS EMISSION FACTORS FOR LARGE STATIONARY DIESEL AND ALL STATIONARY DUAL-FUEL ENGINES^a

Pollutant	Diesel Fuel (SCC 2-02-004-01)			Dual Fuel ^b (SCC 2-02-004-02)		
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	EMISSION FACTOR RATING	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	EMISSION FACTOR RATING
NO _x						
Uncontrolled	0.024	3.2	B	0.018	2.7	D
Controlled	0.013 ^c	1.9 ^c	B	ND	ND	NA
CO	5.5 E-03	0.85	C	7.5 E-03	1.16	D
SO _x ^d	8.09 E-03S ₁	1.01S ₁	B	4.06 E-04S ₁ + 9.57 E-03S ₂	0.05S ₁ + 0.895S ₂	B
CO ₂ ^e	1.16	165	B	0.772	110	B
PM	0.0007 ^c	0.1 ^c	B	ND	ND	NA
TOC (as CH ₄)	7.05 E-04	0.09	C	5.29 E-03	0.8	D
Methane	f	f	E	3.97 E-03	0.6	E
Nonmethane	f	f	E	1.32 E-03	0.2 ^g	E

^a Based on uncontrolled levels for each fuel, from References 2,6-7. When necessary, the average heating value of diesel was assumed to be 19,300 Btu/lb with a density of 7.1 lb/gallon. The power output and fuel input values were averaged independently from each other, because of the use of actual brake-specific fuel consumption (BSFC) values for each data point and of the use of data possibly sufficient to calculate only 1 of the 2 emission factors (e. g., enough information to calculate lb/MMBtu, but not lb/hp-hr). Factors are based on averages across all manufacturers and duty cycles. The actual emissions from a particular engine or manufacturer could vary considerably from these levels. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code.

^b Dual fuel assumes 95% natural gas and 5% diesel fuel.

^c References 8-26. Controlled NO_x is by ignition timing retard.

^d Assumes that all sulfur in the fuel is converted to SO₂. S₁ = % sulfur in fuel oil; S₂ = % sulfur in natural gas. For example, if sulfur content is 1.5%, then S = 1.5.

^e Assumes 100% conversion of carbon in fuel to CO₂ with 87 weight % carbon in diesel, 70 weight % carbon in natural gas, dual-fuel mixture of 5% diesel with 95% natural gas, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and natural gas heating value of 1050 Btu/scf.

^f Based on data from 1 engine, TOC is by weight 9% methane and 91% nonmethane.

^g Assumes that nonmethane organic compounds are 25% of TOC emissions from dual-fuel engines. Molecular weight of nonmethane gas stream is assumed to be that of methane.

Table 3.4-3. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR LARGE UNCONTROLLED STATIONARY DIESEL ENGINES^a

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (lb/MMBtu) (fuel input)
Benzene ^b	7.76 E-04
Toluene ^b	2.81 E-04
Xylenes ^b	1.93 E-04
Propylene	2.79 E-03
Formaldehyde ^b	7.89 E-05
Acetaldehyde ^b	2.52 E-05
Acrolein ^b	7.88 E-06

^aBased on 1 uncontrolled diesel engine from Reference 7. Source Classification Code 2-02-004-01. Not enough information to calculate the output-specific emission factors of lb/hp-hr. To convert from lb/MMBtu to ng/J, multiply by 430.

^bHazardous air pollutant listed in the *Clean Air Act*.

Table 3.4-4. PAH EMISSION FACTORS FOR LARGE UNCONTROLLED STATIONARY DIESEL ENGINES^a

EMISSION FACTOR RATING: E

PAH	Emission Factor (lb/MMBtu) (fuel input)
Naphthalene ^b	1.30 E-04
Acenaphthylene	9.23 E-06
Acenaphthene	4.68 E-06
Fluorene	1.28 E-05
Phenanthrene	4.08 E-05
Anthracene	1.23 E-06
Fluoranthene	4.03 E-06
Pyrene	3.71 E-06
Benz(a)anthracene	6.22 E-07
Chrysene	1.53 E-06
Benzo(b)fluoranthene	1.11 E-06
Benzo(k)fluoranthene	<2.18 E-07
Benzo(a)pyrene	<2.57 E-07
Indeno(1,2,3-cd)pyrene	<4.14 E-07
Dibenz(a,h)anthracene	<3.46 E-07
Benzo(g,h,i)perylene	<5.56 E-07
TOTAL PAH	<2.12 E-04

^a Based on 1 uncontrolled diesel engine from Reference 7. Source Classification Code 2-02-004-01. Not enough information to calculate the output-specific emission factors of lb/hp-hr. To convert from lb/MMBtu to ng/J, multiply by 430.

^b Hazardous air pollutant listed in the *Clean Air Act*.



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

Analysis No: HM20230260
Cust No: 33700-10065

Well/Lease Information

Customer Name: HARVEST MIDSTREAM
Well Name: MILAGRO PLANT INLET
County/State:
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.:

Source:
Well Flowing:
Pressure: 881.48 PSIG
Flow Temp: 65.5 DEG. F
Ambient Temp: DEG. F
Flow Rate: MCF/D
Sample Method:
Sample Date: 10/30/2023
Sample Time: 3.12 PM
Sampled By: Hugo Reyes
Sampled by (CO): HARVEST

Heat Trace:

Remarks: Calculated Molecular Weight: 19.8118

Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0223	0.0230	0.0020	0.00	0.0002
CO2	12.0531	12.4119	2.0620	0.00	0.1831
Methane	86.1310	88.6952	14.6350	869.92	0.4771
Ethane	1.0883	1.1207	0.2920	19.26	0.0113
Propane	0.4190	0.4315	0.1160	10.54	0.0064
Iso-Butane	0.0393	0.0405	0.0130	1.28	0.0008
N-Butane	0.0360	0.0371	0.0110	1.18	0.0007
Neopentane 2,2 dmc3	0.1777	0.1830	0.0680	7.08	0.0044
I-Pentane	0.0332	0.0342	0.0120	1.33	0.0008
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Neohexane	0.0000	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0000	N/R	0.0000	0.00	0.0000
Cyclopentane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
C6	0.0000	0.0000	0.0000	0.00	0.0000
Methylcyclopentane	0.0000	N/R	0.0000	0.00	0.0000
Benzene	0.0000	N/R	0.0000	0.00	0.0000
Cyclohexane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
2-2-4-Trimethylpentane	0.0000	N/R	0.0000	0.00	0.0000
i-heptanes	0.0000	N/R	0.0000	0.00	0.0000
Heptane	0.0000	N/R	0.0000	0.00	0.0000

Methylcyclohexane	0.0000	N/R	0.0000	0.00	0.0000
Toluene	0.0000	N/R	0.0000	0.00	0.0000
2-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
4-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
i-Octanes	0.0000	N/R	0.0000	0.00	0.0000
Octane	0.0000	N/R	0.0000	0.00	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0000	N/R	0.0000	0.00	0.0000
o Xylene (& 2,2,4 tmc7)	0.0000	N/R	0.0000	0.00	0.0000
i-C9	0.0000	N/R	0.0000	0.00	0.0000
C9	0.0000	N/R	0.0000	0.00	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	102.977	17.211	910.59	0.6849

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0025
BTU/CU.FT IDEAL:	912.7
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	914.9
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	899.0
DRY BTU @ 15.025:	933.2
REAL SPECIFIC GRAVITY:	0.6863

CYLINDER #:	1314
CYLINDER PRESSURE:	839 PSIG
ANALYSIS DATE:	11/02/2023
ANALYSIS TIME:	02:53:36 AM
ANALYSIS RUN BY:	ELAINE MORRISON

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA 2286-14

GC: SRI Instruments 8610 Last Cal/Verify: 11/07/2023

GC Method: C12+BTEX Gas



HARVEST MIDSTREAM
WELL ANALYSIS COMPARISON

Lease: MILAGRO PLANT INLET

11/07/2023

Stn. No.:

33700-10065

Mtr. No.:

Smpl Date:	10/30/2023	03/06/2023	12/09/2022	10/12/2022	08/16/2022	08/11/2022	01/13/2022
Test Date:	11/02/2023	03/07/2023	12/13/2022	10/14/2022	08/17/2022	08/12/2022	01/18/2022
Run No:	HM20230260	HM20230010	HM20220116	HM20220089	HM20220081	HM20220076	HM20220004
Nitrogen:	0.0223	0.0760	0.0597	0.0512	0.0686	0.0759	0.2929
CO2:	12.0531	11.2424	11.3478	11.7082	13.6018	13.6364	12.9814
Methane:	86.1310	87.4026	86.5703	86.7491	84.8170	84.8298	85.3370
Ethane:	1.0883	0.9844	1.3681	1.1106	1.1325	1.1289	1.0689
Propane:	0.4190	0.2159	0.4199	0.2516	0.3082	0.2519	0.2340
I-Butane:	0.0393	0.0316	0.0710	0.0425	0.0345	0.0310	0.0314
N-Butane:	0.0360	0.0262	0.0913	0.0395	0.0316	0.0363	0.0283
2,2 dmc3:	0.1777	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-Pentane:	0.0332	0.0067	0.0369	0.0141	0.0000	0.0058	0.0067
N-Pentane:	0.0000	0.0013	0.0253	0.0116	0.0059	0.0041	0.0026
Neohexane:	0.0000	0.0000	0.0002	0.0003	0.0000	0.0000	0.0001
2-3-	0.0000	0.0002	0.0003	0.0004	0.0000	0.0000	0.0004
Cyclopentane:	0.0000	0.0003	0.0003	0.0004	0.0000	0.0000	0.0004
2-Methylpentane:	0.0000	0.0016	0.0020	0.0027	0.0000	0.0000	0.0024
3-Methylpentane:	0.0000	0.0007	0.0006	0.0009	0.0000	0.0000	0.0010
C6:	0.0000	0.0018	0.0014	0.0031	0.0000	0.0000	0.0024
Methylcyclopentane:	0.0000	0.0013	0.0008	0.0023	0.0000	0.0000	0.0017
Benzene:	0.0000	0.0003	0.0002	0.0005	0.0000	0.0000	0.0005
Cyclohexane:	0.0000	0.0007	0.0004	0.0012	0.0000	0.0000	0.0010
2-Methylhexane:	0.0000	0.0002	0.0001	0.0004	0.0000	0.0000	0.0003
3-Methylhexane:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2-2-4-	0.0000	0.0000	0.0001	0.0002	0.0000	0.0000	0.0001
i-heptanes:	0.0000	0.0002	0.0001	0.0003	0.0000	0.0000	0.0002
Heptane:	0.0000	0.0008	0.0005	0.0015	0.0000	0.0000	0.0010
Methylcyclohexane:	0.0000	0.0021	0.0011	0.0030	0.0000	0.0000	0.0022
Toluene:	0.0000	0.0006	0.0004	0.0012	0.0000	0.0000	0.0011
2-Methylheptane:	0.0000	0.0003	0.0002	0.0005	0.0000	0.0000	0.0004
4-Methylheptane:	0.0000	0.0002	0.0001	0.0002	0.0000	0.0000	0.0002
i-Octanes:	0.0000	0.0002	0.0001	0.0003	0.0000	0.0000	0.0002
Octane:	0.0000	0.0004	0.0003	0.0007	0.0000	0.0000	0.0005
Ethylbenzene:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
m, p Xylene:	0.0000	0.0003	0.0002	0.0005	0.0000	0.0000	0.0003
o Xylene (& 2,2,4	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
i-C9:	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0001
C9:	0.0000	0.0001	0.0001	0.0002	0.0000	0.0000	0.0001
i-C10:	0.0000	0.0000	0.0001	0.0002	0.0000	0.0000	0.0000
C10:	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
i-C11:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C11:	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
C12P:	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
BTU:	914.9	912.8	921.7	911.2	891.1	889.9	894.1
GPM:	17.1430	17.1300	17.2180	17.1580	17.1580	17.1510	17.1310
SPG:	0.6863	0.6723	0.6796	0.6786	0.6965	0.6964	0.6908



