11701 FM 2244, Suite 215B
Bee Cave, TX 78738

August 31, 2023

Andrew Jones, via email

New Mexico Environment Department

Air Quality Bureau: Permits Section

525 Camino de los Marquez, Suite 1

Santa Fe, New Mexico, 87505

RE: Incomplete Determination of Air Quality Permit Application No. PSD0001M12 (Agency Interest No. 211 – PRN20230001) – Dagger Draw Gas Plant

Dear Mr. Jones:

Frontier Field Services, LLC ("Frontier") has received the Incomplete Determination for the Dagger Draw Gas Plant air permit application dated August 2, 2023, and is addressing the incomplete items herein.

Administrative Item #1:

"Public Notice and Participation, per 20.2.72.203.b NMAC. The complete Public Notice shall be published in a newspaper of general circulation near to the facility. An entire paragraph was left out of the Public Notice previously. For your convenience, I am attaching the full permit template for the application."

Frontier Administrative Response #1: The public notice has been resubmitted. The new newspaper publisher's signed affidavits are enclosed in Section 9 (pages 81-84 of 132) of this submittal.

Administrative Item #2:

"Please submit the entire Universal Application Table 2-D for maximum emissions."

Frontier Administrative Response #1: Table 2-D is included in the enclosure to this letter.

Technical Item #1:

"Please revise and resubmit Engines 1-6 proposed emissions in Table 2-D and 2-E that reflect the manufacturer's data sheet for controlled emissions."

Frontier Technical Response #1: Please see revised and resubmitted Significant Permit Revision for the Dagger Draw Gas Plant as an attachment to this letter. Based on the guidance from the August 2, 2023 Incomplete Determination Letter, Frontier has revised the emissions estimates for the engines to align with manufacturers' representations.

Technical Item #2:

"Please submit a full facility process flow diagram. Only the amine and dehydration processes were submitted."

Frontier Technical Response #2: The enclosed revised application now includes a full facility process flow diagram (page 29 of 132).

Technical Item #3:

"Please submit the manufacturer's data sheet for the Caterpillar G3606LE showing the emission rates."

Frontier Technical Response #32: The enclosed revised application now includes all the engine manufacturer's data sheets.

Thank you for your review, and please let us know if you have any further questions.

Warm Regards,

Kat Galloway, MES
President
Bright Sky Environmental, LLC
281-217-8233

CC: Darin Kenard, Frontier Field Services, LLC; Rebecca Moore, Frontier Field Services, LLC

Enclosures:
1. Revised complete application for Dagger Draw Gas Plant

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

Universal Air Quality Permit Application

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

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

This application is submitted as (check all that apply)**:** ☐ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed þ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC þ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: þ 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:

þ 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.

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

☐ Check No.: **N/A in the amount of Application fee from GCP-O&G Application will be applied.**

þ 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.

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

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

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.72.219.D.1.a NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): 36536	Updating Permit/NOI #: NSR-0001-M11
1	Facility Name: Dagger Draw Gas Plant	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 278 Pipeline Rd, Artesia, NM 88210		
2	Plant Operator Company Name: Frontier Field Services, LLC	Phone/Fax: 575-677-5108	
a	Plant Operator Address: 1001 Conoco Road, Maljamar, NM 88264		
b	Plant Operator's New Mexico Corporate ID or Tax ID:		

3	Plant Owner(s) name(s): Frontier Field Services, LLC	Phone/Fax: 346-224-2459
a	Plant Owner(s) Mailing Address(s): 10077 Grogans Mill Road, Suite 300, The Woodlands, TX 77380	
4	Bill To (Company): Frontier Field Services, LLC	Phone/Fax: 346-224-2459
a	Mailing Address: 10077 Grogans Mill Road, Suite 300, The Woodlands, TX 77380	E-mail: RMoore@durangomidstream.com
5	☐ Preparer: þ Consultant: Bright Sky Environmental, LLC	Phone/Fax: 281-217-8233
a	Mailing Address: 11701 FM 2244, Suite 215-B, Bee Cave, Texas 78738	E-mail: Kat@BrightSkyENV.com
6	Plant Operator Contact: John Prentiss	Phone/Fax: 575-677-5108
a	Mailing Address: 1001 Conoco Road, Maljamar, NM 88264	E-mail: JPrentiss@durangomidstream.com
7	Air Permit Contact: Darin B. Kennard	Title: Vice President & GM
a	E-mail: DKennard@durangomidstream.com	Phone/Fax: 346-351-2790/N/A
b	Mailing Address: 10077 Grogans Mill Road, Suite 300, The Woodlands, TX 77380	
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? þ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? þ 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 þ 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 þ No	If yes, give month and year of shut down (MM/YY): N/A
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes þ 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 þ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes þ No	If yes, the permit No. is:
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes þ No	If yes, the NPR No. is: N/A
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes þ No	If yes, the NOI No. is: N/A
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? þ Yes ☐ No	If yes, the permit No. is: NSR-0001-M11
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes þ No	If yes, the register No. is: N/A

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 3.75 MMSCF	Daily: 90 MMSCF	Annually: 32,850 MMSCF
b	Proposed	Hourly: 3.75 MMSCF	Daily: 90 MMSCF	Annually: 32,850 MMSCF
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: 3.75 MMSCF	Daily: 90 MMSCF	Annually: 32,850 MMSCF
b	Proposed	Hourly: 3.75 MMSCF	Daily: 90 MMSCF	Annually: 32,850 MMSCF

Section 1-D: Facility Location Information

1	Section: 25	Range: 25E	Township: 18S	County: Eddy	Elevation (ft): 3,465
2	UTM Zone: ☐ 12 or þ 13			Datum: ☐ NAD 27 þ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 551,933 m E			UTM N (in meters, to nearest 10 meters): 3,619,808 m	
b	**AND** Latitude (deg., min., sec.): 32°42’53’’			Longitude (deg., min., sec.): -104°26’45’’	
3	Name and zip code of nearest New Mexico town: Artesia, NM 88210				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Artesia, NM head south on Highway 285 for 9.2 miles then turn right onto Kincaid rd and continue for 2.5 miles to facility.				
5	The facility is 9.2 miles southwest of Artesia, NM 88210.				
6	Status of land at facility (check one): þ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
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: Artesia, NM; Eddy County				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☐ Yes **þ** No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: N/A				
9	Name nearest Class I area: Carlsbad Caverns National Park				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 57.05 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: 1,158 m				
12	Method(s) used to delineate the Restricted Area: “**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 **þ** 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? **þ** 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 **þ** No If yes, specify:	
a	If yes, NOV date or description of issue:	NOV Tracking No:

b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☐ No If Yes, provide the 1c & 1d info below:		
c	Document Title:	Date:	Requirement # (or page # and paragraph #):
d	Provide the required text to be inserted in this permit:		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? þ 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 þ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? þ 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** þ **Minor** (☐ <10 tpy of any single HAP **AND** þ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes þ No		
a	If yes, include the name of company providing commercial electric power to the facility: _____ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

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

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Darin B. Kennard	Phone: 346-351-2790
a	R.O. Title: Vice President & GM	R.O. e-mail: DKennard@durangomidstream.com
b	R. O. Address: 10077 Grogans Mill Road, Suite 300, The Woodlands, Texas 77380	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): N/A	Phone: N/A
a	A. R.O. Title: N/A	A. R.O. e-mail: N/A
b	A. R. O. Address: N/A	
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): N/A	
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): N/A	
a	Address of Parent Company: N/A	
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: Darin Kennard – (346) 351-2790	
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: N/A	

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

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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Change Log – Do **not** submit this page with your application.

If you are using a form older than the most current form posted on the website, you are required to incorporate the changes listed. Periodically, AQB will announce when older form versions will no longer be accepted.

Version Date	Changes Incorporated
4/1/2021	Current version of this form. Older versions are not accepted.

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
FL-1	Emergency Flare	X	Unknown	63568	Unknown	Unknown	2005 2005	N/A N/A	31000205	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional Replacement Unit ☑ To Be Modified To be Replaced	N/A	
AU-2	Amine Unit	Longview Machine Inc	TAG # C-0701 NB:91	238	40 MMSCFD	40 MMSCFD	1972 -		31000201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional Replacement Unit To Be Modified To be Replaced	N/A	
FL-2	Process Flare	IT McGill	Tag #30-102-1	765-2	Unknown	Unknown	5/21/1999 -	- FL-2	31000205	☐ Existing (unchanged) To be Removed ☐ New/Additional Replacement Unit ☑ To Be Modified To be Replaced	N/A	
ENG-1	Compressor Engine	Caterpillar	G3606LE	TBD	1775 hp	1775 hp	1/22/2009 TBD	CAT-1 ENG-1	20200254	☐ Existing (unchanged) To be Removed New/Additional Replacement Unit X To Be Modified To be Replaced	4SLB	updating EFs
ENG-2	Compressor Engine	Caterpillar	G3606LE	TBD	1775 hp	1775 hp	6/13/2000 TBD	CAT-2 ENG-2	20200254	☐ Existing (unchanged) To be Removed New/Additional Replacement Unit X To Be Modified To be Replaced	4SLB	updating EFs
ENG-3	Compressor Engine	Caterpillar	G3606LE	TBD	1775 hp	1775 hp	1/16/2008 TBD	CAT-3 ENG-3	20200254	☐ Existing (unchanged) To be Removed New/Additional Replacement Unit X To Be Modified To be Replaced	4SLB	updating EFs
ENG-4	Compressor Engine	Caterpillar	G3606LE	TBD	1775 hp	1775 hp	TBD TBD	CAT-4 ENG-4	20200254	☐ Existing (unchanged) To be Removed New/Additional Replacement Unit X To Be Modified To be Replaced	4SLB	updating EFs
ENG-5	AGI Compressor Engine	AJAX	DPC-2804 LE	TBD	800 hp	800 hp	1997 TBD	CAT-5 ENG-5	20200254	☐ Existing (unchanged) To be Removed New/Additional Replacement Unit X To Be Modified To be Replaced	2SLB	updating EFs
ENG-6	AGI Compressor Engine	AJAX	DPC-2804 LE	TBD	800 hp	800 hp	1997 TBD	CAT-6 ENG-6	20200254	☐ Existing (unchanged) To be Removed New/Additional Replacement Unit X To Be Modified To be Replaced	2SLB	updating EFs
H-1	Hot Oil Heater	Parmac	Unknown	TBD	22.4 MMBtu/Hr	22.4 MMBtu/Hr	TBD TBD	N/A H-1	31000404	X Existing (unchanged) To be Removed ☐ New/Additional Replacement Unit To Be Modified To be Replaced	N/A	
H-2	TEG Regen Heater	ARC	Unknown	EC-0045-A-3	1.5 MMBtu/Hr	1.5 MMBtu/Hr	TBD TBD	N/A H-2	31000228	X Existing (unchanged) To be Removed ☐ New/Additional Replacement Unit To Be Modified To be Replaced	N/A	

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
H-3	Molecular Sieve Regen Heater	TBD	TBD	TBD	3.18 MMBtu/Hr	3.18 MMBtu/Hr	TBD TBD	N/A H-3	31000229	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
H-4	Hot Oil Heater	Entec	4V1-34-4HE-8-12-2HF	91674	15.5 MMBtu/hr	15.5 MMBtu/hr	<2000 <2000	N/A H-4	31000404	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified X To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	remove
H-5	Selexol Regenerator Heater	Parmac	Unknown	72-7591	3.5 MMBtu/Hr	3.5 MMBtu/Hr	1972 	N/A H-5	31000231	☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified X To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	remove
DEHY-1	TEG Dehydrator Still Vent	ARC	Unknown	TBD	90 MMscfd	90 MMscfd	TBD TBD	BTEX To Inlet	31000227	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
DEHY-2	TEG Dehydrator	Rama	Unknown	2138	40 MMscfd	40 MMscfd	5/21/1999 -	BTEX To Inlet	31000227	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
AU-1	Amine Unit	Parmac	Unknown	TBD	90 MMSCFD	90 MMSCFD	TBD TBD	AGI well AGI well	31000201	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
AU-3	Selexol Amine Unit	Parmac	Unknown	72-7590	30 MMSCFD	30 MMSCFD	1972 	AGI well AGI well	31000201	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
FUG	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ New/Additional ☑ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	modifying counts
FL-2 SSM	Startup/Shutdown/ Maintenance	N/A	N/A	N/A	N/A	N/A	N/A N/A	FL-2 FL-2	N/A	☐ Existing (unchanged) ☑ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
SSM	Startup/Shutdown/ Maintenance	N/A	N/A	N/A	N/A	N/A	N/A N/A	FL-1 FL-1	N/A	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	
Malf	Malfunction Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	FL-1 FL-1	N/A	X Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
TK-1	Amine		TBD 5819 & 5820	150 bbl	20.2.72.202.B.5 N/A	TBD 3/1/2021	X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-2	TEG		N/A N/A	23.8 bbl	20.2.72.202.B.5 N/A	TBD 3/1/2021	X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-3	Lube Oil		N/A N/A	75 bbl	20.2.72.202.B.5 N/A	N/A N/A	X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-4	Waste Water		N/A N/A	100 bbl	20.2.72.202.B.5 N/A	N/A N/A	X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-5	Lube Oil		N/A N/A	11.8 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-6	Methanol		N/A N/A	23.8 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-7	Methanol		N/A N/A	17.9 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-8	Lube Oil		N/A N/A	11.8 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-9	AGR Waste Water		N/A N/A	210 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-10	RO Water		N/A N/A	400 bbl	20.2.72.202.B.6 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-11 through TK-13	RO Water		N/A N/A	210 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-14	RO Water		N/A N/A	120 bbl	20.2.72.202.B.6 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced
TK-15	AGR Solvent		N/A N/A	90 bbl	20.2.72.202.B.5 N/A		X Existing (unchanged) To be Removed New/Additional Replacement Unit To Be Modified To be Replaced

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
CAT-1	Catalytic Oxidation	TBD	CO, HCHO	ENG-1	CO: 78% HCHO: 81%	Manufacturer Guarantee & Stack Testing
CAT-2	Catalytic Oxidation	TBD	CO, HCHO	ENG-2		
CAT-3	Catalytic Oxidation	TBD	CO, HCHO	ENG-3		
CAT-4	Catalytic Oxidation	TBD	CO, HCHO	ENG-4		
FL-1	Emergency Flare	2005	VOC, HAP	AGI System	98%	Design
FL-2	Process Flare	>2000	VOC, HAP	Facility	98%	Design
AGI Well	Acid Gas Injection unit for Amine Unit control	2006	H_2S	Amine Unit	100%	Design Specification

[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)

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-	-	-
ENG-2	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-	-	-
ENG-3	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-	-	-
ENG-4	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-	-	-
ENG-5	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.30	1.33	-	-	-	-
ENG-6	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.30	1.33	-	-	-	-
H-1	2.20	9.62	1.84	8.08	0.12	0.53	0.13	0.58	0.17	0.73	0.17	0.73	0.17	0.73	-	-	-	-
H-2	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.04	0.01	0.05	0.01	0.05	0.01	0.05	-	-	-	-
H-3	0.31	1.37	0.26	1.15	0.02	0.08	0.02	0.08	0.02	0.10	0.02	0.10	0.02	0.10	-	-	-	-
DEHY-1	-	-	-	-	48.49	212.38	-	-	-	-	-	-	-	-	0.01	0.03	-	-
DEHY-2																		
AU-1	-	-	-	-	94.97	153.58	-	-	-	-	-	-	-	-	4143.89	24.32	-	-
AU-2																		
AU-3																		
FL-1	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.00	-	-
FL-2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
FUG	-	-	-	-	1.48	-	-	-	-	-	-	-	0.00	0.00	0.12	0.53	-	-
Totals	17.54	76.81	53.39	233.84	164.29	450.70	0.51	2.23	1.28	5.60	1.28	5.60	1.28	5.60	4144.02	24.88	-	-

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-		
ENG-2	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-		
ENG-3	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-		
ENG-4	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.12	0.51	-	-		
ENG-5	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.30	1.33	-	-		
ENG-6	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.30	1.33	-	-		
H-1	2.20	9.62	1.84	8.08	0.12	0.53	0.13	0.58	0.17	0.73	0.17	0.73	0.17	0.73	-	-		
H-2	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.04	0.01	0.05	0.01	0.05	0.01	0.05	-	-		
H-3	0.31	1.37	0.26	1.15	0.02	0.08	0.02	0.08	0.02	0.10	0.02	0.10	0.02	0.10	-	-		
DEHY-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
DEHY-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
AU-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
AU-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
AU-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
FL-1	0.05	0.21	0.20	0.87	0.05	0.24	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.02	0.00	0.00		
FL-2	0.49	2.16	2.00	8.76	1.73	7.58	10.43	45.67	0.04	0.19	0.04	0.19	0.04	0.19	0.00	0.00		
FUG	-	-	-	-	1.48	6.49	-	-	-	-	-	-	-	-	0.12	0.53		
Totals	**18.08**	**79.18**	**21.93**	**96.06**	**19.33**	**84.65**	**10.94**	**47.90**	**1.33**	**5.81**	**1.33**	**5.81**	**1.33**	**5.81**	**0.122**	**0.534**	**0**	**0**

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
MALF	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
FL-2 SSM	258.05	36.77	1045.50	148.98	703.26	100.21	51.70	7.37	23.28	3.32	23.28	3.32	23.28	3.32	0.00	0.00		
Totals	**258.05**	**36.77**	**1045.50**	**148.98**	**703.26**	**120.21**	**51.70**	**7.37**	**23.28**	**3.32**	**23.28**	**3.32**	**23.28**	**3.32**	**0.00**	**0.00**	**0.00**	**0.00**

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		H_2S or Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals:																	

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
Engine	ENG-1	Vertical	No	30	867	200	-	-	91.40	1.67
Engine	ENG-2	Vertical	No	30	867	200	-	-	91.40	1.67
Engine	ENG-3	Vertical	No	30	867	200			91.40	1.67
Engine	ENG-4	Vertical	No	30	867	200			91.40	1.67
Engine	ENG-5	Vertical	No	20.1	515	104	-	-	64.90	1.40
Engine	ENG-6	Vertical	No	20.1	515	104	-	-	64.90	1.40
Heater	H-1	Vertical	No	17.0	600	232	-	-	41.41	2.67
Heater	H-2	Vertical	No	14	600	14	-	-	7.91	1.50
Heater	H-3	Vertical	No	25	600	30	-	-	16.76	1.50
Flare	FL-1	Vertical	No	200	1,832	0.2	-	-	0.36	0.83
Flare	FL-2	Vertical	No	100	1,832	852	-	-	390.67	1.67

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP		Acetaldehyde ☑ HAP		Acrolein ☑ HAP		n-Hexane HAP		Benzene HAP		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
ENG-1	ENG-1	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10						
ENG-2	ENG-2	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10						
ENG-3	ENG-3	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10						
ENG-4	ENG-4	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10						
ENG-5	ENG-5	1.17	2.82	0.53	2.32	0.05	0.23	0.03	0.14	0.01	0.03	0.00	0.01						
ENG-6	ENG-6	1.17	2.82	0.53	2.32	0.05	0.23	0.03	0.14	0.01	0.03	0.00	0.01						
H-1	H-1	0.04	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.17	0.00	0.00						
H-2	H-2	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00						
H-3	H-3	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00						
H-4	H-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
H-5	H-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
FL-1	DEHY-1	-	-	-	-	-	-	-	-	-	-	-	-						
	DEHY-2	-	-	-	-	-	-	-	-	-	-	-	-						
N/A	AU-1	-	-	-	-	-	-	-	-	-	-	-	-						
N/A	AU-2	-	-	-	-	-	-	-	-	-	-	-	-						
N/A	AU-3	-	-	-	-	-	-	-	-	-	-	-	-						
FL-1	FL-1	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.00	0.00						
FL-2	FL-2	0.29	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.20	0.17	0.73						
FL-2 SSM	FL-2 SSM									11.29	1.61	6.62	0.94						
N/A	FUG	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.12	0.05	0.24						
N/A	SSM	-	-	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-						
N/A	MALF	-	-	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-						
Totals:		**4.52**	**15.14**	**1.84**	**8.07**	**0.47**	**2.06**	**0.43**	**1.89**	**11.47**	**2.39**	**6.94**	**2.34**						

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
ENG-1	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.010	85.22	2 grains/100 scf	N/A
ENG-2	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.010	85.22	2 grains/100 scf	N/A
ENG-3	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.010	85.22	2 grains/100 scf	N/A
ENG-4	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.010	85.22	2 grains/100 scf	N/A
ENG-5	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.0052	45.19	2 grains/100 scf	N/A
ENG-6	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.0052	45.19	2 grains/100 scf	N/A
H-1	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.019	162.22	2 grains/100 scf	N/A
H-2	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.0012	10.86	2 grains/100 scf	N/A
H-3	Natural Gas	Pipeline Quality Natural Gas	1209.58	0.0026	23.03	2 grains/100 scf	N/A
FL-1	Natural Gas (pilot & Purge Gas)	Pipeline Quality Natural Gas	1209.58	0.0002	6.13	2 grains/100 scf	N/A
FL-2	Natural Gas (pilot & Purge Gas)	Pipeline Quality Natural Gas	1209.58	0.0002	6.13	2 grains/100 scf	N/A

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
N/A - All Tanks are exempt at this facility.									

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			
N/A - All Tanks are exempt at this facility.													

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Acid Gas	H_2S & Natural Gas	Gas	90 MMSCFD	Sweet Natural Gas	Natural Gas	Gas	90 MMSCFD

Table 2-N: CEM Equipment

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

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
N/A - This facility does not have CEMS Equipment									

Table 2-O: Parametric Emissions Measurement Equipment

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A - This facility does not have Parametric Emissions Measurement Equipment								

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
ENG-1	**mass GHG**	6,027	0.01	0.11	-										6,027	
	CO_2e	6,027	3.38	2.84	-											6,033
ENG-2	**mass GHG**	6,027	0.01	0.11	-										6,027	
	CO_2e	6,027	3.38	2.84	-											6,033
ENG-3	**mass GHG**	6,027	0.01	0.11	-										6,027	
	CO_2e	6,027	3.38	2.84	-											6,033
ENG-4	**mass GHG**	6,027	0.01	0.11	-										6,027	
	CO_2e	6,027	3.38	2.84	-											6,033
ENG-5	**mass GHG**	3,218	0.01	0.06	-										3,218	
	CO_2e	3,218	1.81	1.52	-											3,221
ENG-6	**mass GHG**	3,218	0.01	0.06	-										3,218	
	CO_2e	3,218	1.81	1.52	-											3,221
H-1	**mass GHG**	11,474	0.02	0.22	-										11,474	
	CO_2e	11,474	6.44	5.41	-											11,485
H-2	**mass GHG**	371.88	7.01E-04	0.01	-										371.890	
	CO_2e	371.88	0.21	0.18	-											372.267
H-3	**mass GHG**	1,629	3.07E-03	0.03	-										1,629	
	CO_2e	1,629	0.91	0.77	-											1,631
FL-1	**mass GHG**	0.09	6.96E-04	2.24	-										2.33	
	CO_2e	0.09	0.21	55.91	-											56.21
FL-2	**mass GHG**	9.64	0.13	307.37	-										317.14	
	CO_2e	9.64	37.61	7,684	-											7,732
DEHY-1	**mass GHG**	-	-	-	-										0.00	
DEHY-2	**CO2e**	-	-	-	-											0
AU-1	**mass GHG**	-	-	-	-										0.00	
AU-2																
AU-3	**CO_2e**	-	-	-	-											0
Total	**mass GHG**	44,028	0.21	310.44	-										44,339	
	CO_2e	44,028	62.53	7,761	-											51,851

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

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

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

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

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

Section 3

Application Summary

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

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

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

The Dagger Draw Gas Plant is currently permitted under Synthetic Minor > 80, permit NSR-0001-M11, authorized 4/26/2022. Frontier Field Services, LLC seeks a Significant Permit Revision per 20.2.72.219.D NMAC.

The facility's total capacity is 90 MMSCFD of natural gas, which is treated to remove H_2S and CO. The gas plant is located approximately 9.2 miles southwest of Artesia in Eddy County, New Mexico. This permit modification includes the following proposed changes:

1. Removal of H-4 and H-5 heaters from the permit. This equipment was never installed.
2. Adjustments to emissions factors used for ENG-1 through ENG-6.
3. Addition of amine flash tank and SSM emissions at the Process Flare, FL-2.
4. Updated gas sample composition updated for various sources.
5. Updated as-built counts of fugitive components used for fugitive emissions calculations.

There are no proposed changes made to the following equipment:

- Dehydrators DEHY-1 and DEHY-2
- Amine treating units AU-1, AU-2, and AU-3

This proposed revision does not increase the facility's total capacity and causes no auxiliary emissions increases.

The proposed PTE for the site is as follows:

NOX (TPY)	CO (TPY)	VOC (TPY)	SO2 (TPY)	$PM_{10/2.5}$ (TPY)	Total HAP (TPY)	Single HAP (TPY)
115.96	245.05	204.87	55.27	9.13	18.37	8.07

The facility is not a new major stationary source under the new source review requirements of the FCAA, Part C (PSD). The facility is located in Eddy County, New Mexico, an area that is classified as attainment or unclassified with the National Ambient Air Quality Standards (NAAQS) for all pollutants. Oil and gas production operations are not a listed source category under 40 CFR §52.21(b)(1); therefore, the facility would be considered a major source if criteria pollutant emissions are greater than or equal to the major source threshold of 250 tpy for each pollutant. The maximum annual emission rates for each criteria pollutant are less than 250 tpy. Therefore, the facility will remain a minor source as defined in the rules, and PSD review is not triggered.

Title V permitting requirements are triggered since the Title V major source thresholds are exceeded (100 tpy for each criteria pollutant, 25 tpy for total HAPs, 10 tpy for any single HAP). The site will be Title V major for NOx, CO, and VOC.

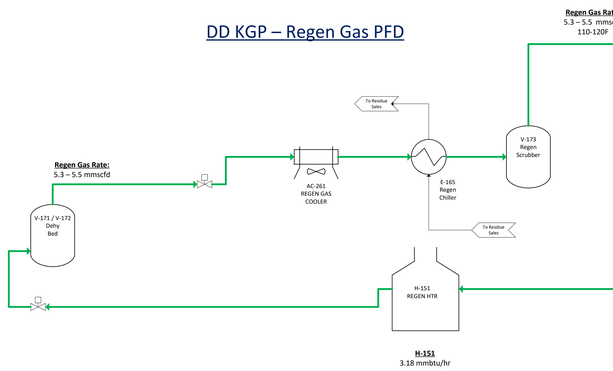
Section 4

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.

DAGGER DRAW EXPANSION – PROCESS FLOW DIAGRAM

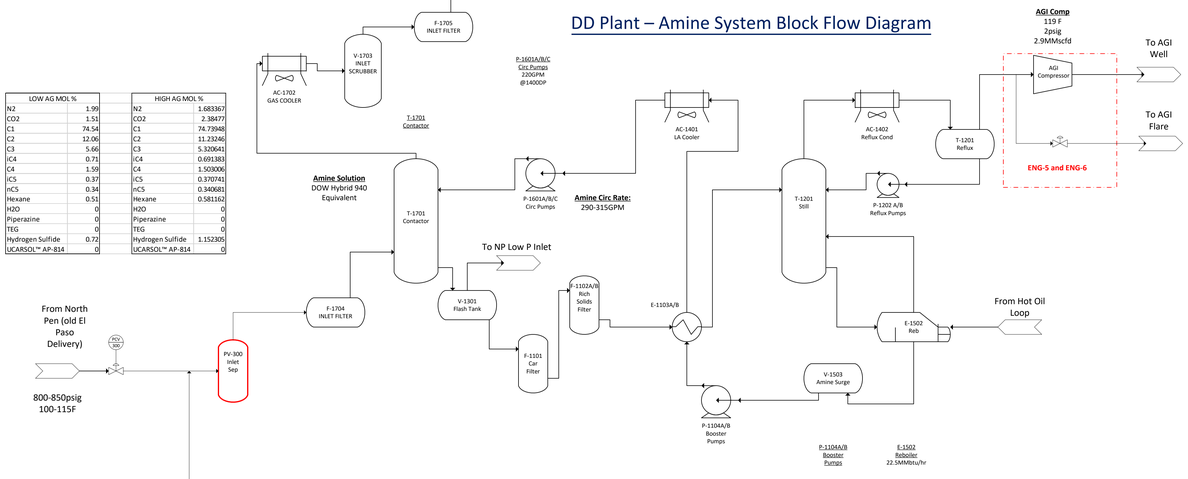
DD KGP – Regen Gas PFD



DD Plant – Cryo 75MMscfd

DD Plant – TEG Sys Block Flow Diagram

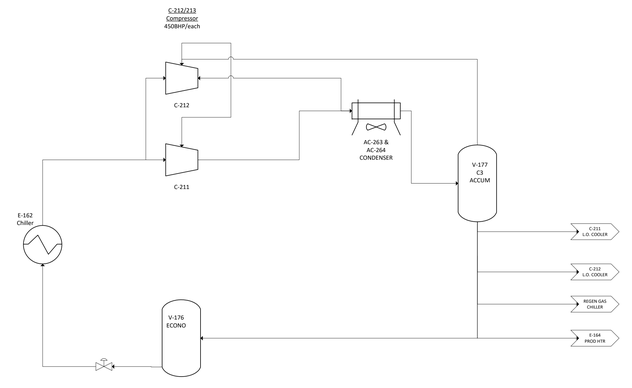
DD Plant – Amine System Block Flow Diagram



LOW AG MOL %	
N2	1.99
CO2	1.51
C1	74.54
C2	12.06
C3	5.66
iC4	0.71
C4	1.59
iC5	0.37
nC5	0.34
Hexane	0.51
H2O	0
Piperazine	0
TEG	0
Hydrogen Sulfide	0.72
UCARSOL™ AP-814	0

HIGH AG MOL %	
N2	1.683367
CO2	2.38477
C1	74.73948
C2	11.23246
C3	5.320641
iC4	0.691383
C4	1.503006
iC5	0.370741
nC5	0.340681
Hexane	0.581162
H2O	0
Piperazine	0
TEG	0
Hydrogen Sulfide	1.152305
UCARSOL™ AP-814	0

DD KGP – Refrigeration System PFD



C2 Recovery: 72.19 %

C3 Recovery: 97.54 %

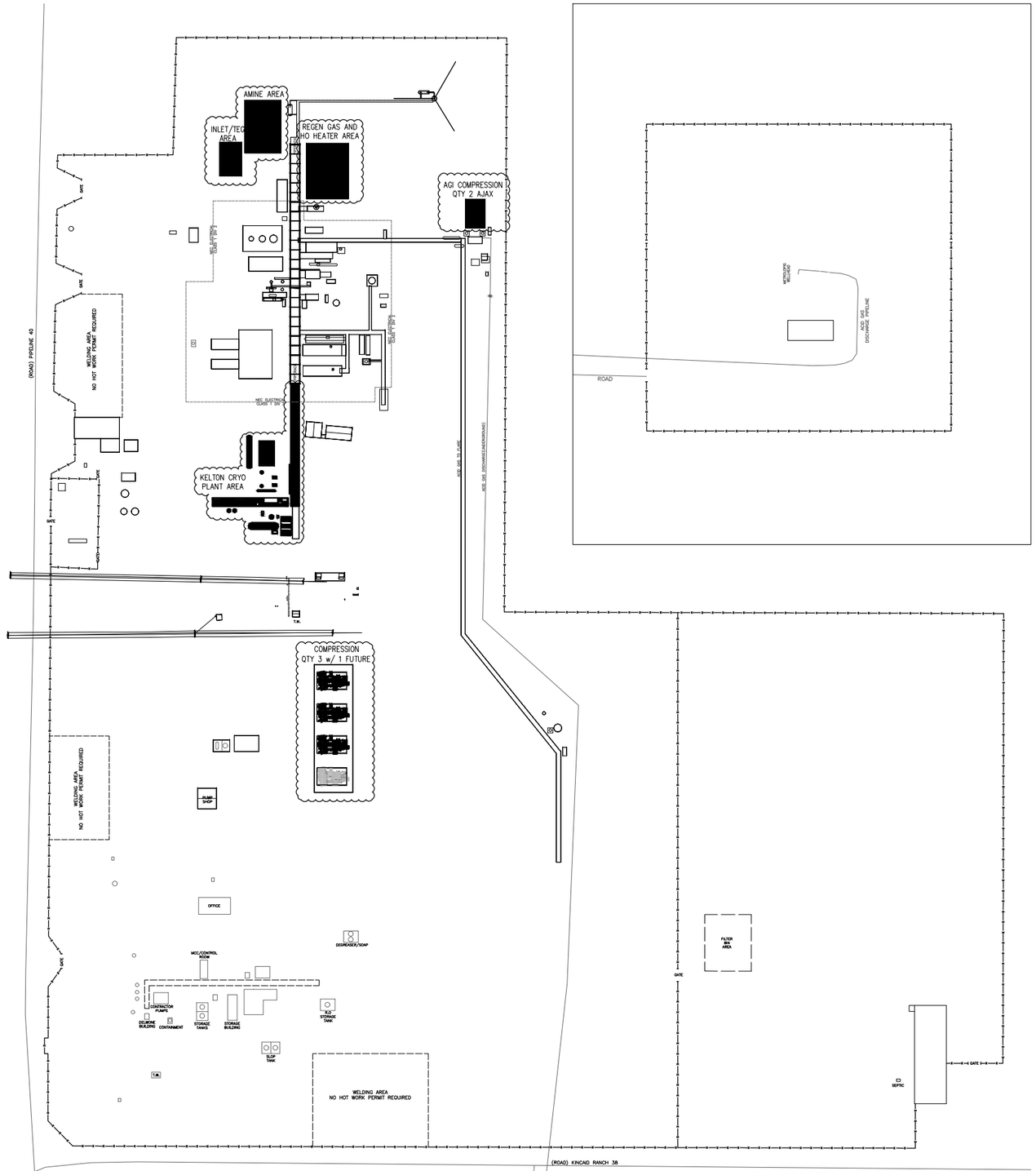
PLANT RECYCLE LINE
1. Process Sour Scenario
2. Mol Sieve Regen Scenario
3. Residue Sales Sour Scenario

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.

PLANT NORTH



NOTES:

REFERENCE DRAWINGS	
DWG. NO.	TITLE

REVISIONS			
NO.	DESCRIPTION	BY	APPR.
0	ISSUED FOR PERMIT	DK 12/21/21 DATE	TR 12/21/21 DATE

DURANGO MIDSTREAM
DAGGER DRAW GAS PLANT

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

DAGGER DRAW GAS PLANT

PLOT PLAN
ADDITIONS TO FACILITY

COUNTY: EDDY COUNTY	DRAWN BY: D. KELLOGG	APPROVED: T. RUDER
STATE: NEW MEXICO	CREATION DATE: 12/17/21	APPR. DATE: 12/17/21
Proj. No.: 0300.0002.00	DWG. No.: DDD-PP-100	SHEET No. 1 OF 1
SCALE: 1" = 90'-0"		0

FILE LOCATION:N:\PROJECTS\NTACT\DAGGER DRAW PLANT\02_SITE PLANS & GAS\DDD-PP-100_R0.DWG LAST SAVED: 12/21/21 BY: Dan Kellogg PLOT TIME/DATE: December 21, 2021

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.

TEG Dehydrators (Units DEHY-1 & DEHY-2)
Emission rates were calculated using Promax (gas processing analysis/simulation program) the simulated throughput for the facility was set at a combined total of 90 MMscfd. A copy can be found in Section 7 of this application. The dehydrator is controlled by a Venturi system and a condenser. These controls are 100% efficient. 98% control accounts for fugitive emissions. All vapors are routed to the plant flare (unit FL-2). The system has no vent to the atmosphere.

Amine Units (Units AU-1 through AU-3)
Emission rates were calculated using Promax (gas processing analysis/simulation program) based on a combined maximum throughput of 90 MMSCFD for the entire facility. A copy can be found in Section 7 of this application. The Amine unit's flash tank emissions are collected and sent to a low-pressure inlet of the facility, the regenerator emissions are sent to the AGI system. The amine unit flash tank emissions have been updated to route to the facility Process Flare (FL-2) as a worst-case alternating operating scenario for the facility. The system has no vent to the atmosphere.

Compressor Engines (Units ENG-1 through ENG-6)
Emission factors for NOx, CO, VOC, formaldehyde, and GHG are based on manufacturer data. NSCR and Catalytic oxidation for NOx, CO, VOC, and formaldehyde are based on vendor guarantees with a factor for operational flexibility. Emission rates for TSP, PM_{10}, and $PM_{2.5}$ were calculated using AP-42 Table 3.2-2 emission factors. PM_{10} and $PM_{2.5}$ emissions are set equal to TSP emissions as a conservative measure. SO_2 emissions were calculated based on the units' fuel consumption and AP-42 assumptions of fuel sulfur. Only those HAPs greater than 1 tpy were illustrated in the application. GHG emissions were calculated using 40 CFR 98 Subpart C Tier1.

Fugitives (Unit FUG)
Fugitives for the facility were calculated using the as-built component counts from LDAR testing and emission factors from EPA/API for oil and gas production facilities.

Hot oil heater, Reboiler, and Mol Sieve Regenerator heater (Units H-1 through H-3)
Emission rates for NOx, CO, VOC, and PM were calculated using AP-42 factors for external natural gas combustion sources, Table 1.4-1 and 1.4-2. PM_{10} and $PM_{2.5}$ emissions are set equal to PM emissions as a conservative measure. SO_2 emissions were calculated based on the units' fuel consumption and a maximum sulfur content of 2/100 scf). GHG emissions were calculated using 40 CFR 98 Subpart C Tier1.

Flares:
NOx emission factors from AP-42, Table 13.5-1, February 2018. CO emission factor from TCEQ Air Permit Technical Guidance for Flares and Vapor Oxidizers, high btu. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 100% conversion of H2S to SO2.

Emergency Flare (Unit FL-1)
The Emergency Flare is used in emergency events for acid gas flaring during compressor downtime of acid gas injection system. Pilot Emissions are included for the facility flare, assuming year-round operation of the flare pilot. A copy of the flare pilot calculation is provided in this section.

Process Flare (Unit FL-2)
The Process Flare is used to control glycol dehydrator emissions and the amine flash tank. Pilot Emissions are included for the facility flare, assuming year-round operation of the flare pilot. A copy of the flare pilot calculation is provided in this section.

SSM emissions: in the event that the facility needs to handle a sour gas event, the gas exiting the amine unit may need to be flared at the Process Flare (FL-2). This permit amendment includes SSM flaring of 3.06 MMscf/hour and 872 MMscf/year of gas at 100 ppm H2S.

Routine or predictable emissions during Startup, Shutdown and Maintenance (SSM):
Frontier Field Services, LLC maintains 10 tpy of VOC associated with compressor and slug catcher blowdowns that will occur at this facility.

Malfunction Emissions (M):
Frontier Field Services, LLC maintains 10 tpy of VOC associated with malfunction emissions at this facility.

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Emission Summary

Uncontrolled Emissions

Unit	NO_x		CO		VOC		SO_x		PM_{10}		$PM_{2.5}$		H_2S		Total HAP		Formaldehyde		Acetaldehyde		Acrolein		n-hexane		benzene	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	1.47	6.43	1.02	4.46	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-2	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	1.47	6.43	1.02	4.46	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-3	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	1.47	6.43	1.02	4.46	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-4	1.96	8.57	10.76	47.13	3.85	16.85	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	1.47	6.43	1.02	4.46	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-5	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.00	0.00	0.64	2.82	0.53	2.32	0.05	0.23	0.03	0.14	0.01	0.03	0.00	0.01
ENG-6	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.00	0.00	1.17	5.14	0.53	2.32	0.05	0.23	0.03	0.14	0.01	0.03	0.00	0.01
H-1	2.20	9.62	1.84	8.08	0.12	0.53	0.13	0.58	0.17	0.73	0.17	0.73	0.00	0.00	0.04	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.17	0.00	0.00
H-2	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.04	0.01	0.05	0.01	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
H-3	0.31	1.37	0.26	1.15	0.02	0.08	0.02	0.08	0.02	0.10	0.02	0.10	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00
H-4	Removed																									
H-5	Removed																									
DEHY-1	-	-	-	-	48.49	212.38	-	-	-	-	-	-	0.01	0.03	10.73	46.99	0	0	0	0	0	0	1.02	4.47	6.74	29.51
DEHY-2																										
AU-1																										
AU-2	-	-	-	-	94.97	153.58	-	-	-	-	-	-	4143.89	24.32	56.25	12.56	0	0	0	0	0	0	0.29	1.13	33.80	7.23
AU-3																										
FL-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-2 SSM	-	-	-	-	35162.93	5010.72	-	-	-	-	-	-	27.51	28.22	1134.05	161.60							564.39	80.43	331.17	47.19
FUG	-	-	-	-	1.48	-	-		-	-	-	-	0.12	0.53	-	-							0.03	0.12	0.05	0.24
SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-							-	-	-	-
MALF	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-							-	-	-	-
Total	**17.54**	**76.81**	**53.39**	**233.84**	**35327.22**	**5481.42**	**0.510**	**2.23**	**1.28**	**5.60**	**1.28**	**5.60**	**4171.52**	**53.10**	**1208.77**	**255.06**	**5.13**	**22.47**	**0.470**	**2.060**	**0.431**	**1.887**	**565.82**	**86.51**	**371.85**	**84.59**

Controlled Emissions

Unit	NO_x		CO		VOC*		SO_x		PM_{10}		$PM_{2.5}$		H_2S		Total HAP		Formaldehyde		Acetaldehyde		Acrolein		n-hexane		benzene	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-2	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-3	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-4	1.96	8.57	2.35	10.28	3.03	13.25	0.07	0.30	0.12	0.51	0.12	0.51	0.00	0.00	0.45	1.98	0.20	0.86	0.09	0.40	0.09	0.40	0.01	0.02	0.02	0.10
ENG-5	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.00	0.00	1.17	2.82	0.53	2.32	0.05	0.23	0.03	0.14	0.01	0.03	0.00	0.01
ENG-6	3.53	15.45	4.06	17.77	1.90	8.34	0.04	0.16	0.30	1.33	0.30	1.33	0.00	0.00	1.17	2.82	0.53	2.32	0.05	0.23	0.03	0.14	0.01	0.03	0.00	0.01
H-1	2.20	9.62	1.84	8.08	0.12	0.53	0.13	0.58	0.17	0.73	0.17	0.73	0.00	0.00	0.04	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.17	0.00	0.00
H-2	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.04	0.01	0.05	0.01	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
H-3	0.31	1.37	0.26	1.15	0.02	0.08	0.02	0.08	0.02	0.10	0.02	0.10	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00
H-4	Removed																									
H-5	Removed																									
DEHY-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEHY-2																										
AU-1																										
AU-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AU-3																										
FL-1	0.05	0.21	0.20	0.87	0.05	0.24	0.00	0.00	0.01	0.02	0.01	0.02	0.00	0.00	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.00	0.00
FL-2	0.49	2.16	2.00	8.76	1.73	7.58	10.43	45.67	0.04	0.19	0.04	0.19	0.00	0.00	0.29	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.20	0.17	0.73
FL-2 SSM	258.05	36.77	1045.50	148.98	703.26	100.21	51.70	7.37	23.28	3.32	23.28	3.32	0.00	0.00	22.68	3.23	0.00	0.00	0.00	0.00	0.00	0.00	11.29	1.61	6.62	0.94
FUG	-	-	-	-	1.48	6.49	-	0.00	-	-	-	-	0.12	0.53	-	-							0.03	0.12	0.05	0.24
SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MALF	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-							-	-	-	-
Total	**276.13**	**115.96**	**1067.43**	**245.05**	**722.59**	**204.87**	**62.64**	**55.27**	**24.60**	**9.13**	**24.60**	**9.13**	**0.12**	**0.53**	**27.20**	**18.37**	1.84	8.07	0.47	2.06	0.43	1.89	11.47	2.39	6.94	2.34
Totals w/o Fugitives	**276.13**	**115.96**	**1067.43**	**245.05**	**721.10**	**198.37**	**62.64**	**55.27**	**24.60**	**9.13**	**24.60**	**9.13**	**0.00**	**0.00**	**27.20**	**18.37**	1.84	8.07	0.47	2.06	0.43	1.89	11.47	2.39	6.94	2.34

*Engine VOC includes formaldehyde and acetaldehyde.

