NMED AIR QUALITY
NSR SIGNIFICANT REVISION APPLICATION
SAN MATEO DLK BLACK RIVER MIDSTREAM, LLC
BLACK RIVER GAS PROCESSING PLANT

Facility Contact:
Kha Mach – Regulatory, Environmental and Regulatory Engineer

San Mateo DLK Black River Midstream, LLC
5400 LBJ Freeway
Suite 1500
Dallas, TX 75240

Prepared By:

Jaimy Karacaoglu – Senior Consultant

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June 2025

Project 243201.0082

Trinity Consultants

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June 18, 2025

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

RE: Application for Significant Revision to NSR Permit No. 6567
San Mateo DLK Black River Midstream, LLC – Black River Gas Processing Plant

Permit Programs Manager:

On behalf of San Mateo DLK Black River Midstream LLC, we are submitting this application for a Significant Revision for NSR Permit No. 6567 for the existing Black River Gas Processing Plant. The facility is currently authorized under NSR No. 6567-M8 and is located approximately 2.6 miles southwest of Loving, New Mexico. With this Significant Revision application, DLK is looking to install an additional treatment train (Plant 4), as well as modifying existing equipment. This application is being submitted pursuant to 20.2.72.219.D NMAC.

The format and content of this application are consistent with the Bureau's current policy regarding NSR Significant Revision applications; it is a complete application package using the most current Universal Application forms. Enclosed is a hard copy of the application. Both the check and original certification page are arriving separately. Please feel free to contact either myself at (505) 266-6611 or by email at Jaimy.Karacaoglu@trinityconsultants.com if you have any questions regarding this application. Alternatively, you may contact Kha Mach, Environmental and Regulatory Engineer for San Mateo DLK Black River Midstream, LLC, at (972) 371-5472 or by email at kha.mach@matadorresources.com.

Sincerely,

Jaimy Karacaoglu
Senior Consultant

CC: Jason Conway (EHS Manager, jason.conway@matadorresources.com)

Trinity Project File: 243201.0082

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**
San Mateo DLK Black River Midstream LLC		06/18/2025
Permittee/Company Contact	**Phone**	**Email**
Kha Mach	(972) 371-5472	kha.mach@matadorresources.com

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

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

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.

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

☒ Check No.: in the amount of $500

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

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

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

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

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known: 36133	Updating Permit/NOI #: 6567-M8
1	Facility Name: Black River Gas Processing Plant	Plant primary SIC Code (4 digits): 1321	
		Plant NAIC code (6 digits): 211112	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 978 Bounds Road, Loving, New Mexico.		
2	Plant Operator Company Name: San Mateo DLK Black River Midstream, LLC	Phone/Fax: (972) 371-5439/ N/A	

a	Plant Operator Address: 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240	
b	Plant Operator's New Mexico Corporate ID or Tax ID: 32-0591911	
3	Plant Owner(s) name(s): San Mateo DLK Black River Midstream, LLC	Phone/Fax: (972) 371-5439/ N/A
a	Plant Owner(s) Mailing Address(s): 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240	
4	Bill To (Company): San Mateo DLK Black River Midstream, LLC	Phone/Fax: (972) 371-5439/ N/A
a	Mailing Address: 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240	E-mail: csnow@matadorresources.com
5	☒ Preparer: Jaimy Karacaoglu ☒ Consultant: Trinity Consultants Inc.	Phone/Fax: (505) 266-6611 / N/A
a	Mailing Address: 9400 Holly Ave NE, Bldg. 3, Ste B, Albuquerque, NM 87122.	E-mail: Jaimy.Karacaoglu@trinityconsultants.com
6	Plant Operator Contact: Mr. Casey Snow	Phone/Fax: (972) 371-5439
a	Address: 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240	E-mail: csnow@matadorresources.com
7	Air Permit Contact: Kha Mach	Title: Regulatory and Environmental Engineer
a	E-mail: kha.mach@matadorresources.com	Phone/Fax: (972) 371-5472
b	Mailing Address: 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☒ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY): N/A
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ☒ No	If yes, the permit No. is: TBD
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is: N/A
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is: N/A
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: NSR 6567-M8
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is: N/A

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 21.25 MMSCF/hr	Daily: 510 MMSCFD	Annually: 186,150 MMSCF/yr
b	Proposed	Hourly: 35 MMSCF/hr	Daily: 841 MMSCFD	Annually: 306,931 MMSCF/yr
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 21.25 MMSCF/hr	Daily: 510 MMSCFD	Annually: 186,150 MMSCF/yr
b	Proposed	Hourly: 35 MMSCF/hr	Daily: 841 MMSCFD	Annually: 306,931 MMSCF/yr

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 32.26459°	Longitude (decimal degrees): -104.13198°	County: Eddy	Elevation (ft): 3139
2	UTM Zone: ☐ 12 or ☒ 13	Datum: ☒ NAD 83 ☐ WGS 84		
a	UTM E (in meters, to nearest 10 meters): 581,750	UTM N (in meters, to nearest 10 meters): 3,570,090		
3	Name and zip code of nearest New Mexico town: Loving, NM 88256.			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Loving, NM head south on N 4th Street toward W. Cedar St. (0.2 mi), Turn right at the 3rd cross street onto W Ash Road (0.3 mi), turn left onto US-285 S/S 8th St. (0.8 mi), turn right onto Higby Hole road (0.4 mi), turn right onto Bounds Road (1.8 mi), facility entrance will be on the right.**			
5	The facility is **2.6** miles **southwest** of **Loving, NM**.			
6	Land Status of facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Government ☐ BLM ☐ Forest Service ☐ Military			
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: City of Loving and City of Malaga.			
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☒ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: Carlsbad Caverns – 24.2 km			
9	Name nearest Class I area: **Carlsbad Caverns National Park**			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **24.2 km**			
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **>500 m**			
12	Method(s) used to delineate the Restricted Area: Continuous fencing "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.			
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.			
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?			

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760	
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: N/A	☐AM ☐PM	End: N/A	☐AM ☐PM	
3	Month and year of anticipated start of construction: Upon permit issuance.				
4	Month and year of anticipated construction completion: Upon permit issuance.				
5	Month and year of anticipated startup of new or modified facility: Upon permit issuance.				
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No				

Section 1-F: Other Facility Information

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

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

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Mr. Casey Snow		Phone: (972) 371-5439
a	R.O. Title: Senior Vice President of EHS	R.O. e-mail: csnow@matadorresources.com	
b	R. O. Address: 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): Mr. Sean O'Grady		Phone: (972) 371-5284
a	A. R.O. Title: Senior Vice President of Operations - Midstreams	A. R.O. e-mail: sogrady@sanmateomidstream.com	
b	A. R. O. Address: 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240		
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.): San Mateo Midstream, LLC.		
a	Address of Parent Company: One Lincoln Centre, 5400 LBJ Freeway, Suite 1500, Dallas, Texas 75240		
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: Jason Conway; (972) 619-1607		

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: **37 km from Texas**

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☒ Secure electronic transfer. Air Permit Contact Name **Jaimy Karacaoglu**, Email Jaimy.Karacaoglu@trinityconsultants.com Phone number **(505) 266-6611**.

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

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

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

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

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

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

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

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

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

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

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Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
ENG-1	Inlet Gas Compressor Engine	Waukesha	P9394 GSI	5283705346	2250 hp	2250 hp	2016 /	Catalyst-1 / ENG-1	20200254	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-2	Inlet Gas Compressor Engine	Waukesha	P9394 GSI	5283705365	2250 hp	2250 hp	2016 /	Catalyst-2 / ENG-2	20200254	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-3	Inlet Gas Compressor Engine	Waukesha	P9394 GSI	5283705405	2250 hp	2250 hp	2016 /	Catalyst-3 / ENG-3	20200254	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-4	Inlet Gas Compressor Engine	Waukesha	P9394 GSI	5283705381	2250 hp	2250 hp	2016 /	Catalyst-4 / ENG-4	20200254	☐ Existing (unchanged) ☑ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-1	Caterpillar G3616 Compressor Engine	Caterpillar	G3616	TBD	5000 hp	5000 hp	TBD / TBD	Catalyst-1 / ENG-1	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-2	Caterpillar G3616 Compressor Engine	Caterpillar	G3617	TBD	5000 hp	5000 hp	TBD / TBD	Catalyst-2 / ENG-2	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-3	Caterpillar G3616 Compressor Engine	Caterpillar	G3618	TBD	5000 hp	5000 hp	TBD / TBD	Catalyst-3 / ENG-3	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
AM-1	Plant 2 - Amine Unit	Zeeco	N/A	N/A	290 MMSCFD	290 MMSCFD	2018 /	TO-1 / TO-1	31000201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
AR-1	Plant 2 - Amine Reboiler	Tulsa Heaters	N/A	N/A	21.09 MMBtu/hr	21.09 MMBtu/hr	2018 /	N/A / AR-1	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-1	Plant 2 - Dehydrator Unit	Tryer	Custom	N/A	290 MMSCFD	290 MMSCFD	2017 /	FL-2 / FL-2	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DR-1	Plant 2 - Dehydrator Reboiler	Tryer	Custom	N/A	2.9 MMBtu/hr	2.9 MMBtu/hr	2017 /	N/A / DR-1	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
AM-2	Plant 3 - Amine Unit	Zeeco	N/A	N/A	220 MMSCFD	220 MMSCFD	2019 /	TO-2 / TO-2	31000201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
AR-2	Plant 3 - Amine Reboiler	Tulsa Heaters	N/A	N/A	23.92 MMBtu/hr	23.92 MMBtu/hr	2019 /	N/A / AR-2	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-2	Plant 3 - Dehydrator Unit	Tryer	Custom	N/A	220 MMSCFD	220 MMSCFD	2019 /	TO-2 / TO-2	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DR-2	Plant 3 - Dehydrator Reboiler	Tryer	Custom	N/A	2.5 MMBtu/hr	2.5 MMBtu/hr	2019 /	N/A / DR-2	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
AM-3	Plant 4 - Amine Unit	Tryer	Custom	N/A	330 MMSCFD	330 MMSCFD	TBD / TBD	TO-3 / TO-3	31000201	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-3	Plant 4 - Dehydrator Unit	Tryer	Custom	N/A	323 MMSCFD	323 MMSCFD	TBD / TBD	TO-3 / TO-3	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
DR-3	Plant 4 - Dehy Reboiler	Tryer	Custom	N/A	2.5 MMBtu/hr	2.5 MMBtu/hr	TBD / TBD	N/A / DR-3	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT-101	Plant 1 - Mole Sieve Heater	Heat Recovery Corp	N/A	N/A	6.97 MMBtu/hr	6.97 MMBtu/hr	2016 /	N/A / HT-101	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT- 801	Plant 1 - Stabilizer Heater	Heat Recovery Corp	N/A	N/A	6.97 MMBtu/hr	6.97 MMBtu/hr	2019 /	N/A / HT-801	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 102	Plant 2 - Mole Sieve Heater	Heat Recovery Corp	N/A	N/A	9.74 MMBtu/hr	9.74 MMBtu/hr	2016 /	N/A / HT - 102	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 103	Plant 3 - Mole Sieve Heater	Heat Recovery Corp	N/A	N/A	9.74 MMBtu/hr	9.74 MMBtu/hr	2019 /	N/A / HT - 103	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 802	Plant 3 - Stabilizer Heater 1	Heat Recovery Corp	N/A	N/A	6.2 MMBtu/hr	6.2 MMBtu/hr	2019 /	N/A / HT - 802	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 803	Plant 3 - Stabilizer Heater 2	Heat Recovery Corp	N/A	N/A	6.2 MMBtu/hr	6.2 MMBtu/hr	TBD /	N/A / HT - 803	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 804	Plant 4 - Stabilizer Heater	TBD	N/A	N/A	8.76 MMBtu/hr	8.76 MMBtu/hr	TBD / TBD	N/A / HT - 804	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 201	Plant 4 - Amine HMO Heater	TBD	N/A	N/A	51.37 MMBtu/hr	51.37 MMBtu/hr	TBD / TBD	N/A / HT - 201	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 104	Plant 4 - Mole Sieve Heater	TBD	N/A	N/A	40.80 MMBtu/hr	40.80 MMBtu/hr	TBD / TBD	N/A / HT - 104	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HT - 301	Plant 4 - Cryo HMO Heater	TBD	N/A	N/A	23.98 MMBtu/hr	23.98 MMBtu/hr	TBD / TBD	N/A / HT - 301	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TO - 1	Plant 2 - Thermal Oxidizer	Zeeco	N/A	N/A	9.9 MMBtu/hr	9.9 MMBtu/hr	2018 /	N/A / TO - 1	40400312	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
TO - 2	Plant 3 - Thermal Oxidizer	Zeeco	N/A	N/A	9.9 MMBtu/hr	9.9 MMBtu/hr	2018 /	N/A / TO - 2	40400312	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
TO - 3	Plant 4 - Thermal Oxidizer	Zeeco	N/A	N/A	9.9 MMBtu/hr	9.9 MMBtu/hr	TBD / TBD	N/A / TO-3	40400312	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TO-1 SSM	Plant 2 - Thermal Oxidizer SSM	N/A	N/A	N/A	N/A	N/A	N/A / N/A	N/A / N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TO-2 SSM	Plant 3 - Thermal Oxidizer SSM	N/A	N/A	N/A	N/A	N/A	N/A / N/A	N/A / N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-1 SSM	Plant 2 - Dehy Overhead SSM	N/A	N/A	N/A	N/A	N/A	N/A / N/A	N/A / N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-1	Plant 1 - Flare SSM/M	Zeeco	N/A	N/A	1.01 MMSCFH	1.01 MMSCFH	2016 /	N/A / FL-1	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
FL-2	Plant 2 SSM/M / Plant 2 Dehy -1	Zeeco	N/A	N/A	1.03 MMSCFH	1.03 MMSCFH	2016 /	N/A / FL-2	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
FL-3	Plant 3 - SSM/M	Zeeco	N/A	N/A	1.08 MMSCFH	1.08 MMSCFH	2019 /	N/A / FL-3	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
FL-4b	Plant 4 - Low Pressure Process Flare	N/A	N/A	N/A	65 scf/hr	65 scf/hr	TBD / TBD	N/A / FL-4a	30600904	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-4a	Plant 4 - SSM Flare	N/A	N/A	N/A	1.3 MMSCFH	1.3 MMSCFH	TBD / TBD	N/A / FL-4b	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
VCU - 1	Vapor Combustion Unit	Kimark Inc	N/A	N/A	7.11 MMBtu/hr	7.11 MMBtu/hr	2016 /	N/A / VCU-1	30600904	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
VCU - 1 SSM	VCU-1 Downtime	N/A	N/A	N/A	N/A	N/A	N/A / N/A	N/A / N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-702 A-F	Condensate Tanks	N/A	N/A	N/A	500 bbl each	500 bbl each	N/A / N/A	VCU-1 / VCU-1	40400312	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-701	Produced Water Tank	N/A	N/A	N/A	500 bbl	500 bbl	N/A / N/A	VCU-1 / VCU-1	40400315	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
TK-702 G	Plant 4 - Condensate Tank	N/A	N/A	N/A	1000 bbl	1000 bbl	TBD / TBD	FL-4 / FL-4	40400312	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-701B	Plant 4 -Produced Water Tank 1	N/A	N/A	N/A	1000 bbl	1000 bbl	TBD / TBD	FL-4 / FL-4	40400315	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TK-701C	Plant 4 -Produced Water Tank 2	N/A	N/A	N/A	1000 bbl	1000 bbl	TBD / TBD	FL-4 / FL-4	40400315	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL - 1	Condensate Tanks Truck Loading	N/A	N/A	N/A	17,645,000 gal/yr	17,645,000 gal/yr	N/A / N/A	N/A / N/A	40600132	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL - 2	Produced Water Tanks Truck Loading	N/A	N/A	N/A	44,100 gal/yr	44,100 gal/yr	N/A / N/A	N/A / N/A	40600132	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
TL - 3	Plant 4 - Condensate Loading	N/A	N/A	N/A	16,423,075 gal/yr	16,423,075 gal/yr	N/A / N/A	N/A / N/A	40600132	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
TL - 4	Plant 4 - Produced Water Loading	N/A	N/A	N/A	613,200 gal/yr	613,200 gal/yr	N/A N/A	N/A N/A	40600132	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FUG	Fugitives	N/A	N/A	N/A	N/A	N/A	2016 	N/A N/A	31088811	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FUG-4	Plant 4 - Fugitives	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM	Pig Launcher/Receiver (SSM1 and SSM2)	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM - Plant 4	Plant 4 - SSM	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MAL	Flare Malfunction	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CRYO - 1	Cryo Unit - 1	N/A	N/A	N/A	70 MMSCFD	70 MMSCFD	2016 	N/A N/A	31000299	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CRYO - 2	Cryo Unit - 2	N/A	N/A	N/A	220 MMSCFD	220 MMSCFD	2017 	N/A N/A	31000299	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CRYO - 3	Cryo Unit - 3	N/A	N/A	N/A	220 MMSCFD	220 MMSCFD	2019 	N/A N/A	31000299	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CRYO - 4	Cryo Unit - 4	N/A	N/A	N/A	220 MMSCFD	220 MMSCFD	TBD TBD	N/A N/A	31000299	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