HARVEST MIDSTREAM
WELL ANALYSIS COMPARISON

Lease: MILAGRO PLANT INLET

Stn. No.:

Mtr. No.:

11/07/2023

33700-10065

10/12/2021	09/14/2021	04/21/2021	03/17/2021	02/18/2021	02/01/2021	06/23/2020
10/19/2021	09/24/2021	04/21/2021	03/24/2021	02/19/2021	02/03/2021	06/24/2020
HM2021088	HM2021079	HM2021031	HM2021015	HM210007	HM210004	HM200061
0.0678	0.2966	0.0945	0.0568	0.0529	0.1069	0.0823
12.7362	12.9619	8.7977	11.1683	9.9297	11.3451	0.0269
85.8379	85.2765	87.6775	87.1920	87.6615	86.9868	96.1676
1.0601	1.1212	2.1958	1.1945	1.6564	1.1874	2.3709
0.2302	0.2487	0.7148	0.2650	0.4389	0.2528	0.8045
0.0249	0.0358	0.1320	0.0377	0.0743	0.0500	0.1518
0.0263	0.0399	0.1689	0.0393	0.0893	0.0426	0.1894
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0081	0.0045	0.0676	0.0136	0.0284	0.0102	0.0639
0.0035	0.0038	0.0457	0.0096	0.0175	0.0046	0.0427
0.0000	0.0001	0.0021	0.0007	0.0011	0.0001	0.0003
0.0001	0.0003	0.0023	0.0005	0.0011	0.0003	0.0018
0.0001	0.0003	0.0024	0.0005	0.0012	0.0003	0.0019
0.0007	0.0018	0.0158	0.0032	0.0075	0.0020	0.0120
0.0003	0.0008	0.0060	0.0011	0.0027	0.0007	0.0067
0.0007	0.0018	0.0178	0.0034	0.0092	0.0021	0.0171
0.0005	0.0002	0.0122	0.0026	0.0061	0.0015	0.0112
0.0001	0.0004	0.0023	0.0006	0.0011	0.0004	0.0015
0.0003	0.0007	0.0064	0.0014	0.0032	0.0008	0.0068
0.0001	0.0003	0.0021	0.0005	0.0010	0.0003	0.0026
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0001	0.0007	0.0002	0.0003	0.0001	0.0008
0.0001	0.0002	0.0014	0.0003	0.0007	0.0002	0.0017
0.0003	0.0008	0.0060	0.0014	0.0032	0.0009	0.0070
0.0008	0.0016	0.0130	0.0030	0.0059	0.0016	0.0143
0.0002	0.0007	0.0044	0.0010	0.0016	0.0005	0.0033
0.0001	0.0003	0.0020	0.0005	0.0008	0.0002	0.0024
0.0001	0.0002	0.0009	0.0003	0.0004	0.0001	0.0011
0.0001	0.0000	0.0010	0.0003	0.0003	0.0001	0.0009
0.0002	0.0004	0.0021	0.0007	0.0010	0.0003	0.0026
0.0000	0.0000	0.0001	0.0000	0.0001	0.0000	0.0000
0.0001	0.0002	0.0013	0.0004	0.0006	0.0002	0.0010
0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000
0.0000	0.0000	0.0002	0.0000	0.0003	0.0001	0.0001
0.0001	0.0001	0.0003	0.0001	0.0002	0.0001	0.0004
0.0000	0.0000	0.0000	0.0000	0.0002	0.0002	0.0000
0.0000	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
898.1	895.0	966.5	917.3	939.8	914.5	1058.6
17.1380	17.1400	17.3830	17.1640	17.2530	17.1600	17.4000
0.6870	0.6911	0.6675	0.6738	0.6682	0.6754	0.5845



HARVEST MIDSTREAM
WELL ANALYSIS COMPARISON

Lease: MILAGRO PLANT INLET

Stn. No.:

Mtr. No.:

11/07/2023

33700-10065

03/20/2020	09/16/2019	06/18/2019	01/25/2019
03/24/2020	09/17/2019	06/21/2019	01/29/2019
HM200013	HM190058	HM190043	HM190001
0.0473	0.0454	0.0744	0.0647
10.8784	10.6630	9.1333	10.1065
87.5063	87.8103	87.7080	88.4708
1.1568	1.1230	1.9990	1.0388
0.2732	0.2516	0.6532	0.2195
0.0415	0.0372	0.1178	0.0374
0.0587	0.0387	0.1506	0.0344
0.0000	0.0000	0.0016	0.0004
0.0111	0.0104	0.0556	0.0083
0.0059	0.0059	0.0385	0.0022
0.0004	0.0000	0.0012	0.0006
0.0004	0.0003	0.0017	0.0003
0.0004	0.0003	0.0018	0.0003
0.0028	0.0022	0.0113	0.0022
0.0009	0.0008	0.0039	0.0004
0.0030	0.0023	0.0116	0.0024
0.0018	0.0016	0.0075	0.0017
0.0005	0.0003	0.0014	0.0005
0.0013	0.0010	0.0043	0.0010
0.0004	0.0003	0.0015	0.0003
0.0000	0.0000	0.0000	0.0000
0.0002	0.0001	0.0004	0.0001
0.0003	0.0002	0.0009	0.0002
0.0014	0.0009	0.0041	0.0011
0.0026	0.0019	0.0076	0.0020
0.0011	0.0006	0.0024	0.0009
0.0005	0.0003	0.0011	0.0003
0.0002	0.0002	0.0005	0.0002
0.0003	0.0002	0.0006	0.0002
0.0007	0.0004	0.0014	0.0006
0.0001	0.0000	0.0001	0.0001
0.0004	0.0002	0.0006	0.0003
0.0001	0.0000	0.0001	0.0001
0.0002	0.0001	0.0002	0.0002
0.0002	0.0001	0.0002	0.0001
0.0001	0.0000	0.0001	0.0002
0.0002	0.0001	0.0000	0.0001
0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000
920.5	921.3	958.1	925.3
17.1660	17.1530	17.3400	17.1380
0.6711	0.6681	0.6672	0.6619

Location of Sample: <i>Milagro Inlet</i>		Meter Code & CK Digit:
Continuous Sampler Beginning Date:	Ending Date or Date Pulled: <i>10-30-23</i> <i>839</i>	
Run Number:	Operator Code:	Line PSIG: <i>881.48</i>
Cylinder Number: <i>#314</i>	Type Sample: ☒ Spot ☐ Continuous	Flow Temp.: <i>65.5 °F</i>
Remarks: <i>Extended Sample</i>		
Sample Taken By: <i>Hugo Reyes</i>		Phone Number: <i>505-632-4661</i>
<i>33700-10065 HM20230260</i>		



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

Analysis No: HM20230244
Cust No: 33700-10675

Well/Lease Information

Customer Name: HARVEST MIDSTREAM
Well Name: Ignacio Cross Haul Inlet
County/State:
Location:
Lease/PA/CA:
Formation:
Cust. Stn. No.:

Source: MLG Inlet
Well Flowing:
Pressure: 883 PSIG
Flow Temp: 78 DEG. F
Ambient Temp: 83 DEG. F
Flow Rate: MCF/D
Sample Method: Purge & Fill
Sample Date: 09/21/2023
Sample Time: 11.15 AM
Sampled By: Chris Starnes
Sampled by (CO): Harvest

Heat Trace:

Remarks: Calculated Molecular Weight = 19.9731

Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0454	0.0454	0.0050	0.00	0.0004
CO2	12.9065	12.9102	2.2080	0.00	0.1961
Methane	85.4178	85.4422	14.5130	862.72	0.4731
Ethane	1.2127	1.2130	0.3250	21.46	0.0126
Propane	0.2875	0.2876	0.0790	7.23	0.0044
Iso-Butane	0.0468	0.0468	0.0150	1.52	0.0009
N-Butane	0.0456	0.0456	0.0140	1.49	0.0009
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0127	0.0127	0.0050	0.51	0.0003
N-Pentane	0.0091	0.0091	0.0030	0.36	0.0002
Neohexane	0.0001	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0002	N/R	0.0000	0.01	0.0000
Cyclopentane	0.0003	N/R	0.0000	0.01	0.0000
2-Methylpentane	0.0017	N/R	0.0010	0.08	0.0001
3-Methylpentane	0.0006	N/R	0.0000	0.03	0.0000
C6	0.0021	0.0160	0.0010	0.10	0.0001
Methylcyclopentane	0.0016	N/R	0.0010	0.07	0.0000
Benzene	0.0004	N/R	0.0000	0.01	0.0000
Cyclohexane	0.0007	N/R	0.0000	0.03	0.0000
2-Methylhexane	0.0003	N/R	0.0000	0.02	0.0000
3-Methylhexane	0.0004	N/R	0.0000	0.02	0.0000
2-2-4-Trimethylpentane	0.0001	N/R	0.0000	0.01	0.0000
i-heptanes	0.0002	N/R	0.0000	0.01	0.0000
Heptane	0.0011	N/R	0.0010	0.06	0.0000

Methylcyclohexane	0.0019	N/R	0.0010	0.10	0.0001
Toluene	0.0010	N/R	0.0000	0.04	0.0000
2-Methylheptane	0.0004	N/R	0.0000	0.02	0.0000
4-Methylheptane	0.0002	N/R	0.0000	0.01	0.0000
i-Octanes	0.0004	N/R	0.0000	0.02	0.0000
Octane	0.0006	N/R	0.0000	0.04	0.0000
Ethylbenzene	0.0001	N/R	0.0000	0.01	0.0000
m, p Xylene	0.0006	N/R	0.0000	0.03	0.0000
o Xylene (& 2,2,4 tmc7)	0.0002	N/R	0.0000	0.01	0.0000
i-C9	0.0003	N/R	0.0000	0.02	0.0000
C9	0.0002	N/R	0.0000	0.01	0.0000
i-C10	0.0002	N/R	0.0000	0.01	0.0000
C10	0.0001	N/R	0.0000	0.01	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	100.029	17.172	896.11	0.6896

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0025
BTU/CU.FT IDEAL:	898.2
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	900.3
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	884.6
DRY BTU @ 15.025:	918.3
REAL SPECIFIC GRAVITY:	0.691

CYLINDER #:	1504
CYLINDER PRESSURE:	914 PSIG
ANALYSIS DATE:	10/02/2023
ANALYSIS TIME:	05:09:02 AM
ANALYSIS RUN BY:	PATRICIA KING

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.