Engines

Unit: ENG-1, ENG-2, ENG-3, ENG-4
Description: Engines
Control Equipment: ENG-1, ENG-2, ENG-3, ENG-4

EPN/FIN:	ENG-1	ENG-2	ENG-3	ENG-4
Name:	CAT 3606	CAT 3606	CAT 3606	CAT 3606
Manufacturer	Caterpillar	Caterpillar	Caterpillar	Caterpillar
Model Number	G3606LE	G3606 TALE	G3606 TALE	G3606 TALE
Rated Horsepower:	1,775	1,775	1,775	1,775
Fuel consumption (Btu/hp-hr):	6,629	6,629	6,629	6,629
(MMBtu/hr)	11.77	11.77	11.77	11.77
Hours of operation per year:	8,760	8,760	8,760	8,760
Total Annual Aggregate heat Input (MMBTU)	103,074	103,074	103,074	103,074
Engine Type:	4 Stroke, Lean-Burn	4 Stroke, Lean-Burn	4 Stroke, Lean-Burn	4 Stroke, Lean-Burn

Fuel Data

Fuel Type	natural gas	natural gas	natural gas	natural gas
Fuel Consumption (BTU/bhp-hr)	6,629	6,629	6,629	6,629
Fuel sulfur content (grains/scf)	0.02	0.02	0.02	0.02
Fuel Gas Heat Value (HHV)	1,030	1,030	1,030	1,030

Method of Emission Control

	Yes/No	Yes/No	Yes/No	Yes/No
NSCR Catalyst	No	No	No	No
SCR Catalyst	No	No	No	No
JLCC Catalyst	No	No	No	No
Parameter Adjustment	No	No	No	No
Stratified Charge	No	No	No	No
Other (Specify)	Oxidation	Oxidation	Oxidation	Oxidation

Emissions

ENG-1 Uncontrolled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	Emissions Factor Used	units	Uncontrolled Emissions lb/hr	Emissions tpy
VOC	**0.7**	0.12	0.118	0.0296	0.118	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	4.08	0.5	g/hp-hr	**1.96**	**8.57**
CO	**2.75**	0.386	0.317	3.72	0.317	2.75	g/hp-hr	**10.76**	**47.13**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.0692**	**0.30**
Formaldehyde	**0.26**	0.0552	0.0528	0.0205	0.0528	0.26	g/hp-hr	**1.02**	**4.46**
Benzene		0.00194	0.00044	0.00158	0.00044	0.00044	lb/MMBtu	**0.01**	**0.02**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-1 Controlled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	Emissions Factor Used	units	Controlled Emissions lb/hr	Emissions tpy
VOC	**0.7**	0.12	0.118	0.0296	0.118	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	4.08	0.5	g/hp-hr	**1.96**	**8.57**
CO	**0.6**	0.386	0.317	3.72	0.317	0.6	g/hp-hr	**2.35**	**10.28**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.05**	0.0552	0.0528	0.0205	0.0528	0.05	g/hp-hr	**0.20**	**0.86**
Benzene		0.00194	0.00044	0.00158	0.00044	0.00044	lb/MMBtu	**0.01**	**0.02**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-2 Uncontrolled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Uncontrolled Emissions lb/hr	Emissions tpy
VOC	**0.7**	0.12	0.118	0.0296	0.118	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	4.08	0.5	g/hp-hr	**1.96**	**8.57**
CO	**2.75**	0.386	0.317	3.72	0.317	2.75	g/hp-hr	**10.76**	**47.13**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.26**	0.0552	0.0528	0.0205	0.0528	0.26	g/hp-hr	**1.02**	**4.46**
Benzene		0.00194	0.00044	0.00158	0.00044	0.00044	lb/MMBtu	**0.01**	**0.02**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-2 Controlled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Controlled Emissions lb/hr	Emissions tpy
VOC	**0.7**	0.12	0.118	0.0296	0.118	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	4.08	0.5	g/hp-hr	**1.96**	**8.57**
CO	**0.6**	0.386	0.317	3.72	0.317	0.6	g/hp-hr	**2.35**	**10.28**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.05**	0.0552	0.0528	0.0205	0.0528	0.05	g/hp-hr	**0.20**	**0.86**
Benzene		0.00194	0.00044	0.00158	0.00044	0.00044	lb/MMBtu	**0.01**	**0.02**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-3 Uncontrolled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Uncontrolled Emissions lb/hr	Emissions (each) tpy
VOC	**0.7**	0.12	0.118	0.0296	0.0296	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	2.21	0.5	g/hp-hr	**1.96**	**8.57**
CO	**2.75**	0.386	0.317	3.72	3.72	2.75	g/hp-hr	**10.76**	**47.13**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.26**	0.0552	0.0528	0.0205	0.0205	0.26	g/hp-hr	**1.02**	**4.46**
Benzene		0.00194	0.00044	0.00158	0.00158	0.00158	lb/MMBtu	**0.02**	**0.08**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-3 Controlled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Controlled Emissions lb/hr	Emissions (each) tpy
VOC	**0.7**	0.12	0.118	0.0296	0.0296	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	2.21	0.5	g/hp-hr	**1.96**	**8.57**
CO	**0.6**	0.386	0.317	3.72	3.72	0.6	g/hp-hr	**2.35**	**10.28**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.05**	0.0552	0.0528	0.0205	0.0205	0.05	g/hp-hr	**0.20**	**0.86**
Benzene		0.00194	0.00044	0.00158	0.00158	0.00158	lb/MMBtu	**0.02**	**0.08**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-4 Uncontrolled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Uncontrolled Emissions lb/hr	Emissions (each) tpy
VOC	**0.7**	0.12	0.118	0.0296	0.0296	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	2.21	0.5	g/hp-hr	**1.96**	**8.57**
CO	**2.75**	0.386	0.317	3.72	3.72	2.75	g/hp-hr	**10.76**	**47.13**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.26**	0.0552	0.0528	0.0205	0.0205	0.26	g/hp-hr	**1.02**	**4.46**
Benzene		0.00194	0.00044	0.00158	0.00158	0.00158	lb/MMBtu	**0.02**	**0.08**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

ENG-4 Controlled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Controlled Emissions lb/hr	Emissions (each) tpy
VOC	**0.7**	0.12	0.118	0.0296	0.0296	0.7	g/hp-hr	**2.74**	**12.00**
NOx	**0.5**	3.17	4.08	2.21	2.21	0.5	g/hp-hr	**1.96**	**8.57**
CO	**0.6**	0.386	0.317	3.72	3.72	0.6	g/hp-hr	**2.35**	**10.28**
PM_{10}		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.0099871	0.0099871	lb/MMBtu	**0.12**	**0.51**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.07**	**0.30**
Formaldehyde	**0.05**	0.0552	0.0528	0.0205	0.0205	0.05	g/hp-hr	**0.20**	**0.86**
Benzene		0.00194	0.00044	0.00158	0.00158	0.00158	lb/MMBtu	**0.02**	**0.08**
CO2						53.06	kg/MMBtu		**6,027**
CH4						1.00E-03	kg/MMBtu		**0.11**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**6,033**

[a] Calculation:

For emission factors in terms of g/hp-hr:

(Emission factor) * (Horsepower) * (Conversion factor)

(g/hp-hr) * (hp) * (1 lb/453.59 g)

For emission factors in terms of lb/MMBtu:

(Emission factor) * (Fuel Consumption) * (Horsepower) * (Conversion factor)

(lb/MMBtu) * (Btu/hp-hr) * (hp) * (1 MMBtu/1,000,000 Btu)

[b] SO_2 emissions are based on AP-42 factor-based emissions considering a 2000 gr/MMscf sulfur content

HAP Emissions (controlled)

Pollutant	Lean Burning 4 Stroke Engines	ENG-1	ENG-1	ENG-2	ENG-2	ENG-3	ENG-3	ENG-4	ENG-4
	AP-42 Table 3.2-2, 2000 Emission Factor (lb/MMBtu)	Emissions lb/hr	Emissions tpy	Emissions lb/hr	Emissions tpy	Emissions lb/hr	Emissions tpy	Emissions lb/hr	Emissions tpy
Acetaldehyde	7.76E-03	0.0913	0.3999	0.0913	0.3999	0.09	0.40	0.09	0.40
Acrolein	7.78E-03	0.0915	0.4010	0.0915	0.4010	0.09	0.40	0.09	0.40
Benzene	1.94E-03	0.0228	0.1000	0.0228	0.099982	0.02	0.10	0.02	0.10
Ethylbenzene	1.08E-04	<0.01	0.0056	<0.01	0.0056	<0.01	0.01	<0.01	0.01
Formaldehyde	Engine Specific	0.1957	0.8570	0.1957	0.8570	0.20	0.86	**0.1957**	**0.8570**
Methanol	2.48E-03	0.0292	0.1278	0.0292	0.1278	0.03	0.13	0.03	0.13
n-Hexane	4.45E-04	0.0052	0.0229	0.0052	0.0229	0.01	0.02	0.01	0.02
Toluene	9.63E-04	0.0113	0.0496	0.0113	0.0496	0.01	0.05	0.01	0.05
Xylenes	2.68E-04	<0.01	0.0138	<0.01	0.0138	<0.01	0.01	<0.01	0.01
Totals		**0.45**	**1.98**	**0.45**	**1.98**	**0.45**	**1.98**	**0.45**	**1.98**

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Engines

Unit: ENG-5, ENG-6
Description: Engines
Control Equipment: ENG-5, ENG-6

Engine Data

Unit:	ENG-5	ENG-6
Name:	ENG-5	ENG-6
Manufacturer	Ajax	Ajax
Model Number	DPC 2804LE	DPC 2804LE
Rated Horsepower:	800	800
Fuel consumption (Btu/hp-hr):	7,853	7,853
(MMBtu/hr)	6.28	6.28
Hours of operation per year:	8,760	8,760
Total Annual Aggregate heat Input (MMBTU)	55,034	55,034
Engine Type:	2 Stroke, Lean-Burn	2 Stroke, Lean-Burn

Fuel Data

Fuel Type	natural gas	natural gas
Fuel Consumption (BTU/bhp-hr)	7,853	7,853
Fuel sulflur content (grains/scf)	0.02	0.02
Fuel Gas Heat Value (HHV)	1,030	1,030

Method of Emission Control

	Yes/No	Yes/No
NSCR Catalyst	No	No
SCR Catalyst	No	No
JLCC Catalyst	No	No
Parameter Adjustment	No	No
Stratified Charge	No	No
Other (Specify)	Oxidation	Oxidation

Emissions

ENG-5 Uncontrolled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	Emissions Factor Used	units	Uncontrolled Emissions lb/hr	Emissions tpy
VOC	**0.75**	0.12	0.118	0.0296	0.12	0.75	g/hp-hr	**1.32**	**5.79**
NOx	**2.0**	3.17	4.08	2.21	3.17	2.0	g/hp-hr	**3.53**	**15.45**
CO	**2.3**	0.386	0.317	3.72	0.386	2.3	g/hp-hr	**4.06**	**17.77**
PM_{10}		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.04**	**0.16**
Formaldehyde	**0.3**	0.0552	0.0528	0.0205	0.0552	0.3	g/hp-hr	**0.53**	**2.32**
Benzene		0.00194	0.00044	0.00158	0.00194	0.00194	lb/MMBtu	**0.01**	**0.05**
CO2						53.06	kg/MMBtu		**3,218**
CH4						1.00E-03	kg/MMBtu		**0.06**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**3,221**

ENG-5 Controlled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	Emissions Factor Used	units	Controlled Emissions lb/hr	Emissions tpy
VOC	**0.75**	0.12	0.118	0.0296	0.12	0.75	g/hp-hr	**1.32**	**5.79**
NOx	**2.0**	3.17	4.08	2.21	3.17	2.0	g/hp-hr	**3.53**	**15.45**
CO	**2.3**	0.386	0.317	3.72	0.386	2.3	g/hp-hr	**4.06**	**17.77**
PM_{10}		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.04**	**0.16**
Formaldehyde	**0.3**	0.0552	0.0528	0.0205	0.0552	0.3	g/hp-hr	**0.53**	**2.32**
Benzene		0.00194	0.00044	0.00158	0.00194	0.00194	lb/MMBtu	**0.01**	**0.05**
CO2						53.06	kg/MMBtu		**3,218**
CH4						1.00E-03	kg/MMBtu		**0.06**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**3,221**

ENG-6 Uncontrolled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Uncontrolled Emissions lb/hr	Emissions tpy
VOC	**0.75**	0.12	0.118	0.0296	0.12	0.75	g/hp-hr	**1.32**	**5.79**
NOx	**2.0**	3.17	4.08	2.21	3.17	2.0	g/hp-hr	**3.53**	**15.45**
CO	**2.3**	0.386	0.317	3.72	0.386	2.3	g/hp-hr	**4.06**	**17.77**
PM_{10}		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.04**	**0.16**
Formaldehyde	**0.3**	0.0552	0.0528	0.0205	0.0552	0.3	g/hp-hr	**0.53**	**2.32**
Benzene		0.00194	0.00044	0.00158	0.00194	0.00194	lb/MMBtu	**0.01**	**0.05**
CO2						53.06	kg/MMBtu		**3,218**
CH4						1.00E-03	kg/MMBtu		**0.06**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**3,221**

ENG-6 Controlled

	Manufacturer Emission Factor	AP-42 Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu)	AP-42 Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu)	appropriate AP-42 factor	emission factor used	units	Controlled Emissions lb/hr	Emissions tpy
VOC	**0.75**	0.12	0.118	0.0296	0.0296	0.75	g/hp-hr	**1.32**	**5.79**
NOx	**2.0**	3.17	4.08	2.21	2.21	2.0	g/hp-hr	**3.53**	**15.45**
CO	**2.3**	0.386	0.317	3.72	3.72	2.3	g/hp-hr	**4.06**	**17.77**
PM_{10}		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
$PM_{2.5}$		0.04831	0.0099871	0.01941	0.04831	0.04831	lb/MMBtu	**0.30**	**1.33**
SO_2 [a]		0.000588	0.000588	0.000588	0.000588	0.00588	lb/MMBtu	**0.04**	**0.16**
Formaldehyde	**0.3**	0.0552	0.0528	0.0205	0.0205	0.3	g/hp-hr	**0.53**	**2.32**
Benzene		0.00194	0.00044	0.00158	0.00158	0.00158	lb/MMBtu	**0.01**	**0.04**
CO2						53.06	kg/MMBtu		**3,218**
CH4						1.00E-03	kg/MMBtu		**0.06**
N2O						1.00E-04	kg/MMBtu		**0.01**
								Total CO2e (TPY)	**3,221**

[a] Calculation:

For emission factors in terms of g/hp-hr:

(Emission factor) * (Horsepower) * (Conversion factor)

(g/hp-hr) * (hp) * (1 lb/453.59 g)

For emission factors in terms of lb/MMBtu:

(Emission factor) * (Fuel Consumption) * (Horsepower) * (Conversion factor)

(lb/MMBtu) * (Btu/hp-hr) * (hp) * (1 MMBtu/1,000,000 Btu)

[b] SO_2 emissions are based on AP-42 factor-based emissions considering a 2000 gr/MMscf sulfur content

HAP Emissions

Pollutant	Lean Burning 2 Stroke Engines	ENG-5	ENG-5	ENG-6	ENG-6
	AP-42 Table 3.2-1, 2000 Emission Factor (lb/MMBtu)	Emissions lb/hr	Emissions tpy	Emissions lb/hr	Emissions tpy
Acetaldehyde	8.36E-03	0.0525	0.2300	0.0525	0.2300
Acrolein	5.14E-03	0.0323	0.1414	0.0323	0.1414
Benzene	4.40E-04	<0.01	0.0121	<0.01	0.0121
Ethylbenzene	3.97E-05	<0.01	<0.01	<0.01	<0.01
Formaldehyde	engine specific	0.5291	2.3175	0.5291	2.3175
Methanol	2.50E-03	0.0157	0.0688	0.0157	0.0688
n-Hexane	1.11E-03	0.0070	0.0305	0.0070	0.0305
Toluene	4.08E-04	<0.01	0.0112	<0.01	0.0112
Xylene	1.84E-04	<0.01	0.0051	<0.01	0.0051
Totals		**0.64**	**2.82**	**0.64**	**2.82**

Heaters

Unit: H-1, H-2, H-3
Description: Hot Oil Heater, Reboiler, Mol Sieve Regen Heater
Control Equipment: None

Background Information

Unit	H-1	H-2	H-3
Name:	Hot Oil Heater	Dehy Reboiler	Mol Sieve Regen Heater
Heater/Boiler rating (MMBtu/hr)[1]:	22.4	1.5	3.18
Rating above is (select from list):	below 100 MMBtu/hp-hr, controlled - low NOx burner	below 100 MMBtu/hp-hr, controlled - low NOx burner	below 100 MMBtu/hp-hr, controlled - low NOx burner
Operating hours/year:	8760	8760	8760
Natural Gas Usage (MM Cubic Feet/hr):	0.0218	0.0015	0.0031
Natural Gas Heat Value (Btu/scf)[2]:	1029.80	1029.80	1029.80
H2S Destruction Efficiency (%)[3]:	100	100	100
Fuel Gas Lower Heating Value (Btu/SCF):	1,029.8	1,029.8	1,029.8
Fuel Rate (scf/hr):	21,752	1,457	3,088
Fuel Rate (scf/yr):	190,545,737	12,759,759	27,050,689
Exhaust Oxygen Content (%):	10		
Moisture content (%):	10		
O2 F factor (dscf/106 Btu):	8,710		
Volume of Exhaust Gas (dscf/hr)[4]:	374,098	25,051	53,109
Volume of Exhaust Gas (acf/hr):	834,741	50,308	106,653
Volume of Exhaust Gas (acfm):	13,912	838	1,778
Stack Diameter (ft):	2.67	1.50	1.50
Stack Temperature (F):	600	600	600.00
Stack Velocity (fps):	41.41	7.91	16.76

[1] Calculated heat release based on LHV basis. Heat duty as provided, or as heat release with guaranteed thermal efficiency.

[2] Heating value for natural gas taken from Section 1.4 of AP-42 (dated 7/98).

[3] SO_2 emissions conservatively estimated assuming 100% destruction efficiency (conversion) of H_2S to SO_2. SO2 emissions are based on AP-42 factor-based emissions considering a 2 gr/100 scf sulfur content

[4] Exhaust gas flow for heaters are based on 40 CFR 60 Appendix A, Method 19.

Heater Emissions[a]

Pollutant	Emission Factor[b,c]	Unit	H-1		H-2		H-3	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
VOC	5.6	lb/MMscf	0.12	0.53	0.01	0.04	0.02	0.08
NO_x	101.0	lb/MMscf	2.20	9.62	0.15	0.64	0.31	1.37
CO	84.8	lb/MMscf	1.84	8.08	0.12	0.54	0.26	1.15
PM	7.7	lb/MMscf	0.17	0.73	0.01	0.05	0.02	0.10
SO_2[e]	6.06	lb/MMscf	0.13	0.58	0.01	0.04	0.02	0.08
HAPS								
Total HAPs			0.04	0.18	<0.01	0.01	0.01	0.03
Arsenic	0.0002	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	0.0021	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Beryllium	0.0000	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	0.0011	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	0.0014	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.0001	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorobenzene	0.0012	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Formaldehyde	0.0757	lb/MMscf	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
n-Hexane	1.8173	lb/MMscf	0.04	0.17	<0.01	0.01	0.01	0.02
Lead	0.0005	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	0.0004	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	0.0003	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene	0.0006	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.0021	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POM	0.0001	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	0.0034	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Selenium	0.0000	lb/MMscf	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
GHG								
CO2	53.06	kg/MMBtu	2,620	11,474	175.42	768.32	371.88	1,629
CH4	0.001	kg/MMBtu	0.05	0.22	<0.01	0.01	0.01	0.03
N2O	0.0001	kg/MMBtu	<0.01	0.02	<0.01	<0.01	<0.01	<0.01

[a] Example Calculations:

Emission rate (lb/hr) = [Emission Factor (lb/MMscf)] / [Natural Gas Heat Content (1,020 Btu/scf)] * [Heater Rating (MMBtu/hr)]

Emission Rate (tpy) = [Emission Rate (lb/hr)] * [Operating Hours per Year (hr/yr)] / [Conversion Factor (2000 lb/ton)]

[b] Criteria pollutant emission factors obtained from AP-42 Natural Gas Combustion, Table 1.4-1, < 100 MMBtu/hr heat input & Table 1.4-2 (7/98). NO_x and CO emission factors converted from BACT standards.

[c] HAP emission factors are taken from AP-42, Chapter 1, Table 1.4-3 (7/98).

[d] H_2S emissions are calculated based on fuel gas H_2S content of 20,000 gr/MMscf.

[e] SO_2 emissions conservatively estimated assuming 100% destruction efficiency (conversion) of H_2S to SO_2.

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Glycol Dehydrator

Unit: DEHY-1 & DEHY-2
Description: Glycol Dehydrators
Control Equipment: Process Flare (Unit FL-2)

Emission Component	Uncontrolled Flash Tank		Uncontrolled Still Column		Total	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Hydrogen Sulfide	1.19E-03	5.23E-03	4.58E-03	0.02	5.77E-03	2.53E-02
N2	0.17	0.76	4.18E-03	0.02	0.18	0.78
C1	16.89	74.00	1.54E+00	6.75	18.44	80.75
CO2	2.52E-05	1.10E-04	2.17E-05	0.00	4.69E-05	2.05E-04
C2	10.24	44.85	3.15	13.79	13.39	58.64
C3	8.55	37.47	4.82	21.09	13.37	58.56
iC4	1.55	6.79	1.12	4.89	2.67	11.68
C4	4.07	17.83	4.19	18.36	8.26	36.19
iC5	1.38	6.03	1.84	8.04	3.21	14.08
nC5	1.36	5.97	1.97	8.63	3.33	14.61
i-Hexane	0.73	3.20	1.26	5.52	1.99	8.71
Hexane	0.37	1.60	0.65	2.86	1.02	4.47
Benzene	0.33	1.46	6.40	28.05	6.74	29.51
Cyclohexane	0.39	1.72	1.60	7.00	1.99	8.73
i-Heptane	0.55	2.39	0.83	3.63	1.38	6.03
n-Heptane	0.12	0.52	0.18	0.78	0.30	1.30
Toluene	0.16	0.69	2.40	10.53	2.56	11.22
i-Octane	0.46	2.01	0.69	3.03	1.15	5.03
n-Octane	0.02	0.09	0.02	0.09	0.04	0.18
Ethylbenzene	0.02	0.07	0.14	0.60	0.15	0.67
m-Xylene	0.02	0.11	0.23	1.01	0.26	1.12
o-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
p-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
Nonane	0.03	0.13	0.02	0.10	0.05	0.23
Decane	8.48E-03	0.04	4.52E-03	0.02	0.01	0.06
TEG	5.01E-04	2.19E-03	2.18E-10	0.00	5.01E-04	2.19E-03
H2O	0.29	1.28	1.46	6.38	1.75	7.66
Total	**47.72**	**209.03**	**34.52**	**151.21**	**82.25**	**360.24**
Total VOC	**20.12**	**88.13**	**28.37**	**124.24**	**48.49**	**212.38**
Total HAP	**0.90**	**3.94**	**9.83**	**43.05**	**10.73**	**46.99**

Notes

[1] Uncontrolled emissions from the regenerator and flash tank are calculated using BR&E ProMax.

[2] 100% of emissions from the flash tank and regenerator are captured and routed to the process flare (Unit FL-2).

Amine Units

Unit: AU-1, AU-2, and AU-3
Description: Amine units
Control Equipment: AGI Well / SSM FL-2

Emission Component	Uncontrolled Flash Tank		Uncontrolled Acid Gas		Total	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Hydrogen Sulfide	5.54	24.27	4138.35	0.05	4143.89	24.32
N2	1.47	6.43	0.05	0.01	1.52	6.45
C1	128.05	560.87	16.62	1.12	144.67	561.99
CO2	2.18	9.54	6701.20	0.02	6703.38	9.56
C2	42.09	184.38	9.51	0.37	51.61	184.74
C3	18.96	83.04	3.60	0.17	22.56	83.21
iC4	2.32	10.16	0.35	0.02	2.67	10.18
C4	6.89	30.20	1.54	0.06	8.43	30.26
iC5	1.13	4.96	0.13	0.01	1.27	4.97
nC5	1.30	5.70	0.20	0.01	1.50	5.71
i-Hexane	0.26	1.13	0.07	2.25E-03	0.33	1.13
Hexane	0.26	1.13	0.03	0.00	0.29	1.13
Benzene	1.65	7.21	32.15	0.01	33.80	7.23
Cyclohexane	0.88	3.83	0.67	0.01	1.55	3.84
i-Heptane	0.20	0.89	0.01	0.00	0.22	0.89
n-Heptane	0.04	0.18	0.00	0.00	0.04	0.18
Toluene	0.76	3.33	16.44	0.01	17.20	3.34
i-Octane	0.14	0.61	8.77E-03	1.22E-03	0.15	0.61
n-Octane	0.01	0.03	6.35E-04	6.62E-05	0.01	0.03
Ethylbenzene	0.07	0.33	1.46	6.53E-04	1.53	0.33
m-Xylene	0.12	0.53	3.31	1.05E-03	3.43	0.53
o-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
p-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nonane	5.14E-03	0.02	2.05E-04	4.50E-05	0.01	0.02
Decane	5.23E-04	2.29E-03	7.49E-06	4.58E-06	5.31E-04	2.30E-03
TEG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H2O	5.61	24.58	371.58	0.05	377.19	24.63
Piperazine	5.44E-04	2.38E-03	7.79E-11	4.77E-06	5.44E-04	2.39E-03
TEG	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UCARSOL™ AP-814	8.95E-03	0.04	8.90E-10	7.84E-05	0.01	0.04
Oxygen	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	**219.95**	**963.39**	**11297.29**	**1.93**	**11517.25**	**965.32**
Total VOC	**34.99**	**153.28**	**59.98**	**0.31**	**94.97**	**153.58**
Total HAP	**2.86**	**12.53**	**53.39**	**0.03**	**56.25**	**12.56**

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Emergency Flare (FL-1) - Hourly Emissions

Emission Unit: FL-1
Source Description: Emergency Flare - pilot and purge only

Maximum Hourly Emission Rates and Composition to Flare[a]

Component	Pilot[b]	Purge	Total	Destruction Efficiency	Flare Exhaust (controlled)
	(lb/hr)	(lb/hr)	(lb/hr)	(%)	(lb/hr)
Hydrogen Sulfide	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
N2	1.10	2.74	3.84	0%	**3.84**
C1	7.29	18.24	25.53	98%	**0.51**
CO2	0.01	0.01	0.02	0%	**0.02**
C2	0.63	1.58	2.22	98%	**0.04**
C3	0.24	0.61	0.85	98%	**0.02**
iC4	0.06	0.14	0.20	98%	**3.92E-03**
C4	0.11	0.11	0.23	98%	**4.56E-03**
iC5	0.05	0.14	0.19	98%	**3.83E-03**
nC5	0.06	0.15	0.21	98%	**4.27E-03**
i-Hexane	0.00	0.00	0.00	98%	**0.00E+00**
Hexane	0.30	0.75	1.06	98%	**0.02**
Benzene	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Cyclohexane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
i-Heptane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
n-Heptane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Toluene	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
i-Octane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
n-Octane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Ethylbenzene	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
m-Xylene	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
o-Xylene	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
p-Xylene	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Nonane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Decane	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
TEG	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
H2O	0.00E+00	0.00E+00	0.00E+00	0%	**0.00E+00**
Piperazine	0.00E+00	0.00E+00	0.00E+00	0%	**0.00E+00**
UCARSOL™ AP-814	0.00E+00	0.00E+00	0.00E+00	0%	**0.00E+00**
Oxygen	0.00E+00	0.00E+00	0.00E+00	0%	**0.00E+00**
Total	**9.86**	**24.48**	**34.34**	--	**4.47**
Total VOC	**0.83**	**1.91**	**2.74**	--	**0.05**
Total HAP	**0.30**	**0.75**	**1.06**	--	**0.02**
Heating Value (Btu/scf)	1,030	1,030	**1,030**		
Molecular Weight	18.70	18.70	**18.70**		
Operating Hours	8,760	8,760	--		
Mass Flow	9.86	24.48	--		
Volumetric Flow (scf/hr)	200.00	500.00	**700.00**		
Heat Release (MMBtu/hr)	0.21	0.51	**0.72**		

Criteria Pollutant Emissions from Flare [c]

Component	Emission Rate	Emission Factor	Emission Factor Units
	(lb/hr)		
NO_X	0.05	0.068	lb/MMBtu
CO	0.20	0.2755	lb/MMBtu
SO_2	0.00	--	--
PM_{10}	0.01	7.60	lb/MMscf
$PM_{2.5}$	0.01	7.60	lb/MMscf
H_2S	5.11E-01	--	--

HP Flare Parameters	
Flare Destruction Efficiency C3+	98%
H2S molecular weight	34.08
SO2 molecular weight	64.06

Combustion Emissions from FLARE			Totals
	(lb/hr)	(lb/hr)	(lb/hr)
Total NO_X	**0.01**	**0.04**	**0.05**
Total CO	**0.06**	**0.14**	**0.20**
Total SO_2	**0.00E+00**	**0.00E+00**	**0.00E+00**
Total PM_{10}	**1.52E-03**	**3.80E-03**	**0.01**
Total $PM_{2.5}$	**1.52E-03**	**3.80E-03**	**0.01**

Footnotes:

[a] Uncontrolled stream properties determined via ProMax.

[b] Pilot fuel gas emissions are conservatively calculated based on a 200 scfh flow rate.

[c] NOx emission factors from AP-42, Table 13.5-1, February 2018. CO emission factor from TCEQ Air Permit Technical Guidance for Flares and Vapor Oxidizers, high btu. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 98% conversion of H2S to SO2.

Flare Effective Diameter (for modeling only):
For modeling purposes, the effective flare diameter is calculated according to TCEQ RG-25, Modeling Guidance Document, 1998 (method not appropriate for enclosed flares

$$D = \sqrt{(10^{-6} \cdot q_n)} \quad \text{and} \quad qn = q(1 - 0.048 \cdot \sqrt{(MW)})$$

where,
q = Gross heat release (cal/sec)
MW = Weighted (by volume) average molecular weight of the compound being flared
q_n = Net heat release (cal/sec)
D = Effective Flare Diameter (meters)

q =	50,460.20	cal/sec
MW =	18.70	lb/lb-mole
q_n =	39,986.24	cal/sec
D =	0.20	meters
D =	**0.66**	**feet**

Flare Compliance with 40 CFR 60.18

The following values were used in the compliance calculations

Type of Flare	Non-assisted	
Flare/burner tip diameter	10.00	inches
Exit Velocity:	0.11	m/sec
Exit Velocity:	0.36	ft/sec
Net Heating Value (H_T)	34.53	MJ/scm
Vmax1	99.51	m/sec
Vmax2	33.17	m/sec

Equations used:
A. *(Exit velocity, m/sec) = (Gas Flow Rate, scf/hr) / (3,600 sec/hr) / [[(Diameter, in.) / (1 foot/12 in.) / (2 radii/diameter)] ^{2} * (pi)] / (3.28084 ft/m)*

B. *(Net Heating Value, MJ/scm) = (Average Higher Heat Value, Btu/scf) x (0.9) x (35.3147 scf/scm) / (947.81712 Btu/MJ)* [According to the API *Compendium* (August 2009), Section 4.2, Equation 4-7, for gaseous fuels, the net heating value is 0.9 times the gross heating value.]

C. *Vmax1 = 10 ^ [(H $_T$ + 28.8) / 31.7]* according to 40 CFR 60.18(f)(5).
D. *Vmax2 = 8.706 + (0.7084 x H $_T$)* according to 40 CFR 60.18(f)(6).

Non-assisted flare requirements: Must meet A and B below[1]

Rule Reference	All Requirements	Individual	Specific Requirements
A. **60.18(c)(3)(ii):**		Yes	Net Heating Value ≥ 7.45 MJ/scm (200 Btu/scf)
B. **60.18(c)(4)(i) - (iii):**	**Yes**	Yes	Exit velocity < 18.3 m/sec (60 ft/sec)
		No	OR: Exit Velocity ≥ 18.3 m/sec (60 ft/sec) AND Exit Velocity < 122 m/sec (400 ft/sec) AND Net Heating Value > 37.3 MJ/scm (1,000 Btu/scf)
		Yes	OR: Exit Velocity < 122 m/sec (400 ft/sec) AND Exit Velocity < Vmax1

[1] The flare stream does not have a hydrogen content greater than or equal to 8.0 vol%; therefore 40 CFR 60.18(C)(3)(i) requirements cannot not be used to demonstrate compliance.

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Emergency Flare (FL-1) - Annual Emissions

Emission Unit: FL-1
Source Description: Emergency Flare - pilot and purge only

Annual Emission Rates and Composition to Flare[a,b]					
Component	**Pilot[b]**	**Purge**	**Total**	**Destruction Efficiency**	**Exhaust Stream (controlled)**
	(ton/yr)	**(ton/yr)**	**(ton/yr)**	**(%)**	**(ton/yr)**
Hydrogen Sulfide	0.00	0.00	0.00	98%	**0.00**
N2	4.80	12.00	16.80	0%	**16.80**
C1	31.95	79.87	111.82	98%	**2.24**
CO2	0.03	0.07	0.09	0%	**0.09**
C2	2.78	6.94	9.71	98%	**0.19**
C3	1.07	2.66	3.73	98%	**0.07**
iC4	0.25	0.61	0.86	98%	**0.02**
C4	0.50	0.50	1.00	98%	**0.02**
iC5	0.24	0.60	0.84	98%	**0.02**
nC5	0.27	0.67	0.93	98%	**0.02**
i-Hexane	0.00	0.00	0.00	98%	**0.00**
Hexane	1.32	3.30	4.62	98%	**0.09**
Benzene	0.00	0.00	0.00	98%	**0.00**
Cyclohexane	0.00	0.00	0.00	98%	**0.00**
i-Heptane	0.00	0.00	0.00	98%	**0.00**
n-Heptane	0.00	0.00	0.00	98%	**0.00**
Toluene	0.00	0.00	0.00	98%	**0.00**
i-Octane	0.00	0.00	0.00	98%	**0.00**
n-Octane	0.00	0.00	0.00	98%	**0.00E+00**
Ethylbenzene	0.00	0.00	0.00	98%	**0.00**
m-Xylene	0.00	0.00	0.00	98%	**0.00**
o-Xylene	0.00	0.00	0.00	98%	**0.00**
p-Xylene	0.00	0.00	0.00	98%	**0.00**
Nonane	0.00	0.00	0.00	98%	**0.00**
Decane	0.00	0.00	0.00	98%	**0.00**
TEG	0.00	0.00	0.00	98%	**0.00**
H2O	0.00	0.00	0.00	0%	**0.00**
Piperazine	0.00	0.00	0.00	0%	**0.00**
UCARSOL™ AP-814	0.00	0.00	0.00	0%	**0.00E+00**
Oxygen	0.00	0.00	0.00E+00	0%	**0.00E+00**
Total	**43.19**	**107.22**	**150.41**	**--**	**19.56**
Total VOC	**3.64**	**8.34**	**11.98**	**--**	**0.24**
Total HAP	**1.32**	**3.30**	**4.62**	**--**	**0.09**
Heating Value (Btu/scf)	1,030	1,030	**1,030**		
Molecular Weight	18.70	18.70	--		
Operating Hours	8,760	8,760	--		
Mass Flow (ton/yr)	43.19	107.22	150.41		
Volumetric Flow (scf/hr)	200.00	500.00	--		
Volumetric Flow (MMscf/yr)	1.75	4.38	**6.13**		
Heat Release (MMBtu/yr)	1,804	4,511	**6,315**		

Criteria Pollutant Emissions from Flare[c]			
Component	**Emission Rate**	**Emission Factor**	**Emission Factor Units**
	(ton/yr)		
NO_X	0.21	0.068	lb/MMBtu
CO	0.87	0.2755	lb/MMBtu
SO_2	0.00E+00	--	--
PM_{10}	0.02	7.60	lb/MMscf
$PM_{2.5}$	0.02	7.60	lb/MMscf
H_2S	0.00E+00	--	--
N2O	6.96E-04	0.0001	kg/MMBtu

Annual Combustion Emissions from Flare			Totals
	(TPY)	**(TPY)**	**(TPY)**
Total NO_x	**0.06**	**0.15**	**0.21**
Total CO	**0.25**	**0.62**	**0.87**
Total SO_2	**0.00**	**0.00**	**0.00**
Total PM_{10}	**0.01**	**0.02**	**0.02**
Total $PM_{2.5}$	**0.01**	**0.02**	**0.02**

Footnotes:

[a] Uncontrolled stream properties determined via ProMax.

[b] Pilot fuel gas emissions are conservatively calculated based on a 200 scfh flow rate.

[c] CO and Nox emission factors from AP-42, Table 13.5-1 and 13.5-2, February 2018. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 98% conversion of H2S to SO2.