Table 2-B: 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 One
ST-1	Glycol Storage Tanks	N/A	N/A N/A	100 bbl	20.2.72.202.B.2a		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
ST-2	Amine Storage Tanks	N/A	N/A N/A	300 bbl	20.2.72.202.B.2a		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
ST-3	Methanol Tanks	N/A	N/A N/A	500 bbl	20.2.72.202.B.2a		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
ST-4	Lube Oil Tanks	N/A	N/A N/A	500 & 2000 gallons	20.2.72.202.B.2a		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
ST-5	Antifreeze Tanks	N/A	N/A N/A	1000 gallons	20.2.72.202.B.2a		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
Haul Road	Haul Road Emissions	N/A	N/A N/A	N/A N/A	20.2.72.202.B.5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (Control by Weight)	Method used to Estimate Efficiency
BTEX-1	Condenser	2018	VOC, HAP	DEHY-1	Varies	ProMax Simulation
BTEX-2	Condenser	2019	VOC, HAP	DEHY-2	Varies	ProMax Simulation
TO-1	Thermal Oxidizer	2018	VOC, HAP	AM-1	98%	Manufacturer Spec
TO-2	Thermal Oxidizer	2019	VOC, HAP	AM-2 and DEHY-2	98%	Manufacturer Spec
TO-3	Thermal Oxidizer	N/A	VOC, HAP	AM-3 and DEHY-3	98%	Manufacturer Spec
FL-1	Flare	2016	VOC, H_2S, HAP	Plant 1- SSM/M	98%	Manufacturer Spec
FL-2	Flare	2016	VOC, H_2S, HAP	DEHY-1 and Plant 2 - SSM/M	98%	Manufacturer Spec
FL-3	Flare	2019	VOC, H_2S, HAP	Plant 3 - SSM/M	98%	Manufacturer Spec
FL-4a	Flare	TBD	VOC, H_2S, HAP	TK-702 G, TK-701 B, TK-701 C	98%	Manufacturer Spec
FL-4b	Flare	TBD	VOC, H_2S, HAP	Plant 4 - SSM/M	98%	Manufacturer Spec
VCU-1	Vapor Combustion Unit	2016	VOC, H_2S, HAP	TK-702 A-F & TK 701	98%	Manufacturer Spec
Catalyst-1	Catalyst	2025	CO, VOC, HCOH	ENG-1	CO: 90% VOC: 50% HCOH: 80%	Manufacturer Spec
Catalyst-2	Catalyst	2025	CO, VOC, HCOH	ENG-2	CO: 90% VOC: 50% HCOH: 80%	Manufacturer Spec
Catalyst-3	Catalyst	2025	CO, VOC, HCOH	ENG-3	CO: 90% VOC: 50% HCOH: 80%	Manufacturer Spec

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	3.31	14.48	24.47	107.18	3.31	14.48	0.20	0.86	0.37	1.63	0.37	1.63	0.37	1.63	-	-	-	-
ENG-2	3.31	14.48	24.47	107.18	3.31	14.48	0.20	0.86	0.37	1.63	0.37	1.63	0.37	1.63	-	-	-	-
ENG-3	3.31	14.48	24.47	107.18	3.31	14.48	0.20	0.86	0.37	1.63	0.37	1.63	0.37	1.63	-	-	-	-
HT-101	0.64	2.82	0.54	2.37	0.035	0.16	3.87E-03	0.017	0.049	0.21	0.049	0.21	0.037	0.16	-	-	-	-
HT-801	0.64	2.82	0.54	2.37	0.035	0.16	3.87E-03	0.017	0.049	0.21	0.049	0.21	0.037	0.16	-	-	-	-
HT-102	0.64	2.82	0.54	2.37	0.035	0.16	5.40E-03	0.024	0.068	0.30	0.068	0.30	0.051	0.22	-	-	-	-
AR-1	1.95	8.54	1.64	7.17	0.11	0.47	0.012	0.051	0.15	0.65	0.15	0.65	0.11	0.49	-	-	-	-
DR-1	0.27	1.17	0.23	0.99	0.015	0.065	1.61E-03	7.04E-03	0.020	0.089	0.020	0.089	0.015	0.067	-	-	-	-
HT-103	0.90	3.94	0.76	3.31	0.050	0.22	5.40E-03	0.024	0.068	0.30	0.068	0.30	0.051	0.22	-	-	-	-
HT-802	0.57	2.51	0.48	2.11	0.032	0.14	3.44E-03	0.015	0.044	0.19	0.044	0.19	0.033	0.14	-	-	-	-
AR-2	2.21	9.68	1.86	8.14	0.12	0.53	0.013	0.058	0.17	0.74	0.17	0.74	0.13	0.55	-	-	-	-
DR-2	0.23	1.01	0.19	0.85	0.013	0.056	1.39E-03	6.07E-03	0.018	0.077	0.018	0.077	0.013	0.058	-	-	-	-
HT-803	0.57	2.51	0.48	2.11	0.032	0.14	3.44E-03	0.015	0.044	0.19	0.044	0.19	0.033	0.14	-	-	-	-
HT-804	0.86	3.76	0.72	3.16	0.047	0.21	5.05E-03	0.022	0.065	0.29	0.065	0.29	0.065	0.29	-	-	-	-
HT-201	1.67	7.33	4.23	18.53	0.28	1.21	0.030	0.13	0.38	1.68	0.38	1.68	0.38	1.68	-	-	-	-
HT-104	1.35	5.91	3.36	14.72	0.22	0.96	0.024	0.10	0.30	1.33	0.30	1.33	0.30	1.33	-	-	-	-
HT-301	0.75	3.27	1.98	8.65	0.13	0.57	0.014	0.061	0.18	0.78	0.18	0.78	0.18	0.78	-	-	-	-
DR-3	0.39	1.72	0.33	1.44	0.022	0.094	2.31E-03	0.010	0.030	0.13	0.030	0.13	0.030	0.13	-	-	-	-
DEHY-1	-	-	-	-	193.81	848.88	-	-	-	-	-	-	-	-	0.052	0.23	-	-
AM-1	-	-	-	-	19.49	85.35	-	-	-	-	-	-	-	-	5.45	23.86	-	-
DEHY-2	-	-	-	-	190.32	833.59	-	-	-	-	-	-	-	-	0.052	0.23	-	-
AM-2	-	-	-	-	18.95	82.99	-	-	-	-	-	-	-	-	4.11	17.99	-	-
DEHY-3	-	-	-	-	199.47	873.66	-	-	-	-	-	-	-	-	4.23E-04	1.85E-03	-	-
AM-3	-	-	-	-	166.83	730.70	-	-	-	-	-	-	-	-	4.05	17.74	-	-
TO-1	No emissions from these unit in an uncontrolled scenario																	
TO-2	No emissions from these unit in an uncontrolled scenario																	
TO-3	No emissions from these unit in an uncontrolled scenario																	
TO-1 SSM	No emissions from these unit in an uncontrolled scenario																	
TO-2 SSM	No emissions from these unit in an uncontrolled scenario																	
DEHY-1 SSM	No emissions from these unit in an uncontrolled scenario																	
FL-1	No emissions from these unit in an uncontrolled scenario																	
FL-2	No emissions from these unit in an uncontrolled scenario																	
FL-3	No emissions from these unit in an uncontrolled scenario																	
FL-4b	0.011	0.049	0.022	0.097	-	-	3.71E-04	1.63E-03	-	-	-	-	-	-	-	-	-	-
FL-4a	0.033	0.15	0.067	0.29	-	-	1.11E-03	4.88E-03	-	-	-	-	-	-	-	-	-	-