GPA Standard: GPA 2286-14

GC: SRI Instruments 8610 Last Cal/Verify: 10/03/2023

GC Method: C12+BTEX Gas



HARVEST MIDSTREAM
WELL ANALYSIS COMPARISON

Lease: Ignacio Cross Haul Inlet

MLG Inlet

10/03/2023

Stn. No.:

33700-10675

Mtr. No.:

Smpl Date:	09/21/2023	04/20/2022
Test Date:	10/02/2023	04/21/2022
Run No:	HM20230244	HM20220034
Nitrogen:	0.0454	0.0577
CO2:	12.9065	12.5564
Methane:	85.4178	85.5669
Ethane:	1.2127	1.3144
Propane:	0.2875	0.3296
I-Butane:	0.0468	0.0561
N-Butane:	0.0456	0.0561
2,2 dmc3:	0.0000	0.0000
I-Pentane:	0.0127	0.0194
N-Pentane:	0.0091	0.0140
Neohexane:	0.0001	0.0004
2-3-	0.0002	0.0005
Cyclopentane:	0.0003	0.0005
2-Methylpentane:	0.0017	0.0034
3-Methylpentane:	0.0006	0.0013
C6:	0.0021	0.0043
Methylcyclopentane:	0.0016	0.0031
Benzene:	0.0004	0.0007
Cyclohexane:	0.0007	0.0016
2-Methylhexane:	0.0003	0.0006
3-Methylhexane:	0.0000	0.0000
2-2-4-	0.0001	0.0002
i-heptanes:	0.0002	0.0004
Heptane:	0.0011	0.0019
Methylcyclohexane:	0.0019	0.0041
Toluene:	0.0010	0.0017
2-Methylheptane:	0.0004	0.0008
4-Methylheptane:	0.0002	0.0004
i-Octanes:	0.0004	0.0004
Octane:	0.0006	0.0010
Ethylbenzene:	0.0001	0.0001
m, p Xylene:	0.0006	0.0007
o Xylene (& 2,2,4	0.0002	0.0001
i-C9:	0.0003	0.0002
C9:	0.0002	0.0002
i-C10:	0.0002	0.0001
C10:	0.0001	0.0001
i-C11:	0.0000	0.0000
C11:	0.0000	0.0001
C12P:	0.0000	0.0000
BTU:	900.3	906.6
GPM:	17.1740	17.1970
SPG:	0.6910	0.6895

C6+ ☐ C9+ ☐ C12+ BTEX ☐Helium ☐ Sulfurs ☐ Ext. Liquid ☐

Other

Date 9-21-23

Sampled By: (Co.)

Harvest

Time 11:15

☒ AM
☐ PM

Sampled by: (Person)

Chris Starnes

Well Flowing:

☐ Yes ☐ No

Company:

Heat Trace:

☐ Yes ☐ No

Well Name:

Flow Pressure (PSIG):

883

API #:

Flow Temp (°F):

78°

Lease#:

Ambient Temp (°F):

83

County:

State:

Formation:

Flow Rate (MCF/D):

Source:

☐ Meter Run

☐ Tubing

☐ Casing

☐ Bradenhead

☒ Other

MLG Inlet

Sample Type:

☒ Spot

☐ Composite

Sample Method:

☒ Purge & Fill

☐ Other

IGNACIO CROSS Haul

Meter Number:

Cylinder Number:

1504

Contact:

Donald E Archuleta

505 609 3424

Remarks:

(Extended)

donald.archuleta@harvestmidstream.com

33700-10675

HM 20230244

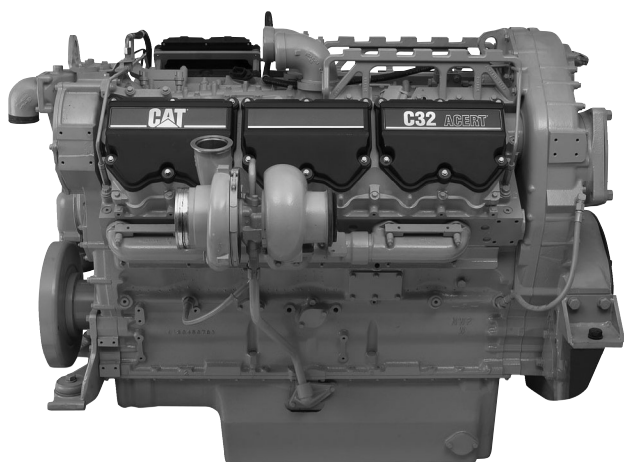


Image shown may not
reflect actual engine

CATERPILLAR® ENGINE SPECIFICATIONS

V-12, 4-Stroke-Cycle Diesel

Bore 137.7 mm (5.42 in.)
Stroke..... 152.4 mm (6.0 in.)
Displacement 27.0 L (1648 in³)
Aspiration..... Turbocharged Aftercooled
Compression Ratio 18:1
Rotation (from flywheel end) ... Counterclockwise
Engine Weight, Net Dry (approximate)
with standard equipment 2367 kg (5218 lbs.)

FEATURES

Emissions

Meets Tier 2 emissions requirements. Tier 2 refers to EPA (U.S.) standards.

Worldwide Supplier Capability

- Caterpillar
- Casts engine blocks, heads, and cylinder liners
 - Machines critical components
 - Assembles complete engine

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable product.

Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities.

Testing

- Prototype testing on every model
- proves computer design
 - verifies system torsional stability
 - tests functionality on every model

Every Caterpillar® engine is dynamometer tested under full load to ensure proper engine performance.

Full Range of Attachments

Wide range of bolt-on system expansion attachments, factory designed and tested.

Unmatched Product Support Offered Through Worldwide Caterpillar Dealer Network

More than 1,800 dealer outlets

Caterpillar factory-trained dealer technicians service every aspect of your industrial engine

99.7% of parts orders filled within 24 hours worldwide

Caterpillar parts and labor warranty

Preventive maintenance agreements available for repair before failure options

Scheduled Oil Sampling program matches your oil sample against Caterpillar set standards to determine:

- internal engine component condition
- presence of unwanted fluids
- presence of combustion by-products

Web Site

For additional information on all your power requirements, visit www.cat-industrial.com.

STANDARD ENGINE EQUIPMENT

Air Inlet System

- Air-to-air aftercooled (ATAAC)
- Twin turbo

Control System

- Electronic governing, PTO speed control
- Programmable ratings
- Cold mode start strategy
- Automatic altitude compensation
- Power compensation for fuel temperature
- Programmable low and high idle and total engine limit
- Electronic diagnostics and fault logging
- Engine monitoring system
- J1939 Broadcast (diagnostic and engine status)
- ADEM™ A4

Cooling System

- Thermostats and housing, vertical outlet
- Jacket water pump, centrifugal
- Water pump, inlet

Exhaust System

- Exhaust manifold, dry
- Optional exhaust outlet

Flywheels and Flywheel Housing

- SAE No. 0 or SAE No. 1 flywheel housing

Fuel System

- MEUI injection
- Fuel filter, secondary (2 micron high performance)
- Fuel transfer pump
- Fuel priming pump
- ACERT™ Technology

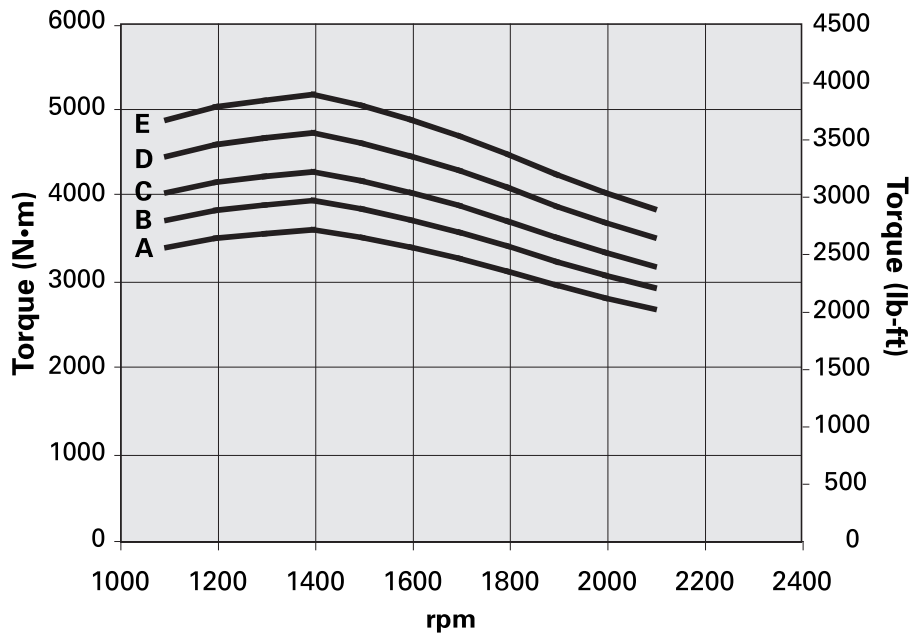
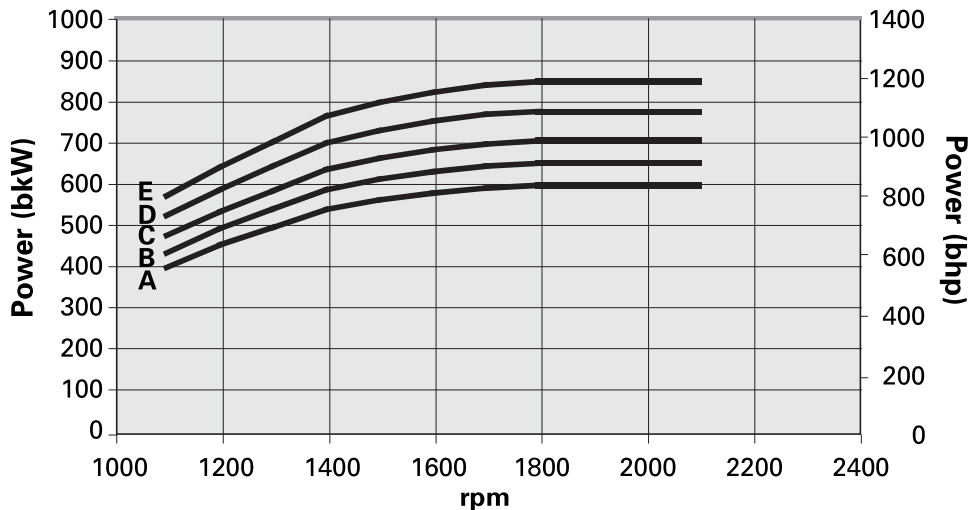
Lube System

- Crankcase breather
- Oil cooler
- Oil filler
- Oil filter
- Oil pan front sump
- Oil dipstick
- Oil pump (gear driven)

General

- Paint, Caterpillar yellow
- Vibration damper
- Lifting eyes

PERFORMANCE CURVES



Length	2083 mm (82 in.)
Width	1473 mm (58 in.)
Height	1499 mm (59 in.)

INDUSTRIAL RATINGS AND CONDITIONS

IND-A (Continuous)

Continuous heavy duty service where the engine is operated at maximum power and speed up to 100% of the time without interruption or load cycling.

IND-B

For service where power and/or speed are cyclic (time at full load not to exceed 80%).

IND-C (Intermittent)

Intermittent service where maximum power and/or speed are cyclic (time at full load not to exceed 50%).

IND-D

For service where maximum power is required for periodic overloads.

IND-E

For service where maximum power is required for a short time for initial starting or sudden overload. For emergency service where standard power is unavailable.

Ratings are based on SAE J1995, inlet air standard conditions of 99 kPa (29.31 in. Hg) dry barometer and 25°C (77°F) temperature. Performance measured using a standard fuel with fuel gravity of 35° API having a lower heating value of 42,780 kJ/kg (18,390 btu/lb) when used at 29° C (84.2° F) with a density of 838.9 g/L.

The corrected performance values shown for Caterpillar engines will approximate the values obtained when the observed performance data is corrected to SAE J1995, ISO 3046-2, 8665, 2288, 9249, and 1585, EEC 80/1269 and DIN 70020 standard reference conditions.