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Process Flare (FL-2) - Hourly Emissions

Emission Unit: FL-2, DEHY-1, DEHY-2, AU-1, AU-2, AU-3
Source Description: Process Flare - pilot, purge, dehy still column, dehy flash tank, amine flash tank, inlet gas SSM

Maximum Hourly Emission Rates and Composition to Flare[a]

Component	Pilot[b]	Purge	Dehy Flash Tank	Dehy Still Column	Amine Flash Tank	Inlet Gas to Dehy SSM	Total	Destruction Efficiency	Flare Exhaust (controlled)
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(%)	(lb/hr)
Hydrogen Sulfide	0.00E+00	0.00E+00	1.19E-03	4.58E-03	5.54	27.51	33.05	100%	**0.00**
N2	1.10	2.74	0.17	4.18E-03	1.47	3,402	3,407	0%	**3,407**
C1	7.29	18.24	16.89	1.54	128.05	102,564	102,736	98%	**2,055**
CO2	0.01	0.01	2.52E-05	2.17E-05	2.18	0.03	2.23	0%	**2.23**
C2	0.63	1.58	10.24	3.15	42.09	26,616	26,674	98%	**533.48**
C3	0.24	0.61	8.55	4.82	18.96	16,796	16,830	98%	**336.59**
iC4	0.06	0.14	1.55	1.12	2.32	2,967	2,972	98%	**59.44**
C4	0.11	0.11	4.07	4.19	6.89	6,483	6,499	98%	**129.98**
iC5	0.05	0.14	1.38	1.84	1.13	2,237	2,242	98%	**44.84**
nC5	0.06	0.15	1.36	1.97	1.30	2,051	2,056	98%	**41.12**
i-Hexane	0.00E+00	0.00E+00	0.73	1.26	0.54	1,115	1,118	98%	**22.35**
Hexane	0.30	0.75	0.37	0.65	0.26	564.39	566.73	98%	**11.33**
Benzene	0.00E+00	0.00E+00	0.33	6.40	1.65	331.17	339.55	98%	**6.79**
Cyclohexane	0.00E+00	0.00E+00	0.39	1.60	0.88	485.33	488.19	98%	**9.76**
i-Heptane	0.00E+00	0.00E+00	0.55	0.83	0.20	859	861	98%	**17.22**
n-Heptane	0.00E+00	0.00E+00	0.12	0.18	0.04	188.85	189.19	98%	**3.78**
Toluene	0.00E+00	0.00E+00	0.16	2.40	0.76	180.35	183.67	98%	**3.67**
i-Octane	0.00E+00	0.00E+00	0.46	0.69	0.14	728.67	729.96	98%	**14.60**
n-Octane	0.00E+00	0.00E+00	0.02	0.02	0.01	35.82	35.87	98%	**0.72**
Ethylbenzene	0.00E+00	0.00E+00	0.02	0.14	0.07	22.99	23.22	98%	**0.46**
m-Xylene	0.00E+00	0.00E+00	0.02	0.23	0.12	35.15	35.52	98%	**0.71**
o-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
p-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Nonane	0.00E+00	0.00E+00	0.03	0.02	0.01	60.72	60.78	98%	**1.22**
Decane	0.00E+00	0.00E+00	0.01	4.52E-03	5.23E-04	20.07	20.08	98%	**0.40**
TEG	0.00E+00	0.00E+00	5.01E-04	2.18E-10	0.00E+00	0.00E+00	5.01E-04	98%	**1.00E-05**
H2O	0.00E+00	0.00E+00	0.29	1.46	5.61	309.42	316.79	0%	**316.79**
Piperazine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.44E-04	0.00E+00	5.44E-04	0%	**5.44E-04**
UCARSOL™ AP-814	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.01	0.00E+00	0.01	0%	**0.01**
Oxygen	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%	**0.00E+00**
Total	**9.86**	**24.48**	**47.72**	**34.52**	**220.24**	**168,082**	**168,418**	**23.54**	**7,020**
Total VOC	**0.83**	**1.91**	**20.12**	**28.37**	**35.28**	**35162.93**	**35,249**		**704.99**
Total HAP	**0.30**	**0.75**	**0.90**	**9.83**	**2.86**	**1,134**	**1,149**		**22.97**
Heating Value (Btu/scf)	1,030	1,030	1,570	2,551	1,188	1,239	**1,239**		
Molecular Weight	18.70	18.70	26.82	49.00	20.71	20.83	**20.83**		
Operating Hours	8,760	8,760	8,760	8,760	8,760	8,760	--		
Mass Flow	9.86	24.48	47.72	34.52	220.24	168,082	--		
Volumetric Flow (scf/hr)	200.00	500.00	675	267	4,036	3,062,646	**3,068,325**		
Heat Release (MMBtu/hr)	0.21	0.51	1.06	0.68	4.79	3,795	3,802		

Criteria Pollutant Emissions from Flare [c]

Component	Emission Rate	Emission Factor	Emission Factor Units
	(lb/hr)		
NO_X	258.55	0.068	lb/MMBtu
CO	1047.50	0.2755	lb/MMBtu
SO_2	62.13	--	--
PM_{10}	23.32	7.60	lb/MMscf
$PM_{2.5}$	23.32	7.60	lb/MMscf
H_2S	0.00	--	--

HP Flare Parameters

Flare Destruction Efficiency C3+	98%
H2S molecular weight	34.08
SO2 molecular weight	64.06
Dehy Inlet Gas vol % flared	85.00%

Combustion Emissions from FLARE

							Totals
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Total NO_x	**0.01**	**0.04**	**0.07**	**0.05**	**0.33**	**258.05**	**258.55**
Total CO	**0.06**	**0.14**	**0.29**	**0.19**	**1.32**	**1,046**	**1,047**
Total SO_2	**0.00E+00**	**0.00E+00**	**2.24E-03**	**0.01**	**10.42**	**51.70**	**62.13**
Total PM_{10}	**1.52E-03**	**3.80E-03**	**0.01**	**2.03E-03**	**0.03**	**23.28**	**23.32**
Total $PM_{2.5}$	**1.52E-03**	**3.80E-03**	**0.01**	**2.03E-03**	**0.03**	**23.28**	**23.32**

Footnotes:

[a] Uncontrolled stream properties determined via ProMax.

[b] Pilot fuel gas emissions are conservatively calculated based on a 200 scfh flow rate.

[c] NOx emission factors from AP-42, Table 13.5-1, February 2018. CO emission factor from TCEQ Air Permit Technical Guidance for Flares and Vapor Oxidizers, high btu. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 100% conversion of H2S to SO2.

Flare Effective Diameter (for modeling only):
For modeling purposes, the effective flare diameter is calculated according to TCEQ RG-25, Modeling Guidance Document, 1998 (method not appropriate for enclosed flares).

$$D = \sqrt{(10^{-6} \cdot q_n)} \quad \text{and} \quad qn = q(1 - 0.048 \cdot \sqrt{(MW)})$$

where,
q = Gross heat release (cal/sec)
MW = Weighted (by volume) average molecular weight of the compound being flared
q_n = Net heat release (cal/sec)
D = Effective Flare Diameter (meters)

q =	266,152,347.83	cal/sec
MW =	20.83	lb/lb-mole
q_n =	207,842,182.55	cal/sec
D =	14.42	meters
D =	**47.30**	**feet**

Flare Compliance for Standard Permits:
To comply with the standard permit requirements for flares [(e)(11) of the non-rule standard permit, or (a)(12) of 30 TAC 116.620], 40 CFR 60.18 requirements for flare gas heating value and tip exit velocity must be met:

The following values were used in the compliance calculations:

Type of Flare	Non-assisted	
Flare/burner tip diameter	20.00	inches
Exit Velocity:	119.08	m/sec
Exit Velocity:	390.67	ft/sec
Net Heating Value (H_T)	41.55	MJ/scm
Vmax1	165.71	m/sec
Vmax2	38.14	m/sec

Equations used:

A. *(Exit velocity, m/sec) = (Gas Flow Rate, scf/hr) / (3,600 sec/hr) / [[(Diameter, in.) / (1 foot/12 in.) / (2 radii/diameter)]* ^{2} ** (pi)] / (3.28084 ft/m)*

B. *(Net Heating Value, MJ/scm) = (Average Higher Heat Value, Btu/scf) x (0.9) x (35.3147 scf/scm) / (947.81712 Btu/MJ)* [According to the API *Compendium* (August 2009), Section 4.2, Equation 4-7, for gaseous fuels, the net heating value is 0.9 times the gross heating value.]

C. $Vmax1 = 10 \wedge [(H_T + 28.8) / 31.7]$ according to 40 CFR 60.18(f)(5).

D. $Vmax2 = 8.706 + (0.7084 \times H_T)$ according to 40 CFR 60.18(f)(6).

Non-assisted flare requirements: Must meet A and B below[1]

Rule Reference	All Requirements	Individual	Specific Requirements
A. **60.18(c)(3)(ii):**		Yes	Net Heating Value ≥ 7.45 MJ/scm (200 Btu/scf)
B. **60.18(c)(4)(i) - (iii):**	**Yes**	No	Exit velocity < 18.3 m/sec (60 ft/sec)
		Yes	OR: Exit Velocity ≥ 18.3 m/sec (60 ft/sec) AND Exit Velocity < 122 m/sec (400 ft/sec) AND Net Heating Value > 37.3 MJ/scm (1,000 Btu/scf)
		Yes	OR: Exit Velocity < 122 m/sec (400 ft/sec) AND Exit Velocity < Vmax1

[1] The flare stream does not have a hydrogen content greater than or equal to 8.0 vol%; therefore 40 CFR 60.18(C)(3)(i) requirements cannot not be used to demonstrate compliance.

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Process Flare (FL-2) - Annual Emissions

Emission Unit: FL-2, DEHY-1, DEHY-2, AU-1, AU-2, AU-3

Source Description: Process Flare - pilot, purge, dehy still column, dehy flash tank, amine flash tank, inlet gas SSM

Annual Emission Rates and Composition to Flare[a,b]

Component	Pilot[b]	Purge	Dehy Flash Tank	Dehy Still Column	Amine Flash Tank	Inlet Gas SSM	Total	Destruction Efficiency	Exhaust Stream (controlled)
	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(%)	(ton/yr)
Hydrogen Sulfide	0.00E+00	0.00E+00	0.01	0.02	24.27	3.92	28.22	100%	**0.00**
N2	4.80	12.00	0.76	0.02	6.43	484.78	508.79	0%	**508.79**
C1	31.95	79.87	74.00	6.75	560.87	14,615	15,369	98%	**307.37**
CO2	0.03	0.07	1.10E-04	9.51E-05	9.54	4.11E-03	9.64	0%	**9.64**
C2	2.78	6.94	44.85	13.79	184.38	3,793	4,046	98%	**80.91**
C3	1.07	2.66	37.47	21.09	83.04	2,393	2,539	98%	**50.78**
iC4	0.25	0.61	6.79	4.89	10.16	422.75	445.45	98%	**8.91**
C4	0.50	0.50	17.83	18.36	30.20	923.88	991.27	98%	**19.83**
iC5	0.24	0.60	6.03	8.04	4.96	318.81	338.68	98%	**6.77**
nC5	0.27	0.67	5.97	8.63	5.70	292.29	313.52	98%	**6.27**
i-Hexane	0.00E+00	0.00E+00	3.20	5.52	2.39	158.92	170.02	98%	**3.40**
Hexane	1.32	3.30	1.60	2.86	1.13	80.43	90.64	98%	**1.81**
Benzene	0.00E+00	0.00E+00	1.46	28.05	7.21	47.19	83.92	98%	**1.68**
Cyclohexane	0.00E+00	0.00E+00	1.72	7.00	3.83	69.16	81.72	98%	**1.63**
i-Heptane	0.00E+00	0.00E+00	2.39	3.63	0.89	122.46	129.37	98%	**2.59**
n-Heptane	0.00E+00	0.00E+00	0.52	0.78	0.18	26.91	28.39	98%	**0.57**
Toluene	0.00E+00	0.00E+00	0.69	10.53	3.33	25.70	40.26	98%	**0.81**
i-Octane	0.00E+00	0.00E+00	2.01	3.03	0.61	103.84	109.48	98%	**2.19**
n-Octane	0.00E+00	0.00E+00	0.09	0.09	0.03	5.10	5.32	98%	**0.11**
Ethylbenzene	0.00E+00	0.00E+00	0.07	0.60	0.33	3.28	4.27	98%	**0.09**
m-Xylene	0.00E+00	0.00E+00	0.11	1.01	0.53	5.01	6.65	98%	**0.13**
o-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
p-Xylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Nonane	0.00E+00	0.00E+00	0.13	0.10	0.02	8.65	8.91	98%	**0.18**
Decane	0.00E+00	0.00E+00	0.04	0.02	2.29E-03	2.86	2.92	98%	**0.06**
TEG	0.00E+00	0.00E+00	2.19E-03	9.53E-10	0.00E+00	0.00E+00	2.19E-03	98%	**4.39E-05**
H2O	0.00E+00	0.00E+00	1.28	6.38	24.58	44.09	76.34	0%	**76.34**
Piperazine	0.00E+00	0.00E+00	0.00	0.00E+00	2.38E-03	0.00E+00	2.38E-03	0%	**2.38E-03**
UCARSOL™ AP-814	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.04	0.00E+00	0.04	0%	**0.04**
Oxygen	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0%	**0.00E+00**
Total	**43.19**	**107.22**	**209.03**	**151.21**	**964.65**	**23,952**	**25,427**	-	**1090.88**
Total VOC	**3.64**	**8.34**	**88.13**	**124.24**	**154.54**	**5010.72**	**5,390**	-	**107.79**
Total HAP	**1.32**	**3.30**	**3.94**	**43.05**	**12.53**	**161.60**	**225.74**	-	**4.51**
Heating Value (Btu/scf)	1,030	1,030	1,570	2,551	1,188	1,239	**1,241**		
Molecular Weight	18.70	18.70	26.82	49.00	20.71	20.83	--		
Operating Hours	8,760	8,760	8,760	8,760	8760	285	--		
Mass Flow (ton/yr)	43.19	107.22	209.03	151.21	964.65	23,952	25,427		
Volumetric Flow (scf/hr)	200.00	500.00	675	267	4,036	3,062,646	--		
Volumetric Flow (MMscf/yr)	1.75	4.38	5.92	2.34	35.35	872.85	**922.60**		
Heat Release (MMBtu/yr)	1,804	4,511	9,288	5,975	41,987	1,081,552	**1,145,117**		

Criteria Pollutant Emissions from Flare[c]

Component	Emission Rate	Emission Factor	Emission Factor Units
	(ton/yr)		
NO_X	38.93	0.068	lb/MMBtu
CO	157.74	0.2755	lb/MMBtu
SO_2	53.04	--	--
PM_{10}	3.51	7.60	lb/MMscf
$PM_{2.5}$	3.51	7.60	lb/MMscf
H_2S	0.00	--	--
N2O	0.13	0.0001	kg/MMBtu

HP Flare Parameters

Flare Destruction Efficiency C3+	98%
H2S molecular weight	34.08
SO2 molecular weight	64.06
SSM hours to flare	285

Annual Combustion Emissions from Flare

							Totals
	(TPY)	(TPY)	(TPY)	(TPY)	(TPY)	(TPY)	(TPY)
Total NO_x	**0.06**	**0.15**	**0.32**	**0.20**	**1.43**	**36.77**	**38.93**
Total CO	**0.25**	**0.62**	**1.28**	**0.82**	**5.78**	**148.98**	**157.74**
Total SO_2	**0.00E+00**	**0.00E+00**	**0.01**	**0.04**	**45.62**	**7.37**	**53.04**
Total PM_{10}	**0.01**	**0.02**	**0.02**	**0.01**	**0.13**	**3.32**	**3.51**
Total $PM_{2.5}$	**0.01**	**0.02**	**0.02**	**0.01**	**0.13**	**3.32**	**3.51**

Footnotes:

[a] Uncontrolled stream properties determined via ProMax.

[b] Pilot fuel gas emissions are conservatively calculated based on a 200 scfh flow rate.

[c] CO and Nox emission factors from AP-42, Table 13.5-1 and 13.5-2, February 2018. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 98% conversion of H2S to SO2.

Frontier Field Services, LLC. - Dagger Draw Gas Plant

Fugitive Emissions

Emission Unit: FUG
Source Description: Fugitives

Operating Hours:	8760 hours/year
Emission Factor Source	Standard EFs - EPA-453/R-95-017 Table 2-4
Control Efficiency Source:	None
Emission Buffer (%):	0

Service	Component Type	Count	Emission Factor (lb/hr-source)[a]		Control (%)[b]	Pollutant	Mass Fraction[c]	Uncontrolled Emissions	Uncontrolled Emissions	Controlled Emissions	Controlled Emissions
			Table 2-4	Table 2-8				(lb/hr)	(tpy)	(lb/hr)	(tpy)
Gas	Valves	**521**	9.92E-03	5.51E-05	0%	VOC	**0.221**	1.3799	6.0440	1.3799	6.0440
	Pump Seals	**0**	5.29E-03	7.72E-04	0%	H2S	**0.020**	0.1217	0.5330	0.1217	0.5330
	Connectors	**1010**	4.41E-04	2.20E-05	0%	Benzene	**0.003**	0.0178	0.0781	0.0178	0.0781
	Flanges	**0**	8.60E-04	1.26E-05	0%	Toluene	**0.002**	0.0139	0.0607	0.0139	0.0607
	Open-Ended Lines	**0**	4.41E-03	3.31E-05	0%	E-Benzene	**0.000**	0.0029	0.0126	0.0029	0.0126
	Other	**22**	1.94E-02	2.65E-04	0%	Xylenes	**0.001**	0.0047	0.0207	0.0047	0.0207
	Relief Valves	**10**	1.94E-02	2.65E-04	0%	n-Hexane	**0.004**	0.0275	0.1206	0.0275	0.1206
						2,2,4 Trimethylpentane	**0.000**	0.0000	0.0000	0.0000	0.0000
Heavy Oil	Valves	**0**	1.85E-05	1.85E-05	0%	VOC	**0.017**	0.0000	0.0000	0.0000	0.0000
	Pump Seals	**0**	0.00E+00	0.00E+00	0%	H2S	**0.000**	0.0000	0.0000	0.0000	0.0000
	Connectors	**0**	1.65E-05	1.65E-05	0%	Benzene	**0.006**	0.0000	0.0000	0.0000	0.0000
	Flanges	**0**	8.60E-06	8.60E-07	0%	Toluene	**0.002**	0.0000	0.0000	0.0000	0.0000
	Open-Ended Lines	**0**	3.09E-04	1.59E-05	0%	E-Benzene	**0.000**	0.0000	0.0000	0.0000	0.0000
	Other	**0**	3.09E-04	7.05E-05	0%	Xylenes	**0.000**	0.0000	0.0000	0.0000	0.0000
	Relief Valves	0	3.09E-04	7.05E-05	0%	n-Hexane	**0.000**	0.0000	0.0000	0.0000	0.0000
						2,2,4 Trimethylpentane	**0.000**	0.0000	0.0000	0.0000	0.0000
Light Oil	Valves	**940**	5.51E-03	4.19E-05	0%	VOC	**0.017**	0.1027	0.4497	0.1027	0.4497
	Pump Seals	**0**	2.87E-02	1.12E-03	0%	H2S	**0.000**	0.0001	0.0006	0.0001	0.0006
	Connectors	**1271**	4.63E-04	2.14E-05	0%	Benzene	**0.006**	0.0360	0.1578	0.0360	0.1578
	Flanges	**0**	2.43E-04	5.29E-06	0%	Toluene	**0.002**	0.0122	0.0533	0.0122	0.0533
	Open-Ended Lines	**0**	2.87E-03	3.09E-05	0%	E-Benzene	**0.000**	0.0009	0.0039	0.0009	0.0039
	Other	**22**	1.65E-02	2.43E-04	0%	Xylenes	**0.000**	0.0010	0.0046	0.0010	0.0046
	Relief Valves	**0**	1.65E-02	2.43E-04	0%	n-Hexane	**0.000**	0.0001	0.0005	0.0001	0.0005
						2,2,4 Trimethylpentane	**0.000**	0.0000	0.0000	0.0000	0.0000
Water/Oil	Valves	**0**	2.16E-04	2.14E-05	0%	VOC	**0.017**	0.0000	0.0000	0.0000	0.0000
	Pump Seals	**0**	5.29E-05	5.29E-05	0%	H2S	**0.000**	0.0000	0.0000	0.0000	0.0000
	Connectors	**0**	2.43E-04	2.20E-05	0%	Benzene	**0.006**	0.0000	0.0000	0.0000	0.0000
	Flanges	**0**	6.39E-06	6.39E-06	0%	Toluene	**0.002**	0.0000	0.0000	0.0000	0.0000
	Open-Ended Lines	**0**	5.51E-04	7.72E-06	0%	E-Benzene	**0.000**	0.0000	0.0000	0.0000	0.0000
	Other	**0**	3.09E-02	1.30E-04	0%	Xylenes	**0.000**	0.0000	0.0000	0.0000	0.0000
	Relief Valves	**0**	3.09E-02	1.30E-04	0%	n-Hexane	**0.000**	0.0000	0.0000	0.0000	0.0000
						2,2,4 Trimethylpentane	**0.000**	0.0000	0.0000	0.0000	0.0000

Fugitive Emission Summary

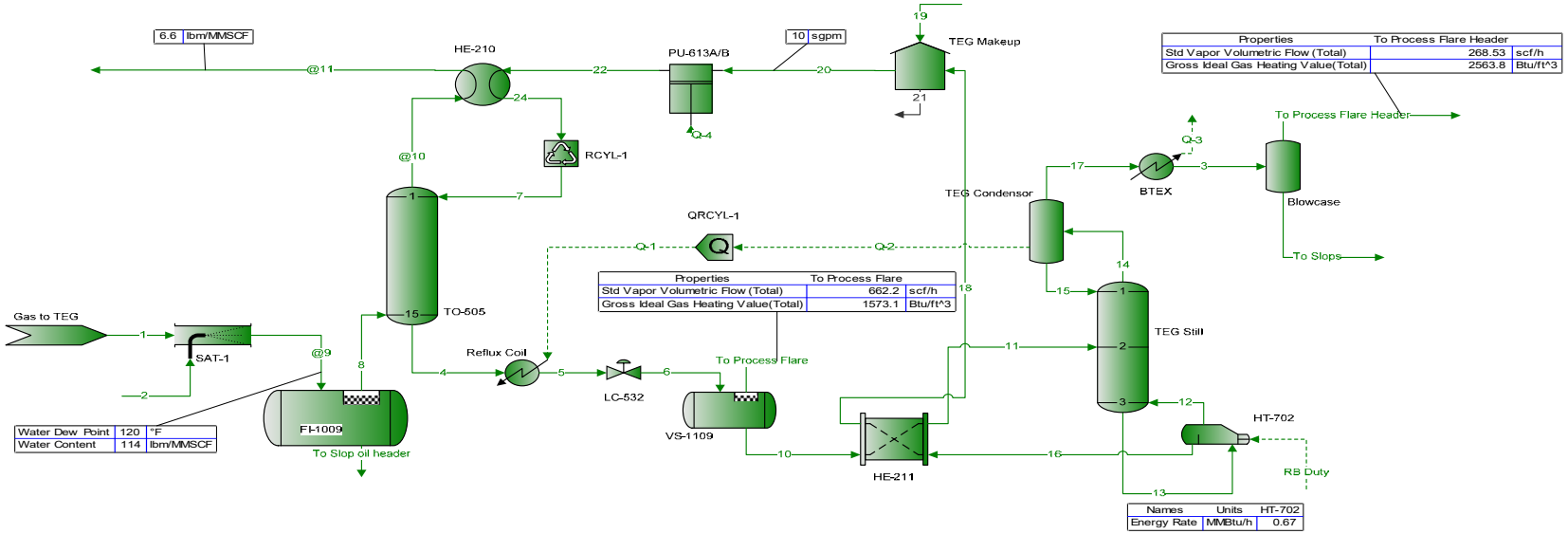
Pollutant	Uncontrolled Emissions		Controlled Emissions	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
VOC	1.48	6.49	1.48	6.49
HAPs	0.12	0.51	0.12	0.51
H2S	0.12	0.53	0.12	0.53
Benzene	0.05	0.24	0.05	0.24
Toluene	0.03	0.11	2.60E-02	0.11
E-Benzene	0.00	0.02	3.77E-03	1.65E-02
Xylenes	0.01	0.03	5.78E-03	0.03
n-Hexane	0.03	0.12	2.76E-02	0.12
2,2,4 Trimethylpentane	0.00	0.00	0.00E+00	0.00E+00

Footnotes:

[a] Factors are taken from EPA Document EPA-453/R-095-017, November 1995, Table 2-4

[c] Gas/vapor based on inlet gas. Heavy Oil, Light Oil, and Water/Oil fugitives were based on Promax estimate of slop from the dehydration system.