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
VCU-1	No emissions from these unit in an uncontrolled scenario																	
VCU-1 SSM	No emissions from these unit in an uncontrolled scenario																	
TK-702A-F	-	-	-	-	17.89	78.35	-	-	-	-	-	-	-	-	-	-	-	-
TK-702 G	-	-	-	-	9.69	42.44	-	-	-	-	-	-	-	-	-	-	-	-
TK-701	-	-	-	-	156.54	685.65	-	-	-	-	-	-	-	-	2.82E-04	1.23E-03	-	-
TK-701 B	-	-	-	-	24.82	108.72	-	-	-	-	-	-	-	-	1.07E-03	4.70E-03	-	-
TK-701 C	-	-	-	-	24.82	108.72	-	-	-	-	-	-	-	-	1.07E-03	4.70E-03	-	-
TL-1	-	-	-	-	45.00	5.19	-	-	-	-	-	-	-	-	-	-	-	-
TL-2	-	-	-	-	86.33	0.27	-	-	-	-	-	-	-	-	1.65E-04	5.11E-07	-	-
TL-3	-	-	-	-	24.46	1.39	-	-	-	-	-	-	-	-	-	-	-	-
TL-4	-	-	-	-	120.46	0.25	-	-	-	-	-	-	-	-	6.41E-03	1.36E-07	-	-
FUG	-	-	-	-	7.89	34.54	-	-	-	-	-	-	-	-	0.037	0.16	-	-
FUG-4	-	-	-	-	3.10	13.57	-	-	-	-	-	-	-	-	4.33E-05	1.90E-04	-	-
SSM	-	-	-	-	233.23	42.56	-	-	-	-	-	-	-	-	0.011	1.99E-03	-	-
SSM- Plant 4	-	-	-	-	*	10.00	-	-	-	-	-	-	-	-	-	-	-	-
MAL (FL-1 , 2, 3, 4)	517.79	4.97	1033.70	9.92	498.35	4.78	2.94	0.029	-	-	-	-	-	-	0.032	3.06E-04	-	-
Total	541.41	108.45	1125.08	410.15	2052.50	4640.19	3.66	3.18	2.75	12.06	2.75	12.06	2.58	11.32	13.80	60.23	-	-

[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).

[2] Combustion emissions from pilot fuel combustion only

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	3.31	14.48	2.45	10.72	1.45	6.37	0.20	0.86	0.37	1.63	0.37	1.63	0.37	1.63	-	-	-	-
ENG-2	3.31	14.48	2.45	10.72	1.45	6.37	0.20	0.86	0.37	1.63	0.37	1.63	0.37	1.63	-	-	-	-
ENG-3	3.31	14.48	2.45	10.72	1.45	6.37	0.20	0.86	0.37	1.63	0.37	1.63	0.37	1.63	-	-	-	-
HT-101	0.64	2.82	0.54	2.37	0.035	0.16	3.87E-03	0.017	0.049	0.21	0.049	0.21	0.037	0.16	-	-	-	-
HT-801	0.64	2.82	0.54	2.37	0.035	0.16	3.87E-03	0.017	0.049	0.21	0.049	0.21	0.037	0.16	-	-	-	-
HT-102	0.90	3.94	0.76	3.31	0.050	0.22	5.40E-03	0.024	0.068	0.30	0.068	0.30	0.051	0.22	-	-	-	-
AR-1	1.95	8.54	1.64	7.17	0.11	0.47	0.012	0.051	0.15	0.65	0.15	0.65	0.11	0.49	-	-	-	-
DR-1	0.27	1.17	0.23	0.99	0.015	0.065	1.61E-03	7.04E-03	0.020	0.089	0.020	0.089	0.015	0.067	-	-	-	-
HT-103	0.90	3.94	0.76	3.31	0.050	0.22	5.40E-03	0.024	0.068	0.30	0.068	0.30	0.051	0.22	-	-	-	-
HT-802	0.57	2.51	0.48	2.11	0.032	0.14	3.44E-03	0.015	0.044	0.19	0.044	0.19	0.033	0.14	-	-	-	-
AR-2	2.21	9.68	1.86	8.14	0.12	0.53	0.013	0.058	0.17	0.74	0.17	0.74	0.13	0.55	-	-	-	-
DR-2	0.23	1.01	0.19	0.85	0.013	0.056	1.39E-03	6.07E-03	0.018	0.077	0.018	0.077	0.013	0.058	-	-	-	-
HT-803	0.57	2.51	0.48	2.11	0.032	0.14	3.44E-03	0.015	0.044	0.19	0.044	0.19	0.033	0.14	-	-	-	-
HT-804	0.86	3.76	0.72	3.16	0.047	0.21	5.05E-03	0.022	0.065	0.29	0.065	0.29	0.065	0.29	-	-	-	-
HT-201	1.67	7.33	4.23	18.53	0.28	1.21	0.030	0.13	0.38	1.68	0.38	1.68	0.38	1.68	-	-	-	-
HT-104	1.35	5.91	3.36	14.72	0.22	0.96	0.024	0.10	0.30	1.33	0.30	1.33	0.30	1.33	-	-	-	-
HT-301	0.75	3.27	1.98	8.65	0.13	0.57	0.014	0.061	0.18	0.78	0.18	0.78	0.18	0.78	-	-		
DR-3	0.39	1.72	0.33	1.44	0.022	0.094	2.31E-03	0.010	0.030	0.13	0.030	0.13	0.030	0.13	-	-		
DEHY-1	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.																	
AM-1	Emissions are controlled by thermal oxidizer, TO-1. Emissions are represented under TO-1.																	
DEHY-2	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.																	
AM-2	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.																	
DEHY-3	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.																	
AM-3	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.																	
TO-1	4.61	20.21	4.00	17.51	0.54	1.59	10.13	44.36	0.74	2.38	0.74	2.38	0.62	1.74	0.16	0.90	-	-
TO-2	2.82	12.35	2.56	11.22	3.81	16.71	7.84	34.32	0.46	2.00	0.46	2.00	0.36	1.59	0.093	0.41	-	-
TO-3	3.14	13.62	1.30	11.99	7.38	18.10	7.54	32.73	0.21	0.90	0.21	0.90	0.21	0.90	0.082	0.35	-	-
TO-1 SSM	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.																	
TO-2 SSM	Emissions are controlled by flare, FL-3. Emissions are represented under FL-3.																	
DEHY-1 SSM	SSM emissions represented in Table 2-F																	
FL-1	0.036	0.16	0.030	0.13	1.98E-03	8.67E-03	2.16E-04	9.46E-04	-	-	-	-	-	-	1.15E-04	5.03E-04	-	-
FL-2	1.70	7.44	3.33	14.60	3.49	15.29	0.096	0.43	-	-	-	-	-	-	1.20E-03	5.28E-03	-	-
FL-3	0.046	0.20	0.039	0.17	2.53E-03	0.011	2.70E-04	1.21E-03	-	-	-	-	-	-	1.44E-04	6.43E-04	-	-
FL-4b	0.25	1.09	0.50	2.17	1.19	5.20	4.57E-03	0.020	-	-	-	-	-	-	4.29E-05	1.88E-04	-	-
FL-4a	0.033	0.15	0.067	0.29	-	-	1.11E-03	4.88E-03	-	-	-	-	-	-	-	-	-	-
VCU-1	0.51	2.25	1.03	4.49	3.20	14.03	5.37E-04	2.35E-03	8.47E-03	0.037	8.47E-03	0.037	6.35E-03	0.028	9.46E-06	4.14E-05	-	-
VCU-1 SSM	SSM emissions represented in Table 2-F																	
TK-702A-F	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.																	
TK-702 G	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																	
TK-701	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.																	

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
TK-701 B	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																	
TK-701 C	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																	
TL-1	-	-	-	-	45.00	5.19	-	-	-	-	-	-	-	-	0.052	4.56E-03	-	-
TL-2	-	-	-	-	86.33	0.27	-	-	-	-	-	-	-	-	6.45E-03	2.43E-04	-	-
TL-3	-	-	-	-	24.46	1.39	-	-	-	-	-	-	-	-	0.13	0.057	-	-
TL-4	-	-	-	-	120.46	0.25	-	-	-	-	-	-	-	-	0.097	0.039	-	-
FUG	-	-	-	-	7.89	34.54	-	-	-	-	-	-	-	-	4.29E-05	1.88E-04	-	-
FUG-4	-	-	-	-	3.10	13.57	-	-	-	-	-	-	-	-	0.081	0.036	-	-
SSM	Emissions are controlled by Flares, FL-1, FL-2, FL-3, and FL-4. Emissions for SSM-1 are represented under FL-1, SSM-2 under FL-2, SSM-3 under FL-3, and SSM-4 under FL-4 SSM.																	
SSM- Plant 4	SSM emissions are represented in Table 2-F																	
MAL (FL-1 , 2, 3, 4)	689.57	6.69	1376.64	13.35	719.97	7.03	3.65	0.036	-	-	-	-	-	-	-	-	-	-
-																		
Total	726.55	168.57	1414.92	187.31	1032.36	157.48	29.98	115.05	4.16	17.37	4.16	17.37	3.78	15.57	0.70	1.80	-	-

[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).

[2] Pilot and sweep gas emissions only

[3] Normal operating emissions only

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
TO-1 SSM	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.																	
TO-2 SSM	Emissions are controlled by flare, FL-3. Emissions are represented under FL-3.																	
DEHY-1 SSM	-	-	-	-	193.81	16.98	-	-	-	-	-	-	-	-	0.052	4.56E-03	-	-
FL-1	104.51	3.90	208.64	7.79	100.81	3.80	0.606	0.02	-	-	-	-	-	-	6.45E-03	2.43E-04	-	-
FL-2	178.74	10.47	356.83	20.91	171.52	16.14	11.066	4.581	-	-	-	-	-	-	0.13	0.05	-	-
FL-3	147.49	7.67	294.45	15.32	143.99	8.55	8.51	3.51	-	-	-	-	-	-	0.097	0.04	-	-
FL-4b	16.93	8.40	33.80	16.77	9.25	6.34	8.40	3.71	-	-	-	-	-	-	0.08	0.036	-	-
VCU-1 SSM	-	-	-	-	160.12	56.11	-	-	-	-	-	-	-	-	2.82E-04	9.87E-05	-	-
SSM	Emissions are controlled by Flares, FL-1, FL-2, FL-3, and FL-4 SSM. Emissions for SSM-1 are represented under FL-1, SSM-2 under FL-2, SSM-3 under FL-3, and SSM-4 under FL-4 SSM.																	
SSM- Plant 4	-	-	-	-	*	10.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	447.67	30.45	893.72	60.79	779.49	117.91	28.58	11.82	-	-	-	-	-	-	0.36	0.13	-	-