C27 ACERT
750 ekW/ 937 kVA/ 60 Hz/ 1800 rpm/ 480 V/ 0.8 Power Factor

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency
Use Only (Tier 2 Nonroad Equivalent Emission Standards)



C27 ACERT
750 ekW/ 937 kVA
60 Hz/ 1800 rpm/ 480 V

Image shown may not reflect actual configuration

Metric

English

Package Performance

Genset Power Rating with Fan @ 0.8 Power Factor	750 ekW	
Genset Power Rating	937 kVA	
Aftercooler (Separate Circuit)	N/A	N/A

Fuel Consumption

100% Load with Fan	202.9 L/hr	53.6 gal/hr
75% Load with Fan	162.4 L/hr	42.9 gal/hr
50% Load with Fan	116.2 L/hr	30.7 gal/hr
25% Load with Fan	70.6 L/hr	18.7 gal/hr

Cooling System¹

Engine Coolant Capacity	55.0 L	14.5 gal
-------------------------	--------	----------

Inlet Air

Combustion Air Inlet Flow Rate	58.7 m ³ /min	2073.6 cfm
Max. Allowable Combustion Air Inlet Temp	49 ° C	121 ° F

Exhaust System

Exhaust Stack Gas Temperature	509.3 ° C	948.7 ° F
Exhaust Gas Flow Rate	158.9 m ³ /min	5610.2 cfm
Exhaust System Backpressure (Maximum Allowable)	10.0 kPa	40.0 in. water

C27 ACERT

750 kW/ 937 kVA/ 60 Hz/ 1800 rpm/ 480 V/ 0.8 Power Factor

Rating Type: STANDBY

Emissions: U.S. EPA Certified for Stationary Emergency
Use Only (Tier 2 Nonroad Equivalent Emission Standards)**Heat Rejection**

Heat Rejection to Jacket Water	324 kW	18420 Btu/min
Heat Rejection to Exhaust (Total)	742 kW	42192 Btu/min
Heat Rejection to Aftercooler	138 kW	7849 Btu/min
Heat Rejection to Atmosphere from Engine	100 kW	5664 Btu/min
Heat Rejection to Atmosphere from Generator	53 kW	3014 Btu/min

Alternator²

Motor Starting Capability @ 30% Voltage Dip	2117 skVA
Current	1127 amps
Frame Size	1296
Excitation	PM
Temperature Rise	125 ° C

Emissions (Nominal)³

NOx	2637.1 mg/Nm ³	5.3 g/hp-hr
CO	123.9 mg/Nm ³	0.2 g/hp-hr
HC	11.2 mg/Nm ³	0.0 g/hp-hr
PM	8.8 mg/Nm ³	0.0 g/hp-hr

DEFINITIONS AND CONDITIONS

1. For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.
2. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.
3. Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

C27 ACERT

750 ekW/ 937 kVA/ 60 Hz/ 1800 rpm/ 480 V/ 0.8 Power Factor

Rating Type: STANDBY

**Emissions: U.S. EPA Certified for Stationary Emergency
Use Only (Tier 2 Nonroad Equivalent Emission Standards)**

Applicable Codes and Standards:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200,
NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions

Fuel Rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

www.Cat-ElectricPower.com

Performance No.: DM9071-02

Feature Code: C27DR69

Generator Arrangement: 3850654

Date: 03/06/2016

Source Country: U.S.

The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, their respective logos, ADEM, EUI, S•O•S, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

Performance Number: DM9071

Change Level: 02

SALES MODEL:	C27	COMBUSTION:	DI
ENGINE POWER (BHP):	1,141	ENGINE SPEED (RPM):	1,800
GEN POWER WITH FAN (EKW):	750.0	HERTZ:	60
COMPRESSION RATIO:	16.5	FAN POWER (HP):	37.5
RATING LEVEL:	STANDBY	ADDITIONAL PARASITICS (HP):	52.7
PUMP QUANTITY:	1	ASPIRATION:	TA
FUEL TYPE:	DIESEL	AFTERCOOLER TYPE:	ATAAC
MANIFOLD TYPE:	DRY	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
GOVERNOR TYPE:	ADEM4	INLET MANIFOLD AIR TEMP (F):	120
ELECTRONICS TYPE:	ADEM4	JACKET WATER TEMP (F):	210.2
IGNITION TYPE:	CI	TURBO CONFIGURATION:	PARALLEL
INJECTOR TYPE:	EUI	TURBO QUANTITY:	2
REF EXH STACK DIAMETER (IN):	10	TURBOCHARGER MODEL:	GTA5008BS-56T-1.60
MAX OPERATING ALTITUDE (FT):	10,000	CERTIFICATION YEAR:	2006
		PISTON SPD @ RATED ENG SPD (FT/MIN):	1,800.0

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
750.0	100	1,141	305	0.329	53.6	52.6	120.7	1,210.7	36.7	948.7
675.0	90	1,036	276	0.333	49.3	48.2	117.3	1,184.5	33.3	935.9
600.0	80	931	248	0.339	45.0	43.6	114.3	1,157.5	30.1	920.5
562.5	75	878	234	0.342	42.9	41.2	112.8	1,143.4	28.5	911.5
525.0	70	826	220	0.344	40.6	38.3	110.7	1,127.0	26.5	902.0
450.0	60	722	193	0.346	35.7	31.9	105.8	1,084.0	22.3	877.6
375.0	50	618	165	0.348	30.7	25.3	100.8	1,028.5	18.0	845.1
300.0	40	516	138	0.350	25.8	19.1	97.6	957.6	14.1	798.9
225.0	30	413	110	0.356	21.0	13.6	95.6	866.3	10.9	731.9
187.5	25	361	96	0.361	18.7	11.0	94.8	813.1	9.5	691.2
150.0	20	309	82	0.368	16.3	8.6	94.0	754.4	8.2	645.3
75.0	10	201	54	0.403	11.6	4.9	92.4	617.0	6.1	532.3

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
750.0	100	1,141	55	340.2	2,073.6	5,610.2	8,929.7	9,304.9	1,958.6	1,773.7
675.0	90	1,036	51	321.4	1,972.9	5,269.2	8,478.1	8,823.2	1,856.4	1,685.5
600.0	80	931	46	304.2	1,874.4	4,932.9	8,053.0	8,368.4	1,757.3	1,600.2
562.5	75	878	43	295.1	1,825.8	4,766.3	7,827.5	8,127.9	1,709.1	1,558.8
525.0	70	826	40	282.3	1,763.3	4,540.6	7,544.0	7,828.2	1,639.5	1,497.3
450.0	60	722	34	253.9	1,610.3	4,039.0	6,871.8	7,121.9	1,485.0	1,359.5
375.0	50	618	27	225.6	1,444.6	3,541.1	6,147.8	6,362.8	1,334.4	1,225.1
300.0	40	516	21	197.9	1,288.0	3,054.4	5,467.1	5,647.9	1,193.2	1,099.5
225.0	30	413	15	170.0	1,143.5	2,567.6	4,844.7	4,992.1	1,059.4	981.2
187.5	25	361	12	155.9	1,073.8	2,322.4	4,546.8	4,677.5	992.1	921.8
150.0	20	309	10	141.7	1,005.3	2,074.6	4,256.4	4,370.3	923.1	860.8
75.0	10	201	6	120.2	905.7	1,659.5	3,831.9	3,913.1	822.6	775.2

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHUAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
750.0	100	1,141	18,420	5,664	42,192	23,831	6,126	7,849	48,396	115,016	122,520
675.0	90	1,036	17,400	5,193	39,249	22,066	5,635	6,930	43,919	105,788	112,691
600.0	80	931	16,092	4,896	36,354	20,327	5,147	6,123	39,470	96,630	102,935
562.5	75	878	15,154	5,120	34,836	19,404	4,904	5,715	37,253	92,070	98,078
525.0	70	826	14,494	5,043	33,095	18,346	4,642	5,184	35,034	87,162	92,850
450.0	60	722	13,468	4,399	29,123	15,903	4,084	4,077	30,613	76,677	81,680
375.0	50	618	11,700	4,303	24,895	13,283	3,509	3,072	26,205	65,876	70,174
300.0	40	516	10,463	3,778	20,710	10,638	2,951	2,194	21,876	55,406	59,021
225.0	30	413	9,817	2,772	16,546	7,940	2,405	1,443	17,528	45,159	48,105
187.5	25	361	9,420	2,280	14,506	6,617	2,133	1,114	15,330	40,038	42,651
150.0	20	309	8,879	1,864	12,505	5,323	1,858	813	13,103	34,888	37,164
75.0	10	201	6,965	1,736	8,856	2,900	1,326	427	8,541	24,901	26,525

Emissions Data

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN	EKW	750.0	562.5	375.0	187.5	75.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	1,141	878	618	361	201
TOTAL NOX (AS NO2)	G/HR	7,181	4,159	2,639	1,824	1,310
TOTAL CO	G/HR	520	683	655	540	554
TOTAL HC	G/HR	55	82	96	88	101
PART MATTER	G/HR	47.2	59.4	150.5	116.9	78.8
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	3,190.9	2,326.7	2,078.5	2,424.5	2,904.0
TOTAL CO	(CORR 5% O2) MG/NM3	231.7	383.5	519.6	772.5	1,347.1
TOTAL HC	(CORR 5% O2) MG/NM3	21.1	40.7	65.9	111.3	214.7
PART MATTER	(CORR 5% O2) MG/NM3	17.2	27.7	103.8	128.4	160.0
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,554	1,133	1,012	1,181	1,414
TOTAL CO	(CORR 5% O2) PPM	185	307	416	618	1,078
TOTAL HC	(CORR 5% O2) PPM	39	76	123	208	401
TOTAL NOX (AS NO2)	G/HP-HR	6.35	4.76	4.29	5.06	6.52
TOTAL CO	G/HP-HR	0.46	0.78	1.07	1.50	2.76
TOTAL HC	G/HP-HR	0.05	0.09	0.16	0.24	0.50
PART MATTER	G/HP-HR	0.04	0.07	0.24	0.32	0.39
TOTAL NOX (AS NO2)	LB/HR	15.83	9.17	5.82	4.02	2.89
TOTAL CO	LB/HR	1.15	1.51	1.45	1.19	1.22
TOTAL HC	LB/HR	0.12	0.18	0.21	0.19	0.22
PART MATTER	LB/HR	0.10	0.13	0.33	0.26	0.17

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN	EKW	750.0	562.5	375.0	187.5	75.0
PERCENT LOAD	%	100	75	50	25	10
ENGINE POWER	BHP	1,141	878	618	361	201
TOTAL NOX (AS NO2)	G/HR	5,935	3,437	2,181	1,507	1,082
TOTAL CO	G/HR	278	365	351	289	296
TOTAL HC	G/HR	29	43	51	47	53
TOTAL CO2	KG/HR	525	419	298	180	112
PART MATTER	G/HR	24.2	30.5	77.2	59.9	40.4
TOTAL NOX (AS NO2)	(CORR 5% O2) MG/NM3	2,637.1	1,922.9	1,717.8	2,003.7	2,400.0
TOTAL CO	(CORR 5% O2) MG/NM3	123.9	205.1	277.9	413.1	720.4
TOTAL HC	(CORR 5% O2) MG/NM3	11.2	21.5	34.9	58.9	113.6
PART MATTER	(CORR 5% O2) MG/NM3	8.8	14.2	53.2	65.9	82.0
TOTAL NOX (AS NO2)	(CORR 5% O2) PPM	1,285	937	837	976	1,169
TOTAL CO	(CORR 5% O2) PPM	99	164	222	330	576
TOTAL HC	(CORR 5% O2) PPM	21	40	65	110	212
TOTAL NOX (AS NO2)	G/HP-HR	5.25	3.94	3.54	4.18	5.39
TOTAL CO	G/HP-HR	0.25	0.42	0.57	0.80	1.48
TOTAL HC	G/HP-HR	0.03	0.05	0.08	0.13	0.27