TEG Glycol Dehydration System



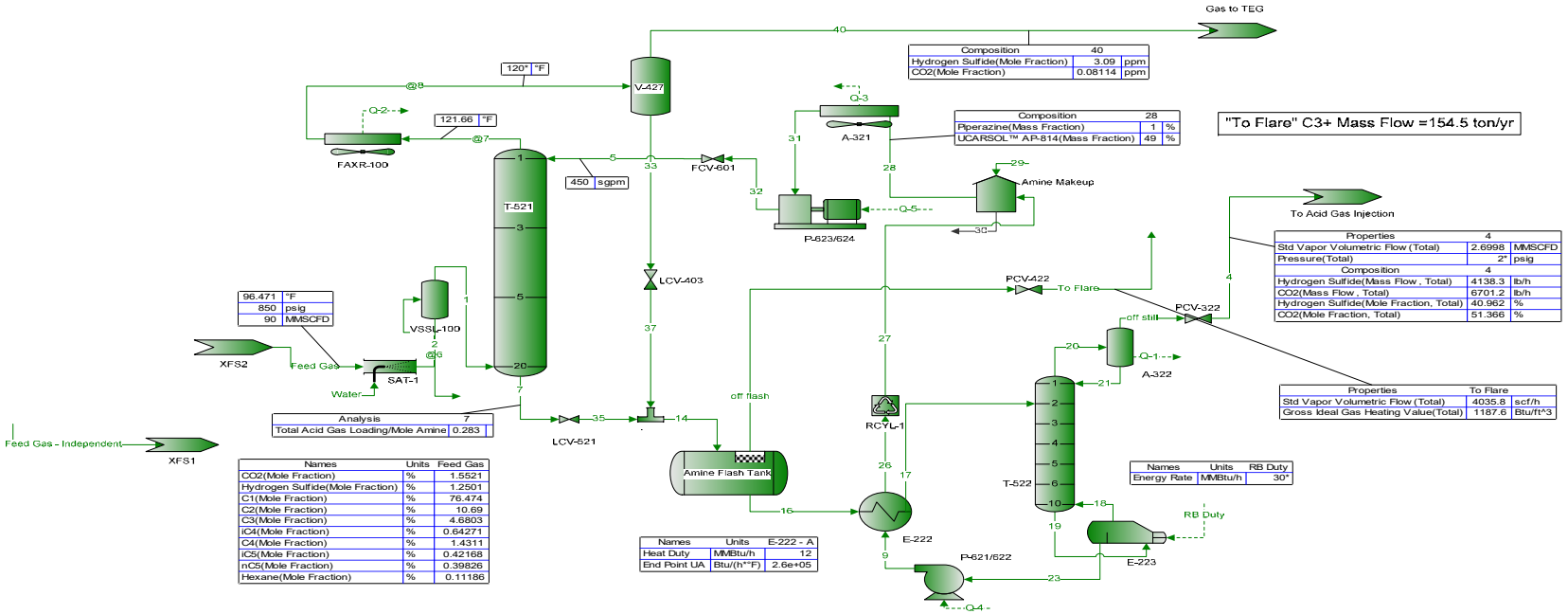
Process Streams	□9	□10	□11	To Process Flare	To Process Flare □eader	To Slop oil □eader	To Slops	1	2	3	□	□	□	□	□	10	11	12	13	1□	1□	1□	1□	1□	19	20	21	22	2□
Composition Status□	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed
Phase: **Total** From □loc□	SAT□1	TO□□0□	□E 210	□S 1109	□lowcase	FI 1009	□lowcase	□as to TE□	□□	□TE□	TO□□0□	Reflu□ Coil	LC□32	RC□L□1	FI 1009	□S 1109	□E 211	□T□02	TE□ Still	TE□ Still	TE□ Condensor	□T□02	TE□ Condensor	□E 211	□□	TE□ □a□eup	TE□ □a□eup	P□□13A/□	□E 210
To □loc□	FI 1009	□E 210	□□	□□	□□	□□	□□	SAT□1	SAT□1	□lowcase	Reflu□ Coil	LC□32	□S 1109	TO□□0□	TO□□0□	□E 211	TE□ Still	TE□ Still	□T□02	TE□ Condensor	TE□ Still	□E 211	□TE□	TE□ □a□eup	TE□ □a□eup	P□□13A/□	□□	□E 210	RC□L□1
Std □apor □olumetric Flow	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD	SCFD
Hydrogen Sulfide	0.000267237	0.000265621	0.000265621	3.18854E-07	1.22318E-06	3.20210E-11	7.38831E-08	2.67237E-04	0*	1.29706E-06	1.61593E-06	1.61593E-06	1.61593E-06	0	0.000267237	1.29708E-06	1.29708E-06	8.49167E-10	8.62622E-10	1.29715E-06	8.25038E-11	1.34551E-11	1.29706E-06	1.34551E-11	0*	0	0	0	0
N2	1.30131	1.30126	1.30126	5.64775E-05	1.35972E-06	2.23900E-09	1.33003E-09	1.30131E+00	0*	1.36105E-06	5.78385E-05	5.78385E-05	5.78385E-05	0	1.30131	1.36105E-06	1.36105E-06	4.05667E-13	4.05989E-13	1.36105E-06	1.18661E-12	3.22041E-16	1.36105E-06	3.22041E-16	0*	0	0	0	0
C1	68.5169	68.5064	68.5064	0.00959114	0.000875319	2.02927E-07	2.86359E-06	6.85169E+01	0*	0.000878183	0.0104693	0.0104693	0.0104693	0	68.5169	0.000878183	0.000878183	1.80156E-09	1.80461E-09	0.000878184	1.43949E-09	3.05013E-12	0.000878183	3.05013E-12	0*	0	0	0	0
CO2	7.01718E-06	7.00740E-06	7.00740E-06	5.20932E-09	4.49188E-09	3.06193E-13	8.19639E-11	7.01718E-06	0*	4.57384E-09	9.78316E-09	9.78316E-09	9.78316E-09	0	7.01718E-06	4.57384E-09	4.57384E-09	2.05793E-13	2.06881E-13	4.57393E-09	8.73414E-14	1.08816E-15	4.57384E-09	1.08816E-15	0*	0	0	0	0
C2	9.48525	9.48118	9.48118	0.00310131	0.000953849	2.62093E-08	1.52098E-05	9.48525E+00	0*	0.000969059	0.00407037	0.00407037	0.00407037	0	9.48525	0.000969059	0.000969059	1.13210E-08	1.13595E-08	0.000969060	1.56577E-09	3.84540E-11	0.000969059	3.84540E-11	0*	0	0	0	0
C3	4.08171	4.07890	4.07890	0.00176691	0.000994519	6.17720E-09	4.52113E-05	4.08171E+00	0*	0.00103973	0.00280664	0.00280664	0.00280664	0	4.08171	0.00103973	0.00103973	3.23480E-08	3.25129E-08	0.00103973	1.22390E-09	1.64910E-10	0.00103973	1.64910E-10	0*	0	0	0	0
iC4	0.546954	0.546520	0.546520	0.000242913	0.000175053	3.74408E-10	1.57635E-05	5.46954E-01	0*	0.000190817	0.000433730	0.000433730	0.000433730	0	0.546954	0.000190817	0.000190817	9.46025E-09	9.52128E-09	0.000190817	9.80314E-11	6.10280E-11	0.000190817	6.10280E-11	0*	0	0	0	0
C4	1.19532	1.19393	1.19393	0.000637891	0.000656882	1.32667E-09	9.14453E-05	1.19532E+00	0*	0.000748327	0.00138622	0.00138622	0.00138622	7.73783E-10	1.19532	0.000748328	0.000748328	6.56703E-08	6.61794E-08	0.000748328	8.58843E-10	5.09057E-10	0.000748327	5.09057E-10	0*	0	0	0	0
iC5	0.332283	0.331795	0.331795	0.000173928	0.000231724	1.69831E-10	8.32502E-05	3.32283E-01	0*	0.000314974	0.000488903	0.000488903	0.000488903	8.90328E-10	0.332283	0.000314975	0.000314975	5.45027E-08	5.50829E-08	0.000314974	1.81076E-10	5.80179E-10	0.000314974	5.80179E-10	0*	5.80179E-10	0	5.80179E-10	5.80179E-10
nC5	0.304643	0.304107	0.304107	0.000172063	0.000248861	8.95151E-11	0.000115209	0.304642665	0*	0.000364070	0.000536134	0.000536134	0.000536134	1.45412E-09	0.304643	0.000364071	0.000364071	8.13894E-08	8.23328E-08	0.000364071	1.97978E-10	9.43414E-10	0.000364070	9.43414E-10	0*	9.43414E-10	0	9.43414E-10	9.43414E-10
i-Hexane	0.138674	0.138336	0.138336	7.71451E-05	0.000133135	3.97418E-11	0.000128311	0.138674178	0*	0.000261446	0.000338595	0.000338595	0.000338595	7.04489E-09	0.138674	0.000261450	0.000261450	2.00225E-07	2.04762E-07	0.000261446	1.26445E-10	4.53686E-09	0.000261446	4.53686E-09	0*	4.53686E-09	0	4.53686E-09	4.53686E-09
Hexane	0.0701814	0.0699844	0.0699844	3.87214E-05	6.91006E-05	1.01087E-11	8.91804E-05	7.01814E-02	0*	0.000158281	0.000197006	0.000197006	0.000197006	6.10479E-09	0.0701814	0.000158285	0.000158285	1.54264E-07	1.58154E-07	0.000158281	5.00474E-11	3.89007E-09	0.000158281	3.89007E-09	0*	3.89007E-09	0	3.89007E-09	3.89007E-09
Benzene	0.0454309	0.0428084	0.0428084	3.89861E-05	0.000746678	3.56969E-09	0.00183829	0.04543086	0*	0.00258497	0.00262812	0.00262812	0.00262812	5.64508E-06	0.0454309	0.00258913	0.00258913	6.15545E-05	6.57174E-05	0.00258511	1.37634E-07	4.16287E-06	0.00258497	4.16287E-06	0*	4.16287E-06	0	4.16287E-06	4.16287E-06
Cyclohexane	0.0617950	0.0612248	0.0612248	4.25876E-05	0.000173043	1.29112E-10	0.000354581	0.061794988	0*	0.000527624	0.000570275	0.000570275	0.000570275	9.56158E-08	0.0617950	0.000527687	0.000527687	1.73464E-06	1.79829E-06	0.000527625	1.20415E-09	6.36572E-08	0.000527624	6.36572E-08	0*	6.36572E-08	0	6.36572E-08	6.36572E-08
i-Heptane	0.0919038	0.0915837	0.0915837	4.96831E-05	7.53584E-05	9.73333E-12	0.000194975	0.091903757	0*	0.000270334	0.000320021	0.000320021	0.000320021	6.85139E-09	0.0919038	0.000270338	0.000270338	2.19717E-07	2.24133E-07	0.000270334	3.89713E-11	4.41568E-09	0.000270334	4.41568E-09	0*	4.41568E-09	0	4.41568E-09	4.41568E-09
n-Heptane	0.0201959	0.0201087	0.0201087	1.07982E-05	1.61936E-05	1.46286E-12	6.02394E-05	2.01959E-02	0*	7.64330E-05	8.72334E-05	8.72334E-05	8.72334E-05	3.28113E-09	0.0201959	7.64352E-05	7.64352E-05	9.23580E-08	9.44778E-08	7.64331E-05	1.29464E-11	2.11976E-09	7.64330E-05	2.11976E-09	0*	2.11976E-09	0	2.11976E-09	2.11976E-09
Toluene	0.0209747	0.0190636	0.0190636	1.56034E-05	0.000237619	1.02228E-09	0.00166119	0.02097471	0*	0.00189881	0.00192424	0.00192424	0.00192424	1.31689E-05	0.0209747	0.00190864	0.00190864	0.000104936	0.000114764	0.00189889	8.48684E-08	9.82857E-06	0.00189881	9.82857E-06	0*	9.82857E-06	0	9.82857E-06	9.82857E-06
i-Octane	0.0683568	0.0680732	0.0680732	3.65017E-05	5.51348E-05	4.58741E-12	0.000191925	0.068356771	0*	0.000247059	0.000283568	0.000283568	0.000283568	1.02087E-08	0.0683568	0.000247066	0.000247066	3.03995E-07	3.10677E-07	0.000247059	4.73949E-11	6.68233E-09	0.000247059	6.68233E-09	0*	6.68233E-09	0	6.68233E-09	6.68233E-09
n-Octane	0.00336011	0.00333957	0.00333957	1.60961E-06	1.62928E-06	9.50024E-14	1.73048E-05	3.36011E-03	0*	1.89341E-05	2.05450E-05	2.05450E-05	2.05450E-05	2.07285E-09	0.00336011	1.89354E-05	1.89354E-05	4.59247E-08	4.72670E-08	1.89341E-05	2.09781E-12	1.34225E-09	1.89341E-05	1.34225E-09	0*	1.34225E-09	0	1.34225E-09	1.34225E-09
Ethylbenzene	0.00232038	0.00204244	0.00204244	1.38905E-06	1.17305E-05	6.48623E-11	0.000266151	0.002320384	0*	0.000277882	0.000283218	0.000283218	0.000283218	5.27759E-06	0.00232038	0.000281829	0.000281829	3.08419E-05	3.47889E-05	0.000277890	8.24926E-09	3.94704E-06	0.000277882	3.94704E-06	0*	3.94704E-06	0	3.94704E-06	3.94704E-06
m-Xylene	0.00354778	0.00311115	0.00311115	2.13453E-06	1.97605E-05	7.64775E-11	0.000416836	0.003547784	0*	0.000436596	0.000445243	0.000445243	0.000445243	8.60830E-06	0.00354778	0.000443108	0.000443108	5.09006E-05	5.74125E-05	0.000436609	1.27876E-08	6.51196E-06	0.000436596	6.51196E-06	0*	6.51196E-06	0	6.51196E-06	6.51196E-06
o-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
Nonane	0.00507343	0.00502815	0.00502815	2.11915E-06	1.68578E-06	6.58299E-14	4.14816E-05	5.07343E-03	0*	4.31674E-05	4.52946E-05	4.52946E-05	4.52946E-05	1.25607E-08	0.00507343	4.31755E-05	4.31755E-05	2.03799E-07	2.11845E-07	4.31674E-05	1.47622E-12	8.04576E-09	4.31674E-05	8.04576E-09	0*	8.04576E-09	0	8.04576E-09	8.04576E-09
Decane	0.00151149	0.00149234	0.00149234	5.42996E-07	2.89433E-07	5.15632E-15	1.83301E-05	1.51149E-03	0*	1.86195E-05	1.91731E-05	1.91731E-05	1.91731E-05	1.65479E-08	0.00151149	1.86301E-05	1.86301E-05	1.93468E-07	2.04022E-07	1.86195E-05	2.84623E-13	1.05538E-08	1.86195E-05	1.05538E-08	0*	1.05538E-08	0	1.05538E-08	1.05538E-08
TEG	0	8.83544E-05	8.83544E-05	3.03739E-08	1.31955E-14	0	6.15002E-08	0.00000E+00	0*	6.15002E-08	0.338815	0.338815	0.338815	0.338904	0	0.338815	0.338815	0.0108208	0.349636	4.71347E-06	4.65197E-06	0.338815	6.15002E-08	0.338815	9.31763E-05*	0.338908	0	0.338908	0.338908
H2O	0.206329	0.0124935	0.0124935	0.000147955	0.000736526	0.000263269	0.192673	0.184049	0.0222801*	0.193410	0.221346	0.221346	0.221346	0.0277736	0.206066	0.221198	0.221198	0.140949	0.168738	0.213879	0.0204689	0.0277885	0.193410	0.0277885	7.77482E-07*	0.0277893	0	0.0277893	0.0277893
Sulfur Dioxide	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
□ole Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Hydrogen Sulfide	0.000308929	0.000307848	0.000307848	0.00196717	0.0190625	1.21516E-05	3.72543E-05	3.09009E-04	0*	0.000633524	0.000275017	0.000275017	0.000275017	0	0.000308930	0.000227013	0.000227013	5.58582E-07	1.66321E-07	0.000575967	4.02973E-07	3.66995E-09	0.000633524	3.66995E-09	0*	0	3.66995E-09	0	0
N2	1.50433	1.50812	1.50812	0.348438	0.0211904	0.000849674	6.70643E-07	1.50472E+00	0*	0.000664775	0.00984360	0.00984360	0.00984360	0	1.50434	0.000238209	0.000238209	2.66848E-10	7.82780E-11	0.000604342	5.79575E-09	8.78384E-14	0.000664775	8.78384E-14	0*	0	8.78384E-14	0	0
C1	79.2063	79.3972	79.3972	59.1725	13.6413	0.0770084	0.00144392	79.22675482	0*	0.428930	1.78178	1.78178	1.78178	0	79.2066	0.153699	0.153699	1.18507E-06	3.47944E-07	0.389937	7.03089E-06	8.31940E-10	0.428930	8.31940E-10	0*	0	8.31940E-10	0	0
CO2	8.11195E-06	8.12140E-06	8.12140E-06	3.21389E-05	7.00031E-05	1.16197E-07	4.13289E-08	8.11404E-06	0*	2.23400E-06	1.66501E-06	1.66501E-06	1.66501E-06	0	8.11197E-06	8.00510E-07	8.00510E-07	1.35371E-10	3.98884E-11	2.03095E-06	4.26601E-10	2.96801E-13	2.23400E-06	2.96801E-13	0*	0	2.96801E-13	0	0
C2	10.9651	10.9884	10.9884	19.1336	14.8651	0.00994611	0.00766928	10.96788850	0*	0.473317	0.692741	0.692741	0.692741	0	10.9651	0.169604	0.169604	7.44697E-06	2.19020E-06	0.430289	7.64769E-06	1.04886E-08	0.473317	1.04886E-08	0*	0	1.04886E-08	0	0
C3	4.71850	4.72734	4.72734	10.9009	15.4990	0.00234417	0.0227970	4.7197182	0*	0.507835	0.477665	0.477665	0.477665	0	4.71852	0.181973	0.181973	2.12785E-05	6.26875E-06	0.461669	5.97790E-06	4.49801E-08	0.507835	4.49801E-08	0*	0	4.49801E-08	0	0
iC4	0.632285	0.633403	0.633403	1.49865	2.72810	0.000142083	0.00794847	0.63244825	0*	0.0932005	0.0738169	0.0738169	0.0738169	0	0.632287	0.0333966	0.0333966	6.22296E-06	1.83578E-06	0.0847278	4.78814E-07	1.66457E-08	0.0932005	1.66457E-08	0*	0	1.66457E-08	0	0
C4	1.38180	1.38374	1.38374	3.93547	10.2371	0.000503454	0.0461097	1.3821582	0*	0.365505	0.235922	0.235922	0.235922	2.11007E-07	1.38181	0.130972	0.130972	4.31980E-05	1.27599E-05	0.332278	4.19484E-06	1.38848E-07	0.365505	1.38848E-07	0*	0	1.38848E-07	0	0
iC5	0.384124	0.384542	0.384542	1.07305	3.61128	6.44489E-05	0.0419775	0.3842227	0*	0.153843	0.0832069	0.0832069	0.0832069	2.42788E-07	0.384125	0.0551266	0.0551266	3.58519E-05	1.06204E-05	0.139857	8.84426E-07	1.58247E-07	0.153843	1.58247E-07	0*	1.58207E-07	1.58247E-07	1.58207E-07	1.58207E-07
nC5	0.352171	0.352452	0.352452	1.06154	3.87835	3.39699E-05	0.0580922	0.3522615	0*	0.177823	0.0912453	0.0912453	0.0912453	3.96531E-07	0.352172	0.0637194	0.0637194	5.35380E-05	1.58744E-05	0.161657	9.66981E-07	2.57322E-07	0.177823	2.57322E-07	0*	2.57256E-07	2.57322E-07	2.57256E-07	2.57256E-07
i-Hexane	0.160309	0.160328	0.160328	0.475947	2.07482	1.50815E-05	0.0646985	0.1603504	0*	0.127698	0.0576259	0.0576259	0.0576259	1.92110E-06	0.160310	0.0457588	0.0457588	0.000131708	3.94798E-05	0.116089	6.17593E-07	1.23745E-06	0.127698	1.23745E-06	0*	1.23714E-06	1.23745E-06	1.23714E-06	1.23714E-06
Hexane	0.0811306	0.0811102	0.0811102	0.238892	1.07689	3.83614E-06	0.0449677	0.0811515	0*	0.0773091	0.0335287	0.0335287	0.0335287	1.66474E-06	0.0811308	0.0277029	0.0277029	0.000101475	3.04934E-05	0.0702810	2.44446E-07	1.06104E-06	0.0773091	1.06104E-06	0*	1.06077E-06	1.06104E-06	1.06077E-06	1.06077E-06
Benzene	0.0525186	0.0496139	0.0496139	0.240525	11.6365	0.00135465	0.926928	0.052532	0*	1.26258	0.447283	0.447283	0.447283	0.00153938	0.0525188	0.453148	0.453148	0.0404906	0.0126709	1.14786	0.000672244	0.00113545	1.26258	0.00113545	0*	0.00113516	0.00113545	0.00113516	0.00113516
Cyclohexane	0.0714358	0.0709580	0.0709580	0.262744	2.69676	4.89965E-05	0.178791	0.071454	0*	0.257707	0.0970557	0.0970557	0.0970557	2.60740E-05	0.0714360	0.0923554	0.0923554	0.00114105	0.000346726	0.234280	5.88141E-06	1.73629E-05	0.257707	1.73629E-05	0*	1.73584E-05	1.73629E-05	1.73584E-05	1.73584E-05
i-Heptane	0.106242	0.106143	0.106143	0.306520	1.17441	3.69368E-06	0.0983129	0.1062693	0*	0.132039	0.0544647	0.0544647	0.0544647	1.86834E-06	0.106242	0.0473143	0.0473143	0.000144530	4.32146E-05	0.120035	1.90348E-07	1.20440E-06	0.132039	1.20440E-06	0*	1.20409E-06	1.20440E-06	1.20409E-06	1.20409E-06
n-Heptane	0.0233468	0.0233055	0.0233055	0.0666196	0.252368	5.55137E-07	0.0303747	0.0233528	0*	0.0373322	0.0148463	0.0148463	0.0148463	8.94747E-07	0.0233468	0.0133776	0.0133776	6.07531E-05	1.82161E-05	0.0339383	6.32340E-08	5.78178E-07	0.0373322	5.78178E-07	0*	5.78030E-07	5.78178E-07	5.78030E-07	5.78030E-07
Toluene	0.0242470	0.0220943	0.0220943	0.0962654	3.70315	0.000387943	0.837626	0.024253	0*	0.927434	0.327488	0.327488	0.327488	0.00359109	0.0242471	0.334048	0.334048	0.0690269	0.0221275	0.843159	0.000414522	0.00268080	0.927434	0.00268080	0*	0.00268011	0.00268080	0.00268011	0.00268011
i-Octane	0.0790213	0.0788952	0.0788952	0.225197	0.859242	1.74087E-06	0.0967746	0.0790416	0*	0.120671	0.0482607	0.0482607	0.0482607	2.78386E-06	0.0790215	0.0432413	0.0432413	0.000199968	5.99012E-05	0.109701	2.31491E-07	1.82264E-06	0.120671	1.82264E-06	0*	1.82218E-06	1.82264E-06	1.82218E-06	1.82218E-06
n-Octane	0.00388433	0.00387048	0.00387048	0.00993051	0.0253913	3.60522E-08	0.00872565	0.00388533	0*	0.00924797	0.00349658	0.00349658	0.00349658	5.65255E-07	0.00388434	0.00331406	0.00331406	3.02093E-05	9.11347E-06	0.00840724	1.02463E-08	3.66107E-07	0.00924797	3.66107E-07	0*	3.66013E-07	3.66107E-07	3.66013E-07	3.66013E-07
Ethylbenzene	0.00268239	0.00236714	0.00236714	0.00856977	0.182813	2.46145E-05	0.134202	0.002683	0*	0.135726	0.0482012	0.0482012	0.0482012	0.00143917	0.00268240	0.0493255	0.0493255	0.0202878	0.00670759	0.123391	4.02918E-05	0.00107658	0.135726	0.00107658	0*	0.00107630	0.00107658	0.00107630	0.00107630
m-Xylene	0.00410128	0.00360574	0.00360574	0.0131690	0.307955	2.90223E-05	0.210182	0.004102	0*	0.213247	0.0757764	0.0757764	0.0757764	0.00234744	0.00410130	0.0775524	0.0775524	0.0334824	0.0110696	0.193866	6.24586E-05	0.00177617	0.213247	0.00177617	0*	0.00177572	0.00177617	0.00177572	0.00177572
o-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
Nonane	0.00586495	0.00582750	0.00582750	0.0130741	0.0262718	2.49816E-08	0.0209164	0.0058665	0*	0.0210842	0.00770874	0.00770874	0.00770874	3.42525E-06	0.00586496	0.00755653	0.00755653	0.000134059	4.08454E-05	0.0191675	7.21027E-09	2.19453E-06	0.0210842	2.19453E-06	0*	2.19397E-06	2.19453E-06	2.19397E-06	2.19397E-06
Decane	0.00174730	0.00172958	0.00172958	0.00335001	0.00451064	1.95676E-09	0.00924263	0.00174775	0*	0.00909433	0.00326309	0.00326309	0.00326309	4.51254E-06	0.00174731	0.00326062	0.00326062	0.000127263	3.93371E-05	0.00826757	1.39018E-09	2.87862E-06	0.00909433	2.87862E-06	0*	2.87789E-06	2.87862E-06	2.87789E-06	2.87789E-06
TEG	0	0.000102401	0.000102401	0.000187392	2.05643E-10	0	3.10104E-05	0.00000E+00	0*	3.00385E-05	57.6633	57.6633	57.6633	92.4173	0	59.2992	59.2992	7.11793	67.4127	0.00209291	0.0227216	92.4138	3.00385E-05	92.4138	99.1725*	92.4156	92.4138	92.4156	92.4156
H2O	0.238519	0.0144796	0.0144796	0.912807	11.4783	99.9072	97.1522	0.2128	100*	94.4671	37.6712	37.6712	37.6712	7.57372	0.238216	38.7139	38.7139	92.7165	32.5340	94.9679	99.9761	7.57948	94.4671	7.57948	0.827516*	7.57775	7.57948	7.57775	7.57775
Sulfur Dioxide	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
□ass Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Hydrogen Sulfide	0.000505597	0.000503857	0.000503857	0.00250018	0.0132583	2.29856E-05	6.34374E-05	5.05709E-04	0*	0.00103194	9.81643E-05	9.81643E-05	9.81643E-05	0	0.000505598	7.94098E-05	7.94098E-05	6.91079E-07	5.29028E-08	0.000950060	7.61032E-07	8.92421E-10	0.00103194	8.92421E-10	0*	0	8.92421E-10	0	0
N2	2.02370	2.02891	2.02891	0.364008	0.0121144	0.00132109	9.38676E-07	2.02415E+00	0*	0.000890063	0.00288804	0.00288804	0.00288804	0	2.02370	6.84915E-05	6.84915E-05	2.71368E-10	2.04657E-11	0.000819391	8.99688E-09	1.75570E-14	0.000890063	1.75570E-14	0*	0	1.75570E-14	0	0
C1	61.0191	61.1697	61.1697	35.4006	4.46607	0.0685682	0.00115737	61.03269227	0*	0.328880	0.299371	0.299371	0.299371	0	61.0193	0.0253078	0.0253078	6.90151E-07	5.20958E-08	0.302767	6.25025E-06	9.52274E-11	0.328880	9.52274E-11	0*	0	9.52274E-11	0	0
CO2	1.71438E-05	1.71647E-05	1.71647E-05	5.27469E-05	6.28727E-05	2.83827E-07	9.08780E-08	1.71476E-05	0*	4.69904E-06	7.67442E-07	7.67442E-07	7.67442E-07	0	1.71438E-05	3.61598E-07	3.61598E-07	2.16273E-10	1.63838E-11	4.32601E-06	1.04036E-09	9.31989E-14	4.69904E-06	9.31989E-14	0*	0	9.31989E-14	0	0
C2	15.8331	15.8678	15.8678	21.4553	9.12194	0.0165992	0.0115221	15.8366123	0*	0.680224	0.218159	0.218159	0.218159	0	15.8331	0.0523441	0.0523441	8.12885E-06	6.14646E-07	0.626213	1.27428E-05	2.25027E-09	0.680224	2.25027E-09	0*	0	2.25027E-09	0	0
C3	9.99159	10.0109	10.0109	17.9258	13.9475	0.00573717	0.0502264	9.9938130	0*	1.07028	0.220598	0.220598	0.220598	0	9.99161	0.0823596	0.0823596	3.40617E-05	2.57987E-06	0.985300	1.46070E-05	1.41519E-08	1.07028	1.41519E-08	0*	0	1.41519E-08	0	0
iC4	1.76478	1.76800	1.76800	3.24834	3.23594	0.000458351	0.0230826	1.7651708	0*	0.258905	0.0449347	0.0449347	0.0449347	0	1.76478	0.0199231	0.0199231	1.31301E-05	9.95829E-07	0.238348	1.54214E-06	6.90310E-09	0.258905	6.90310E-09	0*	0	6.90310E-09	0	0
C4	3.85676	3.86239	3.86239	8.53018	12.1428	0.00162411	0.133904	3.857621	0*	1.01535	0.143613	0.143613	0.143613	8.75020E-08	3.85677	0.0781325	0.0781325	9.11455E-05	6.92169E-06	0.934730	1.35106E-05	5.75813E-08	1.01535	5.75813E-08	0*	0	5.75813E-08	0	0
iC5	1.33087	1.33239	1.33239	2.88714	5.31726	0.000258082	0.151323	1.331165	0*	0.530501	0.0628741	0.0628741	0.0628741	1.24979E-07	1.33087	0.0408228	0.0408228	9.39012E-05	7.15144E-06	0.488378	3.53596E-06	8.14637E-08	0.530501	8.14637E-08	0*	8.14415E-08	8.14637E-08	8.14415E-08	8.14415E-08
nC5	1.22016	1.22121	1.22121	2.85618	5.71050	0.000136031	0.209414	1.220433	0*	0.613192	0.0689482	0.0689482	0.0689482	2.04120E-07	1.22016	0.0471860	0.0471860	0.000140223	1.06893E-05	0.564503	3.86601E-06	1.32466E-07	0.613192	1.32466E-07	0*	1.32430E-07	1.32466E-07	1.32430E-07	1.32430E-07
i-Hexane	0.663401	0.663516	0.663516	1.52954	3.64891	7.21342E-05	0.278571	0.663549	0*	0.525952	0.0520097	0.0520097	0.0520097	1.18117E-06	0.663403	0.0404734	0.0404734	0.000412027	3.17526E-05	0.484191	2.94918E-06	7.60872E-07	0.525952	7.60872E-07	0*	7.60665E-07	7.60872E-07	7.60665E-07	7.60665E-07
Hexane	0.335740	0.335675	0.335675	0.767721	1.89388	1.83481E-05	0.193616	0.335814	0*	0.318415	0.0302610	0.0302610	0.0302610	1.02355E-06	0.335740	0.0245031	0.0245031	0.000317447	2.45251E-05	0.293132	1.16730E-06	6.52399E-07	0.318415	6.52399E-07	0*	6.52222E-07	6.52399E-07	6.52222E-07	6.52222E-07
Benzene	0.197000	0.186114	0.186114	0.700641	18.5497	0.00587298	3.61761	0.19704	0*	4.71362	0.365917	0.365917	0.365917	0.000857914	0.197000	0.363303	0.363303	0.114816	0.00923729	4.33958	0.00290978	0.000632824	4.71362	0.000632824	0*	0.000632651	0.000632824	0.000632651	0.000632651
Cyclohexane	0.288705	0.286790	0.286790	0.824623	4.63174	0.000228866	0.751810	0.288769	0*	1.03660	0.0855475	0.0855475	0.0855475	1.56563E-05	0.288705	0.0797770	0.0797770	0.00348607	0.000272340	0.954290	2.74284E-05	1.04262E-05	1.03660	1.04262E-05	0*	1.04233E-05	1.04262E-05	1.04233E-05	1.04233E-05
i-Heptane	0.511219	0.510774	0.510774	1.14539	2.40157	2.05423E-05	0.492204	0.511333	0*	0.632351	0.0571577	0.0571577	0.0571577	1.33571E-06	0.511220	0.0486610	0.0486610	0.000525731	4.04137E-05	0.582141	1.05691E-06	8.61087E-07	0.632351	8.61087E-07	0*	8.60853E-07	8.61087E-07	8.60853E-07	8.60853E-07
n-Heptane	0.112341	0.112149	0.112149	0.248942	0.516070	3.08738E-06	0.152071	0.112366	0*	0.178788	0.0155804	0.0155804	0.0155804	6.39670E-07	0.112341	0.0137584	0.0137584	0.000220991	1.70354E-05	0.164592	3.51110E-07	4.13368E-07	0.178788	4.13368E-07	0*	4.13255E-07	4.13368E-07	4.13255E-07	4.13255E-07
Toluene	0.107284	0.0977644	0.0977644	0.330773	6.96322	0.00198391	3.85611	0.10731	0*	4.08417	0.316024	0.316024	0.316024	0.00236073	0.107284	0.315909	0.315909	0.230881	0.0190281	3.76005	0.00211643	0.00176240	4.08417	0.00176240	0*	0.00176192	0.00176240	0.00176192	0.00176192
i-Octane	0.433464	0.432798	0.432798	0.959305	2.00303	1.10371E-05	0.552325	0.433561	0*	0.658807	0.0577367	0.0577367	0.0577367	2.26883E-06	0.433466	0.0506974	0.0506974	0.000829211	6.38604E-05	0.606496	1.46529E-06	1.48551E-06	0.658807	1.48551E-06	0*	1.48511E-06	1.48551E-06	1.48511E-06	1.48511E-06
n-Octane	0.0213072	0.0212324	0.0212324	0.0423024	0.0591913	2.28570E-07	0.0498002	0.0213119	0*	0.0504895	0.00418314	0.00418314	0.00418314	4.60679E-07	0.0213072	0.00388551	0.00388551	0.000125269	9.71583E-06	0.0464805	6.48573E-08	2.98388E-07	0.0504895	2.98388E-07	0*	2.98307E-07	2.98388E-07	2.98307E-07	2.98307E-07
Ethylbenzene	0.0136754	0.0120688	0.0120688	0.0339289	0.396084	0.000145039	0.711868	0.013678	0*	0.688690	0.0535948	0.0535948	0.0535948	0.00109012	0.0136754	0.0537483	0.0537483	0.0781891	0.00664615	0.634025	0.000237036	0.000815503	0.688690	0.000815503	0*	0.000815281	0.000815503	0.000815281	0.000815281
m-Xylene	0.0209091	0.0183838	0.0183838	0.0521377	0.667217	0.000171012	1.11490	0.02091	0*	1.08204	0.0842556	0.0842556	0.0842556	0.00177810	0.0209092	0.0845063	0.0845063	0.129041	0.0109682	0.996153	0.000367443	0.00134545	1.08204	0.00134545	0*	0.00134508	0.00134545	0.00134508	0.00134508
o-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
Nonane	0.0361221	0.0358936	0.0358936	0.0625324	0.0687643	1.77832E-07	0.134036	0.036130	0*	0.129245	0.0103548	0.0103548	0.0103548	3.13434E-06	0.0361222	0.00994740	0.00994740	0.000624167	4.88922E-05	0.118982	5.12439E-08	2.00824E-06	0.129245	2.00824E-06	0*	2.00769E-06	2.00824E-06	2.00769E-06	2.00769E-06
Decane	0.0119386	0.0118182	0.0118182	0.0177752	0.0130974	1.54525E-08	0.0657058	0.0119412	0*	0.0618443	0.00486252	0.00486252	0.00486252	4.58089E-06	0.0119386	0.00476170	0.00476170	0.000657327	5.22363E-05	0.0569337	1.09607E-08	2.92236E-06	0.0618443	2.92236E-06	0*	2.92156E-06	2.92236E-06	2.92156E-06	2.92156E-06
TEG	0	0.000738506	0.000738506	0.00104945	6.30238E-10	0	0.000232679	0.000000000	0*	0.000215601	90.6933	90.6933	90.6933	99.0204	0	91.4014	91.4014	38.8039	94.4834	0.0152119	0.189081	99.0212	0.000215601	99.0212	99.9*	99.0214	99.0212	99.0214	99.0214
H2O	0.206348	0.0125273	0.0125273	0.613252	4.22005	99.8967	87.4484	0.1841	100*	81.3395	7.10777	7.10777	7.10777	0.973486	0.206085	7.15848	7.15848	60.6356	5.47017	82.8057	99.8052	0.974271	81.3395	0.974271	0.1*	0.974032	0.974271	0.974032	0.974032
Sulfur Dioxide	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
□ass Flow	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□
Hydrogen Sulfide	1.00000	0.993958	0.993958	0.00119316	0.00457716	1.19823E-07	0.000276472	1.000004921	0*	0.00485363	0.00604684	0.00604684	0.00604684	0	1.00000	0.00485368	0.00485368	3.17760E-06	3.22795E-06	0.00485394	3.08731E-07	5.03491E-08	0.00485363	5.03491E-08	0*	0	0	0	0
N2	4002.61	4002.43	4002.43	0.173715	0.00418224	6.88677E-06	4.09092E-06	4.00261E+03	0*	0.00418634	0.177901	0.177901	0.177901	0	4002.61	0.00418634	0.00418634	1.24776E-09	1.24875E-09	0.00418634	3.64980E-09	9.90539E-13	0.00418634	9.90539E-13	0*	0	0	0	0
C1	120688	120669	120669	16.8941	1.54182	0.000357443	0.00504403	###########	0*	1.54686	18.4410	18.4410	18.4410	0	120688	1.54686	1.54686	3.17333E-06	3.17871E-06	1.54686	2.53557E-06	5.37259E-09	1.54686	5.37259E-09	0*	0	0	0	0
CO2	0.0339082	0.0338609	0.0338609	2.51723E-05	2.17055E-05	1.47958E-09	3.96063E-07	3.39082E-02	0*	2.21015E-05	4.72738E-05	4.72738E-05	4.72738E-05	0	0.0339082	2.21016E-05	2.21016E-05	9.94426E-10	9.99684E-10	2.21020E-05	4.22048E-10	5.25815E-12	2.21015E-05	5.25815E-12	0*	0	0	0	0
C2	31315.8	31302.4	31302.4	10.2391	3.14916	8.65307E-05	0.0502156	###########	0*	3.19937	13.4384	13.4384	13.4384	0	31315.8	3.19937	3.19937	3.73766E-05	3.75036E-05	3.19938	5.16944E-06	1.26957E-07	3.19937	1.26957E-07	0*	0	0	0	0
C3	19762.1	19748.5	19748.5	8.55469	4.81508	2.99076E-05	0.218896	19762.063449	0*	5.03398	13.5887	13.5887	13.5887	0	19762.1	5.03398	5.03398	0.000156617	0.000157415	5.03398	5.92567E-06	7.98431E-07	5.03398	7.98431E-07	0*	0	0	0	0
iC4	3490.50	3487.73	3487.73	1.55020	1.11714	2.38937E-06	0.100598	3490.501314	0*	1.21774	2.76794	2.76794	2.76794	0	3490.50	1.21774	1.21774	6.03726E-05	6.07620E-05	1.21774	6.25608E-07	3.89463E-07	1.21774	3.89463E-07	0*	0	0	0	0
C4	7628.17	7619.33	7619.33	4.07084	4.19203	8.46640E-06	0.583578	7628.173791	0*	4.77561	8.84645	8.84645	8.84645	4.93806E-06	7628.17	4.77561	4.77561	0.000419089	0.000422338	4.77561	5.48089E-06	3.24866E-06	4.77561	3.24866E-06	0*	0	0	0	0
iC5	2632.28	2628.41	2628.41	1.37782	1.83567	1.34537E-06	0.659492	2632.284543	0*	2.49517	3.87299	3.87299	3.87299	7.05301E-06	2632.28	2.49517	2.49517	0.000431760	0.000436356	2.49517	1.43445E-06	4.59606E-06	2.49517	4.59606E-06	0*	4.59606E-06	0	4.59606E-06	4.59606E-06
nC5	2413.32	2409.07	2409.07	1.36305	1.97143	7.09121E-07	0.912664	2413.319986	0*	2.88409	4.24715	4.24715	4.24715	1.15193E-05	2413.32	2.88410	2.88410	0.000644751	0.000652224	2.88410	1.56834E-06	7.47354E-06	2.88409	7.47354E-06	0*	7.47354E-06	0	7.47354E-06	7.47354E-06
i-Hexane	1312.12	1308.92	1308.92	0.729940	1.25971	3.76033E-07	1.21406	1312.12104	0*	2.47377	3.20375	3.20375	3.20375	6.66580E-05	1312.12	2.47381	2.47381	0.00189451	0.00193744	2.47377	1.19641E-06	4.29273E-05	2.47377	4.29273E-05	0*	4.29273E-05	0	4.29273E-05	4.29273E-05
Hexane	664.049	662.185	662.185	0.366378	0.653823	9.56479E-08	0.843816	664.049256	0*	1.49764	1.86405	1.86405	1.86405	5.77629E-05	664.049	1.49768	1.49768	0.00145963	0.00149644	1.49764	4.73544E-07	3.68074E-05	1.49764	3.68074E-05	0*	3.68074E-05	0	3.68074E-05	3.68074E-05
Benzene	389.640	367.148	367.148	0.334365	6.40391	3.06156E-05	15.7662	389.6395	0*	22.1701	22.5402	22.5402	22.5402	0.0484152	389.640	22.2058	22.2058	0.527925	0.563628	22.1713	0.00118042	0.0357030	22.1701	0.0357030	0*	0.0357030	0	0.0357030	0.0357030
Cyclohexane	571.020	565.751	565.751	0.393533	1.59901	1.19307E-06	3.27653	571.02022	0*	4.87554	5.26966	5.26966	5.26966	0.000883544	571.020	4.87613	4.87613	0.0160290	0.0166172	4.87555	1.11270E-05	0.000588228	4.87554	0.000588228	0*	0.000588228	0	0.000588228	0.000588228
i-Heptane	1011.12	1007.60	1007.60	0.546613	0.829093	1.07086E-07	2.14512	1011.12439	0*	2.97421	3.52087	3.52087	3.52087	7.53789E-05	1011.12	2.97426	2.97426	0.00241732	0.00246590	2.97421	4.28762E-07	4.85813E-05	2.97421	4.85813E-05	0*	4.85813E-05	0	4.85813E-05	4.85813E-05
n-Heptane	222.196	221.236	221.236	0.118802	0.178162	1.60943E-08	0.662753	222.195575	0*	0.840916	0.959741	0.959741	0.959741	3.60990E-05	222.196	0.840939	0.840939	0.00101612	0.00103944	0.840916	1.42436E-07	2.33216E-05	0.840916	2.33216E-05	0*	2.33216E-05	0	2.33216E-05	2.33216E-05
Toluene	212.193	192.860	192.860	0.157854	2.40391	1.03421E-05	16.8056	212.1934	0*	19.2095	19.4668	19.4668	19.4668	0.133225	212.193	19.3090	19.3090	1.06160	1.16103	19.2104	0.000858583	0.0994320	19.2095	0.0994320	0*	0.0994320	0	0.0994320	0.0994320
i-Octane	857.336	853.780	853.780	0.457807	0.691505	5.75357E-08	2.40713	857.33644	0*	3.09864	3.55653	3.55653	3.55653	0.000128038	857.336	3.09872	3.09872	0.00381273	0.00389654	3.09864	5.94431E-07	8.38103E-05	3.09864	8.38103E-05	0*	8.38103E-05	0	8.38103E-05	8.38103E-05
n-Octane	42.1428	41.8851	41.8851	0.0201879	0.0204346	1.19153E-09	0.217038	42.142789	0*	0.237473	0.257678	0.257678	0.257678	2.59978E-05	42.1428	0.237490	0.237490	0.000575992	0.000592827	0.237473	2.63109E-08	1.68346E-05	0.237473	1.68346E-05	0*	1.68346E-05	0	1.68346E-05	1.68346E-05
Ethylbenzene	27.0481	23.8082	23.8082	0.0161918	0.136740	7.56082E-07	3.10245	27.04807	0*	3.23919	3.30139	3.30139	3.30139	0.0615194	27.0481	3.28520	3.28520	0.359515	0.405525	3.23929	9.61594E-05	0.0460095	3.23919	0.0460095	0*	0.0460095	0	0.0460095	0.0460095
m-Xylene	41.3555	36.2658	36.2658	0.0248816	0.230342	8.91477E-07	4.85894	41.35554	0*	5.08928	5.19007	5.19007	5.19007	0.100345	41.3555	5.16519	5.16519	0.593334	0.669242	5.08943	0.000149062	0.0759081	5.08928	0.0759081	0*	0.0759081	0	0.0759081	0.0759081
o-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0
Nonane	71.4449	70.8072	70.8072	0.0298422	0.0237394	9.27028E-10	0.584152	71.444909	0*	0.607891	0.637847	0.637847	0.637847	0.000176882	71.4449	0.608005	0.608005	0.00286994	0.00298324	0.607891	2.07883E-08	0.000113302	0.607891	0.000113302	0*	0.000113302	0	0.000113302	0.000113302
Decane	23.6129	23.3137	23.3137	0.00848283	0.00452161	8.05534E-11	0.286358	23.612941	0*	0.290879	0.299527	0.299527	0.299527	0.000258516	23.6129	0.291044	0.291044	0.00302241	0.00318728	0.290879	4.44646E-09	0.000164875	0.290879	0.000164875	0*	0.000164875	0	0.000164875	0.000164875
TEG	0	1.45685	1.45685	0.000500826	2.17576E-10	0	0.00101406	0.00000000	0*	0.00101406	5586.63	5586.63	5586.63	5588.09	0	5586.63	5586.63	178.421	5765.05	0.0777191	0.0767050	5586.63	0.00101406	5586.63	1.53636*	5588.17	0	5588.17	5588.17
H2O	408.129	24.7126	24.7126	0.292661	1.45688	0.520757	381.116	364.058	44.0711*	382.573	437.833	437.833	437.833	54.9374	407.608	437.540	437.540	278.804	333.771	423.062	40.4884	54.9669	382.573	54.9669	0.00153790*	54.9685	0	54.9685	54.9685
Sulfur Dioxide	0	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0*	0	0	0	0

Process Streams	□9	□10	□11	To Process Flare	To Process Flare □eader	To Slop oil □eader	To Slops	1	2	3	□	□	□	□	□	10	11	12	13	1□	1□	1□	1□	1□	19	20	21	22	2□
Properties Status□	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed
Phase: **Total** From □loc□	SAT□1	TO□□0□	□E 210	□S 1109	□lowcase	FI 1009	□lowcase	□as to TE□	□□	□TE□	TO□□0□	Reflu□ Coil	LC□32	RC□L□1	FI 1009	□S 1109	□E 211	□T□02	TE□ Still	TE□ Still	TE□ Condensor	□T□02	TE□ Condensor	□E 211	□□	TE□ □a□eup	TE□ □a□eup	P□□13A/□	□E 210
To □loc□	FI 1009	□E 210	□□	□□	□□	□□	□□	SAT□1	SAT□1	□lowcase	Reflu□ Coil	LC□32	□S 1109	TO□□0□	TO□□0□	□E 211	TE□ Still	TE□ Still	□T□02	TE□ Condensor	TE□ Still	□E 211	□TE□	TE□ □a□eup	TE□ □a□eup	P□□13A/□	□□	□E 210	RC□L□1
Property □nits																													
Temperature °F	119.930	123.042	125.397	135.743	120	119.813	120	119.9304208	525.412	120*	122.311	133.009	135.743	123.249	119.813	135.743	300*	395.000	283.614	210.824	209.311	395.000	209.311	212.506	100*	212.477		214.070	123.286
Pressure psig	837.999	830.999	828.999	75	0.0500000	835.999	0.0500000	837.9985065	837.999	0.0500000	835.999	830.999	75*	840.993	835.999	75	73	0.55	0.55	0.0500000	0.0500000	0.55	0.0500000	-1.45	10*	-1.45	-1.45	842.999*	840.999
Molecular Wei lb/lbmol	20.8241	20.8228	20.8228	26.8152	49.0006	18.0172	20.0143	20.8248	18.0153	20.9228	95.4809	95.4809	95.4809	140.159	20.8241	97.4288	97.4288	27.5468	107.147	20.6613	18.0461	140.152	20.9228	140.152	149.079	140.155	140.152	140.155	140.155
Mass Flow lb/h	197787	197270	197270	47.7228	34.5229	0.521296	435.818	197742.979	44.0711	470.341	6159.92	6159.92	6159.92	5643.37	197787	6112.20	6112.20	459.802	6101.66	510.909	40.5674	5641.85	470.341	5641.85	1.53790	5643.39	0	5643.39	5643.39
Std Vapor Volu MMSCFD	86.5043	86.2831	86.2831	0.0162088	0.00641668	0.000263513	0.198321	86.481970	0.0222801	0.204738	0.587575	0.587575	0.587575	0.366710	86.5040	0.571366	0.571366	0.152022	0.518650	0.225212	0.0204738	0.366628	0.204738	0.366628	9.39538E-05	0.366722	0	0.366722	0.366722
Std Liquid Volu sgpm	1138.90	1137.65	1137.65	0.241936	0.116062	0.00104418	0.895589	1138.815586	0.0881014	1.01165	11.2509	11.2509	11.2509	10	1138.90	11.0089	11.0089	0.879019	10.8763	1.09273	0.0810803	9.99728	1.01165	9.99728	0.00272201	10*	0	10	10
API Gravity						10.0548	13.7790				-3.22609			-6.80886		-4.70766			-5.78558		9.95588	-6.69031		-6.69003	-7.08511	-6.69012		-6.80975	-6.80947
Gross Ideal Ga: Btu/ft^3	1238.83	1241.12	1241.12	1569.88	2551.32	51.3754	174.351	1239.135	50.3100	248.847	2513.41	2513.41	2513.41	3819.98	1238.83	2540.18	2540.18	348.035	2802.14	230.887	51.2860	3819.73	248.847	3819.73	4095.08	3819.80	3819.73	3819.80	3819.80

Process Streams		De□y Feed □□SS
Composition	**Status□**	**Sol□ed**
Phase: **Total**	**From □loc□□**	**□FS3**
	To □loc□□	**□**
Std □apor □olumetric Flow		**□□SCFD**
Hydrogen Sulfide		0.00864747
N2		1.30120
C1		68.5027
CO2		7.01659E-06
C2		9.48445
C3		4.08136
IC4		0.546908
C4		1.19522
IC5		0.332256
nC5		0.304617
i-Hexane		0.138663
Hexane		0.0701755
Benzene		0.0454270
Cyclohexane		0.0617898
i-Heptane		0.0918960
n-Heptane		0.0201942
Toluene		0.0209729
i-Octane		0.0683510
n-Octane		0.00335983
Ethylbenzene		0.00232019
m-Xylene		0.00354749
o-Xylene		0
p-Xylene		0
Nonane		0.00507300
Decane		0.00151137
TEG		0
H2O		0.184034
Sulfur Dioxide		0
□ole Fraction		**%**
Hydrogen Sulfide		0.01
N2		1.50472
C1		79.2171
CO2		8.11404E-06
C2		10.9679
C3		4.71972
IC4		0.632448
C4		1.38216
IC5		0.384223
nC5		0.352261
i-Hexane		0.160350
Hexane		0.0811515
Benzene		0.0525322
Cyclohexane		0.0714542
i-Heptane		0.106269
n-Heptane		0.0233528
Toluene		0.0242533
i-Octane		0.0790416
n-Octane		0.00388533
Ethylbenzene		0.00268308
m-Xylene		0.00410234
o-Xylene		0
p-Xylene		0
Nonane		0.00586646
Decane		0.00174775
TEG		0
H2O		0.212818
Sulfur Dioxide		0
□ass Fraction		**%**
Hydrogen Sulfide		0.0163642
N2		2.02398
C1		61.0201
CO2		1.71462E-05
C2		15.8353
C3		9.99297
IC4		1.76502
C4		3.85730
IC5		1.33105
nC5		1.22033
i-Hexane		0.663493
Hexane		0.335786
Benzene		0.197027
Cyclohexane		0.288745
i-Heptane		0.511290
n-Heptane		0.112356
Toluene		0.107299
i-Octane		0.433525
n-Octane		0.0213101
Ethylbenzene		0.0136773
m-Xylene		0.0209120
o-Xylene		0
p-Xylene		0
Nonane		0.0361272
Decane		0.0119402
TEG		0
H2O		0.184091
Sulfur Dioxide		0
□ass Flow		**l□/□**
Hydrogen Sulfide		32.3590
N2		4002.27
C1		120663
CO2		0.0339053
C2		31313.2
C3		19760.4
IC4		3490.21
C4		7627.53
IC5		2632.06
nC5		2413.12
i-Hexane		1312.01
Hexane		663.994
Benzene		389.607
Cyclohexane		570.972
i-Heptane		1011.04
n-Heptane		222.177
Toluene		212.176
i-Octane		857.264
n-Octane		42.1393
Ethylbenzene		27.0458
m-Xylene		41.3521
o-Xylene		0
p-Xylene		0
Nonane		71.4389
Decane		23.6110
TEG		0
H2O		364.027
Sulfur Dioxide		0

Process Streams		De□y Feed □□SS
Properties	**Status□**	**Sol□ed**
Phase: **Total**	**From □loc□□**	**□FS3**
	To □loc□□	**□**
Property	**□nits**	
Temperature	°F	119.535
Pressure	psig	837.999
Molecular Weight	lb/lbmol	20.8265
Mass Flow	lb/h	197743
Std Vapor Volumetric Flow	MMSCFD	86.4747
Std Liquid Volumetric Flow	sgpm	1138.70
API Gravity		
Gross Ideal Gas Heating Value	Btu/ft^3	1239.10