[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-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)			
ENG-1	ENG-1	V	No	26.00	1085.00	172.77	N/A	N/A	130.16	1.29
ENG-2	ENG-2	V	No	26.00	1085.00	172.77	N/A	N/A	130.16	1.29
ENG-3	ENG-3	V	No	26.00	1085.00	172.77	N/A	N/A	130.16	1.29
HT-101	HT-101	V	No	33.00	624.00	54.88	N/A	N/A	26.30	1.63
HT-801	HT-801	V	No	33.00	624.00	58.50	N/A	N/A	28.04	1.63
HT-102	HT-102	V	No	50.67	624.00	82.83	N/A	N/A	17.71	2.44
AR-1	AR-1	V	No	33.83	624.00	145.37	N/A	N/A	40.42	2.14
DR-1	DR-1	V	No	25.00	624.00	19.99	N/A	N/A	6.36	2.00
HT-103	HT-103	V	No	49.92	624.00	82.83	N/A	N/A	17.71	2.44
HT-802	HT-802	V	No	42.40	624.00	42.73	N/A	N/A	14.16	1.96
AR-2	AR-2	V	No	32.25	624.00	164.87	N/A	N/A	37.06	2.38
DR-2	DR-2	V	No	25.79	624.00	17.23	N/A	N/A	12.98	1.30
HT-803	HT-803	V	No	42.40	624.00	58.50	N/A	N/A	19.39	1.96
HT-804	HT-804	V	No	22.20	495.00	91.57	N/A	N/A	38.40	1.80
HT-201	HT-201	V	No	27.90	509.00	545.05	N/A	N/A	42.80	2.70
HT-104	HT-104	V	No	32.60	495.00	426.65	N/A	N/A	36.10	4.00
HT-301	HT-301	V	No	32.60	555.00	266.55	N/A	N/A	44.70	3.50
DR-3	DR-3	V	No	24.00	750.00	53.85	N/A	N/A	15.00	2.00
TO-1	TO-1	V	No	42.48	1600.00	471.44	N/A	N/A	11.79	6.96
TO-2	TO-2	V	No	61.16	1600.00	157.15	N/A	N/A	31.46	2.46
TO-3	TO-3	V	No	58.00	1500.00	362.62	N/A	N/A	8.97	7.00
FL-1	FL-1	V	No	76.83	1832.00	209.62	N/A	N/A	65.62	34.37
FL-2	FL-2	V	No	90.75	1832.00	9.20	N/A	N/A	65.62	38.46
FL-3	FL-3	V	No	55.00	1832.00	82.48	N/A	N/A	65.62	36.70
FL-4a	FL-4a	V	No	154.00	1832.00	1.20	N/A	N/A	65.67	28.30
FL-4b	FL-4b	V	No	20.00	1832.00	1783.93	N/A	N/A	65.62	1.00
VCU-1	VCU-1	V	No	33.17	1400.00	1.25	N/A	N/A	0.06	5.33

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		Benzene ☑ HAP		Toluene ☑ HAP		Hexane ☑ HAP		Acetaldehyde ☑ HAP		Acrolein ☑ HAP		Xylene ☑ HAP		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	0.86	3.78	0.24	1.06	0.02	0.08	0.02	0.07	0.04	0.19	0.33	1.45	0.20	0.89	7.27E-03	0.03	-	-
ENG-2	ENG-2	0.86	3.78	0.24	1.06	0.02	0.08	0.02	0.07	0.04	0.19	0.33	1.45	0.20	0.89	7.27E-03	0.03	-	-
ENG-3	ENG-3	0.86	3.78	0.24	1.06	0.02	0.08	0.02	0.07	0.04	0.19	0.33	1.45	0.20	0.89	7.27E-03	0.03	-	-
HT-101	HT-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
HT-801	HT-801	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-102	HT-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AR-1	AR-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR-1	DR-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-103	HT-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-802	HT-802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AR-2	AR-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR-2	DR-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-803	HT-803	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-804	HT-804	0.02	0.07	6.44E-04	2.82E-03	1.80E-05	7.90E-05	2.92E-05	1.28E-04	0.02	0.07	-	-	-	-	-	-	-	-
HT-201	HT-201	0.09	0.42	3.78E-03	0.02	1.06E-04	4.63E-04	1.71E-04	7.50E-04	0.09	0.40	-	-	-	-	-	-	-	-
HT-104	HT-104	0.08	0.33	3.00E-03	0.01	8.40E-05	3.68E-04	1.36E-04	5.96E-04	0.07	0.32	-	-	-	-	-	-	-	-
HT-301	HT-301	0.04	0.19	1.76E-03	7.72E-03	4.94E-05	2.16E-04	7.99E-05	3.50E-04	0.04	0.19	-	-	-	-	-	-	-	-
DR-3	DR-3	7.38E-03	0.03	2.94E-04	1.29E-03	8.24E-06	3.61E-05	1.33E-05	5.84E-05	7.06E-03	0.03	-	-	-	-	-	-	-	-
DEHY-1	DEHY-1	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.																-	-
AM-1	AM-1	Emissions are controlled by thermal oxidizer, TO-1. Emissions are represented under TO-1.																-	-
DEHY-2	DEHY-2	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.																-	-
AM-2	AM-2	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.																-	-
DEHY-3	DEHY-3	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.																-	-
AM-3	AM-3	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.																-	-
TO-1	TO-1	0.15	0.66	-	-	0.15	0.66	-	-	-	-	-	-	-	-	-	-	-	-
TO-2	TO-2	0.52	2.30	-	-	0.04	0.18	0.09	0.38	0.14	0.62	-	-	-	-	0.23	0.99	-	-
TO-3	TO-3	0.25	0.97	-	-	0.03	0.12	0.03	0.14	0.02	0.09	-	-	-	-	-	-	-	-
TO-1 SSM	TO-1 SSM	-	-	-	-	7.58	0.66	-	-	-	-	-	-	-	-	-	-	-	-
TO-2 SSM	TO-2 SSM	-	-	-	-	1.47	0.13	3.06	0.27	5.03	0.44	-	-	-	-	8.08	0.71	-	-
DEHY-1 SSM	DEHY-1 SSM	18.75	1.64	-	-	18.75	1.64	-	-	-	-	-	-	-	-	-	-	-	-
FL-1	FL-1	0.05	1.854E-03	-	-	0.05	1.854E-03	-	-	-	-	-	-	-	-	-	-	-	-
FL-2	FL-2	0.64	1.81	-	-	0.64	1.81	-	-	-	-	-	-	-	-	-	-	-	-
FL-3	FL-3	0.60	0.24	-	-	0.60	0.24	-	-	-	-	-	-	-	-	-	-	-	-
FL-4b	FL-4b	0.076	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-4a	FL-4a	0.25	0.134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	VCU-1	0.234	1.02	-	-	0.055	0.24	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1 SSM	VCU-1 SSM	2.76	0.968	-	-	2.76	0.968	-	-	-	-	-	-	-	-	-	-	-	-

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP		Benzene ☑ HAP		Toluene ☑ HAP		Hexane ☑ HAP		Acetaldehyde ☑ HAP		Acrolein ☑ HAP		Xylene ☑ HAP		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
TK-702A-F	TK-702A-F	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.																-	-
TK-702 G	TK-702 G	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																-	-
TK-701	TK-701	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.																-	-
TK-701 B	TK-701 B	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																-	-
TK-701 C	TK-701 C	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																-	-
TL-1	TL-1	0.38	0.04	-	-	0.38	0.04	-	-	-	-	-	-	-	-	-	-	-	-
TL-2	TL-2	1.41	4.36E-03	-	-	1.41	4.36E-03	-	-	-	-	-	-	-	-	-	-	-	-
TL-3	TL-3	5.45	0.309	-	-	1.05	0.06	0.20	0.01	4.18	0.24	-	-	-	-	-	-	-	-
TL-4	TL-4	4.43	9.37E-03	-	-	1.343	2.84E-03	2.106	4.46E-03	0.98	2.069E-03	-	-	-	-	-	-	-	-
FUG	FUG	0.01	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG-4	FUG-4	0.19	0.85	-	-	0.03	0.13	0.02	0.10	3.83E-03	0.02	-	-	-	-	-	-	-	-
SSM	SSM	Emissions are controlled by Flares, FL-1, FL-2, FL-3, and FL-4. Emissions for SSM-1 are represented under FL-1, SSM-2 under FL-2, SSM-3 under FL-3, and SSM-4 under FL-4 LP.																-	-
SSM- Plant 4	SSM- Plant 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAL (FL-1 , 2, 3, 4)	MAL (FL-1 , 2, 3, 4)	1.01	0.01	-	-	0.24	0.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals:		39.99	23.71	0.74	3.23	36.64	7.14	5.56	1.11	10.71	2.97	0.99	4.34	0.610	2.67	8.33	1.80	-	-

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 (MMSCF/hr)	Annual Usage (MMSCF/yr)	% Sulfur	% Ash
ENG-1	Natural Gas	Pipeline Quality Natural Gas	1,081.80	0.034	301.80	N/A	N/A
ENG-2	Natural Gas	Pipeline Quality Natural Gas	1,081.80	0.034	301.80	N/A	N/A
ENG-3	Natural Gas	Pipeline Quality Natural Gas	1,081.80	0.034	301.80	N/A	N/A
HT-101	Natural Gas	Pipeline Quality Natural Gas	1081.8	6.44	56.44	N/A	N/A
HT-801	Natural Gas	Pipeline Quality Natural Gas	1081.8	6.44	56.44	N/A	N/A
HT-102	Natural Gas	Pipeline Quality Natural Gas	1081.8	9.00	78.87	N/A	N/A
AR-1	Natural Gas	Pipeline Quality Natural Gas	1081.8	19.50	170.78	N/A	N/A
DR-1	Natural Gas	Pipeline Quality Natural Gas	1081.8	2.68	23.48	N/A	N/A
HT-103	Natural Gas	Pipeline Quality Natural Gas	1081.8	9.00	78.87	N/A	N/A
HT-802	Natural Gas	Pipeline Quality Natural Gas	1081.8	5.73	50.21	N/A	N/A
AR-2	Natural Gas	Pipeline Quality Natural Gas	1081.8	22.11	193.69	N/A	N/A
DR-2	Natural Gas	Pipeline Quality Natural Gas	1081.8	2.31	20.24	N/A	N/A
HT-803	Natural Gas	Pipeline Quality Natural Gas	1081.8	5.73	50.21	N/A	N/A
HT-804	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.007	61.85	N/A	N/A
HT-201	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.041	362.81	N/A	N/A
HT-104	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.033	288.16	N/A	N/A
HT-301	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.019	169.38	N/A	N/A
DR-3	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.003	28.25	N/A	N/A
TO-1	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.47	4.12	N/A	N/A
TO-2	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.47	4.12	N/A	N/A
TO-3	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.008	70.83	N/A	N/A
FL-1	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.36	3.15	N/A	N/A
FL-2	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.51	4.47	N/A	N/A
FL-3	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.46	4.03	N/A	N/A
FL-4a	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.0001	0.57	N/A	N/A
FL-4b	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.0002	1.71	N/A	N/A
VCU-1	Natural Gas	Pipeline Quality Natural Gas	1081.8	0.01	0.11	N/A	N/A

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
TK-702-A	40400311	Oil	Mixed Hydrocarbons	0.55	72.48	65	4.47	100	8.96
TK-702-B	40400311	Oil	Mixed Hydrocarbons	0.55	72.48	65	4.47	100	8.96
TK-702-C	40400311	Oil	Mixed Hydrocarbons	0.55	72.48	65	4.47	100	8.96
TK-702-D	40400311	Oil	Mixed Hydrocarbons	0.55	72.48	65	4.47	100	8.96
TK-702-E	40400311	Oil	Mixed Hydrocarbons	0.55	72.48	65	4.47	100	8.96
TK-702-F	40400311	Oil	Mixed Hydrocarbons	0.55	72.48	65	4.47	100	8.96
TK-701	40400311	Produced Water	Water	8.30	59.91	65	21.67	100	12.23
TK-702 G	40400311	Oil	Mixed Hydrocarbons	0.55	80.78	65	4.47	100	8.96
TK-701 B	40400311	Produced Water	Water	8.30	36.77	65	21.67	100	12.23
TK-701 C	40400311	Produced Water	Water	8.3	36.77	65	21.67	100	12.23

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)	Turnovers (per year)
					(bbl)	(M^3)			Roof	Shell			
TK-702-A	2016	Oil			500	79.49	3.66		WH	WH	Good	15,330,000	906
TK-702-B	2016	Oil			500	79.49	3.66		WH	WH	Good	15,330,000	906
TK-702-C	2016	Oil			500	79.49	3.66		WH	WH	Good	15,330,000	906
TK-702-D	2016	Oil			500	79.49	3.66		WH	WH	Good	15,330,000	906
TK-702-E	2016	Oil			500	79.49	3.66		WH	WH	Good	15,330,000	906
TK-702-F	2016	Oil			500	79.49	3.66		WH	WH	Good	15,330,000	906
TK-701	2016	Produced Water			500	79.49	3.66		WH	WH	Good	164,230,749	133
TK-702 G	TBD	Oil			1000	158.99	6.55		WH	WH	Good	164,230,749	3910
TK-701 B	TBD	Produced Water			1000	158.99	6.55		WH	WH	Good	3,066,000	73
TK-701 C	TBD	Produced Water			1000	158.99	6.55		WH	WH	Good	3,066,000	73

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

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Natural Gas	Mixed Hydrocarbons	Gas	841 MMSCFD	Natural Gas	Mixed Hydrocarbons	Gas	841 MMSCFD
				Oil	Mixed Hydrocarbons	Liquid	11,713 BPD
				Natural Gas Liquids	Natural Gas Liquids	Liquid	126,000 BPD
				Produced Water	Mixed Hydrocarbons	Liquid	535 BPD

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 - No Continuous Emissions Measurement equipment at this facility.									