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PART MATTER	G/HP-HR	0.02	0.03	0.13	0.17	0.20
TOTAL NOX (AS NO2)	LB/HR	13.08	7.58	4.81	3.32	2.39
TOTAL CO	LB/HR	0.61	0.81	0.77	0.64	0.65
TOTAL HC	LB/HR	0.06	0.10	0.11	0.10	0.12
TOTAL CO2	LB/HR	1,157	924	658	397	246
PART MATTER	LB/HR	0.05	0.07	0.17	0.13	0.09
OXYGEN IN EXH	%	8.9	10.1	11.2	13.2	15.4
DRY SMOKE OPACITY	%	0.4	1.4	2.9	4.4	3.8
BOSCH SMOKE NUMBER		0.18	0.48	1.07	1.51	1.40

Regulatory Information

EPA TIER 2				
2006 - 2010				
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

EPA EMERGENCY STATIONARY				
2011 - ----				
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
1,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
2,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
3,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
4,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
5,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
6,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
7,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141
8,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,127	1,108	1,141
9,000	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,140	1,120	1,101	1,082	1,064	1,141
10,000	1,141	1,141	1,141	1,141	1,141	1,135	1,114	1,094	1,075	1,056	1,038	1,021	1,141
11,000	1,141	1,141	1,141	1,131	1,109	1,089	1,069	1,050	1,031	1,014	996	980	1,141
12,000	1,141	1,128	1,106	1,084	1,064	1,044	1,025	1,007	989	972	956	940	1,137
13,000	1,103	1,081	1,060	1,039	1,020	1,001	983	965	948	932	916	901	1,098
14,000	1,057	1,036	1,016	996	977	959	942	925	909	893	878	863	1,060
15,000	1,012	992	973	954	936	919	902	886	870	855	841	827	1,023

Cross Reference

Engine Arrangement			
Arrangement Number	Effective Serial Number	Engineering Model	Engineering Model Version
2671232	MJE00001	GS327	-
3495619	MJE00001	GS603	LS
3541450	PEN00001	GS582	-

Test Specification Data						
Test Spec	Setting	Effective Serial Number	Engine Arrangement	Governor Type	Default Low Idle Speed	Default High Idle Speed
0K7492	PP5659	MJE00001	2671232			
3704840	GG0522	MJE00001	3495619			
0K4032	GG0384	PEN00001	3541450			
3704840	GG0522		3884919			

Performance Parameter Reference

Parameters Reference:DM9600-08
PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION:
Engine performance tolerance values below are representative of a

PERFORMANCE DATA[DM9071]

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typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:

Power	+/- 3%
Torque	+/- 3%
Exhaust stack temperature	+/- 8%
Inlet airflow	+/- 5%
Intake manifold pressure-gage	+/- 10%
Exhaust flow	+/- 6%
Specific fuel consumption	+/- 3%
Fuel rate	+/- 5%
Specific DEF consumption	+/- 3%
DEF rate	+/- 5%
Heat rejection	+/- 5%
Heat rejection exhaust only	+/- 10%
Heat rejection CEM only	+/- 10%

Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.

These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS:

Heat rejection	+/- 10%
Heat rejection to Atmosphere	+/- 50%
Heat rejection to Lube Oil	+/- 20%
Heat rejection to Aftercooler	+/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque	+/- 0.5%
Speed	+/- 0.2%
Fuel flow	+/- 1.0%
Temperature	+/- 2.0 C degrees
Intake manifold pressure	+/- 0.1 kPa

OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR
FOR 3500 ENGINES AND SMALLER

SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.

FOR 3600 ENGINES

Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE

Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER

The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL

DIESEL

Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 29 (84.2), where the density is 838.9 G/Liter (7.001 Lbs/Gal).

GAS

Reference natural gas fuel has a lower heating value of 33,74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18,64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87,56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD

Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY

Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE

TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.

Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSIONS DEFINITIONS:

Emissions : DM1176

PERFORMANCE DATA[DM9071]

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HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500

RATING DEFINITIONS:
Agriculture : TM6008

Fire Pump : TM6009

Generator Set : TM6035

Generator (Gas) : TM6041

Industrial Diesel : TM6010

Industrial (Gas) : TM6040

Irrigation : TM5749

Locomotive : TM6037

Marine Auxiliary : TM6036

Marine Prop (Except 3600) : TM5747

Marine Prop (3600 only) : TM5748

MSHA : TM6042

Oil Field (Petroleum) : TM6011

Off-Highway Truck : TM6039

On-Highway Truck : TM6038

SOUND DEFINITIONS:
Sound Power : DM8702

Sound Pressure : TM7080

Date Released : 7/7/15

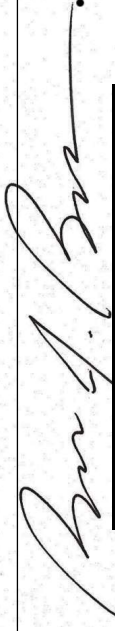


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2014 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Caterpillar Inc.
(U.S. Manufacturer or Importer)
Certificate Number: ECPXL27.0NZS-005

Effective Date:
06/20/2013
Expiration Date:
12/31/2014


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
06/20/2013
Revision Date:
N/A

Model Year: 2014
Manufacturer Type: Original Engine Manufacturer
Engine Family: ECPXL27.0NZS

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW≤2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Electronic Control, Engine Design Modification

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

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

^aWater/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.

^bThese 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.

^cThe "other" equipment type was derived from compressors, diaphragms, 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.

PS Memo 09-02

To: Stationary Sources Program, Local Agencies, and Regulated Community
From: Chris Laplante and Roland C. Hea, Colorado Air Pollution Control Division
Date: February 8, 2010
Subject: Oil & Gas Produced Water Tank Batteries
Regulatory Definitions and Permitting Guidance

This guidance document is intended to answer frequently asked questions concerning oil and gas industry produced water tank batteries. This document does not address any other equipment types that may be part of a common facility with a tank battery. Nothing in this guidance should be construed regarding Air Pollution Control Division (Division) permitting of evaporation ponds or water treatment facilities. Please consult with the Division for information regarding the permitting of evaporation ponds or water treatment facilities.

Revision History

October 1, 2009	Initial issuance.
February 8, 2010	First revision. This guidance document replaces the October 1, 2009 version. Revised language to clarify APEN fee structure, definition of modification, APEN submittals, and produced water exemption.

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3. EMISSION FACTORS AND SITE SPECIFIC SAMPLING Q&A

3.1. *What are the State approved default emission factors for produced water tanks?*

County	Produced Water Tank Default Emission Factors ¹ (lb/bbl) ²		
	VOC	Benzene	n-Hexane
Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, & Weld	0.262	0.007	0.022
Garfield, Mesa, Rio Blanco, & Moffat	0.178	0.004	0.010
Remainder of Colorado ³	0.262	0.007	0.022

¹ Testing may be performed at any site to determine site-specific emissions factors. These default emission factors may be revised by the Division in the future, pending approved data and testing results.

² Units of lb/bbl means pounds of emissions per barrel of produced water throughput

³ For counties not listed in this table, use the emissions factors listed as a conservative measure or perform testing to determine a site-specific emission factor

3.2. *What type of emissions are included in the produced water tank state default emission factors?*

State default emission factors for produced water tanks include flash, working, and breathing losses.

3.3. *Are there limits as to when produced water tank state default emission factors may be used?*

State default emission factors may be used at all oil and gas industry tank batteries. The Division intends to work with industry to refine emission factors and may develop separate emission factors for E&P and non-E&P sites.

3.4. *When are site-specific emission factors required for tank batteries?*

Site-specific emission factors may be developed and used on a voluntary basis for any tank battery. The Division reserves the authority to require site-specific emission factors at any time. Site-specific emission factors may only be applied at the tank battery for which they were developed, unless otherwise approved by the Division.

3.5. *How is a site-specific emission factor developed?*

A site-specific emission factor for tank batteries is developed by performing a Division approved stack test. A test protocol must be submitted and approved by the Division prior to performing the test. Once a test protocol has been approved by the Division, subsequent testing may be performed following the approved protocol without submittal to the Division.

The Division must be notified of the site specific testing at least 30-days prior to the actual test date.



Emission Factor
Determination for Produced
Water Storage Tanks

TCEQ Project 2010-29

Prepared for:
Texas Commission on Environmental Quality
Austin, Texas

Prepared by:
ENVIRON International Corporation
Novato, California

Date:
August 2010

ENVIRON Project Number:
06-17477T

Executive Summary

The overall purpose of this Study is to evaluate volatile organic compounds (VOC), speciated VOC and hazardous air pollutant (HAP) emissions from produced water and/or saltwater storage tanks servicing oil and gas wells and to develop appropriate VOC and HAP emission factors. The emission factors are to be used for emission inventory development purposes.

The primary source of information for this study was testing conducted by the Texas Commission on Environmental Quality (TCEQ) under Work Order 522-7-84005-FY10-25, *Upstream Oil & Gas Tank Measurements*, TCEQ Project 2010-39. As part of this referenced testing project, pressurized produced water samples were taken at seven different tank batteries located in Johnson, Wise and Tarrant Counties, Texas (all part of the Eastern Barnett Shale region) and analyzed for flash gas volume and composition. The sample collection and analysis conducted as part of TCEQ Project 2010-39 was done according to strict sampling and quality assurance procedures. In addition to TCEQ Project 2010-39 data, a thorough review of publically-available information sources identified a limited amount of data on produced water emissions. This was supplemented by data provided by two natural gas producers and one petroleum engineering services company. Other than TCEQ Project 2010-39 data, however, it could not be confirmed that any of the data had undergone a rigorous quality assurance process and therefore is considered secondary data, used to support conclusions drawn using the primary data but not used directly in deriving the produced water emission factors.

Emissions from produced water storage tanks consist of flash emissions, working losses and breathing losses. Flash emissions are determined using flash gas analysis. Working and breathing losses are estimated using EPA TANKS 4.09d software. Using this approach and the assumptions detailed within this report, it is determined that working and breathing losses associated with primary data source sites are very small compared to flash emissions and can be ignored without affecting the overall emission factor determination.

Table ES-1 presents the recommended emission factors for VOC and four HAPs – benzene, toluene, ethylbenzene and xylenes – derived from the primary data source sites. For comparative purposes, average emissions from Texas and non-Texas secondary sites are also presented in Table ES-1.