Amine Treating System



Process Streams	□□	□□	□□	Feed □as	off flas□	off still	To Flare	□ater	1	2	□	□	□	9	1□
Composition — Status□	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed
Phase: Total — From □loc□□	SAT□1	T□□21	FA□R□100	□FS2	Amine Flas□ Tan□	A□322	PC□□22	□□	□SSL□100	□SSL□100	PC□□322	FC□□01	T□□21	P□□21/□22	□
To □loc□□	□SSL□100	FA□R□100	□□2□	SAT□1	PC□□22	PC□□322	□□	SAT□1	T□□21	□□	To Acid □as In□ection	T□□21	LC□□21	E□222	Amine Flas□ Tan□
Std □apor □olumetric Flow	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD
Hydrogen Sulfide	1.12506	0.000267548	0.000267548	1.12506	0.00148	1.10591	0.00148087	0*	1.10766	0.0174035	1.10591	0.0508715	1.15826	0.0508702	1.15826
N2	1.30355	1.30131	1.30131	1.30355	0.00048	1.69861E-05	0.000477509	0*	1.30181	0.00174061	1.69861E-05	0	0.000494493	0	0.000494495
C1	68.8269	68.5169	68.5169	68.8269	0.0727	0.00943693	0.0726978	0*	68.5990	0.227859	0.00943693	0	0.0821344	0	0.0821347
CO2	1.39692	7.15118E-06	7.15118E-06	1.39692	0.00045	1.38679	0.000450890	0*	1.38725	0.00967464	1.38679	0.0189661	1.40621	0.0189661	1.40621
C2	9.62076	9.48525	9.48525	9.62076	0.01275	0.00288159	0.0127501	0*	9.50088	0.119880	0.00288159	0	0.0156317	0	0.0156317
C3	4.21224	4.08171	4.08171	4.21224	0.00392	0.000743957	0.00391578	0*	4.08637	0.125871	0.000743957	0	0.00465971	0	0.00465973
iC4	0.578436	0.546954	0.546954	0.578436	0.000363	5.49402E-05	0.000363425	0*	0.547372	0.0310638	5.49402E-05	0	0.000418364	0	0.000418365
C4	1.28796	1.19532	1.19532	1.28796	0.00108	0.000241035	0.00108039	0*	1.19664	0.0913202	0.000241035	0	0.00132142	0	0.00132142
iC5	0.379509	0.332283	0.332283	0.379509	0.000143	1.69456E-05	0.000142903	0*	0.332443	0.0470661	1.69456E-05	0	0.000159848	0	0.000159848
nC5	0.358430	0.304643	0.304643	0.358430	0.000164	2.48745E-05	0.000164192	0*	0.304832	0.0535978	2.48745E-05	0	0.000189066	0	0.000189066
Hexane	0.100674	0.0701814	0.0701814	0.100674	0.000027	3.51792E-06	2.72038E-05	0*	0.0702121	0.0304617	3.51792E-06	0	3.07216E-05	0	3.07217E-05
H2O	0.109777	0.184371	0.184371	0	0.00283744	0.187853	0.00283744	0.109777*	0.108862	0.000915289	0.187853	55.6006	55.5251	55.3347	55.5254
TEG	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Piperazine	0	3.99379E-05	3.99379E-05	0	5.7516E-08	8.23258E-15	5.75160E-08	0*	0	0	8.23258E-15	0.233174	0.233134	0.233135	0.233135
UCARSOL™ AP-814	0	0.000405525	0.000405525	0	8.21052E-07	8.76179E-14	8.21052E-07	0*	0	0	8.76179E-14	8.81309	8.81268	8.81272	8.81272
i-Hexane	0.185911	0.138674	0.138674	0.185911	0.000058	7.49668E-06	5.75758E-05	0*	0.138739	0.0471721	7.49668E-06	0	6.50722E-05	0	6.50724E-05
Benzene	0.0719703	0.0454309	0.0454309	0.0719703	0.0001921	0.00374869	0.000192052	0*	0.0493716	0.0225987	0.00374869	0	0.00394073	0	0.00394074
Cyclohexane	0.0962095	0.0617950	0.0617950	0.0962095	0.0000948	7.25519E-05	9.47522E-05	0*	0.0619623	0.0342472	7.25519E-05	0	0.000167304	0	0.000167304
i-Heptane	0.158819	0.0919038	0.0919038	0.158819	0.000018	1.31337E-06	1.83668E-05	0*	0.0919234	0.0668955	1.31337E-06	0	1.96801E-05	0	1.96801E-05
Toluene	0.0474252	0.0209747	0.0209747	0.0474252	0.0000753	0.00162503	7.52602E-05	0*	0.0226750	0.0247502	0.00162503	0	0.00170028	0	0.00170029
i-Octane	0.129890	0.0683568	0.0683568	0.129890	0.000011	6.99426E-07	1.10687E-05	0*	0.0683685	0.0615219	6.99426E-07	0	1.17681E-05	0	1.17681E-05
n-Octane	0.0104679	0.00336011	0.00336011	0.0104679	0.0000006	5.06141E-08	6.02151E-07	0*	0.00336076	0.00710716	5.06141E-08	0	6.52763E-07	0	6.52765E-07
Ethylbenzene	0.00854175	0.00232038	0.00232038	0.00854175	0.00000639	0.000124864	6.39276E-06	0*	0.00245164	0.00609011	0.000124864	0	0.000131256	0	0.000131257
m-Xylene	0.0140412	0.00354779	0.00354779	0.0140412	0.0000103	0.000283944	1.03239E-05	0*	0.00384205	0.0101992	0.000283944	0	0.000294267	0	0.000294268
o-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Nonane	0.0302157	0.00507343	0.00507343	0.0302157	0.0000004	1.45413E-08	3.65079E-07	0*	0.00507381	0.0251419	1.45413E-08	0	3.79620E-07	0	3.79621E-07
Decane	0.0169845	0.00151149	0.00151149	0.0169845	0.0000000	4.79701E-10	3.34858E-08	0*	0.00151153	0.0154730	4.79701E-10	0	3.39654E-08	0	3.39655E-08
n-Heptane	0.0391354	0.0201959	0.0201959	0.0391354	0.0000038	2.69086E-07	3.78498E-06	0*	0.0202000	0.0189354	2.69086E-07	0	4.05405E-06	0	4.05406E-06
□ole Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Hydrogen Sulfide	1.24855	0.000309365	0.000309365	1.25007	1.52888	40.9621	1.52888	0*	1.24438	1.58648	40.9621	0.0786065	1.72241	0.0789292	1.72240
N2	1.44662	1.50471	1.50471	1.44839	0.49299	0.000629152	0.492989	0*	1.46250	0.158672	0.000629152	0	0.000735341	0	0.000735341
C1	76.3811	79.2261	79.2261	76.4743	75.0545	0.349536	75.0545	0*	77.0664	20.7714	0.349536	0	0.122139	0	0.122139
CO2	1.55025	8.26891E-06	8.26891E-06	1.55214	0.46551	51.3656	0.465507	0*	1.55848	0.881930	51.3656	0.0293064	2.09112	0.0294275	2.09110
C2	10.6767	10.9678	10.9678	10.6897	13.1635	0.106732	13.1635	0*	10.6736	10.9281	0.106732	0	0.0232452	0	0.0232452
C3	4.67456	4.71968	4.71968	4.68026	4.04272	0.0275556	4.04272	0*	4.59076	11.4742	0.0275556	0	0.00692928	0	0.00692927
iC4	0.641924	0.632443	0.632443	0.642707	0.375207	0.00203494	0.375207	0*	0.614936	2.83174	0.00203494	0	0.000622133	0	0.000622131
C4	1.42932	1.38215	1.38215	1.43107	1.11541	0.00892773	1.11541	0*	1.34435	8.32465	0.00892773	0	0.00196503	0	0.00196502
iC5	0.421163	0.384219	0.384219	0.421677	0.147536	0.000627650	0.147536	0*	0.373478	4.29050	0.000627650	0	0.000237704	0	0.000237703
nC5	0.397770	0.352258	0.352258	0.398255	0.169515	0.000921333	0.169515	0*	0.342458	4.88592	0.000921333	0	0.000281152	0	0.000281152
Hexane	0.111724	0.0811508	0.0811508	0.111860	0.028086	0.000130301	0.0280857	0*	0.0788787	2.77686	0.000130301	0	4.56849E-05	0	4.56848E-05
H2O	0.121826	0.213188	0.213188	0	2.929425112	6.95791	2.92943	100*	0.122299	0.0834368	6.95791	85.9138	82.5692	85.8563	82.5692
TEG	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Piperazine	0	4.61803E-05	4.61803E-05	0	5.93806E-05	3.04928E-13	5.93806E-05	0*	0	0	3.04928E-13	0.360299	0.346684	0.361728	0.346684
UCARSOL™ AP-814	0	0.000468908	0.000468908	0	0.00084767	3.24530E-12	0.000847670	0*	0	0	3.24530E-12	13.6180	13.1050	13.6736	13.1050
i-Hexane	0.206317	0.160349	0.160349	0.206568	0.059442	0.000277671	0.0594423	0*	0.155864	4.30016	0.000277671	0	9.67664E-05	0	9.67662E-05
Benzene	0.0798696	0.0525317	0.0525317	0.0799670	0.1982783	0.138849	0.198278	0*	0.0554657	2.06008	0.138849	0	0.00586010	0	0.00586009
Cyclohexane	0.106769	0.0714536	0.0714536	0.106899	0.097824	0.00268727	0.0978239	0*	0.0696105	3.12194	0.00268727	0	0.000248791	0	0.000248790
i-Heptane	0.176251	0.106268	0.106268	0.176466	0.018962	4.86463E-05	0.0189622	0*	0.103270	6.09813	4.86463E-05	0	2.92655E-05	0	2.92654E-05
Toluene	0.0526304	0.0242531	0.0242531	0.0526946	0.0777000	0.0601898	0.0777000	0*	0.0254739	2.25620	0.0601898	0	0.00252843	0	0.00252842
i-Octane	0.144147	0.0790409	0.0790409	0.144323	0.011428	2.59062E-05	0.0114275	0*	0.0768075	5.60827	2.59062E-05	0	1.74999E-05	0	1.74998E-05
n-Octane	0.0116169	0.00388530	0.00388530	0.0116310	0.0006217	1.87470E-06	0.000621672	0*	0.00377560	0.647881	1.87470E-06	0	9.70699E-07	0	9.70696E-07
Ethylbenzene	0.00947927	0.00268306	0.00268306	0.00949083	0.00660000	0.00462486	0.00660000	0*	0.00275426	0.555168	0.00462486	0	0.000195186	0	0.000195185
m-Xylene	0.0155824	0.00410230	0.00410230	0.0156014	0.0106586	0.0105171	0.0106586	0*	0.00431629	0.929747	0.0105171	0	0.000437592	0	0.000437592
o-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Nonane	0.0335321	0.00586640	0.00586640	0.0335730	0.0003769	5.38600E-07	0.000376915	0*	0.00570009	2.29190	5.38600E-07	0	5.64518E-07	0	5.64516E-07
Decane	0.0188487	0.00174774	0.00174774	0.0188717	0.0000346	1.77677E-08	3.45714E-05	0*	0.00169810	1.41050	1.77677E-08	0	5.05086E-08	0	5.05085E-08
n-Heptane	0.0434309	0.0233526	0.0233526	0.0434838	0.0039077	9.96675E-06	0.00390768	0*	0.0226934	1.72614	9.96675E-06	0	6.02862E-06	0	6.02861E-06
□ass Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Hydrogen Sulfide	1.94976	0.000506285	0.000506285	1.95172	2.51608	36.6313	2.51608	0*	1.98572	0.905759	36.6313	0.0863223	1.87215	0.0865279	1.87214
N2	1.85689	2.02409	2.02409	1.85876	0.66688	0.000462466	0.666877	0*	1.91829	0.0744617	0.000462466	0	0.000656974	0	0.000656975
C1	56.1464	61.0311	61.0311	56.2029	58.1420	0.147137	58.1420	0*	57.8881	5.58217	0.147137	0	0.0624911	0	0.0624911
CO2	3.12617	1.74746E-05	1.74746E-05	3.12931	0.98927	59.3168	0.989270	0*	3.21145	0.650200	59.3168	0.0415587	2.93507	0.0416589	2.93506
C2	14.7103	15.8362	15.8362	14.7251	19.1131	0.0842116	19.1131	0*	15.0274	5.50466	0.0842116	0	0.0222919	0	0.0222919
C3	9.44498	9.99356	9.99356	9.45449	8.60818	0.0318833	8.60818	0*	9.47836	8.47589	0.0318833	0	0.00974490	0	0.00974489
iC4	1.70958	1.76513	1.76513	1.71130	1.05306	0.00310351	1.05306	0*	1.67350	2.75716	0.00310351	0	0.00115324	0	0.00115324
C4	3.80660	3.85752	3.85752	3.81043	3.13054	0.0136158	3.13054	0*	3.65852	8.10540	0.0136158	0	0.00364254	0	0.00364254
iC5	1.39234	1.33113	1.33113	1.39374	0.51401	0.00118824	0.514006	0*	1.26167	5.18565	0.00118824	0	0.000546964	0	0.000546963
nC5	1.31500	1.22040	1.22040	1.31632	0.59058	0.00174423	0.590580	0*	1.15688	5.90530	0.00174423	0	0.000646940	0	0.000646940
Hexane	0.441157	0.335806	0.335806	0.441601	0.116872	0.000294639	0.116872	0*	0.318270	4.00870	0.000294639	0	0.000125560	0	0.000125559
H2O	0.100565	0.184423	0.184423	0	2.548389	3.28911	2.54839	100*	0.103162	0.0251805	3.28911	49.8721	47.4409	49.7532	47.4409
TEG	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Piperazine	0	0.000191008	0.000191008	0	0.000246984	6.89190E-13	0.000246984	0*	0	0	6.89190E-13	1	0.952381	1.00224	0.952382
UCARSOL™ AP-814	0	0.00205503	0.00205503	0	0.004065468	7.88111E-12	0.00406547	0*	0	0	7.88111E-12	49	46.6729	49.1164	46.6729
i-Hexane	0.814671	0.663532	0.663532	0.815491	0.247355	0.000627874	0.247355	0*	0.628902	6.20775	0.000627874	0	0.000265951	0	0.000265951
Benzene	0.285867	0.197038	0.197038	0.286154	0.747884	0.284588	0.747884	0*	0.202859	2.69567	0.284588	0	0.0145988	0	0.0145987
Cyclohexane	0.411731	0.288761	0.288761	0.412146	0.397549	0.00593435	0.397549	0*	0.274303	4.40143	0.00593435	0	0.000667776	0	0.000667775
i-Heptane	0.809229	0.511320	0.511320	0.810044	0.091750	0.000127904	0.0917501	0*	0.484510	10.2362	0.000127904	0	9.35245E-05	0	9.35244E-05
Toluene	0.222199	0.107305	0.107305	0.222423	0.345704	0.145520	0.345704	0*	0.109898	3.48245	0.145520	0	0.00742993	0	0.00742992
i-Octane	0.754475	0.433550	0.433550	0.755234	0.063033	7.76492E-05	0.0630332	0*	0.410801	10.7317	7.76492E-05	0	6.37534E-05	0	6.37533E-05
n-Octane	0.0608034	0.0213114	0.0213114	0.0608646	0.0034291	5.61910E-06	0.00342908	0*	0.0201936	1.23976	5.61910E-06	0	3.53633E-06	0	3.53632E-06
Ethylbenzene	0.0461128	0.0136781	0.0136781	0.0461592	0.0338351	0.0128836	0.0338351	0*	0.0136911	0.987353	0.0128836	0	0.000660881	0	0.000660881
m-Xylene	0.0758018	0.0209133	0.0209133	0.0758781	0.0546415	0.0292978	0.0546415	0*	0.0214558	1.65353	0.0292978	0	0.00148165	0	0.00148165
o-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Nonane	0.197061	0.0361293	0.0361293	0.197259	0.002334	1.81259E-06	0.00233432	0*	0.0342302	4.92422	1.81259E-06	0	2.30912E-06	0	2.30911E-06
Decane	0.122884	0.0119409	0.0119409	0.123008	0.000238	6.63346E-08	0.000237524	0*	0.0113127	3.36193	6.63346E-08	0	2.29197E-07	0	2.29196E-07
n-Heptane	0.199407	0.112363	0.112363	0.199607	0.018908	2.62053E-05	0.0189076	0*	0.106470	2.89746	2.62053E-05	0	1.92658E-05	0	1.92658E-05
□ass Flow	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□
Hydrogen Sulfide	4210.01	1.00117	1.00117	4210.01	5.54	4138.35	5.54144	0*	4144.88	65.1242	4138.35	190.362	4334.24	190.357	4334.25
N2	4009.48	4002.61	4002.61	4009.48	1.47	0.0522462	1.46873	0*	4004.13	5.35380	0.0522462	0	1.52097	0	1.52098
C1	121234	120688	120688	121234	128	16.6225	128.052	0*	120833	401.359	16.6225	0	144.674	0	144.675
CO2	6750.16	0.0345557	0.0345557	6750.16	2.18	6701.20	2.17877	0*	6703.41	46.7495	6701.20	91.6473	6795.02	91.6475	6795.02
C2	31763.2	31315.8	31315.8	31763.2	42.1	9.51363	42.0949	0*	31367.4	395.785	9.51363	0	51.6083	0	51.6085
C3	20394.0	19762.1	19762.1	20394.0	19.0	3.60195	18.9587	0*	19784.6	609.417	3.60195	0	22.5606	0	22.5606
iC4	3691.41	3490.50	3490.50	3691.41	2.32	0.350613	2.31927	0*	3493.17	198.240	0.350613	0	2.66988	0	2.66989
C4	8219.39	7628.17	7628.17	8219.39	6.89	1.53821	6.89472	0*	7636.61	582.779	1.53821	0	8.43290	0	8.43293
iC5	3006.40	2632.28	2632.28	3006.40	1.13	0.134240	1.13205	0*	2633.55	372.849	0.134240	0	1.26628	0	1.26629
nC5	2839.41	2413.32	2413.32	2839.41	1.30	0.197051	1.30070	0*	2414.82	424.591	0.197051	0	1.49774	0	1.49775
Hexane	952.566	664.049	664.049	952.566	0.257	0.0332862	0.257399	0*	664.340	288.226	0.0332862	0	0.290685	0	0.290686
H2O	217.145	364.694	364.694	0	5.612584785	371.581	5.61258	217.145*	215.334	1.81048	371.581	109980	109831	109455	109832
TEG	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Piperazine	0	0.377714	0.377714	0	0.00054396	7.78599E-11	0.000543960	0*	0	0	7.78599E-11	2205.25	2204.87	2204.88	2204.88
UCARSOL™ AP-814	0	4.06378	4.06378	0	0.008953806	8.90352E-10	0.00895381	0*	0	0	8.90352E-10	108057	108053	108054	108054
i-Hexane	1759.07	1312.12	1312.12	1759.07	0.54	0.0709328	0.544776	0*	1312.74	446.338	0.0709328	0	0.615707	0	0.615709
Benzene	617.256	389.640	389.640	617.256	1.647	32.1508	1.64714	0*	423.437	193.819	32.1508	0	33.7978	0	33.7979
Cyclohexane	889.029	571.020	571.020	889.029	0.876	0.670421	0.875563	0*	572.566	316.463	0.670421	0	1.54598	0	1.54598
i-Heptane	1747.33	1011.12	1011.12	1747.33	0.20	0.0144497	0.202071	0*	1011.34	735.984	0.0144497	0	0.216520	0	0.216521
Toluene	479.783	212.193	212.193	479.783	0.761	16.4398	0.761380	0*	229.395	250.388	16.4398	0	17.2011	0	17.2012
i-Octane	1629.10	857.336	857.336	1629.10	0.14	0.00877226	0.138825	0*	857.484	771.613	0.00877226	0	0.147597	0	0.147597
n-Octane	131.290	42.1428	42.1428	131.290	0.008	0.000634806	0.00755223	0*	42.1510	89.1386	0.000634806	0	0.00818701	0	0.00818704
Ethylbenzene	99.5688	27.0481	27.0481	99.5688	0.0745	1.45550	0.0745187	0*	28.5781	70.9908	1.45550	0	1.53002	0	1.53002
m-Xylene	163.675	41.3556	41.3556	163.675	0.120	3.30986	0.120343	0*	44.7857	118.889	3.30986	0	3.43019	0	3.43020
o-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0*	0	0	0	0	0	0	0
Nonane	425.502	71.4449	71.4449	425.502	0.005	0.000204774	0.00514111	0*	71.4503	354.052	0.000204774	0	0.00534587	0	0.00534589
Decane	265.336	23.6129	23.6129	265.336	0.001	7.49402E-06	0.000523125	0*	23.6135	241.723	7.49402E-06	0	0.000530617	0	0.000530619
n-Heptane	430.568	222.196	222.196	430.568	0.042	0.00296049	0.0416423	0*	222.240	208.328	0.00296049	0	0.0446026	0	0.0446028

Process Streams	1□	1□	1□	19	20	21	23	2□	2□	2□	29	30	31	32	33	3□	3□	□0
Composition — Status□	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed
Phase: Total — From □loc□□	Amine Flas□ Tan□	E□222	E□223	T□□22	T□□22	A□322	E□223	E□222	RC□L□1	Amine □a□eup	□□	Amine □a□eup	A□321	P□□23/□2□	□□2□	LC□□21	LC□□03	□□2□
To □loc□□	E□222	T□□22	T□□22	E□223	A□322	T□□22	P□□21/□22	RC□L□1	Amine □a□eup	A□321	Amine □a□eup	□□	P□□23/□2□	FC□□01	LC□□03	□	□	□as to TE□
Std □apor □olumetric Flow	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD	□□SCFD
Hydrogen Sulfide	1.15678	1.15678	0.0277068	0.0785770	1.11073	0.00481812	0.0508702	0.0508702	0.0508715	0.0508715	0	0	0.0508715	0.0508715	3.10799E-07	1.15826	3.10799E-07	0.000267237
N2	0.00002	1.69861E-05	0	0	1.69867E-05	6.14212E-10	0	0	0	0	0	0	0	0	2.61829E-09	0.000494493	2.61829E-09	1.30131
C1	0.0094	0.00943693	0	0	0.00943758	6.58357E-07	0	0	0	0	0	0	0	0	3.61711E-07	0.0821344	3.61711E-07	68.5169
CO2	1.40576	1.40576	0.0251924	0.0441586	1.38871	0.00192213	0.0189661	0.0189661	0.0189661	0.0189661	0	0	0.0189661	0.0189661	1.34001E-07	1.40621	1.34001E-07	7.01718E-06
C2	0.00288	0.00288159	0	0	0.00288181	2.23937E-07	0	0	0	0	0	0	0	0	6.25622E-08	0.0156317	6.25622E-08	9.48525
C3	0.00074	0.000743957	0	0	0.000744001	4.43470E-08	0	0	0	0	0	0	0	0	1.78355E-08	0.00465971	1.78355E-08	4.08171
iC4	0.000055	5.49402E-05	0	0	5.49423E-05	2.06233E-09	0	0	0	0	0	0	0	0	1.48007E-09	0.000418364	1.48007E-09	0.546954
C4	0.00024	0.000241035	0	0	0.000241048	1.36314E-08	0	0	0	0	0	0	0	0	4.73007E-09	0.00132142	4.73007E-09	1.19532
iC5	0.000017	1.69456E-05	0	0	1.69461E-05	4.83012E-10	0	0	0	0	0	0	0	0	6.12357E-10	0.000159848	6.12357E-10	0.332283
nC5	0.000025	2.48745E-05	0	0	2.48754E-05	8.74957E-10	0	0	0	0	0	0	0	0	7.05871E-10	0.000189066	7.05871E-10	0.304643
Hexane	0.000004	3.51792E-06	0	0	3.51799E-06	6.99468E-11	0	0	0	0	0	0	0	0	1.01835E-10	3.07216E-05	1.01835E-10	0.0701814
H2O	55.5225606	55.5226	15.6521	70.9868	6.38178	6.19393	55.3347	55.3347	55.3347	55.6006	0.265893	0	55.6006	55.6006	0.000321438	55.5251	0.000321438	0.184049
TEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piperazine	0.2331351	0.233135	0.00342322	0.236558	2.38196E-06	2.38196E-06	0.233135	0.233135	0.233135	0.233174	3.87751E-05	0	0.233174	0.233174	1.22875E-06	0.233134	1.22875E-06	3.87092E-05
UCARSOL™ AP-814	8.81271679	8.81272	0.0383337	8.85105	2.38941E-05	2.38941E-05	8.81272	8.81272	8.81272	8.81309	0.000371399	0	8.81309	8.81309	3.52267E-05	8.81268	3.52267E-05	0.000370298
i-Hexane	0.000007	7.49668E-06	0	0	7.49683E-06	1.49318E-10	0	0	0	0	0	0	0	0	2.17431E-10	6.50722E-05	2.17431E-10	0.138674
Benzene	0.0037487	0.00374869	0	0	0.00376873	2.00357E-05	0	0	0	0	0	0	0	0	1.41817E-08	0.00394073	1.41817E-08	0.0454309
Cyclohexane	0.0000726	7.25519E-05	0	0	7.25635E-05	1.15632E-08	0	0	0	0	0	0	0	0	5.91434E-10	0.000167304	5.91434E-10	0.0617950
i-Heptane	0.000001	1.31337E-06	0	0	1.31339E-06	1.50842E-11	0	0	0	0	0	0	0	0	6.66344E-11	1.96801E-05	6.66344E-11	0.0919038
Toluene	0.0016250	0.00162503	0	0	0.00163155	6.51981E-06	0	0	0	0	0	0	0	0	5.69878E-09	0.00170028	5.69878E-09	0.0209747
i-Octane	0.000001	6.99426E-07	0	0	6.99430E-07	4.52601E-12	0	0	0	0	0	0	0	0	3.21527E-11	1.17681E-05	3.21527E-11	0.0683568
n-Octane	0.0000001	5.06141E-08	0	0	5.06146E-08	4.97700E-13	0	0	0	0	0	0	0	0	1.85558E-12	6.52763E-07	1.85558E-12	0.00336011
Ethylbenzene	0.00012486	0.000124864	0	0	0.000125271	4.07580E-07	0	0	0	0	0	0	0	0	4.59242E-10	0.000131256	4.59242E-10	0.00232038
m-Xylene	0.0002839	0.000283944	0	0	0.000285332	1.38841E-06	0	0	0	0	0	0	0	0	1.05716E-09	0.000294267	1.05716E-09	0.00354778
o-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonane	0.0000000	1.45413E-08	0	0	1.45414E-08	6.06967E-14	0	0	0	0	0	0	0	0	1.10349E-12	3.79620E-07	1.10349E-12	0.00507343
Decane	0.0000000	4.79701E-10	0	0	4.79701E-10	7.39406E-16	0	0	0	0	0	0	0	0	1.14320E-13	3.39654E-08	1.14320E-13	0.00151149
n-Heptane	0.0000003	2.69086E-07	0	0	2.69089E-07	3.08668E-12	0	0	0	0	0	0	0	0	1.36482E-11	4.05405E-06	1.36482E-11	0.0201959
□ole Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Hydrogen Sulfide	1.72268	1.72268	0.175952	0.0979797	12.4793	0.0777025	0.0789292	0.0789292	0.0789313	0.0786065	0	0.0789313	0.0786065	0.0786065	0.0866186	1.72241	0.0866186	0.000309007
N2	0.00003	2.52957E-05	0	0	0.000190850	9.90548E-09	0	0	0	0	0	0	0	0	0.000729708	0.000735341	0.000729708	1.50472
C1	0.0141	0.0140535	0	0	0.106033	1.06174E-05	0	0	0	0	0	0	0	0	0.100808	0.122139	0.100808	79.2264
CO2	2.09345	2.09345	0.159985	0.0550625	15.6025	0.0309985	0.0294275	0.0294275	0.0294274	0.0293064	0	0.0294274	0.0293064	0.0293064	0.0373455	2.09112	0.0373455	8.11400E-06
C2	0.0043	0.00429125	0	0	0.0323778	3.61147E-06	0	0	0	0	0	0	0	0	0.0174359	0.0232452	0.0174359	10.9678
C3	0.00111	0.00110790	0	0	0.00835903	7.15190E-07	0	0	0	0	0	0	0	0	0.00497069	0.00692928	0.00497069	4.71970
iC4	0.000082	8.18169E-05	0	0	0.000617290	3.32595E-08	0	0	0	0	0	0	0	0	0.000412491	0.000622133	0.000412491	0.632445
C4	0.00036	0.000358948	0	0	0.00270823	2.19836E-07	0	0	0	0	0	0	0	0	0.00131825	0.00196503	0.00131825	1.38215
iC5	0.000025	2.52353E-05	0	0	0.000190393	7.78961E-09	0	0	0	0	0	0	0	0	0.000170662	0.000237704	0.000170662	0.384221
nC5	0.000037	3.70431E-05	0	0	0.000279481	1.41106E-08	0	0	0	0	0	0	0	0	0.000196724	0.000281152	0.000196724	0.352260
Hexane	0.000005	5.23888E-06	0	0	3.95254E-05	1.12804E-09	0	0	0	0	0	0	0	0	2.83812E-05	4.56849E-05	2.83812E-05	0.0811511
H2O	82.6840867	82.6841	99.3989	88.5154	71.7009	99.8904	85.8563	85.8563	85.8563	85.9138	99.8460	85.8563	85.9138	85.9138	89.5837	82.5692	89.5837	0.212817
TEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piperazine	0.34718433	0.347184	0.0217392	0.294971	2.67619E-05	3.84142E-05	0.361728	0.361728	0.361728	0.360299	0.0145605	0.361728	0.360299	0.360299	0.342449	0.346684	0.342449	4.47596E-05
UCARSOL™ AP-814	13.1238803	13.1239	0.243438	11.0366	0.000268456	0.000385344	13.6736	13.6736	13.6736	13.6180	0.139465	13.6736	13.6180	13.6180	9.81756	13.1050	9.81756	0.000428177
i-Hexane	0.000011	1.11640E-05	0	0	8.42286E-05	2.40808E-09	0	0	0	0	0	0	0	0	6.05974E-05	9.67664E-05	6.05974E-05	0.160350
Benzene	0.0055825	0.00558254	0	0	0.0423425	0.000323118	0	0	0	0	0	0	0	0	0.00395239	0.00586010	0.00395239	0.0525319
Cyclohexane	0.000108	0.000108044	0	0	0.000815268	1.86481E-07	0	0	0	0	0	0	0	0	0.000164831	0.000248791	0.000164831	0.0714538
i-Heptane	0.000002	1.95587E-06	0	0	1.47562E-05	2.43265E-10	0	0	0	0	0	0	0	0	1.85708E-05	2.92655E-05	1.85708E-05	0.106269
Toluene	0.0024200	0.00241999	0	0	0.0183308	0.000105146	0	0	0	0	0	0	0	0	0.00158823	0.00252843	0.00158823	0.0242532
i-Octane	0.000001	1.04158E-06	0	0	7.85826E-06	7.29916E-11	0	0	0	0	0	0	0	0	8.96087E-06	1.74999E-05	8.96087E-06	0.0790413
n-Octane	0.0000001	7.53744E-08	0	0	5.68667E-07	8.02648E-12	0	0	0	0	0	0	0	0	5.17143E-07	9.70699E-07	5.17143E-07	0.00388531
Ethylbenzene	0.00018595	0.000185947	0	0	0.00140745	6.57311E-06	0	0	0	0	0	0	0	0	0.000127989	0.000195186	0.000127989	0.00268307
m-Xylene	0.0004228	0.000422849	0	0	0.00320578	2.23911E-05	0	0	0	0	0	0	0	0	0.000294627	0.000437592	0.000294627	0.00410232
o-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonane	0.0000000	2.16549E-08	0	0	1.63376E-07	9.78863E-13	0	0	0	0	0	0	0	0	3.07539E-07	5.64518E-07	3.07539E-07	0.00586643
Decane	0.0000000	7.14369E-10	0	0	5.38956E-09	1.19245E-14	0	0	0	0	0	0	0	0	3.18606E-08	5.05086E-08	3.18606E-08	0.00174775
n-Heptane	0.0000004	4.00723E-07	0	0	3.02328E-06	4.97793E-11	0	0	0	0	0	0	0	0	3.80371E-06	6.02862E-06	3.80371E-06	0.0233527
□ass Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Hydrogen Sulfide	1.87153	1.87153	0.327959	0.116863	17.6289	0.146823	0.0865279	0.0865279	0.0865302	0.0863223	0	0.0865302	0.0863223	0.0863223	0.108376	1.87215	0.108376	0.000505699
N2	0.00002	2.25888E-05	0	0	0.000221606	1.53848E-08	0	0	0	0	0	0	0	0	0.000750456	0.000656974	0.000750456	2.02411
C1	0.0072	0.00718680	0	0	0.0705080	9.44364E-06	0	0	0	0	0	0	0	0	0.0593710	0.0624911	0.0593710	61.0315
CO2	2.93691	2.93691	0.385070	0.0848070	28.4620	0.0756374	0.0416589	0.0416589	0.0416588	0.0415587	0	0.0416588	0.0415587	0.0415587	0.0603386	2.93507	0.0603386	1.71472E-05
C2	0.0041	0.00411325	0	0	0.0403545	6.02078E-06	0	0	0	0	0	0	0	0	0.0192475	0.0222919	0.0192475	15.8363
C3	0.00156	0.00155732	0	0	0.0152783	1.74850E-06	0	0	0	0	0	0	0	0	0.00804678	0.00974490	0.00804678	9.99361
iC4	0.00015	0.000151589	0	0	0.00148715	1.07179E-07	0	0	0	0	0	0	0	0	0.000880171	0.00115324	0.000880171	1.76514
C4	0.00067	0.000665052	0	0	0.00652458	7.08420E-07	0	0	0	0	0	0	0	0	0.00281288	0.00364254	0.00281288	3.85754
iC5	0.00006	5.80389E-05	0	0	0.000569382	3.11597E-08	0	0	0	0	0	0	0	0	0.000452039	0.000546964	0.000452039	1.33114
nC5	0.00009	8.51957E-05	0	0	0.000835806	5.64446E-08	0	0	0	0	0	0	0	0	0.000521071	0.000646940	0.000521071	1.22041
Hexane	0.000014	1.43914E-05	0	0	0.000141183	5.38962E-09	0	0	0	0	0	0	0	0	8.97891E-05	0.000125560	8.97891E-05	0.335808
H2O	47.4836938	47.4837	97.9348	55.8070	53.5414	99.7733	49.7532	49.7532	49.7532	49.8721	99.2414	49.7532	49.8721	49.8721	59.2489	47.4409	59.2489	0.184103
TEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piperazine	0.95328847	0.953288	0.102410	0.889182	9.55484E-05	0.000183453	1.00224	1.00224	1.00224	1	0.0691961	1.00224	1	1	1.08290	0.952381	1.08290	0.000185132
UCARSOL™ AP-814	46.7173242	46.7173	1.24976	43.1021	0.00101179	0.00194263	49.1164	49.1164	49.1164	49	0.689373	49.1164	49	49	39.3881	46.6729	39.3881	0.00184129
i-Hexane	0.000031	3.06680E-05	0	0	0.000300862	1.15054E-08	0	0	0	0	0	0	0	0	0.000191711	0.000265951	0.000191711	0.663535
Benzene	0.013901	0.0139005	0	0	0.137094	0.00139935	0	0	0	0	0	0	0	0	0.0113341	0.0145988	0.0113341	0.197039
Cyclohexane	0.000290	0.000289859	0	0	0.00284399	8.70138E-07	0	0	0	0	0	0	0	0	0.000509274	0.000667776	0.000509274	0.288763
i-Heptane	0.000006	6.24739E-06	0	0	6.12881E-05	1.35147E-09	0	0	0	0	0	0	0	0	6.83151E-05	9.35245E-05	6.83151E-05	0.511322
Toluene	0.007108	0.00710781	0	0	0.0700079	0.000537134	0	0	0	0	0	0	0	0	0.00537235	0.00742993	0.00537235	0.107306
i-Octane	0.000004	3.79271E-06	0	0	3.72071E-05	4.62271E-10	0	0	0	0	0	0	0	0	3.75781E-05	6.37534E-05	3.75781E-05	0.433552
n-Octane	0.0000003	2.74460E-07	0	0	2.69250E-06	5.08334E-11	0	0	0	0	0	0	0	0	2.16868E-06	3.53633E-06	2.16868E-06	0.0213115
Ethylbenzene	0.0006293	0.000629291	0	0	0.00619355	3.86903E-05	0	0	0	0	0	0	0	0	0.000498845	0.000660881	0.000498845	0.0136781
m-Xylene	0.0014310	0.00143103	0	0	0.0141071	0.000131797	0	0	0	0	0	0	0	0	0.00114832	0.00148165	0.00114832	0.0209134
o-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonane	0.000000	8.85346E-08	0	0	8.68535E-07	6.96059E-12	0	0	0	0	0	0	0	0	1.44805E-06	2.30912E-06	1.44805E-06	0.0361295
Decane	0.000000	3.24006E-09	0	0	3.17853E-08	9.40673E-14	0	0	0	0	0	0	0	0	1.66423E-07	2.29197E-07	1.66423E-07	0.0119410
n-Heptane	0.000001	1.27998E-06	0	0	1.25568E-05	2.76550E-10	0	0	0	0	0	0	0	0	1.39924E-05	1.92658E-05	1.39924E-05	0.112364
□ass Flow	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□	l□/□
Hydrogen Sulfide	4328.70	4328.70	103.679	294.037	4156.38	18.0295	190.357	190.357	190.362	190.362	0	0	190.362	190.362	0.00116301	4334.24	0.00116301	1.00000
N2	0.05	0.0522462	0	0	0.0522481	1.88921E-06	0	0	0	0	0	0	0	0	8.05338E-06	1.52097	8.05338E-06	4002.61
C1	17	16.6225	0	0	16.6237	0.00115965	0	0	0	0	0	0	0	0	0.000637129	144.674	0.000637129	120688
CO2	6792.85	6792.85	121.734	213.382	6710.49	9.28805	91.6475	91.6475	91.6473	91.6473	0	0	91.6473	91.6473	0.000647513	6795.02	0.000647513	0.0339082
C2	9.5	9.51363	0	0	9.51437	0.000739334	0	0	0	0	0	0	0	0	0.000206551	51.6083	0.000206551	31315.8
C3	3.6	3.60195	0	0	3.60217	0.000214711	0	0	0	0	0	0	0	0	8.63526E-05	22.5606	8.63526E-05	19762.1
iC4	0.35	0.350613	0	0	0.350626	1.31612E-05	0	0	0	0	0	0	0	0	9.44539E-06	2.66988	9.44539E-06	3490.50
C4	1.54	1.53821	0	0	1.53830	8.69919E-05	0	0	0	0	0	0	0	0	3.01859E-05	8.43290	3.01859E-05	7628.17
iC5	0.13	0.134240	0	0	0.134243	3.82633E-06	0	0	0	0	0	0	0	0	4.85097E-06	1.26628	4.85097E-06	2632.28
nC5	0.20	0.197051	0	0	0.197058	6.93124E-06	0	0	0	0	0	0	0	0	5.59178E-06	1.49774	5.59178E-06	2413.32
Hexane	0.033	0.0332862	0	0	0.0332868	6.61830E-07	0	0	0	0	0	0	0	0	9.63555E-07	0.290685	9.63555E-07	664.049
H2O	109826.134	109826	30960.6	140415	12623.5	12251.9	109455	109455	109455	109980	525.948	0	109980	109980	0.635819	109831	0.635819	364.058
TEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piperazine	2204.88295	2204.88	32.3752	2237.26	0.0225275	0.0225275	2204.88	2204.88	2204.88	2205.25	0.366717	0	2205.25	2205.25	0.0116209	2204.87	0.0116209	0.366093
UCARSOL™ AP-814	108053.58	108054	395.092	108449	0.238550	0.238550	108054	108054	108054	108057	3.65345	0	108057	108057	0.422686	108053	0.422686	3.64110
i-Hexane	0.07	0.0709328	0	0	0.0709342	1.41283E-06	0	0	0	0	0	0	0	0	2.05731E-06	0.615707	2.05731E-06	1312.12
Benzene	32.151	32.1508	0	0	32.3226	0.171837	0	0	0	0	0	0	0	0	0.000121630	33.7978	0.000121630	389.640
Cyclohexane	0.670	0.670421	0	0	0.670527	0.000106850	0	0	0	0	0	0	0	0	5.46518E-06	1.54598	5.46518E-06	571.020
i-Heptane	0.01	0.0144497	0	0	0.0144499	1.65956E-07	0	0	0	0	0	0	0	0	7.33111E-07	0.216520	7.33111E-07	1011.12
Toluene	16.440	16.4398	0	0	16.5058	0.0659585	0	0	0	0	0	0	0	0	5.76524E-05	17.2011	5.76524E-05	212.193
i-Octane	0.01	0.00877226	0	0	0.00877231	5.67656E-08	0	0	0	0	0	0	0	0	4.03262E-07	0.147597	4.03262E-07	857.336
n-Octane	0.001	0.000634806	0	0	0.000634812	6.24220E-09	0	0	0	0	0	0	0	0	2.32728E-08	0.00818701	2.32728E-08	42.1428
Ethylbenzene	1.4555	1.45550	0	0	1.46025	0.00475105	0	0	0	0	0	0	0	0	5.35326E-06	1.53002	5.35326E-06	27.0481
m-Xylene	3.310	3.30986	0	0	3.32604	0.0161843	0	0	0	0	0	0	0	0	1.23230E-05	3.43019	1.23230E-05	41.3555
o-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p-Xylene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonane	0.000	0.000204774	0	0	0.000204775	8.54741E-10	0	0	0	0	0	0	0	0	1.55395E-08	0.00534587	1.55395E-08	71.4449
Decane	0.000	7.49402E-06	0	0	7.49403E-06	1.15512E-11	0	0	0	0	0	0	0	0	1.78594E-09	0.000530617	1.78594E-09	23.6129
n-Heptane	0.003	0.00296049	0	0	0.00296052	3.39596E-08	0	0	0	0	0	0	0	0	1.50157E-07	0.0446026	1.50157E-07	222.196

Process Streams		□□	□□	□□	Feed □as	off flas□	off still	To Flare	□ater	1	2	□	□	□	9	1□
Properties	Status□	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed
Phase: Total	From □loc□□	SAT□1	T□□21	FA□R□100	□FS2	Amine Flas□ Tan□	A□322	PC□□22	□□	□SSL□100	□SSL□100	PC□□322	FC□□01	T□□21	P□□21/□22	□
	To □loc□□	□SSL□100	FA□R□100	□□2□	SAT□1	PC□□22	PC□□322	□□	SAT□1	T□□21	□□	To Acid □as In□ection	T□□21	LC□□21	E□222	Amine Flas□ Tan□
Property	□nits															
Temperature	°F	96.4712	121.658	120*	96.4712	141.8367	120.000	136.892	527.323	96.4712	96.4712	118.905	121.566	139.489	253.609	141.825
Pressure	psig	849.999	844.999	839.999	849.999	75.000	10	2*	849.999	849.999	849.999	2*	859.999*	849.999	50*	80
Molecular Weight	lb/lbmol	21.8240	20.8251	20.8251	21.8287	20.7089	38.1102	20.7089	18.0153	21.3573	59.6944	38.1102	31.0346	31.3550	31.0879	31.3549
Mass Flow	lb/h	215925	197748	197748	215707	220	11297.3	220.241	217.145	208735	7190.01	11297.3	220525	231511	219995	231513
Std Vapor Volumetric Flow	MMSCFD	90.1098	86.4827	86.4827	90	0.096859965	2.69984	0.0968600	0.109777	89.0128	1.09699	2.69984	64.7167	67.2467	64.4504	67.2471
Std Liquid Volumetric Flow	sgpm	1190.99	1138.83	1138.83	1190.55	1.25	27.8016	1.24998	0.434088	1166.82	24.1724	27.8016	450	477.987	448.938	477.990
API Gravity											96.6589		4.09007	-1.83733	4.22394	
Gross Ideal Gas Heating Value	Btu/ft^3	1238.31	1239.14	1239.14	1239.76	1187.61	279.820	1187.61	50.3100	1213.53	3248.78	279.820	573.379	564.529	575.518	564.528

Process Streams	1□	1□	1□	19	20	21	23	2□	2□	2□	29	30	31	32	33	3□	3□	□0
Properties — Status□	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed	Sol□ed
From □loc□□	Amine Flas□ Tan□	E□222	E□223	T□□22	T□□22	A□322	E□223	E□222	RC□L□1	Amine □a□eup	□□	Amine □a□eup	A□321	P□□23/□2□	□□2□	LC□□21	LC□□03	□□2□
To □loc□□	E□222	T□□22	T□□22	E□223	A□322	T□□22	P□□21/□22	RC□L□1	Amine □a□eup	A□321	Amine □a□eup	□□	P□□23/□2□	FC□□01	LC□□03	□	□	□as to TE□
Temperature	141.8367	210*	253.504	251.927	221.500	120.000	253.504	191.681	191.680	191.438	100*		120*	121.538	119.879	141.825	121.893	119.879
Pressure	75.000	72	13	13	10	10	13	47	47	47	100*	47	44	869.999	837.999	80*	80*	837.999
Molecular Weight	31.3703	31.3703	18.2846	28.5740	24.1255	18.0364	31.0879	31.0879	31.0880	31.0346	18.1250	31.0880	31.0346	31.0346	27.2389	31.3550	27.2389	20.8251
Mass Flow	231292	231292	31613.5	251609	23577.0	12279.7	219995	219995	219995	220525	529.968	0	220525	220525	1.07313	231511	1.07313	197747
Std Vapor Volumetric Flow	67.1502375	67.1502	15.7468	80.1972	8.90057	6.20073	64.4504	64.4504	64.4504	64.7167	0.266303	0	64.7167	64.7167	0.000358813	67.2467	0.000358813	86.4824
Std Liquid Volumetric Flow	476.74	476.740	63.5349	512.473	52.3632	24.5615	448.938	448.938	448.938	450*	1.06212	0	450	450	0.00220979	477.987	0.00220979	1138.83
API Gravity	-1.90013215			4.61606		9.98228	4.23049	4.22447	4.22447	4.23320	9.90459		4.23373	4.08832	5.19504			
Gross Ideal Gas Heating Value	563.63	563.629	60.5016	474.394	120.258	50.7832	575.518	575.518	575.518	573.379	55.5892	575.518	573.379	573.379	428.727	564.529	428.727	1239.15

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

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

Sources for Calculating GHG Emissions:

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

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

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

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

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- **x** 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.
- **x** 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.
- **x** Fuel specifications sheet.
- **x** 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.