Table 2-O: Parametric Emissions Measurement Equipment

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A - No Parametric Emissions Measurement equipment at this facility.								

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	GWPs [1]	1	298	25	22,800	footnote 3										
ENG-1	mass GHG	19095.48	0.036	0.36											19095.87	
	CO_2e	19095.48	10.72	9.00												19115.20
ENG-2	mass GHG	19095.48	0.036	0.360											19095.87	
	CO2e	19095.48	10.72	9.00												19115.20
ENG-3	mass GHG	19095.48	0.036	0.360											19095.87	
	CO2e	19095.48	10.72	9.00												19115.20
HT-101	mass GHG	3571.12	6.730E-03	0.067											3571.19	
	CO2e	3571.12	2.01	1.68												3574.80
HT-801	mass GHG	3571.12	6.730E-03	0.067											3571.19	
	CO2e	3571.12	2.01	1.68												3574.80
HT-102	mass GHG	4990.34	9.405E-03	0.094											4990.44	
	CO2e	4990.34	2.80	2.35												4995.49
AR-1	mass GHG	10805.57	0.023	0.23											10805.83	
	CO2e	10805.57	6.88	5.77												10818.23
DR-1	mass GHG	1485.83	2.80E-03	0.028											1485.86	
	CO2e	1485.83	0.83	0.70												1487.36
HT-103	mass GHG	4990.34	9.405E-03	0.094											4990.44	
	CO2e	4990.34	2.80	2.35												4995.49
HT-802	mass GHG	3176.60	5.987E-03	0.060											3176.67	
	CO2e	3176.60	1.78	1.50												3179.88
AR-2	mass GHG	12255.54	0.023	0.23											12255.79	
	CO2e	12255.54	6.88	5.77												12268.19
DR-2	mass GHG	1280.89	2.41E-03	0.024											1280.91	
	CO2e	1280.89	0.72	0.60												1282.21
HT-803	mass GHG	3176.60	5.987E-03	0.060											3176.67	
	CO2e	3176.60	1.78	1.50												3179.88
HT-804	mass GHG	4486.69	8.456E-03	0.08											4486.79	
	CO2e	4486.69	2.52	2.11												4491.33
HT-201	mass GHG	26319.69	0.05	0.496											26320.23	
	CO2e	26319.69	14.78	12.40												26346.87
HT-104	mass GHG	20904.09	0.04	0.394											20904.53	
	CO2e	20904.09	11.74	9.85												20925.68
HT-301	mass GHG	12287.82	0.02	0.232											12288.07	
	CO2e	12287.82	6.90	5.79												12300.51
DR-3	mass GHG	23.40	4.41E-05	4.41E-04											23.40	
	CO2e	23.40	0.01	0.01												23.42
TO-1	mass GHG	5021.08	9.463E-03	0.095											5021.19	
	CO2e	5021.08	2.82	2.37												5026.27

TO-2	**mass GHG**	5021.08	9.463E-03	0.095											5021.19	
	CO2e	5021.08	2.82	2.37												5026.27
TO-3	**mass GHG**	14187.20	0.03	0.267											14187.50	
	CO2e	14187.20	7.97	6.68												14201.86
FL-1	**mass GHG**	84.92	1.60E-04	1.60E-03											84.93	
	CO2e	84.92	0.048	0.04												85.01
FL-2	**mass GHG**	5200.20	9.801E-03	0.098											5200.31	
	CO2e	5200.20	2.92	2.45												5205.57
FL-3	**mass GHG**	1895.71	3.57E-03	0.04											1895.75	
	CO_2e	1895.71	1.06	0.893												1897.67
FL-4a	**mass GHG**	921.32	1.736E-03	0.02											921.34	
	CO_2e	921.32	0.52	0.434												922.27
FL-4b	**mass GHG**	700750.90	1.32	13.21											700765.43	
	CO2e	700750.90	393.56	330.17												701474.63
VCU-1	**mass GHG**	3642.85	6.866E-03	0.069											3642.92	
	CO2e	3642.85	2.05	1.72												3646.61
FUG	**mass GHG**	2.08	-	99.47											101.55	
	CO_2e	2.08	-	2486.65												2488.73
FUG-4	**mass GHG**	1.19	-	17.26											18.45	
	CO_2e	1.19	-	431.42												432.61
Total	**mass GHG**	907340.61	1.71	133.85											907476.17	
	CO_2e	907340.61	510.40	3346.26												911197.27

[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.

San Mateo DLK Black River Midstream, LLC (DLK) owns and operates the Black River Gas Processing Plant, located 2.6 miles southwest of Loving, New Mexico in Eddy County. San Mateo DLK Black River Midstream, LLC is submitting this application for a significant revision to NSR #6567 pursuant to 20.2.72.219.D(1)(a) NMAC for the Black River Gas Processing Plant facility.

With this significant revision, DLK is looking to install an additional treatment train (Plant 4).

The following new units will be installed at this facility:

- One (1) Amine Unit (AM-3);
- One (1) Dehydrator Unit (DEHY-3);
- One (1) condensate tank (TK-702 G);
- Two (2) produced water tanks (TK-701 B and TK-701 C);
- Condensate Truck Loading (TL-3).
- One (1) Stabilizer Heater (HT-804);
- One (1) Amine HMO Heater (HT-201);
- One (1) Mole Sieve Heater (HT-104);
- One (1) Cryo HMO Heater (HT-301);
- One (1) Dehydrator Reboiler (DR-3);
- One (1) Thermal Oxidizer (TO-3);
- One (1) Process Flare (FL-4a);
- Plant 4 Produced Water Truck Loading (TL-4);
- Three (3) engines (ENG-1 through ENG-3); and,

Additional emissions will result from the following: Fugitives for Plant 4 (FUG-4), startup, shutdown, and maintenance (SSM-4), and FL-4 Malfunction. The high-pressure flare (FL-4b) will control SSM and Malfunction, with emissions being represented at the flare. In addition to the new equipment being added to the facility, the existing treatment trains are being modified.

Black River Gas Processing Plant consists of Plants 1, 2, 3, and 4. The facility utilizes amine sweetening units to remove hydrogen sulfide (H_2S) and carbon dioxide (CO_2) from raw natural gas, followed by dehydration to eliminate moisture. The sweetened gas then enters cryogenic units, where it is cooled to separate valuable natural gas liquids (NGLs) from the gas stream and transported in a sales line. Produced water and condensate are primarily transported off the site via pipeline, but may also be removed via truck loadout.

Flares (FL-1, FL-2b, FL-3, FL-4b) control the startup, shutdown, maintenance, and upset conditions. SSM emissions from the flare result from maintenance activities per manufacturer recommendations or other preventative measures. The maintenance activities include, but are not limited to compressor catalyst changes, blowdowns for associated maintenance throughout the facility, instrument calibrations, and process safety device maintenance.

Section 4

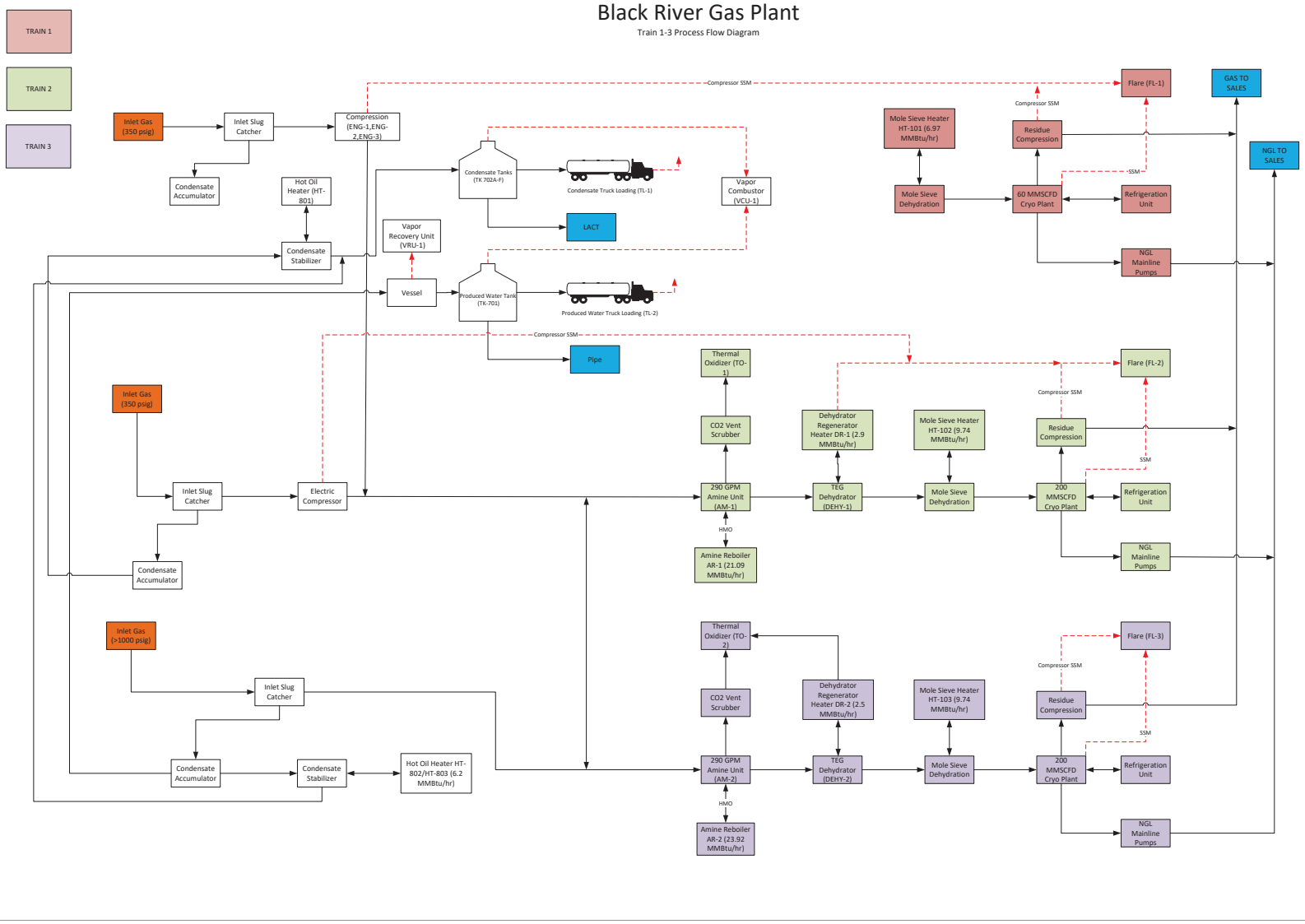
Process Flow Sheet

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

A process flow diagram is attached to this application.