Table ES-1. Recommended Emission Factors and Comparative Data

Pollutant	Average Produced Water Emission Factor by Data Set (lb/bbl)		
	Recommended Emission Factor	Secondary Data – Texas	Secondary Data – Non-Texas
VOC	0.01	0.012	0.18
Benzene	0.0001	0.0012	0.004
Toluene	0.0003	0.0012	0.009
Ethylbenzene	0.000006	0.0001	0.0007
Xylenes	0.00006	0.0003	0.006

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

GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO ₂	1
Methane	74-82-8	CH ₄	^a 25
Nitrous oxide	10024-97-2	N ₂ O	^a 298
HFC-23	75-46-7	CHF ₃	^a 14,800
HFC-32	75-10-5	CH ₂ F ₂	^a 675
HFC-41	593-53-3	CH ₃ F	^a 92
HFC-125	354-33-6	C ₂ HF ₅	^a 3,500
HFC-134	359-35-3	C ₂ H ₂ F ₄	^a 1,100
HFC-134a	811-97-2	CH ₂ FCF ₃	^a 1,430
HFC-143	430-66-0	C ₂ H ₃ F ₃	^a 353
HFC-143a	420-46-2	C ₂ H ₃ F ₃	^a 4,470
HFC-152	624-72-6	CH ₂ FCH ₂ F	53
HFC-152a	75-37-6	CH ₃ CHF ₂	^a 124
HFC-161	353-36-6	CH ₃ CH ₂ F	12
HFC-227ea	431-89-0	C ₃ HF ₇	^a 3,220
HFC-236cb	677-56-5	CH ₂ FCF ₂ CF ₃	1,340
HFC-236ea	431-63-0	CHF ₂ CHFCF ₃	1,370
HFC-236fa	690-39-1	C ₃ H ₂ F ₆	^a 9,810
HFC-245ca	679-86-7	C ₃ H ₃ F ₅	^a 693
HFC-245fa	460-73-1	CHF ₂ CH ₂ CF ₃	1,030
HFC-365mfc	406-58-6	CH ₃ CF ₂ CH ₂ CF ₃	794
HFC-43-10mee	138495-42-8	CF ₃ CFHCFHCF ₂ CF ₃	^a 1,640
Sulfur hexafluoride	2551-62-4	SF ₆	^a 22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF ₅ CF ₃	17,700
Nitrogen trifluoride	7783-54-2	NF ₃	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF ₄	^a 7,390
PFC-116 (Perfluoroethane)	76-16-4	C ₂ F ₆	^a 12,200
PFC-218 (Perfluoropropane)	76-19-7	C ₃ F ₈	^a 8,830
Perfluorocyclopropane	931-91-9	C-C ₃ F ₆	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C ₄ F ₁₀	^a 8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	C-C ₄ F ₈	^a 10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C ₅ F ₁₂	^a 9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C ₆ F ₁₄	^a 9,300
PFC-9-1-18	306-94-5	C ₁₀ F ₁₈	7,500
HCFE-235da2 (Isoflurane)	26675-46-7	CHF ₂ OCHClCF ₃	350
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	CHF ₂ OCF ₂ OC ₂ F ₄ OCHF ₂	1,870

HFE-125	3822-68-2	CHF ₂ OCF ₃	14,900
HFE-134 (HG-00)	1691-17-4	CHF ₂ OCHF ₂	6,320
HFE-143a	421-14-7	CH ₃ OCF ₃	756
HFE-227ea	2356-62-9	CF ₃ CHFOCF ₃	1,540
HFE-236ca12 (HG-10)	78522-47-1	CHF ₂ OCF ₂ OCHF ₂	2,800
HFE-236ea2 (Desflurane)	57041-67-5	CHF ₂ OCHF ₂ CF ₃	989
HFE-236fa	20193-67-3	CF ₃ CH ₂ OCF ₃	487
HFE-245cb2	22410-44-2	CH ₃ OCF ₂ CF ₃	708
HFE-245fa1	84011-15-4	CHF ₂ CH ₂ OCF ₃	286
HFE-245fa2	1885-48-9	CHF ₂ OCH ₂ CF ₃	659
HFE-254cb2	425-88-7	CH ₃ OCF ₂ CHF ₂	359
HFE-263fb2	460-43-5	CF ₃ CH ₂ OCH ₃	11
HFE-329mcc2	134769-21-4	CF ₃ CF ₂ OCF ₂ CHF ₂	919
HFE-338mcf2	156053-88-2	CF ₃ CF ₂ OCH ₂ CF ₃	552
HFE-338pcc13 (HG-01)	188690-78-0	CHF ₂ OCF ₂ CF ₂ OCHF ₂	1,500
HFE-347mcc3 (HFE-7000)	375-03-1	CH ₃ OCF ₂ CF ₂ CF ₃	575
HFE-347mcf2	171182-95-9	CF ₃ CF ₂ OCH ₂ CHF ₂	374
HFE-347pcf2	406-78-0	CHF ₂ CF ₂ OCH ₂ CF ₃	580
HFE-356mcc3	382-34-3	CH ₃ OCF ₂ CHF ₂ CF ₃	101
HFE-356pcc3	160620-20-2	CH ₃ OCF ₂ CF ₂ CHF ₂	110
HFE-356pcf2	50807-77-7	CHF ₂ CH ₂ OCF ₂ CHF ₂	265
HFE-356pcf3	35042-99-0	CHF ₂ OCH ₂ CF ₂ CHF ₂	502
HFE-365mcf3	378-16-5	CF ₃ CF ₂ CH ₂ OCH ₃	11
HFE-374pc2	512-51-6	CH ₃ CH ₂ OCF ₂ CHF ₂	557
HFE-449s1 (HFE-7100)	163702-07-6	C ₄ F ₉ OCH ₃	297
Chemical blend	163702-08-7	(CF ₃) ₂ CFCF ₂ OCH ₃	
HFE-569sf2 (HFE-7200)	163702-05-4	C ₄ F ₉ OC ₂ H ₅	59
Chemical blend	163702-06-5	(CF ₃) ₂ CFCF ₂ OC ₂ H ₅	
Sevoflurane (HFE-347mmz1)	28523-86-6	CH ₂ FOCH(CF ₃) ₂	345
HFE-356mm1	13171-18-1	(CF ₃) ₂ CHOCH ₃	27
HFE-338mmz1	26103-08-2	CHF ₂ OCH(CF ₃) ₂	380
(Octafluorotetramethyl-ene) hydroxymethyl group	NA	X-(CF ₂) ₄ CH(OH)-X	73
HFE-347mmy1	22052-84-2	CH ₃ OCF(CF ₃) ₂	343
Bis(trifluoromethyl)-methanol	920-66-1	(CF ₃) ₂ CHOH	195
2,2,3,3,3-pentafluoropropanol	422-05-9	CF ₃ CF ₂ CH ₂ OH	42
PPFMIE (HT-70)	NA	CF ₃ OCF(CF ₃)CF ₂ OCF ₂ OCF ₃	10,300

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

Table C-1 to Subpart C of Part 98—Default CO₂ Emission Factors and High Heat Values for Various Types of Fuel

DEFAULT CO₂ EMISSION FACTORS AND HIGH HEAT VALUES FOR VARIOUS TYPES OF FUEL

Fuel type	Default high heat value	Default CO₂ emission factor
Coal and coke	mmBtu/short ton	kg CO₂/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO₂/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO₂/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG) ¹	0.092	61.71
Propane ¹	0.091	62.87
Propylene ²	0.091	67.77
Ethane ¹	0.068	59.60
Ethanol	0.084	68.44
Ethylene ²	0.058	65.96
Isobutane ¹	0.099	64.94
Isobutylene ¹	0.103	68.86
Butane ¹	0.103	64.77
Butylene ¹	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02

Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels—solid	mmBtu/short ton	kg CO ₂ /mmBtu
Municipal Solid Waste	9.95 ³	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
Other fuels—gaseous	mmBtu/scf	kg CO ₂ /mmBtu
Blast Furnace Gas	0.092 × 10 ⁻³	274.32
Coke Oven Gas	0.599 × 10 ⁻³	46.85
Propane Gas	2.516 × 10 ⁻³	61.46
Fuel Gas ⁴	1.388 × 10 ⁻³	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO ₂ /mmBtu
Wood and Wood Residuals (dry basis) ⁵	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO ₂ /mmBtu
Landfill Gas	0.485 × 10 ⁻³	52.07
Other Biomass Gases	0.655 × 10 ⁻³	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO ₂ /mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

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

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

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

⁴Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO₂ emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

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

[78 FR 71950, Nov. 29, 2013]

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Table C-2 to Subpart C of Part 98—Default CH₄ and N₂O Emission Factors for Various Types of Fuel

Fuel type	Default CH ₄ emission factor (kg CH ₄ /mmBtu)	Default N ₂ O emission factor (kg N ₂ O/mmBtu)
Coal and Coke (All fuel types in Table C-1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C-1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C-1, except wood and wood residuals)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C-1)	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the “Energy Industry” or “Manufacturing Industries and Construction”. In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC “Energy Industry” category may employ a value of 1g of CH₄/mmBtu.

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

Onshore petroleum and natural gas production	Emission factor (scf/hour/component)
Eastern U.S.	
Population Emission Factors—All Components, Gas Service¹	
Valve	0.027
Connector	0.003
Open-ended Line	0.061
Pressure Relief Valve	0.040
Low Continuous Bleed Pneumatic Device Vents ²	1.39
High Continuous Bleed Pneumatic Device Vents ²	37.3
Intermittent Bleed Pneumatic Device Vents ²	13.5
Pneumatic Pumps ³	13.3
Population Emission Factors—All Components, Light Crude Service⁴	
Valve	0.05
Flange	0.003
Connector	0.007
Open-ended Line	0.05
Pump	0.01
Other ⁵	0.30
Population Emission Factors—All Components, Heavy Crude Service⁶	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other ⁵	0.003
Western U.S.	
Population Emission Factors—All Components, Gas Service¹	
Valve	0.121
Connector	0.017
Open-ended Line	0.031
Pressure Relief Valve	0.193
Low Continuous Bleed Pneumatic Device Vents ²	1.39
High Continuous Bleed Pneumatic Device Vents ²	37.3
Intermittent Bleed Pneumatic Device Vents ²	13.5
Pneumatic Pumps ³	13.3
Population Emission Factors—All Components, Light Crude Service⁴	
Valve	0.05
Flange	0.003

Connector (other)	0.007
Open-ended Line	0.05
Pump	0.01
Other ⁵	0.30
Population Emission Factors—All Components, Heavy Crude Service⁶	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other ⁵	0.003