Compressor Engines (Units ENG-1 through ENG-6)

- AP-42 3.2-2 Natural Gas-fired Reciprocating Engines
- Manufacturer specifications and catalyst guarantee

All heaters and reboilers (Units H-1 through H-3)

- AP-42 1.4-1 & 2 Natural Gas Combustion

TEG Dehydrators (Units DEHY-1 & DEHY-2)

- BR&E ProMax
- Site-specific inlet gas analysis

Amine Units (Units AU-1 through AU-3)

- BR&E ProMax
- Site-specific inlet gas analysis

Emergency Flare and Process Flare (Unit FL-1 & FL-2)

- Site-specific inlet gas analysis.
- TCEQ and EPA Emission Factors

Fugitives (Unit FUG)

- Site-specific inlet gas analysis
- Liquid analysis derived from BR&E ProMax

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

Certificate of Analysis

Number: 6030-21110023-001A

Nov. 01, 2021

Station Name:	#1 Inlet	Sampled By:	Z
Station Number:	633000	Sample Of:	Gas Spot
Station Location:	FFS	Sample Date:	11/01/2021
Instrument:	6030_GC2 (Agilent GC-7890B)	Sample Conditions:	37.1 psig, @ 81.6 °F
Last Inst. Cal.:	09/13/2021 14:54 PM	Effective Date:	11/01/2021
Analyzed:	11/01/2021 16:00:14 by KJM	Method:	GPA 2286

Analytical Data

Components	Un-normalized Mol %	Mol. %	Wt. %	GPM at 14.65 psia		
Hydrogen Sulfide	0.000	0.80000	1.129		GPM TOTAL C2+	8.183
Nitrogen	1.732	1.69600	1.968		GPM TOTAL C3+	4.263
Methane	69.469	68.00900	45.186		GPM TOTAL iC5+	1.076
Carbon Dioxide	0.989	0.96800	1.764			
Ethane	14.985	14.67000	18.269	3.920		
Propane	7.776	7.61300	13.903	2.095		
Iso-butane	1.027	1.00500	2.419	0.329		
n-Butane	2.474	2.42200	5.830	0.763		
Iso-pentane	0.791	0.77400	2.313	0.283		
n-Pentane	0.753	0.73700	2.202	0.267		
Hexanes Plus	1.334	1.30600	5.017	0.526		
	101.330	100.00000	100.000	8.183		

Calculated Physical Properties	**Total**	**C6+**
Relative Density Real Gas	0.8373	3.1966
Calculated Molecular Weight	24.15	92.58
Compressibility Factor	0.9953	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1382	4926
Water Sat. Gas Base BTU	1358	4839
Ideal, Gross HV - Dry at 14.65 psia	1375.6	4925.7
Ideal, Gross HV - Wet	1351.5	0.000

Comments: H2S Field Content 0.8 %

Data reviewed by: Krystle Fitzwater, Laboratory Manager

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

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

Certificate of Analysis

Number: 6030-21110023-001A

Nov. 01, 2021

Station Name: #1 Inlet
Station Number: 633000
Station Location: FFS
Analyzed: 11/01/2021 16:13:44 by KJM

Sampled By: Z
Sample Of: Gas Spot
Sample Date: 11/01/2021
Sample Conditions: 37.1 psig, @ 81.6 °F
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Hydrogen Sulfide	0.800	1.129	
Nitrogen	1.696	1.968	
Methane	68.009	45.186	
Carbon Dioxide	0.968	1.764	
Ethane	14.670	18.269	3.920
Propane	7.613	13.903	2.095
Iso-Butane	1.005	2.419	0.329
n-Butane	2.422	5.830	0.763
Iso-Pentane	0.774	2.313	0.283
n-Pentane	0.737	2.202	0.267
i-Hexanes	0.286	0.994	0.114
n-Hexane	0.165	0.573	0.067
Benzene	0.095	0.306	0.027
Cyclohexane	0.138	0.477	0.047
i-Heptanes	0.221	0.852	0.089
n-Heptane	0.053	0.220	0.025
Toluene	0.068	0.253	0.022
i-Octanes	0.169	0.741	0.076
n-Octane	0.016	0.077	0.008
Ethylbenzene	0.010	0.042	0.004
Xylenes	0.019	0.088	0.008
i-Nonanes	0.033	0.185	0.018
n-Nonane	0.010	0.050	0.005
Decanes Plus	0.023	0.159	0.016
	100.000	100.000	8.183

Calculated Physical Properties	Total	C10+
Calculated Molecular Weight	24.15	149.51
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F		
Real Gas Dry BTU	1382.1	8019.1
Water Sat. Gas Base BTU	1357.9	7841.5
Relative Density Real Gas	0.8373	5.1622
Compressibility Factor	0.9953	
Ideal, Gross HV - Wet	1351.5	
Ideal, Gross HV - Dry at 14.65 psia	1375.6	
Net BTU Dry Gas - real gas	1258	
Net BTU Wet Gas - real gas	1236	

Comments: H2S Field Content 0.8 %

Data reviewed by: Krystle Fitzwater, Laboratory Manager

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

Equipment Specification

Proposal Information

Proposal Number:	CG-22-000043V2	Date:	**08/03/2023**
Project Reference:	Durango Midstream - CAT3606LE - Catalyst Spec Sheet		

Engine Information

Engine Make:	Caterpillar	Speed:	Rated
Engine Model:	G 3606 LE TA	Power Output:	1,775 bhp
Rated Speed:	1000 RPM	Exhaust Flow Rate:	12,129 acfm (cfm)
Fuel Description:	Natural Gas	Exhaust Temperature:	847 ° F
Hours Of Operation:	8750 Hours per year	Fuel Consumption:	6,811 btu/bhp-hr
Load:	100%	O_2:	12.8%
		H_2O:	17%

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	*g/bhp-hr*	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	
NO_x*	*0.5*	8.57	49	67	0.671	1.48	*0.5*	8.57	49	67	0.671	1.48	
CO	*2.75*	47.08	442	606	3.688	8.13	*0.75*	12.84	120	165	1.006	2.22	72.7%
THC**	*6.□*	107.86	1,767	2,426	8.448	18.63							
NMNEHC***	*0.7*	12.00	189	249	0.863	1.95	0.7	12.00	189	249	0.863	1.95	
CH_2O†	*0.26*	4.45	39	54	0.349	0.77	*0.05*	0.86	7	10	0.067	0.15	80.8%

System Specifications

Catalyst (Replacement Catalyst)

Element Model Number:	MECB-OX-RB3494-3275-0000-291
Number of Catalyst Layers:	1
Number of Catalyst Per Layer:	1
Catalyst Back Pressure:	3.0 inWC (Clean)
Design Exhaust Flow Rate:	12,129 acfm
Design Exhaust Temperature:	847f
Dimensions:	Ø 32.75 in
Exhaust Temperature Limits††:	550f – 1250f (catalyst inlet); 1350f (catalyst outlet)
System Pressure Loss:	3.0 inWC (Clean)

* MW referenced as NO_2

** MW referenced as CH_4

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

† The concentration of formaldehyde in the exhaust shall be measured in real time using an FTIR - EPA method 320 or equivalent

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

COOPER | MACHINERY SERVICES

Manufacturer's Expected Exhaust Emissions and Performance Data

Date: May 24, 2023

Prepared For: Durango Midstream - SN's 84174 & 82496

Engine: DPC-2804 LE

Ajax, Fuel Injected, Spark Ignited, Naturally Aspirated, 2-stroke lean burn (2SLB)

Specified Conditions:

	Site Altitude (FASL)	: 3500	
	Site Fuel Composition	: PLQNG	
	Ambient Temp For Defining Maximum Load	: 100	Degrees F
	Average Ambient Temp For Defining Exhaust Emissions	: 65	Degrees F
	Bore x Stroke (in)	: 15 x 16	
	No. of Cylinders	: 4	
	Site Rated Speed (RPM)	:	440
	Exhaust System	:	Standard
	Site Rated Load (BHP) (BHP available at engine)	:	752
	Site Rated Load (BMEP, psi)	:	59.8
NOx	g/bhp-hr	:	2.0
	ppmvd @ 5% O2	:	375
	lb/hr	:	3.32
	Tpy	:	14.52
CO	g/bhp-hr	:	2.3
	ppmvd @ 5% O2	:	399
	lb/hr	:	3.81
	Tpy	:	16.70
VOC	g/bhp-hr	:	0.75
	ppmvd @ 5% O2	:	97
	lb/hr	:	1.24
	Tpy	:	5.45
H2CO	g/bhp-hr	:	0.3
	ppmvd @ 5% O2	:	81
	lb/hr	:	0.50
	Tpy	:	2.20
	BSFC - Btu/Bhph	:	7853
	Exhaust Stack Inside Diameter - in	:	17.3
	Exhaust Stack Height - in	:	241.00
	Exhaust Gas Temp @ Stack - ºF	:	515
	Exh. Velocity @ Stack - ft /min	:	3832
	Exhaust Gas Flow @ Stack - acfm	:	6219
	Exhaust Gas Flow @ Stack - lb/min	:	221.90
	Exhaust Oxygen Concentration (vol%, dry)	:	13.86
	Exhaust Gas Moisture Content (% H2O)	:	7.20
	Exhaust Gas MW	:	28.38
	Barometric Pressure (in-H2O)	:	29.30

COOPER | MACHINERY SERVICES

Manufacturer's Expected Exhaust Emissions and Performance Data

Fuel Composition:

Compound	Formula	Mole %
Nitrogen	N2	0.7200
Carbon Dioxide	CO2	1.1400
Oxygen	O2	0.0000
Helium	He	0.0000
Hyd. Sulfide	H2S	0.0000
Methane	CH4	92.8400
Ethane	C2H6	4.1000
Propane	C3H8	1.2000
Iso – Butane	i-C4	0.0000
n - Butane	n-C4	0.0000
Iso - Pentane	i-C5H12	0.0000
n - Pentane	n-C5h12	0.0000
n-Hexane	C6H14	0.0000
n-Heptane	n-C7H16	0.0000
n-Octane	n-C8H18	0.0000
	Total Volume % =	100.00

The above emissions and performance data is contingent on:

1.) Using a Cooper Machinery Services supplied Oxidation Catalyst, when specified, and using Catalyst Friendly oil as specified Ajax instruction manual.
2.) Insulated exhaust pipes and Silencer insulated up to the Catalyst.
3.) No changes in the as quoted site conditions per specified site conditions and fuel composition above.
4.) Cooper Machinery Services Engine must be maintained in good working order per operating specifications outlined in Cooper Machinery Services engineering specification ES 4019.
5.) Cooper Machinery Services Engineering approved engine upgrades must meet Ajax specifications and installation guidelines.
6.) Engine operating parameters must be consistent with those specified in the Ajax instruction manual.
7.) Performance tests shall be conducted at 100% of the site rated load (+/-10%)
8.) Test data shall be taken from test ports located in the tailpipe of Cooper Machinery Services supplied exhaust silencer
9.) Emissions Test protocol shall follow:
    a.) NOx emissions: 40 CFR Part 60, Appendix A, Method 7e
    b.) CO emissions: 40 CFR Part 60, Appendix A, Method 10
    c.) VOC (NMNEHC) emissions: 40 CFR Part 60, Methods 25A and 18 or 40 CFR Part 60 Method 25A and 40 CFR Part 63 Method 320
    d.) HCHO emissions: 40 CFR Part 63, Appendix A, Method 320 or Method 328
10.) Remediation of reported non-conformance to be mutually agreed upon between Cooper Machinery Services and purchaser.

COOPER | MACHINERY SERVICES

Manufacturer's Expected Exhaust Emissions and Performance Data

Definition of Terms

NOx = Nitrogen Oxide as NO2
CO = Carbon Monoxide
VOC = Non-methane, Non-ethane and Non-formaldehyde concentration reported as Propane
Note: VOC definition is according to 40 CFR 60 Subpart JJJJ (Spark Ignited NSPS)
H2CO = Formaldehyde
g/bhp-hr = Grams per brake horsepower-hour
ppmvd = Part per million voume on a dry basis corrected to 5% O2
Tpy= Tons per year @ 8760 hrs per year & 1 Ton = 2000 lbs
FASL = Feet Above Sea Level
ACFM = Actual Cubic Feet Per Minute
BSFC = Brake Specific Fuel Consumption, Btu / Bhp-hr, based on LHV
BMEP = Brake Mean Effective Pressure, psi
PLQNG = Pipe Line Quality Natural Gas

TABLE 3.2-1 UNCONTROLLED EMISSION FACTORS FOR 2-STROKE LEAN-BURN ENGINES[a]
(SCC 2-02-002-52)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	3.17 E+00	A
NO_x[c] <90% Load	1.94 E+00	A
CO[c] 90 - 105% Load	3.86 E-01	A
CO[c] <90% Load	3.53 E-01	A
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	1.64 E+00	A
Methane[g]	1.45 E+00	C
VOC[h]	1.20 E-01	C
PM10 (filterable)[i]	3.84 E-02	C
PM2.5 (filterable)[i]	3.84 E-02	C
PM Condensable[j]	9.91 E-03	E
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[k]	6.63 E-05	C
1,1,2-Trichloroethane[k]	5.27 E-05	C
1,1-Dichloroethane	3.91 E-05	C
1,2,3-Trimethylbenzene	3.54 E-05	D
1,2,4-Trimethylbenzene	1.11 E-04	C
1,2-Dichloroethane	4.22 E-05	D
1,2-Dichloropropane	4.46 E-05	C
1,3,5-Trimethylbenzene	1.80 E-05	D
1,3-Butadiene[k]	8.20 E-04	D
1,3-Dichloropropene[k]	4.38 E-05	C
2,2,4-Trimethylpentane[k]	8.46 E-04	B
2-Methylnaphthalene[k]	2.14 E-05	C
Acenaphthene[k]	1.33 E-06	C

Table 3.2-1. UNCONTROLLED EMISSION FACTORS FOR 2-STROKE LEAN-BURN ENGINES

(Continued)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Acenaphthylene[k]	3.17 E-06	C
Acetaldehyde[k,l]	7.76 E-03	A
Acrolein[k,l]	7.78 E-03	A
Anthracene[k]	7.18 E-07	C
Benz(a)anthracene[k]	3.36 E-07	C
Benzene[k]	1.94 E-03	A
Benzo(a)pyrene[k]	5.68 E-09	D
Benzo(b)fluoranthene[k]	8.51 E-09	D
Benzo(e)pyrene[k]	2.34 E-08	D
Benzo(g,h,i)perylene[k]	2.48 E-08	D
Benzo(k)fluoranthene[k]	4.26 E-09	D
Biphenyl[k]	3.95 E-06	C
Butane	4.75 E-03	C
Butyr/Isobutyraldehyde	4.37 E-04	C
Carbon Tetrachloride[k]	6.07 E-05	C
Chlorobenzene[k]	4.44 E-05	C
Chloroform[k]	4.71 E-05	C
Chrysene[k]	6.72 E-07	C
Cyclohexane	3.08 E-04	C
Cyclopentane	9.47 E-05	C
Ethane	7.09 E-02	A
Ethylbenzene[k]	1.08 E-04	B
Ethylene Dibromide[k]	7.34 E-05	C
Fluoranthene[k]	3.61 E-07	C
Fluorene[k]	1.69 E-06	C
Formaldehyde[k,l]	5.52 E-02	A

Table 3.2-1. UNCONTROLLED EMISSION FACTORS FOR 2-STROKE LEAN-BURN ENGINES
(Concluded)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Indeno(1,2,3-c,d)pyrene[k]	9.93 E-09	D
Isobutane	3.75 E-03	C
Methanol[k]	2.48 E-03	A
Methylcyclohexane	3.38 E-04	C
Methylene Chloride[k]	1.47 E-04	C
n-Hexane[k]	4.45 E-04	C
n-Nonane	3.08 E-05	C
n-Octane	7.44 E-05	C
n-Pentane	1.53 E-03	C
Naphthalene[k]	9.63 E-05	C
PAH[k]	1.34 E-04	D
Perylene[k]	4.97 E-09	D
Phenanthrene[k]	3.53 E-06	C
Phenol[k]	4.21 E-05	C
Propane	2.87 E-02	C
Pyrene[k]	5.84 E-07	C
Styrene[k]	5.48 E-05	A
Toluene[k]	9.63 E-04	A
Vinyl Chloride[k]	2.47 E-05	C
Xylene[k]	2.68 E-04	A

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

[b] Emission factors were calculated in units of (lb/MMBtu) based on procedures in EPA

Method 19. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by the heat content of the fuel. If the heat content is not available, use 1020 Btu/scf. To convert from (lb/MMBtu) to (lb/hp-hr) use the following equation:

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

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

[d] Based on 99.5% conversion of the fuel carbon to CO_2. CO_2 [lb/MMBtu] = (3.67)(%CON)(C)(D)(1/h), where %CON = percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.75), D = density of fuel, 4.1 E+04 lb/10^6 scf, and h = heating value of natural gas (assume 1020 Btu/scf at 60°F).

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

[f] Emission factor for TOC is based on measured emission levels of 43 tests.

[g] Emission factor for methane is determined by subtracting the VOC and ethane emission factors from the TOC emission factor. Measured emission factor for methane compares well with the calculated emission factor, 1.48 lb/MMBtu vs. 1.45 lb/MMBtu, respectively.

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

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

[j] No data were available for condensable PM emissions. The presented emission factor reflects emissions from 4SLB engines.

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

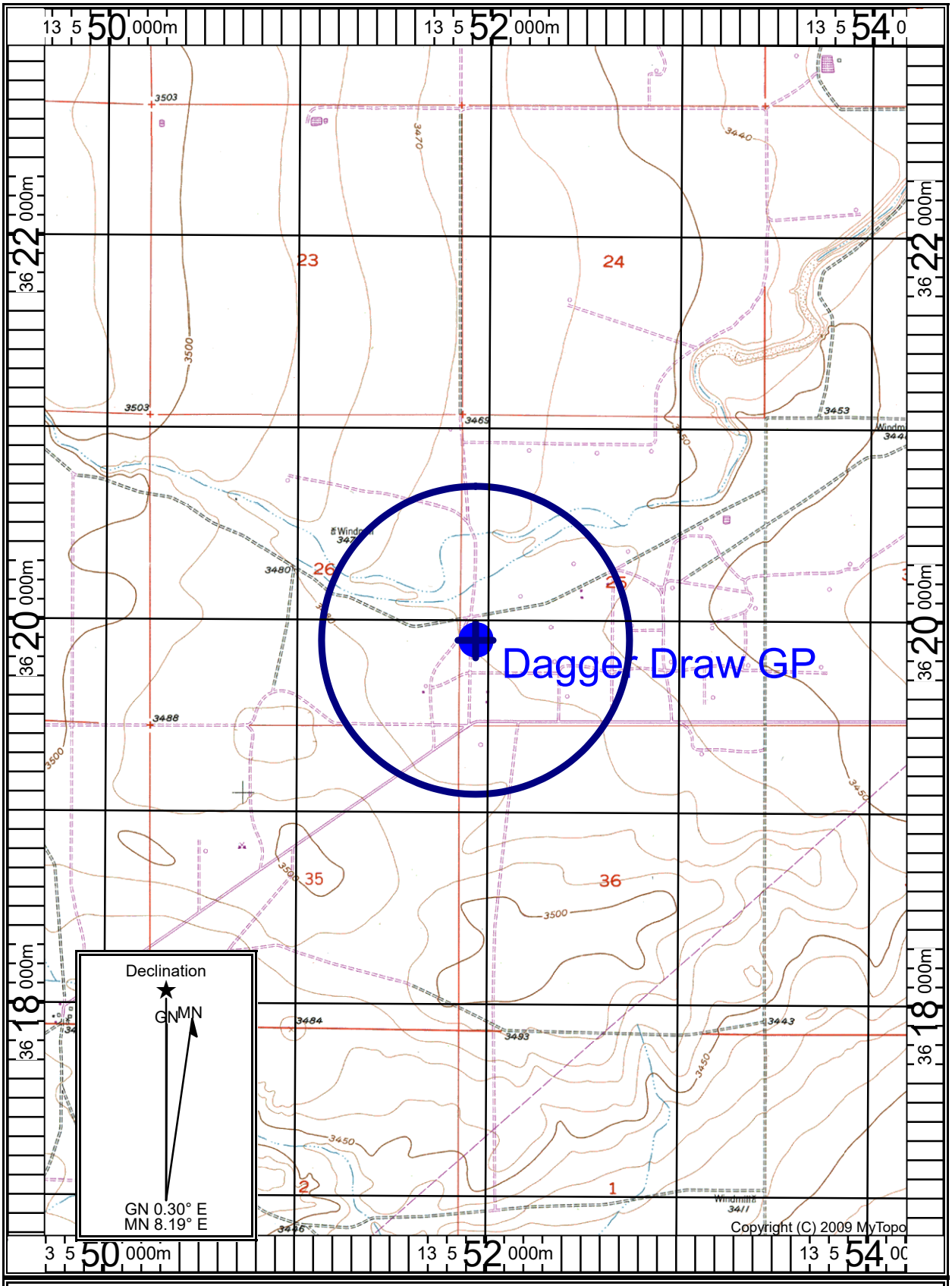
[l] For lean burn engines, aldehyde emissions quantification using CARB 430 may reflect interference with the sampling compounds due to the nitrogen concentration in the stack. The presented emission factor is based on FTIR measurements. Emissions data based on CARB 430 are available in the background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

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	



Map Name: DAYTON (NM)
Print Date: 11/15/21
Scale: 1 inch = 2,500 ft.
Map Center: 13 0551933 E 3619895 N
Horizontal Datum: WGS84

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")

---

x **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:

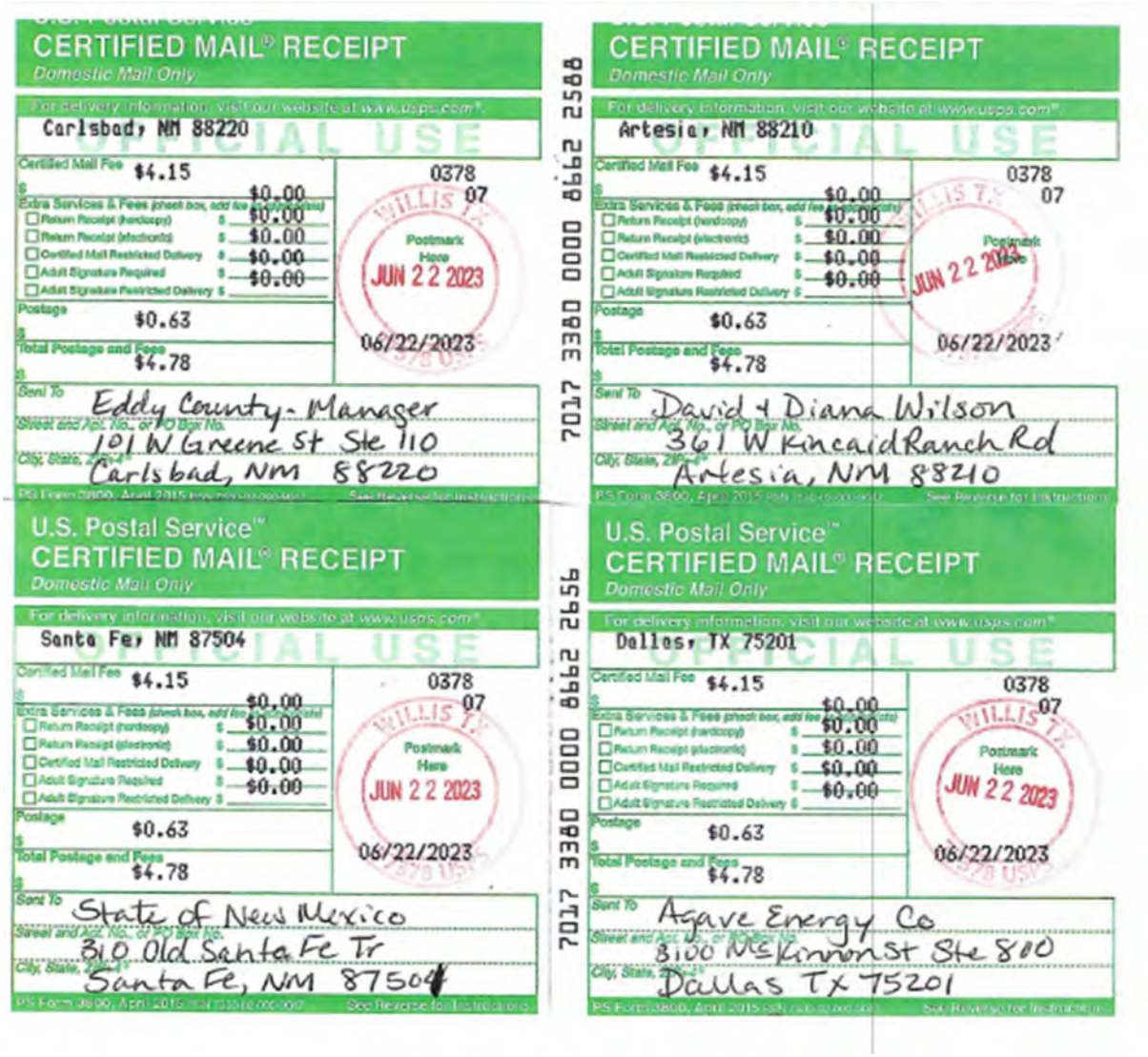
1. x A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. x A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
3. x A copy of the property tax record (20.2.72.203.B NMAC).
4. x A sample of the letters sent to the owners of record.
5. x A sample of the letters sent to counties, municipalities, and Indian tribes.
6. x A sample of the public notice posted and a verification of the local postings.
7. x A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. x A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. x 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. x 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. x 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.

Section 9

Proof of Public Notice

Landowner and Municipality Notifications

Certified letter receipts with post marks



CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Carlsbad, NM 88220
Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.63
Total Postage and Fees $4.78
Postmark Here JUN 22 2023
0378 07
06/22/2023
Sent To Eddy County - Manager
Street and Apt. No., or PO Box No. 101 W Greene St Ste 110
City, State, ZIP+4 Carlsbad, NM 88220
PS Form 3800, April 2015 See Reverse for Instructions
7017 3380 0000 8662 2588

CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Artesia, NM 88210
Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.63
Total Postage and Fees $4.78
Postmark Here JUN 22 2023
0378 07
06/22/2023
Sent To David + Diana Wilson
Street and Apt. No., or PO Box No. 361 W Kincaid Ranch Rd
City, State, ZIP+4 Artesia, NM 88210
PS Form 3800, April 2015 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Santa Fe, NM 87504
Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.63
Total Postage and Fees $4.78
Postmark Here JUN 22 2023
0378 07
06/22/2023
Sent To State of New Mexico
Street and Apt. No., or PO Box No. 310 Old Santa Fe Tr
City, State, ZIP+4 Santa Fe, NM 87504
PS Form 3800, April 2015 See Reverse for Instructions
7017 3380 0000 8662 2656

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only
For delivery information, visit our website at www.usps.com®.
Dallas, TX 75201
Certified Mail Fee $4.15
Extra Services & Fees (check box, add fee as appropriate)
Return Receipt (hardcopy) $0.00
Return Receipt (electronic) $0.00
Certified Mail Restricted Delivery $0.00
Adult Signature Required $0.00
Adult Signature Restricted Delivery $
Postage $0.63
Total Postage and Fees $4.78
Postmark Here JUN 22 2023
0378 07
06/22/2023
Sent To Agave Energy Co
Street and Apt. No., or PO Box No. 8100 McKinnon St Ste 800
City, State, ZIP+4 Dallas TX 75201
PS Form 3800, April 2015 See Reverse for Instructions

Landowner and Municipality Notifications

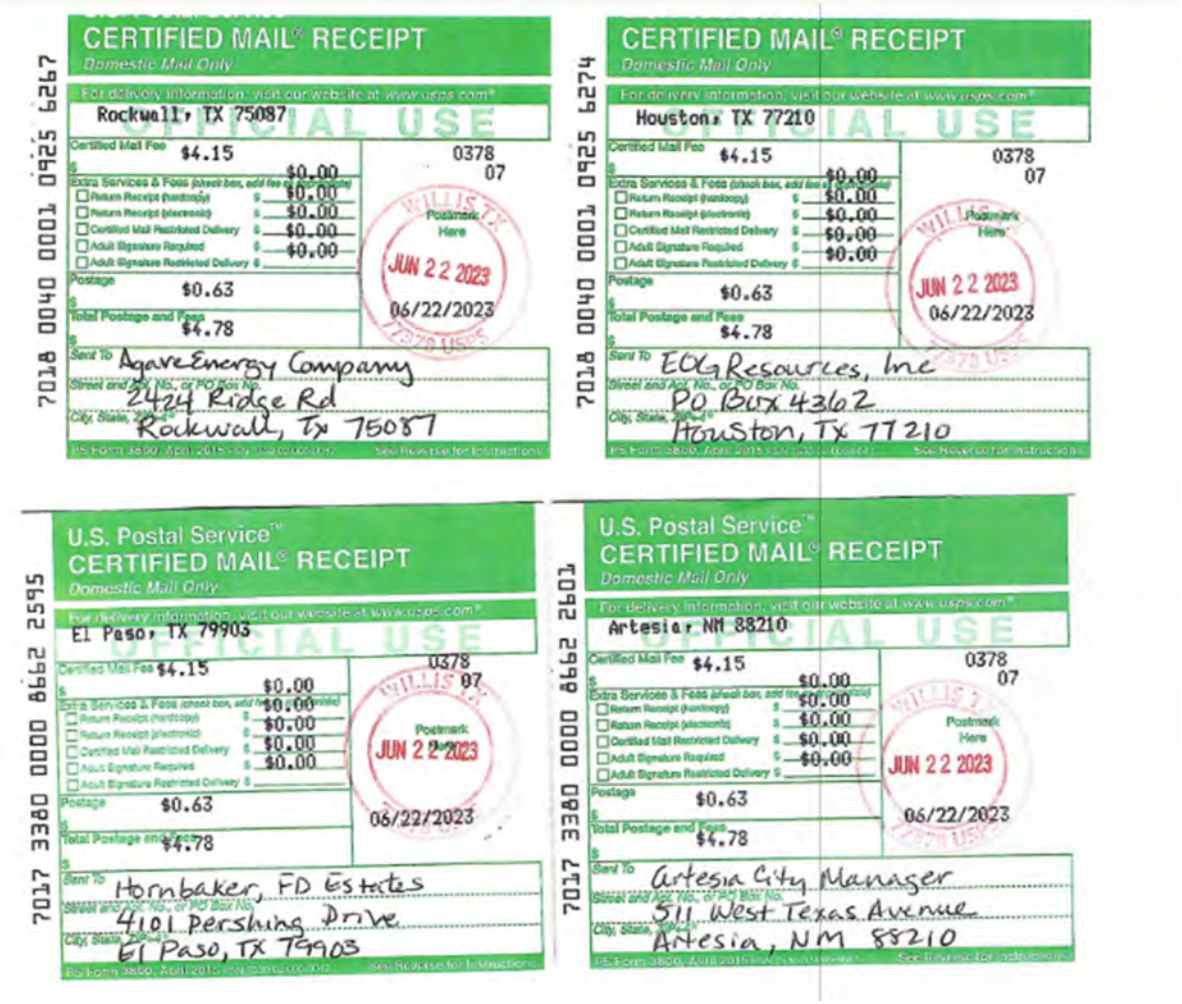
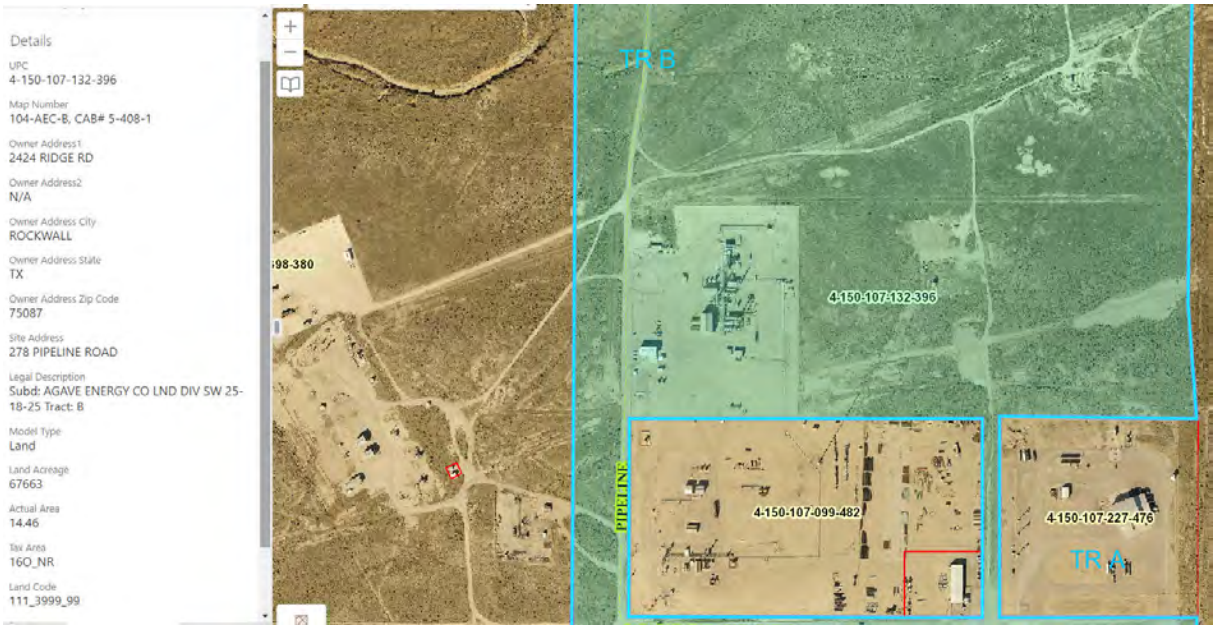


Table of the noticed citizens, counties, and municipalities

Notice Type	Account/ID	Owner Name	Address	City, State, Zip
Landowner	R072812	Agave Energy Company	2424 Ridge Rd	Rockwall, TX 75087
Landowner	R072811	EOG Resources Inc	Po Box 4362	Houston, TX 77210-4362
Landowner	R040375	Agave Energy Company	3100 McKinnon St Ste 800	Dallas, TX 75201-7014
Landowner	R066573	State Of New Mexico	310 Old Santa Fe Trail	Santa Fe, NM 87504
Landowner	R040651	Wilson, David D & Diana L Et Al (N-Jt	361 W Kincaid Ranch Rd	Artesia, NM 88210
Landowner	R040653	Wilson, David D & Diana L Et Al (N-Jt)	361 W Kincaid Ranch Rd	Artesia, NM 88210
Landowner	R040574	Hornbaker, F D Estate Et Als	4101 Pershing Drive	El Paso, TX 79903
Landowner	R040657	Wilson, David D & Diana L Et Al (N-Jt)	361 W Kincaid Ranch Rd	Artesia, NM 88210
County	Eddy	County Manager	101 W Greene St, Ste 110	Carlsbad, NM 88220
Municipality	Artesia	City Manager	511 West Texas Avenue	Artesia, NM 88210
Tribes	-	Not Applicable	None within radius	-

Landowner and Municipality Notifications

Property Tax Record



Maps with a graphic scale showing the facility boundary and the surrounding area for notices.

Landowner and Municipality Notifications

Maps with a graphic scale showing the facility boundary and the surrounding area for notices.

Landowner and Municipality Notifications

Sample of the letters sent to counties, municipalities, and landowners

VIA CERTIFIED MAIL 7017 3380 0000 8662 2618

June 22, 2023

Manager, Eddy County
101 W Greene St Ste 110
Carlsbad, NM 88220

Dear Eddy County Manager:

Frontier Field Services, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **gas plant** facility. The expected date of application submittal to the Air Quality Bureau is **June 30, 2023.**

The exact location for the proposed facility known as, **Dagger Draw Gas Plant**, is at latitude 32 deg, 42 min, 53 sec and longitude -104 deg, 26 min, 45 sec. The approximate location of this facility is **9.2** miles **southwest** of **Artesia** in **Eddy** County.

The proposed **modification** consists of :

1. Removal of H-4 and H-5 heaters from the permit. This equipment was never installed.
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The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and may change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10}	24.60 pph	9.40 tpy
$PM_{2.5}$	24.60 pph	9.40 tpy
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Carbon Monoxide (CO)	1063.55 pph	241.12 tpy
Volatile Organic Compounds (VOC)	721.70 pph	209.79 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	27.19 pph	18.65 tpy
Green House Gas Emissions as Total CO_2e	n/a	23973.22 tpy

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

The owner and/or operator of the Facility is: **Frontier Field Services, LLC; 1001 Conoco Road, Maljamar, NM 88264.**

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

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

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Sincerely,

Rebecca Moore, on behalf of
Frontier Field Services

Notice of Non-Discrimination
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Public Notice Postings

Sample of the public notice posted

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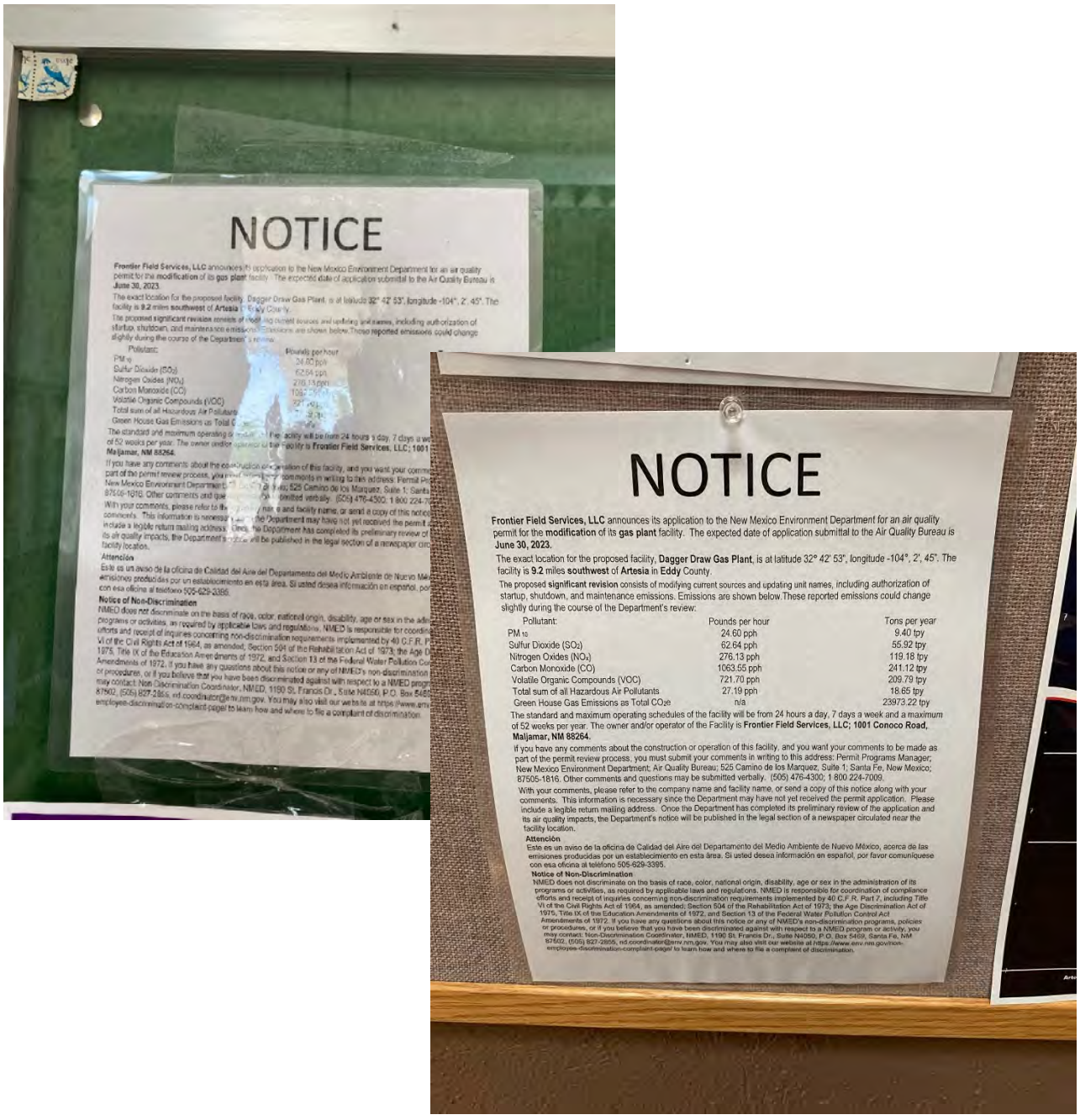
Public Notice Location List

Name	Address	City	Zip Code
Artesia Post Office	201 N 4th Street	Artesia	88210
Artesia Public Library	205 W Quay Ave	Artesia	88210
Pecos Diamond	601 S 1stSt	Artesia	88210
Dagger Draw Gas Plant	278 Pipeline Road	Artesia	88210

Verification of the local public notice postings



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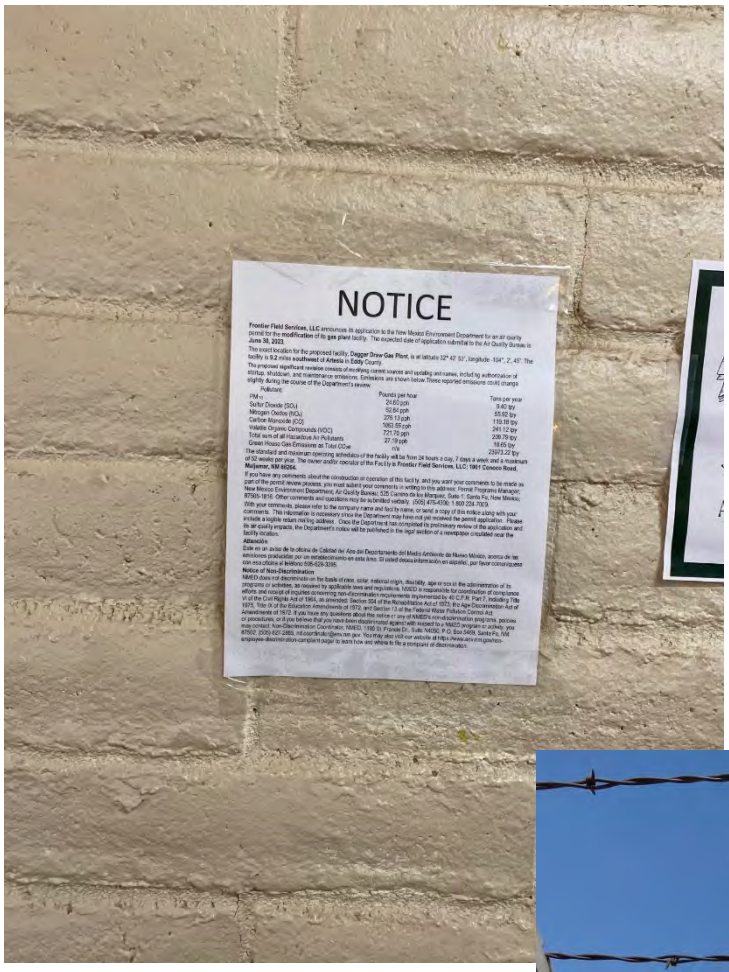

General Posting of Notices – Certification

I, Rebecca Moore, the undersigned, certify that on **June 22, 2023**, I posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **city** of **Artesia, Eddy County**, State of New Mexico on the following dates:

1. Facility entrance June 22, 2023
2. Artesia Post Office, June 22, 2023
3. Artesia Public Library, June 22, 2023
4. Pecos Diamond, June 22, 2023

Signed this 29th day of June, 2023.

Rebecca Moore
Signature

June 29, 2023
Date

Rebecca Moore
Printed Name

HSE Advisor
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Public Notice Postings

Public service announcement (PSA) content

The following is a public service announcement. Dagger Draw Gas Plant, located at 278 Pipeline Road in Artesia, New Mexico, is a natural gas processing plant owned and operated by Frontier Field Services. Frontier has submitted an air permit application to authorize air emission from operation of the facility as designed and during startups, shut downs and maintenance activities. Notices of this activity have been posted at the Artesia Public Library, Post Office, and XX as well at the facility. If you would like to comment on this, you may write to the New Mexico Environmental Department Air Quality Bureau at 525 Camino de los Marquez, Suite 1, Santa Fe, New Mexico, 87505.