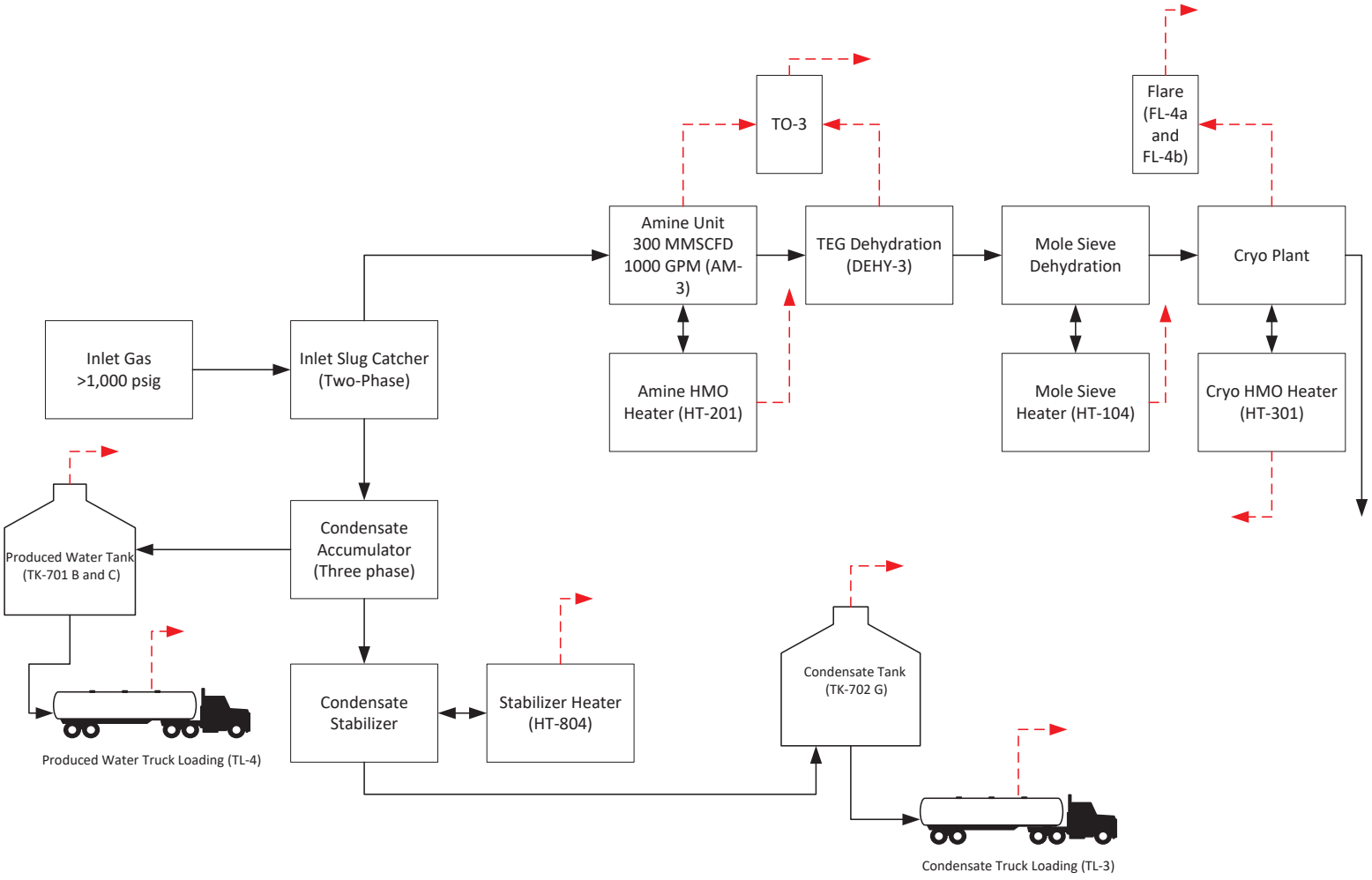
Black River Gas Plant

Train 1-3 Process Flow Diagram



Black River Gas Plant

Train 4 Process Flow Diagram

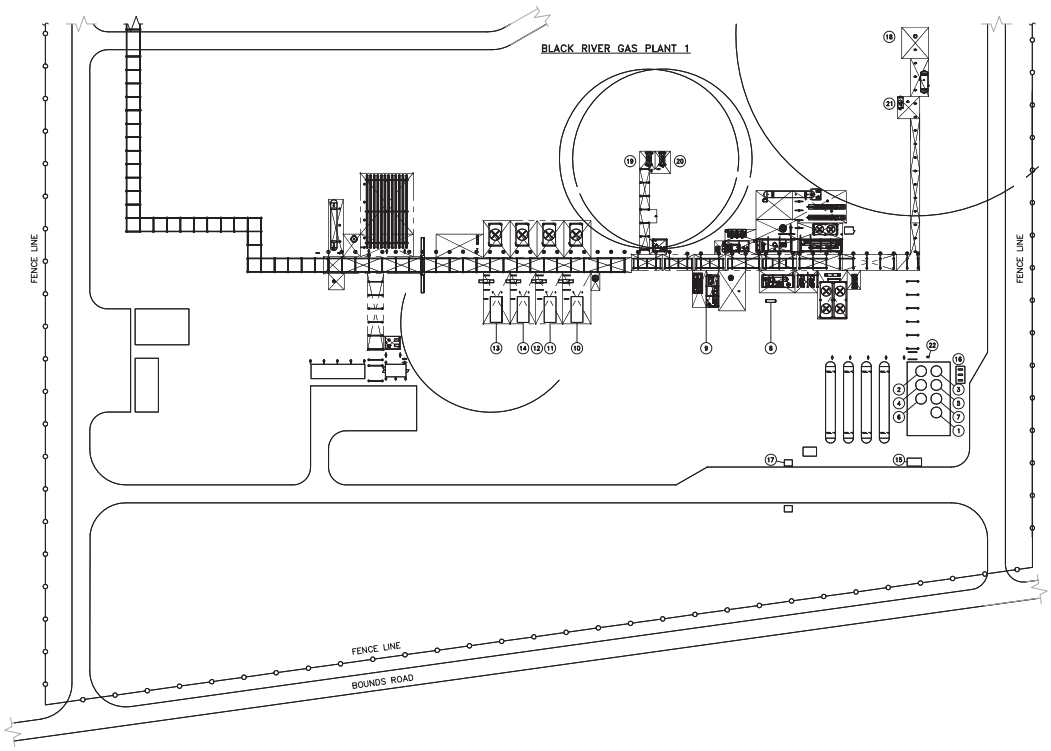


Section 5

Plot Plan Drawn to Scale

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

A plot plan is attached to the application.



EMISSIONS LAYOUT
SCALE: 1"=50'-0"

EMISSIONS LEGEND PLANT 1		
MARK	TAG	DESCRIPTION
1	T-701	WASTE WATER
2	T-702A	STABILIZED CONDENSATE
3	T-702B	STABILIZED CONDENSATE
4	T-702C	STABILIZED CONDENSATE
5	T-702D	STABILIZED CONDENSATE
6	T-702E	STABILIZED CONDENSATE
7	T-703	STABILIZED CONDENSATE
8		PLANT #1 CRYOGENIC METHANOL STORAGE
9		PLANT #1 CONDENSATE STABILIZER COMPRESSOR LUBE OIL STORAGE
10		PLANT #1 RESIDUE COMPRESSOR "A" OIL STORAGE
11		PLANT #1 RESIDUE COMPRESSOR "B" OIL STORAGE
12		PLANT #1 COMPRESSOR BULK OIL STORAGE
13		PLANT #1 INLET COMPRESSOR "A" OIL STORAGE
14		PLANT #1 INLET COMPRESSOR "B" OIL STORAGE
15	LOAD-1	STABILIZED CONDENSATE
16	LOAD-2	PRODUCED (WASTE) WATER
17	LOAD-3	NGL
18	FL-1	PLANT #1 FLARE STACK
19	HT-1	MOLE SIEVE HEATER (PLANT #1 REGEN HEATER)
20	HT-801	HOT OIL HEATER (PLANT #1 STABILIZER)
21	VCU	CONDENSATE AND WASTE WATER VAPOR COMBUSTION UNIT (VCU)
22		PLANT #1 CONDENSATE TANK VENT (ENARDO)

GENERAL NOTES:

REV.	REVISION	DATE	DRAFT	CHECKED	APP'D.
A	ISSUED FOR APPROVAL	01/11/18	KES		

PELICAN Energy Consultants, LLC

San Mateo MIDSTREAM

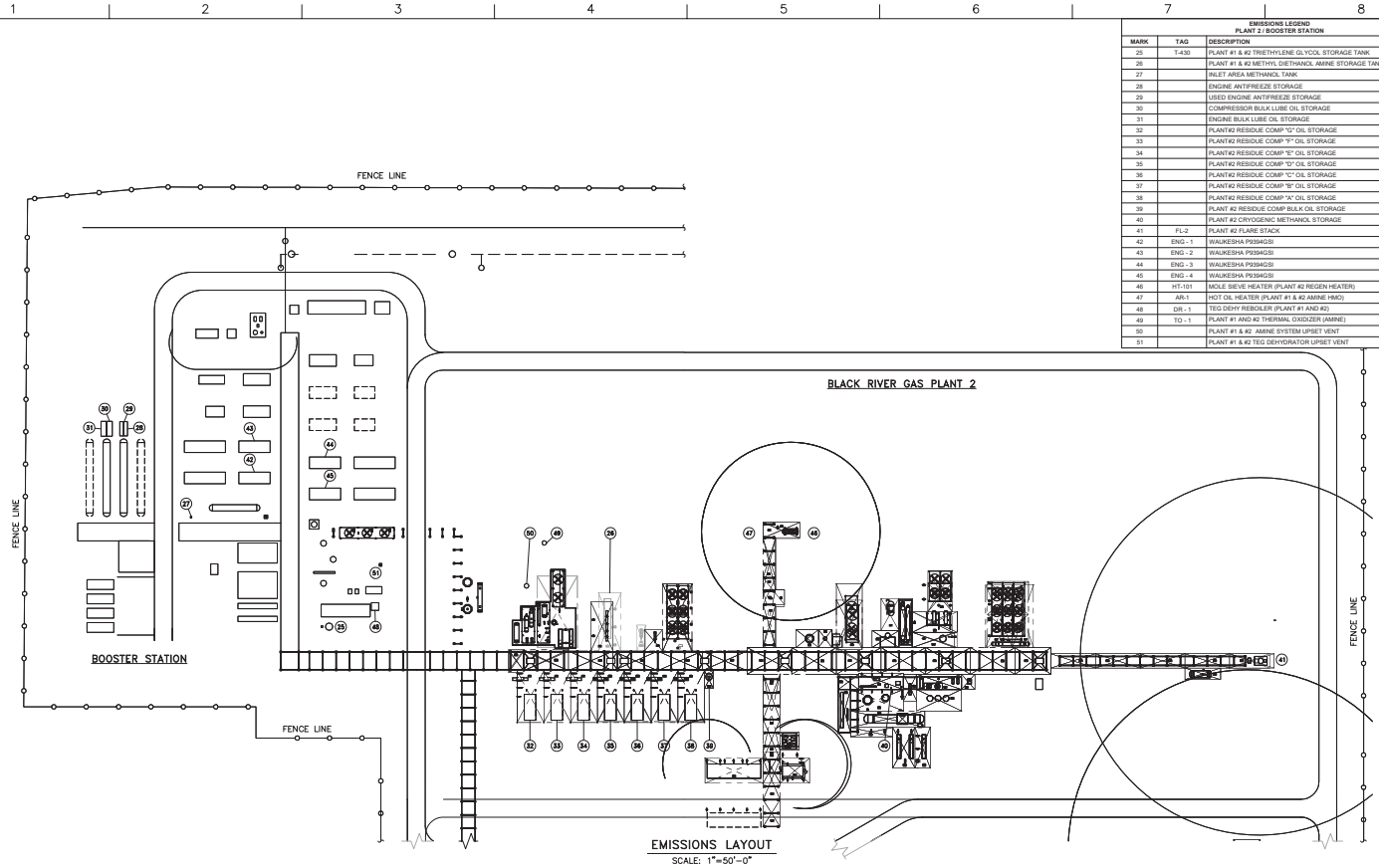
TITLE
BRNGPP FACILITIES
EDDY COUNTY, NEW MEXICO
EMISSIONS LAYOUT
GAS PLANT 1

DRAWING APPROVAL

DRAWN BY:	KES	04/01/20	CHECKED BY:	DAH	04/01/20
DESIGN ENGINEER:	DAH	04/01/20	CLIENT APPROVAL:		

CLIENT: SAN MATEO MIDSTREAM | JOB NO. 190625 | DWG. NO. 31501

PLOT TIME: April 6, 2020 12:07 PM BY: KATY SCHILD FILE PATH: R:\CLIENT_PROJECTS\MATADOR\RUSTLER_BREAKS_COMPRESSOR_STATION\170206\DRAWINGS\30000 MECHANICAL\31000\31501-190625.DWG



EMISSIONS LAYOUT
SCALE: 1"=50'-0"