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

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

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

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

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

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

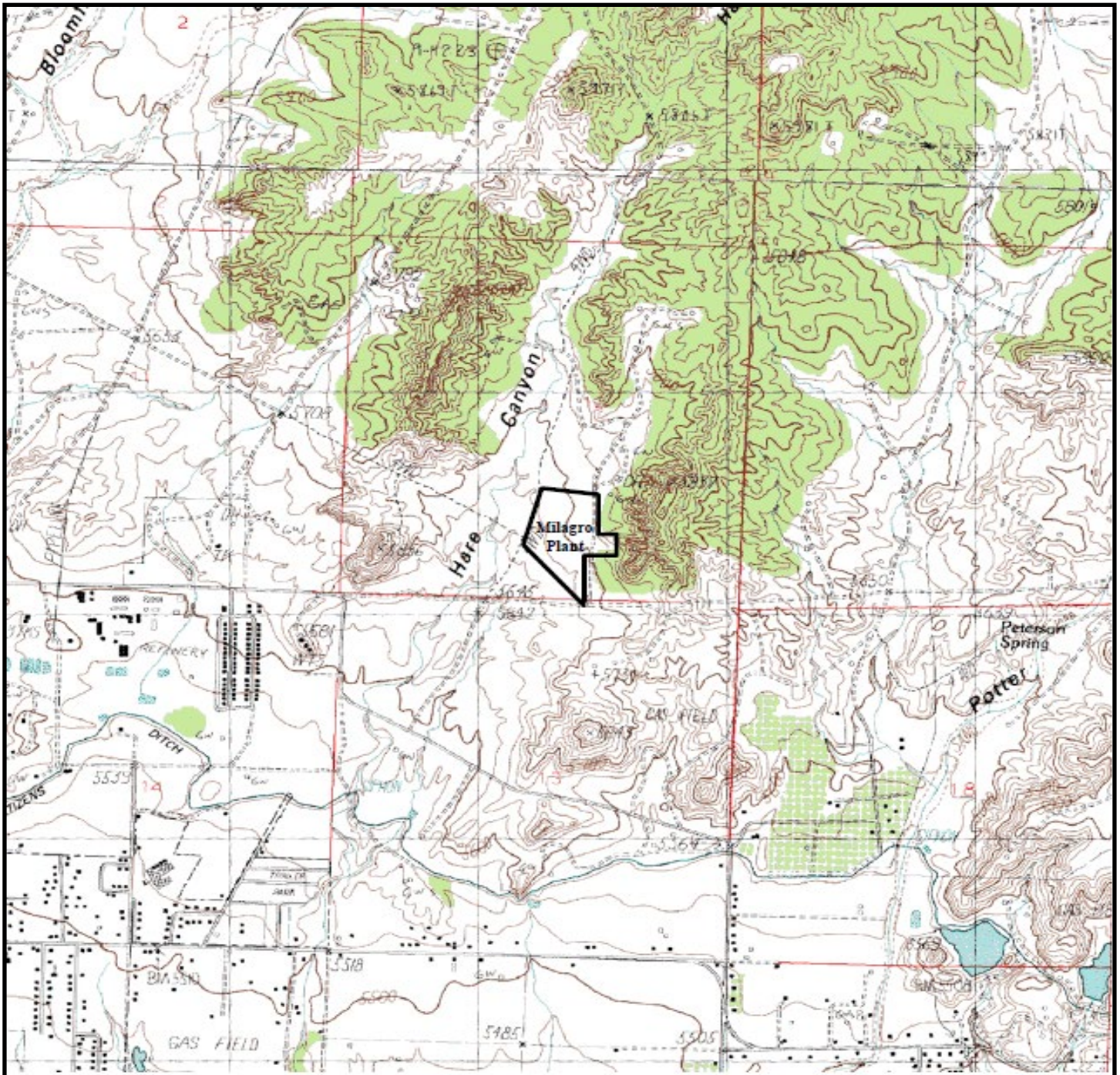
Section 8

Map(s)

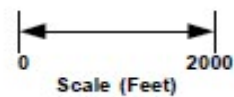
A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

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

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



Source: USGS Aztec and Bloomfield, NM Quadrangles



4950 N O'CONNER RD.
SUITE 104
IRVING, TX 75062

www.altamira-us.com

FIGURE TITLE

AREA MAP

DOCUMENT TITLE

TITLE V PERMIT RENEWAL

CLIENT

HARVEST MIDSTREAM, LLC

LOCATION

MILAGRO

SAN JUAN COUNTY, NEW MEXICO

DATE 2/27/2024

SCALE AS SHOWN

DESIGNED BY AD

APPROVED BY LWL

DRAWN BY AD

PROJECT NUMBER

FIGURE NUMBER

SECTION 8

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**

This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

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

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

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

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

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

Not applicable since this is a Title V permit application.

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.

The Milagro Gas Treating Plant is designed to treat pipeline quality natural gas.

Four natural gas-fired Lo-NO_x boilers are used to produce steam for use in the plant. This steam is used in the treatment process.

The gas stream feeding the plant contains significant amounts of CO₂ and water. Five process trains remove these contaminants from the inlet stream. Each process train consists of an inlet separator, an amine contactor and a triethylene glycol (TEG) dehydrator. First, free liquids are removed from the streams via the inlet separators. Then, the streams are routed through amine contactors, where most of the CO₂ and some water is removed. Finally, the streams are routed through dehydrators where the remaining water is stripped from the streams.

Trains 1-3 are designed for a maximum throughput of 145 MMcfd. Train 4 is designed for a maximum throughput of 90 MMcfd. Train 5 is designed for a maximum throughput of 120 MMcfd. The dehydrator reboilers for trains 1-3 burn natural gas. The reboilers associated with trains 4 & 5 do not combust any fuel. They use heat from the process steam to regenerate the glycol. The dehydrators associated with trains 1-3 & 5 are equipped with flash tanks. Hydrocarbons from the flash tanks are recycled/recompressed back into the gas stream. Emissions from the five dehydrators still vents are all routed to a vapor recovery unit (VRU). The VRU captures all the still vent gas and injects it back into the facility gas stream. Condensed liquids from the processes are separated into fuel gas, natural gas condensate, and water.

Steam from the boilers is also used to generate electricity for the plant. The plant is equipped with one diesel-fired emergency generator. The facility is also equipped with miscellaneous liquid storage tanks, and piping components (valves, flanges, seals, etc.).

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):

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

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

☒ **Yes** ☐ **No**

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

☒ **Yes** ☐ **No**

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

☒ **Yes** ☐ **No**

C. Make a determination:

- ☒ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all **"YES"** boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes **"NO"** to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.
- ☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

Not applicable since this is a Title V permit application.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVANT 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/>

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

Example of a Table for State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	This regulation is applicable because it establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, and the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with the NMACs.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentrations of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. These requirements are not applicable under 20.2.70 NMAC (see 20..2.3.9 NMAC).
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.23 NMAC	Fugitive Dust Control	No	Facility	This regulation may apply if, this is an application for a notice of intent (NOI) per 20.2.73 NMAC, if the activity or facility is a fugitive dust source listed at 20.2.23.108.A NMAC, and if the activity or facility is located in an area subject to a mitigation plan pursuant to 40 CFR 51.930. As of January 2019, the only areas of the State subject to a mitigation plan per 40 CFR 51.930 are in Doña Ana and Luna Counties. Sources exempt from 20.2.23 NMAC are activities and facilities subject to a permit issued pursuant to the NM Air Quality Control Act, the Mining Act, or the Surface Mining Act (20.2.23.108.B NMAC). 20.2.23.108 APPLICABILITY: A. This part shall apply to persons owning or operating the following fugitive dust sources in areas requiring a mitigation plan in accordance with 40 CFR Part 51.930: (1) disturbed surface areas or inactive disturbed surface areas, or a combination thereof, encompassing an area equal to or greater than one acre; (2) any commercial or industrial bulk material processing, handling, transport or storage operations. B. The following fugitive dust sources are exempt from this part: (1) agricultural facilities, as defined in this part; (2) roadways, as defined in this part; (3) operations issued permits pursuant to the state of New Mexico Air Quality Control Act, Mining Act or Surface Mining Act; and (4) lands used for state or federal military activities. [20.2.23.108 NMAC - N, 01/01/2019]
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	Yes	1-3 & 20	This regulation is applicable because the facility is equipped with external gas burning equipment which have heat input rates exceeding the trigger level (one million MMBtu/year) established by the regulation. Since all the boilers were constructed after February 17, 1972, they are all required to meet the emissions limit identified in 20.2.33.108.A NMAC.
20.2.34 NMAC	Oil Burning Equipment: NO ₂	No	N/A	This regulation does not apply to internal combustion equipment such as engines. It only applies to external combustion equipment such as heaters or boilers. This facility has oil burning equipment (external combustion emission sources, such as oil fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		This regulation is not applicable because the facility is not a natural gas processing plant.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
			Facility	
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	This regulation is not applicable because the facility does not store hydrocarbons containing hydrogen sulfide, nor is there a tank battery storing hydrocarbon liquids with a capacity greater than or equal to 65,000 gallons.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur			This regulation is not applicable because the facility is not equipped with a sulfur recovery plant.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants		Units F1, 9b, 10b, 11b, 14, 15, 1, 2, 3, 20	This regulation establishes emission standards for volatile organic compounds (VOC) and oxides of nitrogen (NOx) for oil and gas production, processing, compression, and transmission sources. 20.2.50 NMAC subparts below: ☐ 113 – Engines and Turbines ☐ 114 – Compressor Seals ☐ 115 – Control Devices and Closed Vent Systems ☒ 116 – Equipment Leaks and Fugitive Emissions ☐ 117 – Natural Gas Well Liquid Unloading ☒ 118 – Glycol Dehydrators ☒ 119 – Heaters ☐ 120 – Hydrocarbon Liquid Transfers ☐ 121 – Pig Launching and Receiving ☒ 122 – Pneumatic Controllers and Pumps ☐ 123 – Storage Vessels ☐ 124 – Well Workovers ☐ 125 – Small Business Facilities ☐ 126 – Produced Water Management Unit ☐ 127 – Flowback Vessels and Preproduction Operations 113 – N/A There are no engines or turbines located at this facility; therefore, this subpart does not apply. 114 – N/A – There are no centrifugal or reciprocating compressor located at this facility; therefore, this subpart does not apply. 115 – N/A – The VRU control device at this a facility is not used to comply with the emission standards and emission reduction requirements of this Part, therefore, this subpart does not apply. 116 – Harvest will comply with the requirements of this subpart. 117 – N/A – There are natural gas wells located at this facility; therefore, this subpart does not apply. 118 – Units 9b, 10b, 11b, 14 & 15 are dehydrators that have a PTE ≥ 2 tpy VOC and are therefore subject to the requirements of this subpart. 119 – Boiler Units 1, 2, 3, and 20 both have a rated heat input > 20 MMBtu/hr and are therefore subject to the requirements of this subpart. 120 – N/A - TK33 is a produced water tank that has less than 13 loads per year of hydrocarbon liquid unloading and is located at this facility; therefore, this subpart does not apply. 121 – N/A – There are no pipeline pig launching or receiving operations at this facility; therefore, this subpart does not apply. 122 – Harvest will comply with the requirements of this subpart. 123 – N/A – The existing storage vessels at this facility do not have a PTE ≥ 4 tpy VOC; therefore, this subpart does not apply. 124 – N/A – There are no oil or natural gas wells located at this facility; therefore, this subpart does not apply. 125 – N/A – This facility does not qualify as a small business facility; therefore, this subpart does not apply.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
				126 – N/A – There are no produced water management units located at this facility; therefore, this subpart does not apply. 127 – N/A – There are no wells located at this facility; therefore, this subpart does not apply.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1-3, 9a-11a, 20 & 31b	This regulation is applicable because the facility is equipped with stationary combustion sources. Emissions from these combustion sources are limited to less than 20% opacity (see 20.2.61.109 NMAC). The regulation is not applicable to the Title V insignificant heaters (see 20.2.61.111.D).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a Title V major source of NOX, CO, and HAP. Landfills and Air Curtain Incinerators are not Title V Major Sources, but it would apply pursuant to 20.2.70.200.B NMAC.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC..
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or greater than 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent portion of this regulation does not apply because the facility is subject to 20.2.72 NMAC. The emissions inventory portion of this regulation is applicable since the facility is a Title V major source (see 20.2.73.300.B(1) & (2)).
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	Yes	Facility	This regulation is applicable because the facility is a PSD major source, the NOX and CO potential to emit are each greater than 250 tpy (see 20.2.74.200 NMAC). Note, however, this is not a PSD application since the emissions increase is not significant (there are no emission increases).
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.72 NMAC.
20.2.77 NMAC	New Source Performance	Yes	20 & 31b	This regulation is applicable because it adopts by reference the federal NSPS codified in 40 CFR 60. The facility is subject to 40 CFR 60, Subparts A, Db & IIII.
20.2.78 NMAC	Emission Standards for HAPS	No		This regulation is not applicable because it incorporates by reference the NESHAPs codified under 40 CFR 61. The facility is not subject to 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No		This regulation is not applicable because the facility is neither located in nor has a significant impact on a non-attainment area.
20.2.80 NMAC	Stack Heights	Yes	1-3, 9a-11a, 20 & 31b	This regulation is applicable because it establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	9b-11b, 14, 15 & 31b	This regulation is applicable because it adopts by reference the federal MACT Standards for source categories codified in 40 CFR 63. The affected units at the facility are subject to 40 CFR 63, Subparts A, HH & ZZZZ.