Submittal of Public Service Announcement – Certification

I, Rebecca Moore, the undersigned, certify that on **June 22, 2023,** I submitted a public service announcement to **Carlsbad Radio** that serves the Cities of **Carlsbad and Artesia, Eddy** County, New Mexico, in which the source is or is proposed to be located and that **Carlsbad Radio RESPONDED THAT IT WOULD AIR THE ANNOUNCEMENT.**

Signed this 29th day of June, 2023.

Rebecca Moore
Signature

June 29, 2023
Date

Rebecca Moore
Printed Name

HSE Advisor
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

irculation, published in English at Artesia, said county

nd state, and that the hereto attached

Display Ad

vas published in a regular and entire issue of the said

Artesia Daily Press, a daily newspaper duly qualified

for that purpose within the meaning of Chapter 167 of

the 1937 Session Laws of the state of New Mexico for

1 Consecutive weeks/day on the same

day as follows:

First Publication August 31, 2023

Second Publication

Third Publication

Fourth Publication

Fifth Publication

Sixth Publication

Seventh Publication

Subscribed and sworn before me this

31st day of August 202

LATISHA ROMINE
Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

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Affidavit of Publication

No.

State of New Mexico

County of Eddy:

Danny Scott Danny Scott

being duly sworn says that he is the **Publisher** of the Artesia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto attached

Display Ad

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for

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LATISHA ROMINE
Notary Public, State of New Mexico
Commission No. 1076338
My Commission Expires
05-12-2027

Latisha Romine

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Notary Public, Eddy County, New Mexico

Copy of Publication:

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Published in the Artesia Daily Press, Artesia, N.M., Aug. 31, 2023 Legal No. 26633.

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2. Adjustments to emissions factors used for ENG-1 through ENG-6.
3. Addition of amine flash tank and SSM emissions at the Process Flare, FL-
4. Updated gas sample composition updated for various sources.
5. Updated as-built counts of fugitive components used for fugitive emission calculations.

The estimated maximum quantities of any regulated air contaminant will be follows in pound per hour (pph) and tons per year (tpy) and may change slig during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM 10	24.60 pph	9.13 tpy
PM 2.5	24.60 pph	9.13 tpy
Sulfur Dioxide (SO2)	62.64 pph	55.27 tpy
Nitrogen Oxides (NOx)	276.13 pph	115.96 tpy
Carbon Monoxide (CO)	1067.43 pph	245.05 tpy
Volatile Organic Compounds (VOC)	739.58 pph	191.07 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	27.20 pph	18.37 tpy
Green House Gas Emissions as Total CO2e	n/a	51851.43 tpy

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

The owner and/or operator of the Facility is: **Frontier Field Services, LLC; Conoco Road, Maljamar, NM 88264.**

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

Please refer to the company name and site name, or send a copy of this noti along with your comments, since the Department may have not yet receive permit application. Please include a legible return mailing address with you comments. Once the Department has performed a preliminary review of t application and its air quality impacts, the Department's notice will be publ in the legal section of a newspaper circulated near the facility location.

General information about air quality and the permitting process, and link to the regulations can be found at the Air Quality Bureau's website: www.en nm.gov/air-quality/permitting-section-home-page/. The regulation dealing public participation in the permit review process is 20.2.72.206 NMAC.

Attención

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

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, di

Section 10

Written Description of the Routine Operations of the Facility

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A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

The Dagger Draw Gas Plant consists of six natural gas compressor engines, an amine gas treatment system, an Acid Gas Injection Well that controls the acid gas stream from the amine unit, a process Flare, an emergency flare, a glycol dehydration system, and ancillary equipment. The primary function of the plant is to remove H_2S and CO_2 from sour field gas so that the gas can meet pipeline specifications. The plant has been designated a primary Standard Industrial Classification (SIC) Code of 1311. The operation of the Dagger Draw Gas Plant is intended to process 90 MMscfd of gas.

Amine Treating Units (Units AU-1 through AU-3)
The amine units are designed to remove acid gas components (carbon dioxide, hydrogen sulfide and mercaptans) from the natural gas stream. These components are removed from the natural gas because they are corrosive, hazardous to health, and reduce the heating value of the natural gas stream. In addition, the carbon dioxide can freeze in the cryogenic unit forming dry ice and forcing the shut down of the facility. This is known as the gas sweetening process.

Amine treating is an exothermic chemical reaction process. The treating solution is a mixture of RO water and approximately 28-35% DEA (diethanolamine). This aqueous mixture is regenerated and reused. Lean DEA solution is pumped to the top of the contactor and allowed to flow downward. Sour gas is fed into the bottom of the contactor and flows upward. As the lean DEA solution flows down through the contactor, it comes into contact with the sour gas. The H_2S and CO_2 react with the amine to form an amine sulfide complex and carbonate. The amine is now known as sour or rich amine and the remaining gas is sweet and continues to the dehydration system.

The rich DEA amine solution is fed into a flash tank. This unit reduces the pressure on the rich amine and allows dissolved gases to vent off. The dissolved gases are usually hydrocarbons. This vented stream is sent to the sour gas system. Due to weak chemical bonds between the sour gas and the DEA amine solution, H_2S and CO_2 can be stripped from the amine by heating the amine at low pressures. Rich amine is fed into a stripper column known as a regenerator. Steam generated in the amine reboiler passes up through the amine still and removes the acid gases from the rich amine. Hot oil is used to supply heat to the regenerator reboiler. H_2S and CO_2 (acid gases) exit the top of the regenerator and are sent to the acid gas injection well (AGI). The DEA amine solution is now regenerated and leaves the stripper column to be recirculated to the contactor.

Acid Gas Injection Well
The acid gas removed by the amine units is disposed of by acid gas injection into a disposal well for a control of 100%. In the event both of the redundant AGI well compressor units go down FL-1 will incinerate the acid gas stream from the amine unit as an emergency event. The acid gas will be compressed in stages from a pressure of 5 PSIG to a final pressure of no more than 1250 PSIG. After compression, the gas must be cooled and any water that is condensed at the higher pressure will be separated. The water is collected and disposed of in a separate disposal well. Should the acid gas compressor shut down for any reason, valves will automatically isolate it. At this point, the acid gas will be diverted to the emergency flare. The acid gas will be enriched with sweet natural gas so that it will burn. The entire system will be shut down in a controlled manner if the acid gas compressor cannot be restarted.

Glycol Dehydration Units (Unit DEHY-1 & DEHY-2)
The glycol dehydration unit receives up to 90 MMscf/d of treated gas (sweet) from the amine unit and reduce the water content of the gas by circulating approximately 5.0 to 6.5 gallons per minute of triethylene glycol (TEG). The gas passes into the lower section of the glycol contactor and the TEG enters the top of the contactor. The gas and liquid comes into contact on trays within the tower and the TEG absorbs the water. The dry gas exits the top of the contactor and moves on to the next processing phase, the molecular sieve dehydration.

The rich glycol is fed into a flash tank. This unit reduces the pressure on the solution and allows dissolved gases to vent off. The dissolved gases are usually hydrocarbons. This low pressure stream is sent to the fuel gas system. The rich glycol is

regenerated by passing through a series of heat exchangers to warm the glycol. It then enters the glycol reboiler where it is heated to approximately 400°F to boil the absorbed water out of the solution. By-products that are also absorbed, such as benzene, toluene, ethyl-benzene and xylene (BTEX), are also boiled out of the solution. Since BTEX is considered a harmful component these vapors (including water) will be collected and condensed into a liquid using an air-cooled exchanger and a separator. These liquids are then disposed of in a disposal well. The overall efficiency of the BTEX controls is maintained at a 95% minimum efficiency.

The glycol unit and the components of the glycol unit are similar to that of an amine unit. Hot oil is the heat source for the glycol regenerator reboiler.

Molecular Sieve Dehydration
Molecular sieve dehydration is used upstream of the cryogenic processes to achieve a -150°F dew point. The process uses two molecular sieve vessels with one vessel in service absorbing moisture from the gas stream and the other vessel in the regeneration mode. During the regeneration mode, hot, dry gas (regen gas) is passed up through the vessel to drive off the absorbed moisture from the molecular sieve. The gas comes from the discharge of the residue compressors and it is passed through a heat exchanger (heated by hot oil) and a heater to achieve a temperature of approximately 500°F. After the gas passes through the bed it is cooled in an air cooled exchanger. The water in the gas condenses and is separated from the gas stream in a separator. The regen gas has four potential paths depending on the concentration of the sulfur products in the regen gas:
1. Blended with the sales gas at the sales point (outlet of the plant);
2. Routed to the front of the plant for reprocessing;
3. Sold to a third-party for processing; or
4. Treated on-site via AGI system.

There are no air emissions from the molecular sieve dehydration system.

Cryogenic Unit:
The cryogenic unit is designed to liquefy natural gas components from the sweet, dehydrated inlet gas by removing work (heat) from the gas be means of the turbo expander. The cryogenic unit recovers natural gas liquids (NGL) by cooling the gas stream to extremely cold temperatures (-150°F) and condensing components such as ethane, propane, butanes and heavier. The gas is cooled by a series of heat exchangers and by lowering the pressure of the gas from approximately 650 PSIG to approximately 180 PSIG. Once the gas has passed through the system of heat exchangers and expansion it is re-compressed using the energy obtained from expanding the gas. Further compression is usually required to enter the pipeline so a standard reciprocating compressor is located at the end of the process.

The gas flows through the following heat exchangers:
• Gas to Gas Exchanger – This unit exchanges heat from the warm inlet gas and the cold residue gas that has already been expanded. This cools the inlet gas.
• Product Heater – This unit will cool the inlet gas by exchanging heat with the cold liquid product that has been recovered.
• De-Methanizer Reboiler / Side-Reboiler – This unit draws liquid off of the de-methanizer and uses heat from the inlet gas to boil the methane out of the liquid. One stream comes off the side of the tower and one stream comes off of the bottom of the tower. This also cools the inlet gas. The gas is expanded and recompressed in the expander/compressor. At this point the gas temperature should be at its coldest. The de-methanizer is used to stabilize the liquid. By adding heat to the tower, the methane that has been absorbed in the liquid can be rejected with the residue gas.

There are no air emissions associated with the cryogenic unit.

Residual Compression
Once the sweet, dry gas exits the cryogenic unit, it needs to be recompressed to approximately 800 to 1200 psi before the gas is sent to the main transportation pipeline. This is accomplished with two 2250 horsepower electric driven compressors.

Hot Oil System
The hot oil system in the plant is used to provide heat to certain processes within the facility. It is a very basic system consisting of the following:

Natural Gas Fired Heater – This provides heat input into the system by burning natural gas and circulating the oil through the heater. The heater also has a convection section that assists in heating the regeneration gas for the molecular sieve.

• Hot Oil Pumps – These pumps circulate the required amount of hot oil through the system.
• Hot Oil Surge Tank – This tank provides expansion volume for the system. As the system heats up the liquid will expand. This tank allows for the liquid to expand without spilling out of the system.
• Heat Exchangers – A series of exchangers, mainly the reboiler and regeneration gas heat exchanger that removes heat from the hot oil system and transfers it to the respective process.

Regen Gas Processing
During regeneration mode, hot gas is passed up through the vessel to drive the absorbed moisture off of the molecular sieve. The gas comes from the discharge of the residue compressors. The regen gas also drives off any residual sulfur compounds from the mole sieves. Due to the mercaptan content of the regen gas, it does not generally meet pipeline specifications and must be treated. The sulfur compounds must be removed along with the water that was picked up from the mole sieve beds. The regen gas stream volume ranges from 1.5 MMscfd to 6.0 MMscfd depending on the volume of the mole sieve beds and the concentration of sulfur compounds in the inlet gas.

Sulfur Removal
AU-1 through AU-3 are amine units that are used to remove H_2S and CO_2. The concentrated waste acid gas is then sent to the AGI well. The selective amine is regenerated using the hot oil heater media. The regen gas waste stream is composed primarily of sulfur compounds. This stream would be mixed with the acid gas stream produced by the main process amine unit. The acid gas that is removed by the amine unit will normally be disposed of by acid gas injection into a disposal well or, under emergency situations, by incinerating in a flare (FL-1).

It is assumed that the main process stream removes 100% of all sulfur compounds for ease of measurement and calculations. In fact, the main amine unit removes 99.8% to 99.9% of H_2S and leaves some mercaptans in the gas stream. These additional sulfur compounds are removed by the mole sieves. This additional sulfur removal process will not generate any additional emissions as the emissions are already accounted for in the sulfur calculations of the main amine process unit.

The facility is authorized to operate continuously (8,760 hr/yr) at design maximum capacity processing rates. Frontier Field Services will minimize startup and shutdown activities at the facility in accordance with good operating principles and business objectives. This practice will serve to minimize total annual excess emissions from the facility due to startup, shutdown, and maintenance activities.

Section 11
Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe)**:**

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.

x Yes **☐ No**

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

x Yes **☐ No**

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

☐ Yes **☐ No**

C. Make a determination:

x The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- **X** **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- ☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

B. **This facility not one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions** for this modification are **not significant because the emissions after the modification are below PSD major thresholds. The "project" emissions listed below only result from changes described in this permit application, thus no emissions from other [revisions or modifications, past or future] to this facility. This project does not increase facility throughput or any other associated emissions increases. The project emissions (before netting) for this project are as follows:**

a. **NOx: 115.96 TPY**
b. **CO: 245.05TPY**
c. **VOC: 204.87 TPY**
d. **SOx: 55.27 TPY**
e. **PM: 9.13 TPY**
f. **PM10: 9.13 TPY**
g. **PM2.5: 9.13 TPY**
h. **Fluorides: 0 TPY**
i. **Lead: 0 TPY**
j. **Sulfur compounds (listed in Table 2): H2S 0.53 TPY**
k. **GHG: 51,851 TPY**

C. **Netting is not required (project is not significant)**

D. **BACT** is **not required for this modification, as this application is a minor modification.**

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: http://cfpub.epa.gov/adi/

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

State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
20.2.1 NMAC	General Provisions	Yes	Facility	This facility is authorized under a construction permit. Therefore, this regulation applies.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets the maximum allowable concentrations of TSP, SO_2, H_2S, NO_X and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emissions per 20.2.7.110 NMAC.
20.2.23 NMAC	Fugitive Dust Control	No	Facility	This facility is not authorized under 20.2.73. Therefore, this regulation does not apply.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	Yes	H-1, H-2, H-3	This facility has existing gas burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per year per unit, including H-1, H-2, and H-3. This rule applies.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This facility does not have oil burning equipment with a heat input of greater than 1,000,000 million British Thermal Units per year per unit. Therefore, this regulation does not apply
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	Yes	Facility	This regulation could apply to existing (prior to July 1, 1974) or new (on or after July 1, 1974) natural gas processing plants that use a Sulfur Recovery Unit to reduce sulfur emissions.
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 could apply to storage tanks at petroleum production facilities, processing facilities, tanks batteries, or hydrocarbon storage facilities. This facility does not have a crude oil or condensate storage capacity greater than 65,000 gallons (1547.6 bbl) and is therefore not subject to this regulation.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	This regulation could apply to sulfur recovery plants that are not part of petroleum or natural gas processing facilities. This facility is not a sulfur recovery plant. Therefore, this regulation does not apply.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	ENG 1 through ENG-4, DEHY-1, DEHY-2, H-1, H-2, H-3, FUG	The facility is subject to the 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: 113 – Engines and Turbines 114 – Compressor Seals 115 – Control Devices and Closed Vent Systems 116 – Equipment Leaks and Fugitive Emissions 118 – Glycol Dehydrators 119 – Heaters
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	ENG-1 through ENG-6, H-1, H-2, H-3, FL-1, and FL-2	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as engines, boilers, heaters, and flares unless your equipment is subject to another state regulation that limits particulate matter such as 20.2.19 NMAC (see 20.2.61.109 NMAC). This facility operates combustion equipment that are subject to this regulation.
20.2.70 NMAC	Operating Permits	Yes	Facility	Through this permitting action, the facility will become subject to a Title V operating permit.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	If subject to 20.2.70 NMAC and your permit includes numerical ton per year emission limits, you are subject to 20.2.71 NMAC and normally applies to the entire facility.
20.2.72 NMAC	Construction Permits	Yes	Facility	This facility is permitted under 20.2.72 and is therefore subject to this regulation.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	All facilities that are a Title V Major Source as defined at 20.2.70.7.R NMAC, are subject to Emissions Inventory Reporting. This facility is required to submit an annual emission inventory report pursuant to 20.2.73.300.A(1) NMAC. This regulation applies.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	The facility is a minor source for PSD purposes therefore this regulation is not applicable.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This application is being submitted under 20.2.72 and is therefore subject to this regulation.
20.2.77 NMAC	New Source Performance	Yes	ENG-1 through ENG-4	This facility is a stationary source with units that are subject to 40 CFR 60. Therefore, this regulation applies.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This facility does not include and equipment subject to 40 CFR 61. Therefore this regulation does not apply.
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This facility is not located in a non-attainment area. Therefore, this regulation does not apply.
20.2.80 NMAC	Stack Heights	No	N/A	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. This regulation does not apply as all stacks at the facility will follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	ENG-1 through ENG-6, DEHY-1, DEHY-2	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. This facility operates units which are subject to 40 CFR 63. Therefore this regulation applies.

Applicable Federal Regulations:

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	This regulation defines National Ambient Air Quality Standards (NAAQS). The facility meets all applicable NAAQS for NO_x, CO, SO_2, H_2S, PM_{10}, and $PM_{2.5}$ under this regulation.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	ENG-1 through ENG-4	This facility is a stationary source with units that are subject to 40 CFR 60. Therefore, this regulation applies.

Federal Regulation Citation	**Title**	**Applies? Enter Yes or No**	**Unit(s) or Facility**	**Justification:**
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No	N/A	This facility does not include any electric utility steam generating units. Therefore, this regulation does not apply.
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No	N/A	This facility does not include any electric utility steam generating units. Therefore, this regulation does not apply.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No	N/A	Applicability: the facility does not have any steam generating units for which construction, modification or reconstruction is commenced after June 9, 1989 and that have a maximum design heat input capacity of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No	N/A	This facility does not have any tanks with a volume of 420,000 gallons or larger. Therefore, this subpart does not apply.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No	N/A	This facility does not have any storage vessels with a volume of 75 cubic meters. Therefore this regulation does not apply.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No	N/A	This facility does not have any stationary turbines. Therefore, this regulation does not apply.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	Yes	Facility	This facility is subject to this regulation as it operates sweetening units, dehydration units, and compressors on site. The site was originally constructed in 2010 and relocated to New Mexico in 2021. The relocation in 2021 is not considered a modification per 40 CFR 60.14(e)(6); therefore, the facility remains subject to NSPS KKK in lieu of NSPS OOOO/OOOOa.
NSPS 40 CFR Part 60 Subpart LLL	of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No	N/A	The facility is not subject to this subpart as the acid gas is completely reinjected into the geologic formation.

Federal Regulation Citation	**Title**	**Applies? Enter Yes or No**	**Unit(s) or Facility**	**Justification:**
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No	N/A	This facility is a gas plant. Therefore, equipment leaks are not subject to this regulation. No compressors at the facility were manufactured after 8/23/2011 and before 9/19/2015. Therefore, no compressors are subject to this regulation. Pneumatic devices all utilize instrument air.
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	N/A	This facility is a gas plant. Therefore, equipment leaks are not subject to this regulation. No compressors at the facility were manufactured after 9/19/2015. Therefore, no compressors are subject to this regulation.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	There are no compression ignition engines installed at this facility. Therefore, this regulation does not apply.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	ENG-1 through ENG-4	ENG-1 through ENG-4 were manufactured in 2021 after the NSPS JJJJ date of June 12, 2006. The units are therefore subject to this regulation. ENG-5 and ENG-6 manufactured 1997 and are not subject to NSPS JJJJ.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	N/A	There are no electric generating units at this facility. Therefore, this regulation does not apply.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	N/A	There are no electric generating units at this facility. Therefore, this regulation does not apply.
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No	N/A	This facility is not a Municipal Solid Waste Landfill. Therefore, this regulation does not apply.

Federal Regulation Citation	**Title**	**Applies? Enter Yes or No**	**Unit(s) or Facility**	**Justification:**
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	No units at this facility are subject to any of the subparts of 40 CFR 61.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No	N/A	This facility does not process mercury. Therefore, this regulation does not apply.
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No	N/A	This facility is not a major source of HAPs. Therefore, this regulation does not apply.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	ENG-1 through ENG-6, DEHY-1, DEHY-2	This facility is a stationary source with units that are subject to 40 CFR 63. Therefore, this regulation applies.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	Yes	DEHY-1, DEHY-2	This facility is subject to the requirements of 40 CFR 63 Subpart HH, which includes requirements applicable to area sources with TEG Dehydrators. The site is not a major source of HAPs, but an area source of HAPs and therefore is subject to this subpart. The dehydrator has the potential to emit less than 1 tpy (0.90 megagram per year) of benzene and is therefore exempt from the requirements of §63.764(d) pursuant to §63.764(e)(1)(ii).
MACT 40 CFR 63 Subpart HHH		No	N/A	This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user. This facility is not a natural gas transmission facility. Therefore, this regulation does not apply.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	The facility is not major for HAPs; therefore, this regulation does not apply.
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	N/A	This facility does not operate any coal & oil fire electric utility steam generating units. Therefore, this regulation does not apply.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	ENG-1 through ENG-6	The compressor engines at this facility are subject to MACT ZZZZ and will comply with this regulation by complying with the requirements of NSPS JJJJ.

Federal Regulation Citation	**Title**	**Applies? Enter Yes or No**	**Unit(s) or Facility**	**Justification:**
40 CFR 64	**Compliance Assurance Monitoring**	Yes	AU-1, AU-2, AU-3, DEHY-1, DEHY-2	**Applies only to Title V Major Sources** **A CAM plan is applicable to Title V Major sources if** 1. The emission unit is subject to an emission limitation or standard for an air pollutant (or surrogate thereof) in an applicable requirement; 2. The emission unit uses a control device to achieve compliance with the emission limitation or standard; and 3. The emission unit has the pre-control device potential to emit greater than or equal to the amount in tons per year required for a site to be classified as a major source. Emissions for Unit AU-1, AU-2, and AU-3 combined are major in and of itself. Emissions for DEHY-1 and DEHY-2 combined are major. The CAM plan for AU-1, AU-2, and AU-3 and DEHY-1 and DEHY-2 are provided in section 19.1.
40 CFR 68	**Chemical Accident Prevention**	Yes	Facility	The facility is an affected facility, as it will use flammable process chemicals such as propane at quantities greater than the thresholds. The facility will develop and maintain an RMP for these chemicals.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No	N/A	This facility does not generate commercial electric power or electric power for sale. Therefore, this regulation does not apply.
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No	N/A	This facility does not generate commercial electric power or electric power for sale. Therefore, this regulation does not apply.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No	N/A	This facility does not generate commercial electric power or electric power for sale. Therefore, this regulation does not apply.
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No	N/A	This facility does not generate commercial electric power or electric power for sale. Therefore, this regulation does not apply.
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	No	N/A	The facility does not service, maintain, or repair equipment containing refrigerants. Therefore, this regulation does not apply.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

X 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.

X 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.

X Title V (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

Startup and shutdown procedures are performed according to guidelines, which dictate proper procedural sequence to minimize emissions from the facility during such activities.

Equipment located at the plant is equipped with various safety devices that aid in preventing excess emissions to the atmosphere in the event of an operational emergency. In the event of a malfunction, startup, shutdown, or scheduled maintenance in which emission rates from the facility exceed permitted allowable emissions, Frontier Field Services will notify the AQB in accordance with 20.2.7 NMAC and the equipment responsible for the exceedance will be repaired as soon as possible.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

The operation of the Dagger Draw Gas Plant is intended to process 90 MMscfd of gas. As an alternative operating scenario, the plant will only process sweet gas. The gas will be treated to remove CO_2, dehydrated to remove water and processed to remove heavy (liquid) hydrocarbons from the gas stream. Several plant systems will be involved to perform these functions as discussed in Section 10.

Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.

☐ See attached, approved modeling **waiver for some** pollutants from the facility.

☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.

X Attached in UA4 is a **modeling report for some** pollutants from the facility.

Lead, ozone, and state air toxic(s) not applicable.

☐ No modeling is required.

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-A: Identification

1	Name of facility:	Dagger Draw Gas Plant
2	Name of company:	Frontier Field Services, LLC
3	Current Permit number:	NSR-0001-M11
4	Name of applicant's modeler:	Kimberly Krause
5	Phone number of modeler:	512-773-1973
6	E-mail of modeler:	kimberly@brightskyenv.com

16-B: Brief

1	Was a modeling protocol submitted and approved?	Yes☒	No☐
2	Why is the modeling being done? Permit modification application	Other (describe below)	
3	Describe the permit changes relevant to the modeling. 1. Removal of H-4 and H-5 heaters from the permit. This equipment was never installed. 2. Adjustments to emissions factors used for ENG-1 through ENG-6. 3. Addition of amine flash tank and SSM emissions at the Process Flare, FL-2. 4. Updated gas sample composition updated for various sources. 5. Updated stack parameters for ENG-1, ENG-2, and ENG-3.		
4	What geodetic datum was used in the modeling?	NAD83	

5	How long will the facility be at this location?	Permanent	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒
7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	Minor Source Baseline Date - 3/16/1988	
	SO2	Minor Source Baseline Date - 7/28/1978	
	PM10	Minor Source Baseline Date - 2/20/1979	
	PM2.5	Minor Source Baseline Date - 1/13/2013	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	Carlsbad Caverns National Park		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
	N/A		
11	Describe any special modeling requirements, such as streamline permit requirements.		
	n/A		

16-C: Modeling History of Facility

Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

1	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
	CO	0001-M11	4/26/2022	
	NO_2	0001-M11	4/26/2022	
	SO_2	0001-M11	4/26/2022	
	H_2S	0001-M11	4/26/2022	
	PM2.5	0001-M11	4/26/2022	
	PM10	0001-M11	4/26/2022	
	Lead	N/A	N/A	
	Ozone (PSD only)	N/A	N/A	
	NM Toxic Air Pollutants (20.2.72.402 NMAC)	N/A	N/A	

16-D: Modeling performed for this application

1	For each pollutant, indicate the modeling performed and submitted with this application. Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
	CO	☒	☐	☐	☐	☐
	NO_2	☐	☐	☒	☐	☐
	SO_2	☐	☐	☒	☐	☐
	H_2S	☐	☐	☒	☐	☐
	PM2.5	☐	☐	☒	☐	☐
	PM10	☐	☐	☒	☐	☐
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☒
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

16-E: New Mexico toxic air pollutants modeling

1 List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application.
N/A – no emissions were modeled as this facility is not a source of TAPs.

2 List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor
N/A – No TAPs were modeled for this facility.					

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes☒	No☐

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	5/22/2023

2 If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.

AQB Source ID	Description of Corrections
211EQPT6	Removed-Site owned by Dagger Draw. Known Source has been removed.
211EQPT25	Removed-Source is project source - double counted
211EQPT29	Removed-Source is project source - double counted
211EQPT46	Removed-Source is project source - double counted

	211EQPT47	Removed-Source is project source - double counted
	211EQPT51	Removed-Source is project source - double counted
	211EQPT52	Removed-Source is project source - double counted
	211EQPT53	Removed-Source is project source - double counted
	211EQPT50	Removed-Source is project source - double counted
	211EQPT48	Removed-Source is project source - double counted
	211RPNT10	Removed-Source is project source - double counted
	New	Added-Site owned by Frontier Field Services. Known Source not in inventory. Modeled with parameters from 6/29/2023 modification. (Modeled Source ID 32970X, Engine 3)
	39270CONT1	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with stack height from 6/29/2023 permit modification, flare Source parameters for exit temperature and velocity, and effective diameter from previous inventory data.
	39270EQPT2	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT8	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT12	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT13	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT19	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT20	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT21	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT22	Modified-Site owned by Frontier Field Services. Known Source incorrect in inventory. Modeled with parameters from 6/29/2023 permit modification.
	39270EQPT23	Removed-Site owned by Frontier Field Services. Known Source has been removed.
	32970RPNT1	Added-Site owned by Frontier Field Services. Known Source not previously included inventory. Modeled using volume Source parameters. (Modeled Source ID 3927EX, FUG)

16-H: Building and structure downwash

1	How many buildings are present at the facility?	26 buildings are modeled at this facility		
2	How many above ground storage tanks are present at the facility?	11 above ground storage tanks were modeled.		
	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes☒	No☐

3		
4	Building comments	N/A

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.		
	A secure chain link fence surrounds the facility, there are three points to enter the facility, but these entry points are locked.		
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?	Yes☐	No☒
3	Are restricted area boundary coordinates included in the modeling files?	Yes☐	No☒

4 Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.

Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
Variable density	Circular	50 m	From restricted facility	800 m from restricted facility	
Variable density	Circular	100 m	800 m from restricted facility	3,000 m from restricted facility	
Variable density	Circular	250 m	3,000 m from restricted facility	6,000 m from restricted facility	
Variable density	Circular	500 m	6,000 m from restricted facility	10,000 m from restricted facility	
Variable density	Circular	500 m	10,000 m from restricted facility	50,000 m from restricted facility	

5	Describe receptor spacing along the fence line. Along the facility fence line a 25 m spaced boundary receptor grid was applied.
6	Describe the PSD Class I area receptors. N/A

16-J: Sensitive areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes☐	No☒
3	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes☐	No☒

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).		
	N/A		
2	Which scenario produces the highest concentrations? Why?		
	N/A		
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes☐	No☒
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources:		

5

Hour of Day	Factor	Hour of Day	Factor								
1		13									
2		14									
3		15									
4		16									
5		17									
6		18									
7		19									
8		20									
9		21									
10		22									
11		23									
12		24									

If hourly, variable emission rates were used that were not described above, describe them below.

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☐	No☒

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	The ARM2 Methodology was used with the default maximum and minimum ambient ratios.	
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	Yes☒ No☐
	N/A	
4	Describe the design value used for each averaging period modeled.	
	1-hour: High eighth high Annual: Highest Annual Average Over Five Years	

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☐	PM10
	☒	None
2	Describe the particle size distributions used. Include the source of information.	
	N/A. Size distributions were not implemented in this modeling.	
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☒ No☐
4	Was secondary PM modeled for PM2.5?	Yes☒ No☐
5	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.	

NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-hour}}$
115.96	55.27	0.002342	0.085928

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	N/A
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☒	No☐

Unit Number in UA-2	Unit Number in Modeling Files

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes☒	No☐
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	No☒

4 Which units consume increment for which pollutants?

Unit ID	NO_2	SO_2	PM10	PM2.5
ENG-1	Yes	Yes	Yes	Yes
ENG-2	Yes	Yes	Yes	Yes
ENG-3	Yes	Yes	Yes	Yes
ENG-4	Yes	Yes	Yes	Yes
ENG-5	Yes	Yes	Yes	Yes
ENG-6	Yes	Yes	Yes	Yes
H-1	Yes	Yes	Yes	Yes
H-2	Yes	Yes	Yes	Yes
H-3	Yes	Yes	Yes	Yes
FL-1	Yes	Yes	Yes	Yes
FL-2	Yes	Yes	Yes	Yes

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	N/A

6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☒	No☐

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	FL-1	18.70	50,460.20	0.20
	FL-2 (Normal + SSM)	20.83	266,152,647.83	14.42

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☐	No☒
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	The pipe rack height of height of 10 feet from the ground and length of the AGI well inlet area of 88 ft was used as the dimensions of sigma-Y and sigma-Z values for the fugitive source.		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	They are the same.		
4	Describe any open pits.		
	N/A		
5	Describe emission units included in each open pit.		
	N/A		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes☒	No☐
	CO: N/A		
	NO_2: Outside Carlsbad (350151005)		
	PM2.5: Hobbs-Jefferson (350450019)		
	PM10: Hobbs-Jefferson (350250008)		
	SO_2: Amarillo (483751025)		

	Other:		
	Comments:		
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	No☒

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so select the station used. Carlsbad	Yes☒	No☐
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		
	N/A		

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
2	What was the source of the terrain data?		
	National Elevation Dataset (NED) files were obtained from the following USGS website: https://apps.nationalmap.gov/downloader/#/		

16-U: Modeling Files

Describe the modeling files:

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
Dagger Draw SIL_20XX_CO_1	CO	SIL
H2S_NMAAQS_20XX_H2S_1	H2S	CIA - NMAAQS
PM10_24H_NAAQSINC_2017-2021_PM10_1	PM10	CIA - NAAQS
PM10_24H_NAAQSINC_20XX_PM10_1	PM10	CIA – CLASS II PSD INCREMENT
Dagger Draw SIL_20XX_PM10_A	PM10	SIL
Dagger Draw SIL_20XX_PM25_1	PM25	SIL
Dagger Draw SIL_20XX_PM25_A	PM25	SIL
Dagger Draw SIL_2017-2021_NO2_1	NO2	SIL
Dagger Draw SIL_20XX_NO2_A	NO2	SIL

	Dagger Draw SIL_20XX_SO2_1	SO2	SIL
	Dagger Draw SIL_20XX_SO2_A	SO2	SIL
	Dagger Draw CIA SO2_1H_2017-2021_SO2_1	SO2	CIA - NAAQS
	Dagger Draw CIA_NO2_1H_2017-2021_NO2_1	NO2	CIA - NAAQS
	Dagger Draw CIA_NO2_ANN_20XX_NO2_A	NO2	CIA – NMAAQS, NAAQS, CLASS II PSD INCREMENT
	Dagger Draw CIA_ PM25_24H_2017-2021_PM2.5_1	PM2.5	CIA - NAAQS
	Dagger Draw CIA_ PM25_24H PSDINC_2017_PM2.5_1	PM2.5	CIA- CLASS II PSD INCREMENT
	Dagger Draw CIA_ PM25_ANN_20XX_PM25_A	PM2.5	CIA – NAAQS, CLASS II PSD INCREMENT

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	No☒
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	No☒
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
	N/A		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
	N/A		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☐	No☒

16-W: Modeling Results			
1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes☐	No☒
	N/A		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period, and Standard	Modeled Facility Concentration (µg/m³)	Modeled Concentration with Surrounding Sources (µg/m³)	Secondary PM (µg/m³)	Background Concentration (µg/m³)	Cumulative Concentration (µg/m³)	Value of Standard (µg/m³)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
CO (1-HR) Significance	194.59	---	---	---	194.59	2000.00	9.73%	552,137	3,619,980	1,062
CO (8-HR) Significance	147.31	---	---	---	147.31	500.00	29.46%	552,208	3,619,915	1,061
SO2 (1-HR) NAAQS	---	60.30	---	---	60.30	75.00	80.40%	551,922	3,619,566	1,058
SO2 (3-HR) Significance	4.55	---	---	---	4.55	25.00	18.22%	552,054	3,619,997	1,062
SO2 (24-HR) Significance	1.75	---	---	---	1.75	5.00	35.04%	552,137	3,619,980	1,062
SO2 (ANNUAL) Significance	0.22	---	---	---	0.22	1.00	22.08%	552,079	3,619,997	1,062
NO2 (1-HR) NAAQS	118.54	---	---	54.50	173.04	188.03	92.03%	552,208	3,619,915	1,056
NO2 (ANNUAL) NMAAQS	9.83	---	---	9.3	19.13	94.02	20.34%	552,079	3,619,997	1,056
NO2 (ANNUAL) NAAQS	9.83	---	---	9.3	20.99	100.00	19.13%	552,079	3,619,997	1,056
NO2 (ANNUAL) CLASS II PSD INCREMENT	9.45	---	---	---	9.45	25.00	37.78%	552,079	3,619,997	1,056
PM10 (24-HR) NAAQS		4.67		37.30	41.97	150.00	27.98%	552,208	3,619,915	1,056
PM10 (24-HR) CLASS II PSD INCREMENT		3.91			3.91	30.00	13.04%	552,208	3,619,915	1,056

Pollutant, Time Period, and Standard	Modeled Facility Concentration (µg/m³)	Modeled Concentration with Surrounding Sources (µg/m³)	Secondary PM (µg/m³)	Background Concentration (µg/m³)	Cumulative Concentration (µg/m³)	Value of Standard (µg/m³)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
PM10 (ANNUAL) Significance	0.73	---	---	---	0.73	1.00	72.63%	552,208	3,619,915	1,061
PM2.5 (24-HR) NAAQS	---	3.11	0.0859276	16.50	19.70	35.00	56.28%	552,208	3,619,915	1,056
PM2.5 (ANNUAL) NAAQS	---	1.18	0.0023419	7.10	8.29	12.00	69.05%	552,079	3,619,997	1,056
PM2.5 (24-HR) CLASS II PSD INCREMENT	---	3.86	0.0859276	---	3.95	9.00	43.89%	552,208	3,619,915	1,056
PM2.5 (ANNUAL) CLASS II PSD INCREMENT	---	0.79	0.0023419	---	0.79	4.00	19.69%	552,208	3,619,915	1,056
H2S (1-HR) NMAAQS	79.46	---	---	---	79.46	139.3	57.04%	552,137	3,619,880	1,056

16-X: Summary/conclusions	
1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	Frontier Field Services has demonstrated that the proposed changes to NSR Permit 0001-M11 would neither cause nor contribute to an exceedance of the standards for CO, H_2S, NO_2, $PM_{2.5}$, PM_{10}, and SO_2.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Unit No.	Test Description	Test Date
Facility	Annual Inlet Extended Analysis	6/8/2022
FL-1	Annual Method 22 visible emission monitoring event to demonstrate compliance with the no visible emission standard.	12/14/2022
FL-2	Annual Method 22 visible emission monitoring event to demonstrate compliance with the no visible emission standard.	12/14/2022
FL-1	Perform an annual flare gas analysis to include H2S, Total Sulfur, VOC, and Heating Value.	2/24/2022
FL-2	Perform an annual flare gas analysis to include H2S, Total Sulfur, VOC, and Heating Value.	3/31/2022
ENG-1	Initial compliance tests shall be conducted within sixty days after the unit achieves the maximum normal production rate.	10/25/2022
ENG-2	Initial compliance tests shall be conducted within sixty days after the unit achieves the maximum normal production rate.	10/25/2022
ENG-3	Initial compliance tests shall be conducted within sixty days after the unit achieves the maximum normal production rate.	10/26/2022
ENG-5	Initial compliance tests shall be conducted within sixty days after the unit achieves the maximum normal production rate.	10/26/2022
ENG-6	Initial compliance tests shall be conducted within sixty days after the unit achieves the maximum normal production rate.	1/27//2023
ENG-1	PEA Testing required quarterly.	3/27/2023
ENG-2	PEA Testing required quarterly.	3/27/2023
ENG-3	PEA Testing required quarterly.	3/27/2023
ENG-5	PEA Testing required quarterly.	3/27/2023
ENG-6	PEA Testing required quarterly.	3/27/2023
ENG-1	PEA Testing required quarterly.	4/27/2023
ENG-2	PEA Testing required quarterly.	4/27/2023
ENG-3	PEA Testing required quarterly.	4/27/2023
ENG-5	PEA Testing required quarterly.	4/27/2023
ENG-6	PEA Testing required quarterly.	4/27/2023

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.

Monitoring Protocols

40 CFR 64.2 states that the requirements of this part shall apply to an emissions unit at a major source if the unit satisfies all of the following criteria:

1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant;
2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and
3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Compliance Assurance Monitoring Plan for the Amine Units

Emissions from the Amine Units, AU-1, AU-2, and AU-3 combined, will be controlled by an acid gas injection system (AGI, Ariel JGA/6) with flaring (FL-1 Acid Gas Flare with Pilot) as an option during upsets and malfunctions. There are several components to the CAM for the amine units. Acid gas compressor and compressor engine parameters will be monitored. In addition, the flare valve position and flare pilot flame will be monitored. The monitoring system will be part of the PLC system. The following approach will be applicable to the amine units, the acid gas injection system, and the flare FL-1.

Justification

Proper operation of the acid gas injection system should result in no emissions. Proper operation is ensured by continuous monitoring of compressor discharge pressure and the wellhead pressure and alarming should the system malfunction (e.g., pressure loss indicating a leak or pressure gain above 1200 psi indicating a blockage in the system). In these events, in addition to alarming, the valve will automatically divert the acid gas to the flare.

CAM Requirement	Acid Injection System (AGI)	Flare (FL-1)
Performance Indicator [64.3(a)(1)]	Discharge pressure (psig) of acid gas compressor will be continuously monitored as will the well head pressure.	Flare valve position.
		Presence of combustion in the flare or flare pilot.
Measurement Approach	The wellhead pressure at the disposal well is monitored by a pressure transducer.	The flare valve position is monitored.
	The discharge pressure of acid gas from the compressor is monitored by a pressure transducer.	Presence of combustion in the flare or flare pilot is monitored continuously by a well-maintained alarm that signals non-combustion of gas.
Indicator Range [64.4(a)(2)]	The pressure differential between the wellhead and the acid gas compressor discharge must be a positive value.	The valve position is either OPEN or SHUT.
	Acceptable wellhead pressure is not to exceed 1200 psig.	An excursion is defined as no flame present or no flame sensed.
	Acceptable discharge pressure is not to exceed 1200 psig.	
Data Representativeness [64.3(b)(1)]	As long as a positive pressure differential is maintained between the acid gas discharge and the wellhead, acid gas will flow between the two. There are valves to close each component so that the pressure differential will either be positive or neutral.	If the valve is not open, gas routed to the flare is not combusted.
		If the pilot flame is not present, gas routed to the flare is not combusted.
Verification of Operational Status [64.3(b)(2)]	The acid gas compressor discharge pressure and the wellhead pressure are checked visually at least once per day during normal working hours.	The valve position shall be visually checked at least once per day during normal working hours. The compressor alarm system automatically opens the flare valve.