EMISSIONS LEGEND
PLANT 2 / BOOSTER STATION

MARK	TAG	DESCRIPTION
25	T-430	PLANT #1 & #2 TRIETHYLENE GLYCOL STORAGE TANK
26		PLANT #1 & #2 METHYL DIETHANOL AMINE STORAGE TANK
27		INLET AREA METHANOL TANK
28		ENGINE ANTIFREEZE STORAGE
29		USED ENGINE ANTIFREEZE STORAGE
30		COMPRESSOR BULK LUBE OIL STORAGE
31		ENGINE BULK LUBE OIL STORAGE
32		PLANT#2 RESIDUE COMP "G" OIL STORAGE
33		PLANT#2 RESIDUE COMP "F" OIL STORAGE
34		PLANT#2 RESIDUE COMP "E" OIL STORAGE
35		PLANT#2 RESIDUE COMP "D" OIL STORAGE
36		PLANT#2 RESIDUE COMP "C" OIL STORAGE
37		PLANT#2 RESIDUE COMP "B" OIL STORAGE
38		PLANT#2 RESIDUE COMP "A" OIL STORAGE
39		PLANT #2 RESIDUE COMP BULK OIL STORAGE
40		PLANT #2 CRYOGENIC METHANOL STORAGE
41	FL-2	PLANT #2 FLARE STACK
42	ENG - 1	WAUKESHA P9394GSI
43	ENG - 2	WAUKESHA P9394GSI
44	ENG - 3	WAUKESHA P9394GSI
45	ENG - 4	WAUKESHA P9394GSI
46	HT-101	MOLE SIEVE HEATER (PLANT #2 REGEN HEATER)
47	AR-1	HOT OIL HEATER (PLANT #1 & #2 AMINE HMO)
48	DR - 1	TEG DEHY REBOILER (PLANT #1 AND #2)
49	TO - 1	PLANT #1 AND #2 THERMAL OXIDIZER (AMINE)
50		PLANT #1 & #2 AMINE SYSTEM UPSET VENT
51		PLANT #1 & #2 TEG DEHYDRATOR UPSET VENT

GENERAL NOTES:

REV.	REVISION	DATE	DRAFT	CHECKED	APP'D.
A	ISSUED FOR APPROVAL	01/11/18	KES		

PELICAN
Energy Consultants, LLC

San Mateo MIDSTREAM

TITLE
BRNGPP FACILITIES
EDDY COUNTY, NEW MEXICO
EMISSIONS LAYOUT
GAS PLANT 2/BOOSTER STATION

DRAWING APPROVAL

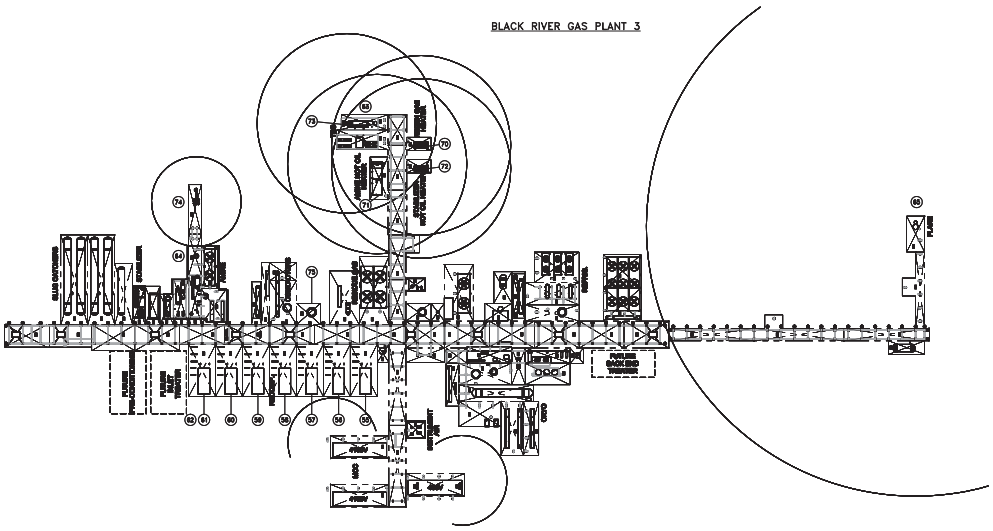
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DESIGN ENGINEER:	DAH	04/01/20	CLIENT APPROVAL:		

CLIENT: SAN MATEO MIDSTREAM
JOB NO.: 190625
DWG. NO.: 31502

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NORTH FACILITY

BLACK RIVER GAS PLANT 3



EMISSIONS LEGEND PLANT 3		
MARK	TAG	DESCRIPTION
55		PLANT #3 RESIDUE COMP "A" OIL STORAGE
56		PLANT #3 RESIDUE COMP "B" OIL STORAGE
57		PLANT #3 RESIDUE COMP "C" OIL STORAGE
58		PLANT #3 RESIDUE COMP "D" OIL STORAGE
59		PLANT #3 RESIDUE COMP "E" OIL STORAGE
60		PLANT #3 RESIDUE COMP "F" OIL STORAGE
61		PLANT #3 RESIDUE COMP "G" OIL STORAGE
62		PLANT #3 RESIDUE COMP BULK OIL STORAGE
63		PLANT #3 TRIETHYLENE GLYCOL STORAGE
64		PLANT #3 METHYL DIETHANOL AMINE STORAGE
65	FL-3	PLANT #3 FLARE STACK
70	HT-102	MOLE SIEVE HEATER (PLANT #3 REGEN HEATER)
71	AR-2	HOT OIL HEATER (PLANT #3 AMINE HMO)
72	HT-802	HOT OIL HEATER (PLANT #3 STABILIZER)
73	DR-2	TEG DEHY REBOILER (PLANT #3)
74	TO-2	PLANT #3 THERMAL OXIDIZER (AMINE/TEG)
75		PLANT #3 TEG DEHYDRATOR UPSET VENT

EMISSIONS LAYOUT

SCALE: 1"=50'-0"

GENERAL NOTES:

REV.	REVISION	DATE	DRAFT	CHECKED	APP'D.
A	ISSUED FOR APPROVAL	01/11/18	KES		

PELICAN Energy Consultants, LLC

San Mateo MIDSTREAM

TITLE: BRNGPP FACILITIES
EDDY COUNTY, NEW MEXICO
EMISSIONS LAYOUT
GAS PLANT 3

DRAWING APPROVAL

DRAWN BY:	KES	04/01/20	CHECKED BY:	DAH	04/01/20
DESIGN ENGINEER:	DAH	04/01/20	CLIENT APPROVAL:		

CLIENT: SAN MATEO MIDSTREAM | JOB NO.: 190625 | DWG. NO.: 31503

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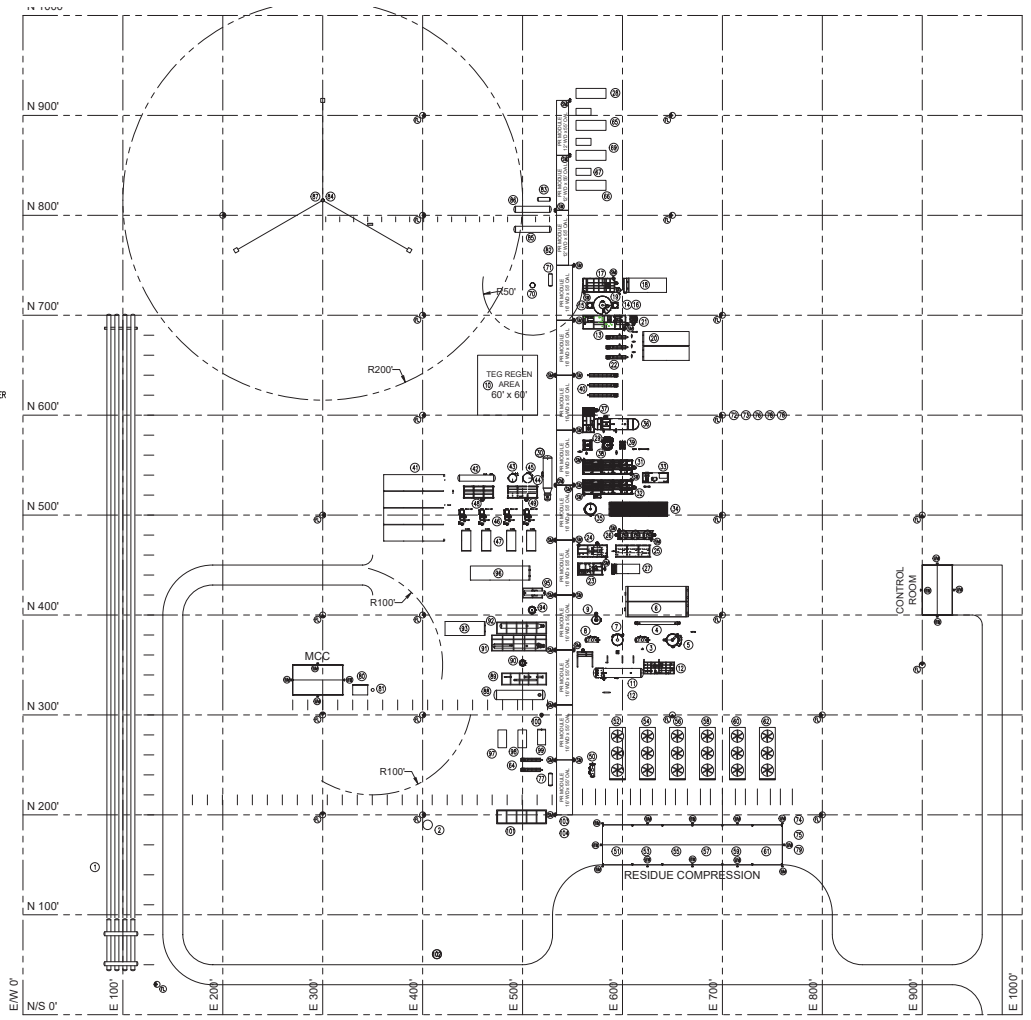
EQUIPMENT

① SC-1400 – SLUG CATCHER
② V-1401 – INLET SEPARATOR
③ F-1410 – INLET FILTER/COELESCER
④ E-1210 – GAS/GAS EXCHANGER
⑤ T-1510 – AMINE CONTACTOR
⑥ A-1310 – TREATED GAS COOLER
⑦ V-1411 – TREATED GAS SCRUBBER
⑧ F-1421 – TREATED GAS FILTER/COELESCER
⑨ TEG CONTACTOR
⑩ TEG REGEN
⑪ V-1412 – AMINE FLASH TANK
⑫ AMINE FLASH TANK SKID
⑬ AMINE REGEN SKID
⑭ T-1511 – AMINE STILL
⑮ E-1212 – AMINE REBOILER
⑯ E-1213 – AMINE REBOILER
⑰ AMINE REBOILER VALVE SKID
⑱ A-1311 – AMINE STILL REFLUX CONDENSER
⑲ V-1417 – STILL REFLUX ACCUMULATOR
⑳ A-1312 – LEAN AMINE COOLER
㉑ V-1415 – AMINE CHARCOAL FILTER
㉒ P-1613/14/15 – AMINE CIRCULATION PUMPS
㉓ DEHY SKID – INLET FILTER
㉔ DEHY SKID – DUST FILTERS
㉕ DEHY SKID – SWITCH VALVES
㉖ V-1421/22/23 – DEHY VESSELS
㉗ A-1320 – REGEN GAS COOLER
㉘ H-1720 – REGEN GAS HEATER
㉙ E-1230/E-1235 – PLATEFIN
㉚ E-1234 – CHILLER
㉛ CRYO SKID – PROCESS
㉜ CRYO SKID – PROCESS
㉝ EC-1130 / EXPANDER/COMPRESSOR
㉞ A-1330 – EXPANDER/COMPRESSOR AFTERCOOLER
㉟ V-1430 – COLD SEPARATOR
㊱ V-1431 – PRODUCT SURGE TANK
㊲ CRYO SKID – PRODUCT CHARGE PUMPS
㊳ T-1530 – DEMETHANIZER
㊴ E-1232/E-1233 – REBOILER PLATEFIN
㊵ P-1633/34/35 – PRODUCT PIPELINE PUMPS
㊶ A-1370 – REFRIGERANT COOLER
㊷ V-1470 – REFRIGERANT ACCUMULATOR
㊸ V-1471 – REFRIGERANT ECONOMIZER
㊹ V-1472 – REFRIGERANT RECLAIMER
㊺ V-1473 – REFRIGERANT SUCTION SCRUBBER
㊻ C-1170/71/72/73 – REFRIGERANT COMPRESSORS
㊼ A-1170/71/72/73 – LUBE OIL COOLERS
㊽ REFRIG SKID – PIPERACK MODULE
㊾ REFRIG SKID – PIPERACK MODULE
㊿ F-1475 – RESIDUE GAS FILTER/COELESCER
(51) C-1174 – RESIDUE GAS COMPRESSOR
(52) A-1174A/B – RESIDUE GAS INTER/AFTER COOLER
(53) C-1175 – RESIDUE GAS COMPRESSOR
(54) A-1175A/B – RESIDUE GAS INTER/AFTER COOLER
(55) C-1176 – RESIDUE GAS COMPRESSOR
(56) A-1176A/B – RESIDUE GAS INTER/AFTER COOLER
(57) C-1177 – RESIDUE GAS COMPRESSOR
(58) A-1177A/B – RESIDUE GAS INTER/AFTER COOLER
(59) C-1178 – RESIDUE GAS COMPRESSOR
(60) A-1178A/B – RESIDUE GAS INTER/AFTER COOLER
(61) C-1179 – RESIDUE GAS COMPRESSOR
(62) A-1179A/B – RESIDUE GAS INTER/AFTER COOLER
(63) –
(64) P-1615/16 – STABILIZER PIPELINE PUMPS
(65) H-1730 – HEAT MEDIUM HEATER (CRYO)
(66) H-1710 – HMO HEATER (AMINE)
(67) AMINE HMO SKID – SURGE TANK
(68) –
(69) H-1780 – STABILIZER HMO HEATER