Example of a Table for Applicable Federal Regulations (Note: This is not an exhaustive list):

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	This regulation applies because the facility is subject to 20.2.70, 20.2.72 and 20.2.74 NMAC.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Facility	This regulation applies because 40 CFR 60, Subparts Db and IIII apply (see §60.1(a)).
NSPS 40 CFR 60.40a, Subpart Da	Subpart Da, Performance Standards for Electric Utility Steam Generating Units	No	20 & 31b	This regulation is not applicable because the facility is not equipped with electric utility steam generating units with heat input rates greater than the threshold capacity of 250 MMBtu/hr (see §60.40Da(a)).
NSPS 40 CFR 60.40b Subpart Db	Electric Utility Steam Generating Units	Yes	20	This regulation is applicable because the facility is equipped with a boiler (Unit 20) constructed after July 19, 1984 with a heat input rate greater than the threshold capacity of 100 MMBtu/hr (see §60.40b(a)). The unit must comply with the NOX standards of the subpart (see §60.44b). As the unit burns only natural gas, the SO2 and particulate standards of the subpart are not applicable (see §60.42b(k)(2) & §60.43b). Note that the regulation does not apply to the remaining boilers at the facility (Unit 1-3), as they were constructed prior to the applicability date and then subsequently moved to Milagro.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		This regulation is not applicable because the facility is not equipped with steam generating units with heat input rates greater than the threshold capacity of 10 MMBtu/hr but less than or equal to 100 MMBtu/hr (see §60.40c(a)).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No		This regulation is not applicable because the storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110a(a)).
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No		This regulation is not applicable because the storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 19,812 gallons and/or do not contain volatile organic liquids (see §60.110b(a)). Note that the maximum true vapor pressure of methyldiethanolamine (<0.1 kPa), stored in the 21,000 gallon tank T17, is much less than the 15 kPa threshold.
NSPS	Stationary Gas Turbines	No		This regulation is not applicable because there are no stationary gas turbines at the plant.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 60.330 Subpart GG				
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from Onshore Gas Plants	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO₂ Emissions	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No		This regulation does not apply because the facility is not equipped with “affected” sources that are constructed, modified, or reconstructed after Aug 23, 2011 and on or before September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, and storage vessels (see §60.5365). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430).
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	No		This regulation does not apply because the facility is not equipped with “affected” sources that are constructed, modified, or reconstructed after September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, storage vessels, pneumatic pumps, and equipment leaks (see §60.5365a). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430).
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	31b	This regulation is applicable because the stationary CI ICE (Unit 31b) commenced construction after July 11, 2005 and was manufactured after April 1, 2006 (see §60.4200(a)(2)). The engine is an emergency stationary CI ICE (see §60.4211(f)); it is not a fire pump engine; and it has a displacement of 2.25 liters per cylinder. The generator engine is a model year 2007 or later; therefore, the engine must comply with the requirements of §60.4202(a)(2) as specified in §60.4205(b). The engine must also comply with the fuel use requirements of §60.4207(b).
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		This regulation is not applicable because it does not apply to gas fired boilers (see §63.11195(e)).
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas	No		There will be no electric generating units at the site.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Emissions for Electric Generating Units			
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No		There will be no electric generating units at the site.
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No		The facility is not a municipal solid waste landfill
NESHAP 40 CFR 61 Subpart A	General Provisions	Yes	20 & 31b	This regulation applies because 40 CFR 60, Subparts Db and IIII apply (see §60.1(a)).
NESHAP 40 CFR 61 Subpart E	National Emission Standards for Mercury	No		The provisions of this subpart are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge
NESHAP 40 CFR 61 Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	Yes	9b-11b, 14, 15 & 31b	This regulation applies because 40 CFR 63, Subparts HH & ZZZZ apply (see §63.1(b)).
MACT 40 CFR 63, Subpart A	General Provisions	No	Units Subject to 40 CFR 63	The subpart includes standards for minimizing asbestos emissions from several operations, including demolition and renovation activities. This regulation is not applicable because there are no existing or planned activities at this facility that trigger applicability.
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	Yes	9b-11b, 14 & 15	This regulation is applicable because the facility is equipped with dehydrators. Note, however, the plant is a HAP area source as defined by the subpart and the dehydrators emit less than one tpy benzene and are exempt (see §63.764(e)). The plant does not contain storage vessels with the potential for flashing losses or compressors or ancillary equipment in volatile HAP service as defined by the subpart, thus these portions of the regulation are not applicable (see §63.761). This subpart defines a natural gas processing plant as "any processing site engaged in the extraction of natural gas liquids from field gas, or the fractionation of mixed NGL to natural gas products, or a combination of both". The Milagro plant does not engage in either of these activities; therefore, it is not a processing plant as defined by the subpart. This subpart defines a production field facility as a facility "located prior to the point of custody transfer" (see §63.761). The Milagro plant is a production field facility. The subpart states, "For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels shall be aggregated for a major source determination" (see §63.761). Therefore, the Milagro plant is an area HAP source.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No		This regulation does not apply as the facility is not a natural gas transmission and storage facility as defined by the subpart.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		This regulation does not apply because the facility is an area HAP source as defined by the subpart (see §63.7480).
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No		This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from coal- and oil-fired electric utility steam generating units (EGUs) as defined in §63.10042 of this subpart. This facility does not contain the affected source. This regulation does not apply.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	31b	This regulation applies because the facility is an area HAP source as defined by the subpart and is equipped with a stationary RICE (Unit 31b)(see §63.6580). The engine is a new (constructed or reconstructed on or after July 12, 2006) emergency stationary RICE as defined by the subpart (see §63.6590(2)(iii) & §63.6640(f)). Therefore, it will be required to meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR, Part 60, Subpart IIII. No other Subpart ZZZZ requirements will apply (see §63.6590(c)(1)).
40 CFR 64	Compliance Assurance Monitoring	No		This regulation is not applicable because none of the equipment at the facility uses a control device to achieve compliance with emission limits or standards where pre control emissions equal or exceed the major source threshold (100 tons per year).
40 CFR 68	Chemical Accident Prevention	No		This regulation is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds.
Title IV – Acid Rain 40 CFR 72	Acid Rain	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.
Title IV – Acid Rain 40 CFR 73	Sulfur Dioxide Allowance Emissions	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.
Title IV-Acid Rain 40 CFR 75	Continuous Emissions Monitoring	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
Title IV – Acid Rain 40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	No		This regulation is not applicable because the facility does not produce, manufacture, transform, destroy, import, or export ozone-depleting substances; does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

- ☒ **Title V Sources** (20.2.70 NMAC): By checking this box and certifying this application the permittee certifies that it has developed an Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☒ **NSR** (20.2.72 NMAC), **PSD** (20.2.74 NMAC) & **Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.
- ☒ **Title V** (20.2.70 NMAC), **NSR** (20.2.72 NMAC), **PSD** (20.2.74 NMAC) & **Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.
-

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

Not applicable, since there are no alternate operating scenarios.

Section 16

Air Dispersion Modeling

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

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

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.

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.

To save paper and to standardize the application format, delete this sentence and the samples in the Compliance Test History Table, and begin your submittal for this attachment on this page.

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Tested for NOX and CO in accordance with EPA test methods 1-4, 7, 10 & 19.	6/27/2023
3	Tested for NOX and CO in accordance with EPA test methods 1-4, 7, 10 & 19.	6/27/2023
20	Tested for NOX and CO in accordance with EPA test methods 1-4, 7, 10 & 19.	6/27/2023

Section 18

Addendum for Streamline Applications

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

Not applicable, as this is not a streamline application.

Section 19

Requirements for Title V Program

Who Must Use this Attachment:

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

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

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

The Milagro Gas Treating Plant is not subject to 40 CFR, Part 64, Compliance Assurance Monitoring (CAM); consequently, a monitoring protocol is not required with this application.

19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

The Milagro Gas Treating Plant is in compliance with all applicable requirements affecting the facility. A copy of Part 1 (Permit Requirements Certification Table) of the 2017 Annual Compliance Certification (ACC) is provided at the end of this section. It identifies the requirements of the current Title V operating permit and the methods and data used to determine compliance with that permit. It is assumed that compliance with the Title V operating permit ensures compliance with the construction permit and New Mexico regulations.

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

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

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

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

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

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

19.5 - Stratospheric Ozone and Climate Protection

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

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☐ Yes ☒ No
 2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ Yes ☒ No
(If the answer is yes, describe the type of equipment and how many units are at the facility.)
 3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? ☐ Yes ☒ No
 4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)
N/A
-

The station does not produce, manufacture, transform, destroy, import, or export any stratospheric ozone-depleting substances (CFCs, HCFCs); does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale any product that may contain stratospheric ozone-depleting substances. HFC shall continue to maintain compliance with the conditions stipulated in 40 CFR 82, Subparts A-G of the Stratospheric Ozone Protection Program (Title VI of the Clean Air Act Amendments).

19.6 - Compliance Plan and Schedule

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

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)

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

B. Compliance plan: (20.2.70.300.D.11.B NMAC)

A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)

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

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)

A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)

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

NOTE: The Acid Rain program has additional forms. See www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

The Milagro Gas Treating Plant is in compliance with all applicable requirements; consequently, a compliance plan, a compliance schedule, and a schedule of certified progress reports is not required.

The Milagro Gas Treating Plant is not equipped with any acid rain sources; consequently, compliance with the acid rain provisions is not required as a part of this permit application.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

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

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

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

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

Yes, the property on which the station is constructed and operated on is closer than 80 km (50 miles) from other states, local pollution control programs and Indian tribes and pueblos as described below:

Colorado	29 km
Southern Ute Tribal Lands	29 km
Jicarilla Apache Tribal Lands	66 km
Mountain Ute Tribal Lands	30 km
Navajo Tribal Lands	5 km

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC: **Nathan Work, Operations Manager**

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.

Not applicable.

Section 21

Addendum for Landfill Applications

Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.

EPA Background Information for MSW Landfill Air Quality Regulations: www.epa.gov/stationary-sources-air-pollution/clean-air-act-guidelines-and-standards-waste-management

NM Solid Waste Bureau Website: www.env.nm.gov/solid-waste/

Not applicable, as this facility is not a landfill.

Section 22: Certification

Company Name: Harvest Four Corners, LLC

I, Nathan Work, 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 12 day of July, 2024, upon my oath or affirmation, before a notary of the State of

New Mexico.

[Signature]
*Signature

7/12/2024
Date

Nathan Work
Printed Name

Operations Manager
Title

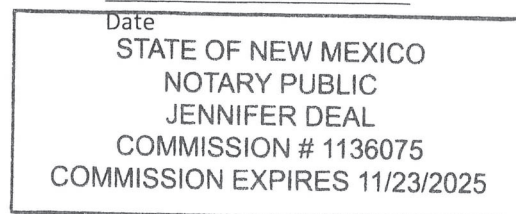
Scribed and sworn before me on this 12 day of July, 2024.

My authorization as a notary of the State of New Mexico expires on the

23 day of November, 2025.

[Signature]
Notary's Signature

Jennifer Deal
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.