CAM Requirement	Acid Injection System (AGI)	Flare (FL-1)
	An audible alarm occurs if the system malfunctions (pressure loss or pressure gain above 1200 psig). The pressure transducer alarm system is maintained. The operator records the data and results of each maintenance activity and any repairs or replacements made.	An audible alarm occurs due to non-combustion of the flare pilot and/or flare flame. The non-combustion alarm system is maintained. The operator records the date and result of each maintenance activity, and any repairs or replacements made.
QA/QC Practices and Criteria [64.3(b)(3)]	The pressure transducer is verified at least once every 12-months in accordance with manufacturer's specifications. Verification procedures include adding a known amount of pressure to the system to verify the accuracy of the reading of the transducer.	During initial startup and testing activities, the automatic valve adjustments are checked. Valve adjustments are checked at least once every 12-months.
	At least annually, or more frequently as recommended by the manufacturer, inspections and regular maintenance are performed on the acid gas compressor.	The flame alarm system is tested once in January and once in July of each year by turning off the thermocouples and recording the time required for the alarm to respond.
Monitoring Frequency [64.3(b)(4)]	The PLC system continuously monitors the discharge pressure and the wellhead pressure.	The PLC system continuously monitors the valve position.
		The PLC system continuously monitors the presence of the flare pilot and/or flare flame.
Data Collection Procedures [64.3(b)(4)(i) and (iii)]	The discharge pressure and the wellhead pressure are electronically recorded at least once every 24 hours. In addition, periodic manual readings may be taken.	The PLC system records any change of the valve position, the valve position (open or shut), and the cumulative time that the valve was in that position when the valve position changed.
	Records are maintained of the pressure transducer verification and of inspections, repairs, and maintenance to the pressure transducers.	Records are maintained of non-combustion of the flare or flare pilot for any reason, including failure to deliver fuel and of inspection, repairs, and/or maintenance to the flare and flare pilot.
Averaging Period [64.3(b)(4)]	For the discharge pressure and the wellhead pressure, there is no averaging period. The values are not to exceed minimum and maximum values in the range specified.	Not applicable. The valve is either open or shut. The flare and pilot flare are either present or not.

Compliance Assurance Monitoring Plan

Dehydration Units Using the Process Flare for VOC and H2S Control (FL-2)

I. Background

A. Emissions Unit

Description: Process Flare
Identification: FL-2

B. Applicable Regulation, Emission Limit, and Monitoring Requirements

Regulation:	NSR Permit and 40 CFR 64
Regulated Pollutant:	VOC, SO2
Emission Limit:	Proposed VOC Limit: 705 pph and 107.8 tpy Proposed SO2 Limit: 62.1 pph and 53.0 tpy
Monitoring in Permit:	Continuous flare pilot with pilot alarm Continuous flow rate Annual visible emissions

C. Control Technology: Flare

II. Monitoring Approach

The monitoring approach is provided in the table below.

III. Data Availability

Monitoring of the flare pilot is continuous and any outages will create an alarm signal, which is recorded. Visible emissions will be monitored annually using Method 22. Flow is monitored and recorded continuously

CAM MONITORING PLAN FOR Process Flare FL-2

	Indicator 1	Indicator 2	Indicator 3
I. Performance Indicator [64.3(a)(1)]	Pilot Flame	Presence of Visible Emissions	Totalized flow volume
Measurement Approach	Pilot flame is constantly monitored using a thermocouple or infrared (IR) device as approved by the Division.	The flare will be monitored for visible emissions in accordance with 40 CFR 60.18 once per year that the flare is operational.	Gas flow to the flare will be measured continuously with a flow meter.
II. Indicator Range or Designated Condition [64.3(a)(2)]	The thermocouple and/or IR is linked to a programmable logic controller (PLC) which constantly monitors the pilot status for presence or absence of flame. Absence of flame causes spark igniter to relight pilot. After set time with no pilot flame, the pilot goes to alarm.	Visible emissions are present or not present	Once every 24 hours, SO2 emissions are calculated based on gas flow to the flare. The calculated emissions are compared to the most recent permit limits.
III. Performance Criteria			
A. Data Representativeness [64.3(b)(1)]	Presence of a flame indicated on the PLC pane, PLC registration of pilot status, automatic spark igniter ignition.	Efficient combustion is assumed if no visible emissions are observed.	Calculation of emission rates on a daily basis demonstrates compliance with permitted emission limitations.
B. Verification of Operational Status and AQ Practices and Criteria Verifying Data Validity [64.3(b)(2) & 64.3(b)(3)]	Thermocouple and/or IR sensor visually checked quarterly, and the alarm tested twice per year.	Visible emissions will be determined in accordance with Method 22 of Appendix A of 40 CFR 60 Subpart A.	A sample of the flared gas is analyzed annually. The new H2S concentration is used in the daily calculations to ensure data quality.
C. Monitoring Frequency [64.3(b)(4)]	The presence of a pilot flame is monitored continuously. The thermocouple and/or IR sensor will be monitored quarterly and the alarm monitored semiannually.	Monitoring of visible emissions will occur once per year that the flare is operational.	Flow is continuously measured.
D. Data Collection Procedures [64.3(b)(4)]	Presence or absence of flame will be recorded in a log.	Records shall be maintained of all visible emissions observations.	Totalized flow is continuously recorded while the flare is in operation.
E. Averaging Period [64.3(b)(4)]	None	Method 22 shall be conducted over a 30-minute time period or the full duration of the event, whichever is shorter.	24 hours

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.

A compliance matrix detailing each of the requirements of NSR 0001-M11 has been prepared and associated activities implemented. Please refer to the table below, which provides each actionable requirement, a description of how it is monitored, how recordkeeping is maintained, and associated reporting obligations for each detail.

Unit	Requirement	Monitoring	Recordkeeping	Reporting
Acid Gas Injection System	Monitor the pressure into the AGI well to ensure proper injection of the acid gas stream.	AGI Pressure monitored through Plant DCS.	Plant DCS/Historian	Not applicable
Acid Gas Injection System	Install, maintain, and operate AGI well with redundant compressors (Engines 5&6).	Three compressors, 1 electric and 2 gas driven are installed. Operations are monitored through the Plant DCS.	Plant DCS	Not applicable
Acid Gas Injection System	At all times, except during scheduled maintenance of a single compressor, the redundant compressor shall be available to inject gas into the AGI well.	Three compressors, 1 electric and 2 gas driven are installed. Operations are monitored through the Plant DCS.	Plant DCS	Not applicable
Acid Gas Injection System	At all times either ENG-5 or ENG-6 shall be available to accept the entire acid gas stream during maintenance or failure of the operating compressor.	Three compressors, 1 electric and 2 gas driven are installed. Operations are monitored through the Plant DCS.	Plant DCS	Not applicable
Acid Gas Injection System	Maintain a positive pressure differential between the Acid Gas Compressor discharge and the well head.	AGI Pressure monitored through Plant DCS. A check valve (unidirectional valve) prevents gas sent to the AGI well from moving backwards to compression.	Plant DCS	Not applicable
Acid Gas Injection System	Inspect and maintain the AGI Well	Scheduled Maintenance Work Orders	Scheduled Maintenance Work Orders	Not applicable
Acid Gas Injection System	The AGI compressors shall be maintained and inspected in accordance with the manufacturer's recommendations.	Scheduled Maintenance Work Orders	Scheduled Maintenance Work Orders	Not applicable
Amine System	Acid Gas Flare is to be used only during an upset of the AGI system.	The Plant DCS records times and conditions when gas is routed to acid gas flare. Cygnet records flare volumes.	Plant DCS/Historian, Cygnet, Enviance	Excess Emission Event Reporting, Air Emissions Inventory
Amine System	Amine unit flash tank shall at all times be routed to the inlet, other	The amine flash is piped to the facility inlet.	Plant DCS/Historian	Not applicable

	process stream in the facility, or the Process Flare FL-2.			
Amine System	Amine unit and associated equipment must achieve a continuous and permanent daily rolling annual average of 100% control efficiency in reducing SO2 Emissions.	The facility is designed to extract and reinject SO2 from the inlet gas stream.	Post-amine system gas analysis, Plant DCS/Historian	Excess Emission Event Reporting, Air Emissions Inventory
Amine System	Inspect amine units and associated control equipment to ensure they are controlling as required and operated in accordance with manufacturers operating procedures**.**	Operations are monitored continuously through the Plant DCS and operator's daily inspections.	Plant DCS, Scheduled Maintenance Work Orders	Not applicable
Amine System	Total sulfur extended gas analysis to measure mercaptans	An extended gas analysis using ASTM D5504 is run monthly.	Retain Gas Analyses	Not applicable
Compressors	Compressor rod packing changeouts must be completed every 3 years for units subject to OOOOa.	Compressor overhauls are managed through Scheduled Maintenance Work Orders. These are set on a 3-year cycle.	Scheduled Maintenance Work Orders	OOOOa Reporting to EPA
Dehydration System	Glycol Pump Circulation Rate shall not exceed 600 GPH or 10 GPM.	The Plant DCS records equipment operational parameters, including the glycol pump rate.	Plant DCS/Historian	Not applicable
Dehydration System	Still vent emissions shall at all times be routed to the condenser. All non-condensed hydrocarbon vapors shall be routed directly to FL-2 (process flare)	Plant DCS	Plant DCS/Historian	Not applicable
Dehydration System	Flash Tank vents must be routed to FL-2 at all times.	Plant DCS	Plant DCS/Historian	Not applicable
Dehydration System	Inspect the glycol dehy and control equipment to ensure operating as designed.	Scheduled Maintenance Work Orders	Scheduled Maintenance Work Orders	Not applicable
Dehydration System	Maintain in accordance with manufacturers specifications.	Scheduled Maintenance Work Orders	Scheduled Maintenance Work Orders	Not applicable
Dehydration System	Compliance with the VOC limits demonstrated by no exceeded inlet daily flow rate of 90 MMSCFD.	Plant DCS	Scheduled Maintenance Work Orders	Not applicable
Dehydration System MSS	Compliance with the VOC limits demonstrated by not exceeding 3.06 MMscf/hour and 949 MMscf/year sweetened gas (dehy outlet) gas to FL-2	Plant DCS	Plant DCS/Historian	Not applicable
Dehydration System	Record daily natural gas throughput	Cygnet	Cygnet	Not applicable
Dehydration System	Promax Run	Promax Output	Promax Output	Not applicable
Dehydration System	Maintain records to show exempt from HH.	Promax Output	Promax Output	Not applicable
Emissions Limits	Facility is limited to 10 TPY VOC SSM (Vent only).	Plant DCS, Cygnet	Plant DCS, Cygnet, Enviance	Not applicable

Emissions Limits	Facility is limited to 10 TPY VOC Malfunction Limit (Vent only).	Plant DCS, Cygnet	Plant DCS, Cygnet, Enviance	Not applicable
Engines	All lean burn engines must have oxidation catalyst	Pre-Startup Safety review, Engine Testing Reports	Engine Testing Reports	Not applicable
Engines	Maintain Units in accordance with manufacturers recommended maintenance including replacement of oxygen sensors in unit with oxygen based controllers.	Scheduled Maintenance Work Orders	Scheduled Maintenance Work Orders	Not applicable
Engines	Initial compliance tests shall be conducted within sixty days after the units achieve the maximum normal production rate.	Startup date, Engine Testing Reports	Startup date, Engine Testing Reports	Not applicable
Engines	PEA Testing required quarterly. JJJJ can be used to satisfy one quarterly.	Stack testing schedule, Engine Testing Reports	Engine Testing Reports	Not applicable
Facility	Daily Throughput Limit 90 MMSCFD	Cygnet	Cygnet	Not applicable
Facility	Inlet Extended Analysis	Inlet Extended Gas Analysis	Inlet Extended Gas Analysis	Not applicable
Facility	Fuel Sulfur levels must not be greater than 2 gr/100 scf.	The gas sulfur content at the amine treatment outlet (source of fuel gas) is continuously monitored to ensure natural gas will meet delivery specifications.	Plant DCS	Not applicable
Flares	Flares must be operated with a flame present at all time and no visible emissions. Continuously monitor presence of a flare pilot flame using a thermocouple or an equivalent device.	Pilot light presence and flaring are continuously monitored through the Plant DCS.	Plant DCS/Historian	Not applicable
Flares	Method 22 visible emission monitoring event to demonstrate compliance with the no visible emission standard.	A Method 22 Test is conducted annually.	Method 22 Test Report	Not applicable
Flares	Inspect to ensure flare is operating in accordance with manufacturers specification. Document name of person performing inspection, results of all equipment inspected and any maintenance or repairs needed for the flares to be compliant. Maintain a copy of the manufacturer's recommendations.	Operator Routine Duties include a daily visual inspection of the flare equipment. In combination with the Plant DCS continuous monitoring and Scheduled Maintenance Work Orders, this ensures proper operation.	Scheduled Maintenance Work Orders	Not applicable
Flares	Continuously monitor the flare flow rate. Pilot, purge, and assist gas should be monitored using a gas flow meter or determined using manufacturers specifications or engineering estimates.	Flare gas meters continuously record gas volumes.	Cygnet, Plant DCS/Historian	Excess Emission Event Reporting, Air Emissions Inventory
Flares	Perform a flare gas analysis to include H2S, Total Sulfur, VOC, and Heating Value.	Flare Gas Analyses are completed annually.	Gas Analysis	Not applicable
Flares	Flow meters and in flow monitors (spectrometer, H2S analyzers, etc) shall be calibrated in accordance with manufacturers specifications.	Flow meters and instrumentation are maintained per the Scheduled Maintenance Work Orders.	Scheduled Maintenance Work Orders	Not applicable

Flares	H2S analyzers are required on the inlet gas and Acid Gas Flare stream and are required to continuously record.	Plant DCS generates a daily report of H2S concentrations on inlet and the acid gas flare streams.	Plant DCS/Historian	Not applicable
Flares	Record all routine SSM Events**.**	All SSM events are recorded through Plant DCS, volumes in Cygnet, and emissions in Enviance.	Enviance	Excess Emission Event Reporting, Air Emissions Inventory
Flares	Records of flow meter, totalizer, and in line monitor certifications, calibrations, break downs, and reasons for the breakdowns, and corrective actions shall be maintained.	Calibrations and maintenance items are tracked in the Scheduled Maintenance Work Orders. Issues with metering are tracked through the daily production reports.	Scheduled Maintenance Work Orders	Not applicable
Flares	Determine the maximum flare tip velocity	Volumes are tracked through Cygnet and Enviance. The 60.18 calculation is kept in facility air quality files.	Cygnet, Enviance, Calculation	Not applicable
Flares	Summarize the following in a table: H2S and Total Sulfur Content % VOC Content Gas Heating Value Max hourly gas flow rate that occurred during the month Hourly gas flow rate for any hours that exceeded PPH emission limits Total SCF of gas sent to flare During the first 12 months of monitoring, cumulative total of gas sent to flare Cumulative total of SO2 and H2S sent to flare in Tons After first 12 months, document rolling 12.	An automated report has been developed that pulls these data points from the systems of record into Enviance and generates the compliance report.	Cygnet, Enviance	Excess Emission Event Reporting, Air Emissions Inventory
Fugitives	Implement and maintain a LDAR program per the facility's NSPS applicability.	Facility components as defined in 40 CFR 60.482 are monitored per requirements.	Reports detailing monitoring, leak detection, and repair are generated monthly.	Details are reported to EPA semiannually.
Heaters	Inspection shall meet those recommended by the manufacturer. At a minimum inspection shall include the following: Check indicators to verify oxygen levels are sufficient for combustion (i.e. blue colored steady flame). Inspection of unit housing for cracks or worn parts.	Facility operations are monitored daily through Operator Routine Duties and Plant DCS. Any issues are documented, and repairs tracked through the Scheduled Maintenance Work Orders.	Scheduled Maintenance Work Orders	Not applicable

The majority of requirements have been met in regard to compliance activities, recordkeeping, and reporting, with the following exceptions:

- Each Ajax DPC 2804LE engine exhausts at a lower temperature than specified in the product literature. As a result, the catalytic controls for these units have been less efficient than expected. Frontier Field Services is submitting this application to authorize the actual emissions rates of these units.

- Despite specific vendor representations that catalytic controls were installed upon startup, Frontier discovered that ENG 1-3 did not have the catalysts that were ordered installed upon startup. These controls were immediately installed upon discovery.
- Redundant acid gas injection compression has been installed at the facility. There are three total acid gas injection compressors: one electric unit, and two gas-driven compressors. However, after installation it was discovered that the Ajax units required various maintenance items and repairs to optimize performance. Parts availability for these specialized units is limited and difficult to acquire. As a result, each of the Ajax units experienced downtime during the completion of construction/bringing the plant online and stabilizing processes/operations. As a result, acid gas injection efficiency was lower than the 100% control specified in the permit, and acid gas flaring was higher than allowed under A 106.
- Flare emissions have exceeded the allowable limits in Section A 106. Upon review of the January 2022 permit application, it was noted that although the Process Flare (FL-2) is the control device for facility SSM (blowdowns, process or equipment issues, etc), no SSM was represented in the permit action. Therefore, this application is being submitted to represent actual facility operations and as-built equipment specifications and authorize the associated emissions.

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.

Frontier Field Services, LLC will continue to be in compliance with requirements for which it is in compliance at the time of permit application. Frontier Field Services, LLC will 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.

Frontier Field Services, LLC proposes annual submission of compliance aligned with the permit approval date.

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** **X No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ **Yes** **X 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** **X No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)

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.

As illustrated in Section 19.2, Compliance Status, the majority of compliance requirements are being met through equipment installation and maintenance practices, testing, and recordkeeping and reporting. The following items are not in compliance at the time of the application:

- Each Ajax DPC 2804LE engine exhausts at a lower temperature than specified in the product literature. As a result, the catalytic controls for these units have been less efficient than expected. Frontier Field Services is submitting this application to authorize the actual emissions rates of these units.
- Redundant acid gas injection compression has been installed at the facility. There are three total acid gas injection compressors: one electric unit, and two gas-driven compressors. However, after installation it was discovered that the Ajax units required various maintenance items and repairs to optimize performance. Parts availability for these specialized units is limited and difficult to acquire. As a result, each of the Ajax units experienced higher than expected downtime during the completion of construction and bringing the plant online and stabilizing processes and operations. As a result, acid gas injection efficiency was lower than the 100% control specified in the permit, and acid gas flaring was higher than allowed under A 106.
- Flare emissions have exceeded the allowable limits in Section A 106. Upon review of the January 2022 permit application, it was noted that although the Process Flare (FL-2) is the control device for facility SSM (blowdowns, process or equipment issues, etc), no SSM was represented in the permit action. Therefore, this application is being submitted to represent actual facility operations and as-built equipment specifications and authorize the associated emissions.

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.

- This permit application is being submitted to accurately represent site conditions and operations. Authorization of this permit application will bring the Ajax DPC 2804LE units into compliance with permitted emissions limits.
- Several strategies are employed to reduce or eliminate acid gas flaring from Fl-1.
  - Operational strategies include manually managing compressor operations to ensure that automated shutdowns designed to protect the equipment do not occur. For example, liquids in the compressor knockouts will trigger an automated shutdown if the levels get too high. Operations personnel routinely check the compressors and manually drain the knockout to ensure liquids do not reach shut down levels.
  - Operations monitors performance of the acid gas injection compressor in use. If issues are noted, such as alarms, pressure changes, or changes in other operational parameters indicating a problem with performance, the backup compressor is proactively warmed up and readied for switch over prior to a unit going down.
  - If the plant control system indicates that the amine treatment system is experiencing issues, gas receipts at the inlet of the plant will be restricted in order to reduce inlet volumes and/or high-H2S gas from entering the plant, thereby reducing or eliminating process streams that would need to be routed to the acid gas flare.
  - Difficult to source spare parts have been ordered and will be kept on hand for reasonably foreseeable required maintenance.
  - Reliability issues with the compressors are being addressed through planned engineering and construction updates.
- This permit application is being submitted to accurately represent site conditions and operations. Authorization of this permit application will bring the process flare, FL-2, into compliance with permitted emissions limits.

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.

Frontier Field Services strives to be in compliance continually and therefore has already implemented measures to bring the facility into compliance.

- Anticipated permit issuance in late 2023 will authorize the engine emissions and process flare emissions.
- Operations and maintenance practices have already been implemented and are designed and anticipated to prevent acid gas flaring in normal operations, routine SSM, and/or alternate operating scenarios.

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.

Frontier Field Services, LLC proposes semiannual compliance reporting in alignment with the Title V semiannual reporting requirements.

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 Dagger Draw Gas Plant is not an acid rain source.

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 RMP was last submitted to EPA 11/02/2022.

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.)

NOT APPLICABLE

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

Darin B. Kennard
Vice President & General Manager

Durango Midstream LLC
10077 Grogans Mill Road – Suite 300
The Woodlands, Texas 77380

Direct: (346) 351-2790
Mobile: (832) 388-8338
Email: DKennard@durangomidstream.com
DurangoMidstream.com

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.

None requested.

Section 22: Certification

Company Name: Frontier Field Services

I, Rebecca Moore, 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 21 day of June, 2023, upon my oath or affirmation, before a notary of the State of Texas.

Rebecca Moore
*Signature

June 21, 2023
Date

Rebecca Moore
Printed Name

HSE Advisor
Title

Scribed and sworn before me on this 21st day of June, 2023

My authorization as a notary of the State of Texas expires on the 3rd day of June, 2024.

Notary's Signature

6-21-23
Date

LaJuana L Berger
Notary's Printed Name

LAJUANA BERGER
Notary Public, State of Texas
Comm. Expires 06-03-2024
Notary ID 132505127

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.

Air Permit Application
Compliance History Disclosure Form

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

Permittee/Applicant Company Name		**Expected Application Submittal Date**
Frontier Field Services, LLC		7/3/2023
Permittee/Company Contact	**Phone**	**Email**
Rebecca Moore, Environmental Advisor	346-224-2455	RMoore@durangomidstream.com

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

Equipment Specification

Proposal Information

Proposal Number:	CG-22-000043 Rev(3)	Date:	**9/11/2023**
Project Reference:	Frontier Field Services, LLC. - CAT3606LE - Catalyst Spec Sheet		

Engine Information

Engine Make:	Caterpillar	Speed:	Rated
Engine Model:	G 3606 LE	Power Output:	1,775 bhp
Rated Speed:	1000 RPM	Exhaust Flow Rate:	12,146 acfm (cfm)
Fuel Description:	Natural Gas	Exhaust Temperature:	847 ° F
Hours Of Operation:	8760 Hours per year	O_2:	12.8%
Load:	100%	H_2O:	17%

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	*g/bhp-hr*	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	
NO_x*	*0.5*	8.57	49	67	0.671	1.48	*0.5*	8.57	49	67	0.671	1.48	
CO	*2.75*	47.13	441	606	3.688	8.13	*0.6*	10.28	96	132	0.805	1.77	78.2%
NMNEHC**	*0.7*	12	196	269	0.939	2.07	0.7	12	196	269	0.939	2.07	

System Specifications

Catalyst (Replacement Catalyst)

Element Model Number:	MECB-OX-RB3494-3275-0000-291
Number of Catalyst Layers:	1
Number of Catalyst Per Layer:	1
Catalyst Back Pressure:	3.0 inWC (Clean)
Design Exhaust Flow Rate:	12,146 acfm
Design Exhaust Temperature:	847f
Dimensions:	Ø 32.75 in
Exhaust Temperature Limits***:	550f – 1250f (catalyst inlet); 1350f (catalyst outlet)
System Pressure Loss:	3.0 inWC (Clean)

* MW referenced as NO_2

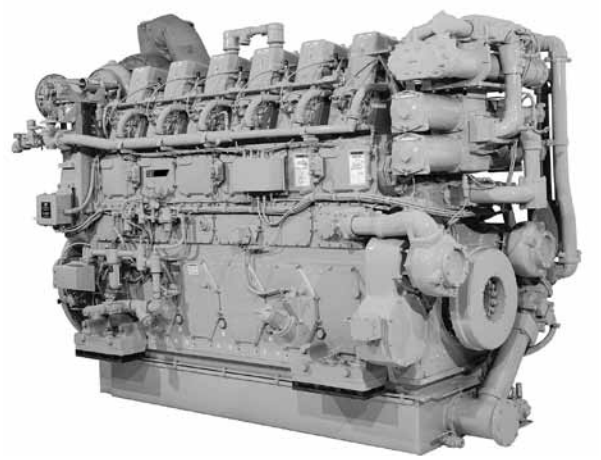
** MW referenced as CH_4. Propane in the exhaust shall not exceed 15% by volume of the NMHC compounds in the exhaust, excluding aldehydes. The 15% (vol.) shall be established on a wet basis, reported on a methane molecular weight basis. The measurement of exhaust NMHC composition shall be based upon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

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

G3606 LE Gas Petroleum Engine

1324-1413 bkW (1775-1895 bhp) 1000 rpm

0.5 g/bhp-hr NOx or 0.7 g/bhp-hr NOx (NTE)



Shown with Optional Equipment

CAT® ENGINE SPECIFICATIONS

In-Line 6, 4-Stroke-Cycle

Bore	300 mm (11.8 in.)
Stroke	300 mm (11.8 in.)
Displacement	127.2 L (7,762 cu. in.)
Aspiration	Turbocharged-Aftercooled
Digital Engine Management Governor and Protection	Electronic (ADEM™ A3)
Combustion	Low Emission (Lean Burn)
Engine Weight net dry (approx)	15,676 kg (34,560 lb)
Power Density	11.1 kg/kW (18.2 lb/hp)
Power per Displacement	14.9 bhp/L
Total Cooling System Capacity	401.3 L (106 gal)
Jacket Water	340.7 L (90 gal)
Aftercooler Circuit	60.6 L (16 gal)
Lube Oil System (refill)	707.9 L (187 gal)
Oil Change Interval	5000 hours
Rotation (from flywheel end)	Counterclockwise
Flywheel Teeth	255

FEATURES

Engine Design
- Proven reliability and durability
- Ability to burn a wide spectrum of gaseous fuels
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Broad operating speed range

Emissions
Meets U.S. EPA Spark Ignited Stationary NSPS Emissions for 2010/11 with the use of an oxidation catalyst

Lean Burn Engine Technology
Lean-burn engines operate with large amounts of excess air. The excess air absorbs heat during combustion reducing the combustion temperature and pressure, greatly reducing levels of NOx. Lean-burn design also provides longer component life and excellent fuel consumption.

Ease of Operation
- High-strength pan and rails for excellent mounting and stability
- Side covers on block allow for inspection of internal components

Advanced Digital Engine Management
ADEM A3 engine management system integrates speed control, air/fuel ratio control, and ignition/detonation controls into a complete engine management system. ADEM A3 has improved: user interface, display system, shutdown controls, and system diagnostics.

Full Range of Attachments
Large variety of factory-installed engine attachments reduces packaging time.

Testing
Every engine is full-load tested to ensure proper engine performance.

Gas Engine Rating Pro
GERP is a PC-based program designed to provide site performance capabilities for Cat® natural gas engines for the gas compression industry. GERP provides engine data for your site's altitude, ambient temperature, fuel, engine coolant heat rejection, performance data, installation drawings, spec sheets, and pump curves.

Product Support Offered Through Global Cat Dealer Network
More than 2,200 dealer outlets

Cat factory-trained dealer technicians service every aspect of your petroleum engine

Cat parts and labor warranty

Preventive maintenance agreements available for repair-before-failure options

S•O•S℠ program matches your oil and coolant samples against Caterpillar set standards to determine:
- Internal engine component condition
- Presence of unwanted fluids
- Presence of combustion by-products
- Site-specific oil change interval

Over 80 Years of Engine Manufacturing Experience
Over 60 years of natural gas engine production

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products
- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

Web Site
For all your petroleum power requirements, visit www.catoilandgas.cat.com.

STANDARD EQUIPMENT

Air Inlet System
Air cleaner — standard-duty inlet air adapter

Control System
ADEM A3 control system provides electronic governing integrated with air/fuel ratio control and individual cylinder ignition timing control

Cooling System
Jacket water pump
Jacket water thermostats and housing
Aftercooler pump
Aftercooler water thermostats and housing
Single-stage aftercooler

Exhaust System
Dry wrapped exhaust manifolds
Vertical outlet adapter

Flywheels and Flywheel Housing
SAE standard rotation

Fuel System
Gas admission valves with electronically controlled fuel supply pressure

Ignition System
A3 control system senses individual cylinder detonation and controls individual cylinder timing

Instrumentation
LCD display panel monitors engine parameters and displays diagnostic codes

Lube System
Crankcase breathers (top mounted)
Oil cooler
Oil filter
Oil pan drain valve

Mounting System
Engine mounting feet (four total)

Protection
Electronic shutoff system with purge cycle
Crankcase explosion relief valves
Gas shutoff valve

Starting System
Air starting system

General
Paint — Cat yellow
Vibration dampers

OPTIONAL EQUIPMENT

Air Inlet System
Heavy-duty air cleaner with precleaners
Heavy-duty air cleaner with rain protection

Charging System
Charging alternators

Control System
Custom control system software is available for non-standard ratings. Software is field programmable using flash memory.

Cooling System
Expansion tank
Flexible connections
Jacket water heater

Exhaust System
Flexible bellows adapters
Exhaust expander
Weld flanges

Fuel System
Fuel filter
Gas pressure regulator
Flexible connection
Low energy fuel system
Corrosive gas fuel system

Ignition System
CSA certification

Instrumentation
Remote data monitoring and speed control
Compatible with Cat® Electronic Technician (ET) and Data View
Communication Device — PL1000T/E
Display panel deletion is optional

Lube System
Air or electric motor-driven prelube
Duplex oil filter
LH or RH service
Lube oil makeup system

Mounting System
Mounting plates (set of six)

Power Take-Offs
Front stub shafts

Starting System
Air pressure reducing valve
Natural gas starting system

General
Engine barring device
Damper guard

TECHNICAL DATA

G3606 LE Gas Petroleum Engine — 1000 rpm

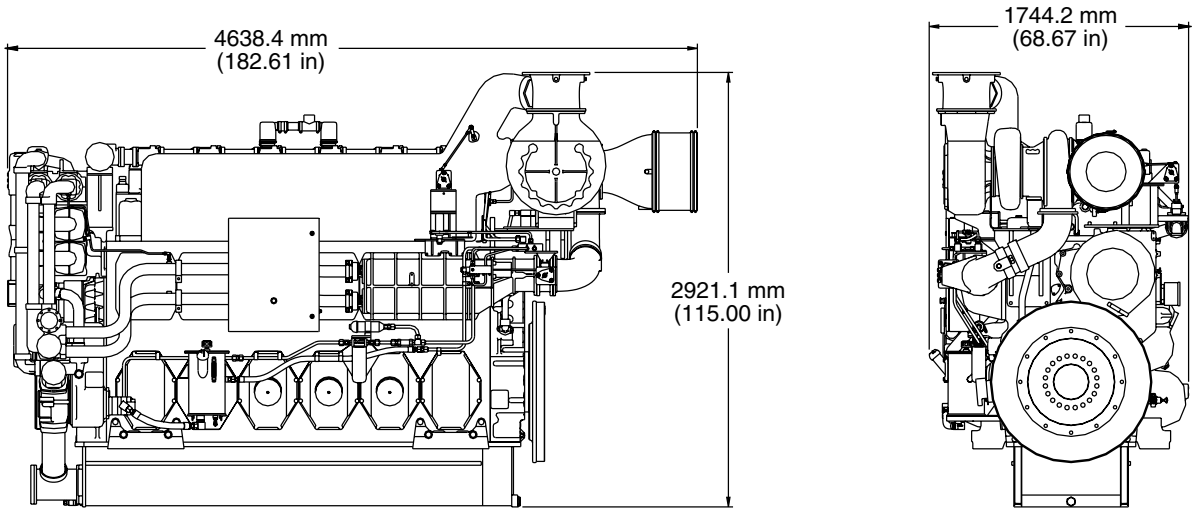
		DM5137-03	DM5432-05	DM5433-05	DM8605-02
Engine Power					
@ 100% Load	bkW (bhp)	1368 (1835)	1413 (1895)	1324 (1775)	1324 (1775)
@ 75% Load	bkW (bhp)	1026 (1376)	1060 (1421)	993 (1331)	993 (1331)
Engine Speed	rpm	**1000**	**1000**	**1000**	**1000**
Max Altitude @ Rated Torque and 38°C (100°F)	m (ft)	1219.2 (4000)	1219.2 (4000)	609.6 (2000)	609.6 (2000)
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	%	20	20	23	22
SCAC Temperature	°C (°F)	43 (110)	32 (90)	54 (130)	54 (130)
Emissions*					
NOx	g/bkW-hr (g/bhp-hr)	.94 (0.7)	.94 (0.7)	.94 (0.7)	.67 (0.5)
CO	g/bkW-hr (g/bhp-hr)	3.4 (2.5)	3.4 (2.5)	3.4 (2.5)	3.69 (2.75)
CO_2	g/bkW-hr (g/bhp-hr)	589 (439)	589 (438)	590 (440)	593 (442)
VOC**	g/bkW-hr (g/bhp-hr)	0.8 (0.7)	0.79 (0.69)	0.81 (0.7)	0.85 (0.7)
Fuel Consumption***					
@ 100% Load	MJ/bkW-hr (Btu/bhp-hr)	9.34 (6600)	9.31 (6580)	9.37 (6620)	9.41 (6649)
@ 75% Load	MJ/bkW-hr (Btu/bhp-hr)	9.73 (6876)	9.69 (6849)	9.77 (6903)	9.81 (6933)
Heat Balance					
Heat Rejection to Jacket Water					
@ 100% Load	bkW (Btu/mn)	321 (18,281)	327 (18,645)	314 (17,894)	314 (17,875)
@ 75% Load	bkW (Btu/mn)	278 (15,801)	283 (16,145)	270 (15,400)	272 (15,473)
Heat Rejection to Aftercooler					
@ 100% Load	bkW (Btu/mn)	269 (15,297)	305 (17,339)	235 (13,350)	244 (13,912)
@ 75% Load	bkW (Btu/mn)	149 (8466)	170 (9679)	128 (7300)	134 (7633)
Heat Rejection to Exhaust LHV to 25°C (77° F)					
@ 100% Load		1334 (75,883)	1346 (76,571)	1320 (75,085)	1325 (75,359)
@ 75% Load	bkW (Btu/mn)	1061 (60,310)	1073 (61,021)	1047 (59,560)	1051 (59,787)
Exhaust System					
Exhaust Gas Flow Rate					
@ 100% Load	m^3/min (cfm)	346.48 (12,236)	352.77 (12,458)	339.92 (12,004)	343.94 (12,146)
@ 75% Load	m^3/min (cfm)	273.97 (9675)	278.35 (9830)	269.49 (9517)	272.69 (9630)
Exhaust Stack Temperature					
@ 100% Load	°C (°F)	454 (850)	445 (832)	464 (867)	453 (847)
@ 75% Load	°C (°F)	471 (880)	465 (869)	477 (891)	466 (870)
Intake System					
Air Inlet Flow Rate					
@ 100% Load	m^3/min (scfm)	133.29 (4707)	137.53 (4857)	129.01 (4556)	132.69 (4686)
@ 75% Load	m^3/min (scfm)	102.96 (3636)	105.42 (3723)	100.50 (3549)	103.36 (3650)
Gas Pressure	kPag (psig)	295-324 (42.8-47)	295-324 (42.8-47)	295-324 (42.8-47)	295-324 (42.8-47)

*at 100% load and speed, all values are listed as not to exceed
**Volatile organic compounds as defined in U.S. EPA 40 CFR 60, subpart JJJJ
***ISO 3046/1

G3606 LE GAS PETROLEUM ENGINE

1324-1413 bkW (1775-1895 bhp)

GAS PETROLEUM ENGINE



DIMENSIONS		
Length	mm (in.)	4638.4 (182.61)
Width	mm (in.)	1744.2 (68.67)
Height	mm (in.)	2921.1 (115.00)
Shipping Weight	kg (lb)	15,676 (34,560)

Note: General configuration not to be used for installation. See general dimension drawings for detail.

RATING DEFINITIONS AND CONDITIONS

Engine performance is obtained in accordance with SAE J1995, ISO3046/1, BS5514/1, and DIN6271/1 standards.

Transient response data is acquired from an engine/generator combination at normal operating temperature and in accordance with ISO3046/1 standard ambient conditions. Also in accordance with SAE J1995, BS5514/1, and DIN6271/1 standard reference conditions.

Conditions: Power for gas engines is based on fuel having an LHV of 33.74 kJ/L (905 Btu/cu ft) at 101 kPa (29.91 in. Hg) and 15° C (59° F). Fuel rate is based on a cubic meter at 100 kPa (29.61 in. Hg) and 15.6° C (60.1° F). Air flow is based on a cubic foot at 100 kPa (29.61 in. Hg) and 25° C (77° F). Exhaust flow is based on a cubic foot at 100 kPa (29.61 in. Hg) and stack temperature.

Performance Numbers: DM5137-03, DM5432-05, DM5433-05, DM8605-02
LEHW0039-02 (8-10)

Manufacturer's Expected Exhaust Emissions and Performance Data

Date: May 24, 2023

Prepared For: Durango Midstream - SN's 84174 & 82496

Engine: DPC-2804 LE

Ajax, Fuel Injected, Spark Ignited, Naturally Aspirated, 2-stroke lean burn (2SLB)

Specified Conditions:

	Site Altitude (FASL)	: 3500	
	Site Fuel Composition	: PLQNG	
	Ambient Temp For Defining Maximum Load	: 100	Degrees F
	Average Ambient Temp For Defining Exhaust Emissions	: 65	Degrees F
	Bore x Stroke (in)	: 15 x 16	
	No. of Cylinders	: 4	
	Site Rated Speed (RPM)	:	440
	Exhaust System	:	Standard
	Site Rated Load (BHP) (BHP available at engine)	:	752
	Site Rated Load (BMEP, psi)	:	59.8
NOx	g/bhp-hr	:	2.0
	ppmvd @ 5% O2	:	375
	lb/hr	:	3.32
	Tpy	:	14.52
CO	g/bhp-hr	:	2.3
	ppmvd @ 5% O2	:	399
	lb/hr	:	3.81
	Tpy	:	16.70
VOC	g/bhp-hr	:	0.75
	ppmvd @ 5% O2	:	97
	lb/hr	:	1.24
	Tpy	:	5.45
H2CO	g/bhp-hr	:	0.3
	ppmvd @ 5% O2	:	81
	lb/hr	:	0.50
	Tpy	:	2.20
	BSFC - Btu/Bhph	:	7853
	Exhaust Stack Inside Diameter - in	:	17.3
	Exhaust Stack Height - in	:	241.00
	Exhaust Gas Temp @ Stack - ºF	:	515
	Exh. Velocity @ Stack - ft /min	:	3832
	Exhaust Gas Flow @ Stack - acfm	:	6219
	Exhaust Gas Flow @ Stack - lb/min	:	221.90
	Exhaust Oxygen Concentration (vol%, dry)	:	13.86
	Exhaust Gas Moisture Content (% H2O)	:	7.20
	Exhaust Gas MW	:	28.38
	Barometric Pressure (in-H2O)	:	29.30

Manufacturer's Expected Exhaust Emissions and Performance Data

Fuel Composition:

Compound	Formula	Mole %
Nitrogen	N2	0.7200
Carbon Dioxide	CO2	1.1400
Oxygen	O2	0.0000
Helium	He	0.0000
Hyd. Sulfide	H2S	0.0000
Methane	CH4	92.8400
Ethane	C2H6	4.1000
Propane	C3H8	1.2000
Iso – Butane	i-C4	0.0000
n - Butane	n-C4	0.0000
Iso - Pentane	i-C5H12	0.0000
n - Pentane	n-C5h12	0.0000
n-Hexane	C6H14	0.0000
n-Heptane	n-C7H16	0.0000
n-Octane	n-C8H18	0.0000
	Total Volume % =	100.00

The above emissions and performance data is contingent on:

1.) Using a Cooper Machinery Services supplied Oxidation Catalyst, when specified, and using Catalyst Friendly oil as specified Ajax instruction manual.
2.) Insulated exhaust pipes and Silencer insulated up to the Catalyst.
3.) No changes in the as quoted site conditions per specified site conditions and fuel composition above.
4.) Cooper Machinery Services Engine must be maintained in good working order per operating specifications outlined in Cooper Machinery Services engineering specification ES 4019.
5.) Cooper Machinery Services Engineering approved engine upgrades must meet Ajax specifications and installation guidelines.
6.) Engine operating parameters must be consistent with those specified in the Ajax instruction manual.
7.) Performance tests shall be conducted at 100% of the site rated load (+/-10%)
8.) Test data shall be taken from test ports located in the tailpipe of Cooper Machinery Services supplied exhaust silencer
9.) Emissions Test protocol shall follow:
    a.) NOx emissions: 40 CFR Part 60, Appendix A, Method 7e
    b.) CO emissions: 40 CFR Part 60, Appendix A, Method 10
    c.) VOC (NMNEHC) emissions: 40 CFR Part 60, Methods 25A and 18 or 40 CFR Part 60 Method 25A and 40 CFR Part 63 Method 320
    d.) HCHO emissions: 40 CFR Part 63, Appendix A, Method 320 or Method 328
10.) Remediation of reported non-conformance to be mutually agreed upon between Cooper Machinery Services and purchaser.

Manufacturer's Expected Exhaust Emissions and Performance Data

Definition of Terms

NOx = Nitrogen Oxide as NO2
CO = Carbon Monoxide
VOC = Non-methane, Non-ethane and Non-formaldehyde concentration reported as Propane
Note: VOC definition is according to 40 CFR 60 Subpart JJJJ (Spark Ignited NSPS)
H2CO = Formaldehyde
g/bhp-hr = Grams per brake horsepower-hour
ppmvd = Part per million voume on a dry basis corrected to 5% O2
Tpy= Tons per year @ 8760 hrs per year & 1 Ton = 2000 lbs
FASL = Feet Above Sea Level
ACFM = Actual Cubic Feet Per Minute
BSFC = Brake Specific Fuel Consumption, Btu / Bhp-hr, based on LHV
BMEP = Brake Mean Effective Pressure, psi
PLQNG = Pipe Line Quality Natural Gas