EQUIPMENT

(70) TO-1991 – THERMAL OXIDIZER
(71) V-1419 – CO2 VENT KNOCKOUT VESSEL
(72) TK-1811 – AMINE STORAGE TANK
(73) TK-1815 – RO WATER STORAGE TANK
(74) TK-1871 – RES. GAS COMP. LUBE OIL TANK
(75) TK-1872 – RES. GAS COMP. USED LUBE OIL TANK
(76) TK-1630 – TEG STORAGE TANK
(77) V-1490 – CLOSED DRAIN TANK
(78) TK-1898/99 – WASTE TANKS
(79) TK-1880 – RVP CONDENSATE TANK
(80) M-1990/91 – INSTRUMENT AIR COMPRESSORS
(81) V-1496/97 – INSTRUMENT AIR RECEIVERS
(82) V-1499 – INSTRUMENT AIR RECEIVER
(83) V-1493 – UTILITY FLARE KO VESSEL
(84) FL-1991 – UTILITY FLARE
(85) V-1491 – COLD FLARE KO VESSEL
(86) V-1492 – WARM FLARE KO VESSEL
(87) FL-1990 – EMERGENCY FLARE
(88) V-1480 – STABILIZER FEED SEPARATOR
(89) STABILIZER SKID – FEED HEATER/COND. FILTERS
(90) T-1580 – STABILIZER
(91) STABILIZER SKID – REBOILER
(92) STABILIZER SKID – RVP REBOILER
(93) A-1385 – RVP PRODUCT COOLER
(94) T-1581 – RVP STABILIZER
(95) STABILIZER SKID – REFLUX
(96) A-1384 – RVP STABILIZER OVERHEAD CONDENSOR
(97) C-1180 – STABILIZER OVERHEAD COMPRESSOR
(98) C-1181 – STABILIZER OVERHEAD COMPRESSOR
(99) A-1380 – STABILIZER OVERHEAD COMPRESSOR AFTER-COOLER
(100) V-1484 STABILIZER OVERHEAD DISCHARGE SCRUBBER
(101) RESIDUE GAS & NGL METER SKID
(102) INLET GAS TIE POINT
(103) RESIDUE GAS TIE POINT
(104) NGL TIE POINT

(105) POLE MOUNTED FLOOD LIGHTS ≈ 23
(106) BUILDING LIGHTS ≈ 20
(107) SKID / PIPERACK MOUNTED FLOOD LIGHTS ≈ 30
(108) SKID / PIPERACK CEILING LIGHTS ≈ 80



0' 20' 40' 60' 80' 100'
SCALE

CONFIDENTIALITY STATEMENT
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REV.	DESCRIPTION	BY	DATE	APP'D	DATE
A	ISSUE FOR BID	bel	4/22/24	JJRAD	4/22/24

REVISIONS

DERRICK OWEAL COMPANY
8282 S. MEMORIAL DR.
SUITE 201, TULSA 74133
PH# 918-857-5175

SAN MATEO MIDSTREAM
300 MMSCFD PROCESSING PLANT
PLOT PLAN

	DRWN BY	DATE	CHKD BY	DATE	PROJ #	APP'D
	bJones	4/1/24	JSR	4/22/24	1969	JSR

SCALE: 1/16"=1'-0" | 1/32"=1'-1"-1000 | NONE
DRWG #: A
File Name: 00124-1-1-1000.dwg Z:\Customer\000s\0124-1 New Mexico 300 MMSCFD\Confirm\0A\
May 07, 2024 - 3:36pm

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 (.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 € 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 pollutant.

Engine (Unit ENG-1 through ENG-3)
NO_X, CO, and VOC were calculated using emission factors provided by the manufacturer and catalyst specifications. PM, SO_2, and hazardous emissions were calculated using AP-42 factors for internal natural gas combustion sources in Table 3.2-2. As a conservative measure, it was assumed that PM(Total) = PM_{10} and PM (condensable) = $PM_{2.5}$. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Heaters (Units HT-101, HT-801, HT-102, HT-103, HT-802, HT-803, HT-804, HT-201, HT-104, HT-301)
NO_X, CO, VOC, PM, SO_2, and hazardous emissions were calculated using AP-42 factors for external natural gas combustion sources in Tables 1.4-1, 1.4-2, and 1.4-3. As a conservative measure, it was assumed that PM(Total) = PM_{10} and PM (condensable) = $PM_{2.5}$. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Reboilers (Units AR-1, AR-2, DR-1, DR-2, DR-3)
NO_X, VOC, PM, SO_2, and hazardous emissions were calculated using AP-42 factors for external natural gas combustion sources in Tables 1.4-1, 1.4-2, and 1.4-3. The CO emissions were calculated based on the manufacturer spec sheet with a safety factor of 50%. As a conservative measure, it was assumed that PM(Total) = PM_{10} and PM (condensable) = $PM_{2.5}$. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Glycol Dehydrators (Units DEHY-1, DEHY-2, DEHY-3)
All emissions from these units are calculated using ProMax. Flash emissions from glycol dehydrators will be routed to the facility fuel system or back to the process. The regenerator emissions from DEHY-1 are routed to the FL-2. Controlled emissions from this unit will be represented under FL-2a. The regenerator emissions from DEHY-2 are routed to the TO-2. Controlled emissions from this unit will be represented under TO-2. The regenerator emissions from DEHY-3 are routed to the TO-3, with emissions represented at that unit. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Glycol Dehydrator SSM (DEHY-1 SSM)
This accounts for emissions during startup shutdown and maintenance and upset conditions from the vapor combustion unit. VOC, H_2S, and HAP emissions were calculated using streams from ProMax.

Amine Vents (Units AM-1, AM-2, AM-3)
All emissions from these units are calculated using ProMax. The amine flash is routed back to the process. The regenerator emissions from each amine unit are routed to the thermal oxidizers, TO-1, TO-2, and TO-3 respectively. Controlled emissions are represented under units TO-1, TO-2, and TO-3. Emissions during maintenance and malfunction are accounted for in the thermal oxidizer SSM (TO-1 SSM/M and TO-2 SSM/M). Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Flare (Unit FL-2a)
This flare controls the DEHY-1 condenser stream. The basis of the flaring calculations is the expected composition and maximum expected volumes of the gas. The SO_2 composition is based on a 98% molar conversion of H_2S to SO_2. NO_X and CO emissions for both scenarios are calculated using AP-42 Table 13.5-1 emission factors. VOC emissions are calculated from the VOC volume fraction of the inlet gas to the flare, the specific volume of the VOC fraction of the inlet gas, and a 98% destruction removal efficiency. The ProMax inlet gas analysis can be found in Section 7. Emissions of greenhouse gases are calculated using methodology from 40 CFR Subpart 98.233(n).

Flare SSM (Units FL-1, FL-2b, FL-3, FL-4b)
The plant flares are used for flaring during startup, shutdown, maintenance and upset conditions. The only steady state

conditions associated with these flares are from the pilot and purge gas streams. SSM from the plant flares is due to various maintenance activities throughout the facility per manufacturer-recommended maintenance schedules. These maintenance activities include but are not limited to compressor catalyst changes, blowdowns for associated maintenance throughout the facility, instrumental calibrations, and process safety device maintenance.

The basis of the flaring calculations is the expected composition and maximum expected volumes of the gas. The SO_2 composition is based on a 98% molar conversion of H_2S to SO_2. NO_X and CO emissions for both scenarios are calculated using AP-42 Table 13.5-1 emission factors. VOC emissions are calculated from the VOC volume fraction of the inlet gas to the flare, the specific volume of the VOC fraction of the inlet gas, and a 98% destruction efficiency. The ProMax inlet gas analysis can be found in Section 7. Emissions of greenhouse gases are calculated using methodology from 40 CFR Subpart 98.233(n).

Thermal Oxidizers (Units TO-1, TO-2, TO-3)
NO_X and CO emissions were updated using the manufacturer specification sheet. PM and SO_2 emissions were calculated using AP-42 factors for external natural gas combustion sources in Tables 1.4-1 and 1.4-2. HAP and VOC emissions were calculated using streams from ProMax. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Thermal Oxidizers SSM (Unit TO-1 SSM, TO-2 SSM)
This accounts for emissions during startup shutdown and maintenance and upset conditions from the thermal oxidizer. VOC, H_2S, and HAP emissions were calculated using streams from ProMax. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Vapor Combustion Unit (Unit VCU-1)
NO_X, CO, and SO_2 emissions were calculated using AP-42 factors for external natural gas combustion sources in Tables 1.4-1 and 1.4-2. HAP and VOC emissions were calculated using streams from ProMax. Greenhouse gas emissions were estimated using methodology from 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Condensate Storage Tanks (Unit TK-702-A-F, TK-702 G)
These units (TK-702-A-F) represent six (6) connected 500 bbl condensate storage tanks. Uncontrolled emissions are calculated using ProMax and an annual throughput of 6,000 bbl/day. Emissions will be routed to the vapor combustion unit, unit VCU-1, for at least 80% of the year accounting for VRU downtime. Plant 4 has one 1,000 bbl condensate tank (TK-702 G) that operates similarly. Uncontrolled emissions are calculated using ProMax and an annual throughput of 10,713 bbl/day. Emissions will be routed to the low-pressure flare unit, unit FL-4a.

Produced Water Tank (Unit TK-701, TK-701 B, TK-701 C)
Unit TK-701 represents one (1) 500 bbl produced water tank. Uncontrolled emissions are calculated using ProMax and an annual throughput of 80 bbl/day. Emissions will be routed to the vapor combustion unit, unit VCU-1, for at least 80% of the year accounting for VRU downtime. Units TK-701 B and TK-701 C represent two (2) 1,000 bbl produced water tanks. Uncontrolled emissions are calculated using ProMax and an annual throughput of 400 bbl/day. Emissions will be routed to the low-pressure flare unit, unit FL-4a.

Loading Emissions (Unit TL-1, TL-2, TL-3, TL-4)
Condensate and produced water are transferred out of the facility via LACT. Loading emissions are calculated for 7 days of condensate and produced water loading to account for any LACT downtime. Emissions from the loading of condensate and produced water out of the facility by truck were estimated using Equation 1 in AP-42 Section 5.2-4.

SSM (Units SSM-1, SSM-2, SSM-3, SSM-4)
SSM from the pig receiver and launchers blowdowns. Emissions are based on the volume, temperature, and pressure of the gas vented to the atmosphere during these operations.

Fugitive Emissions (Unit FUG, FUG-4)
Fugitive emissions were estimated using emission factors from Table 2-4 of EPA Protocol for Equipment Leak Emission Estimates, November 1995, EPA-453/R-95-017. Component counts were estimated as previously permitted. The percent VOC and HAPs are from the inlet gas analysis dated 8/22/2012. The percent VOC in liquids is conservatively assumed to be 100%. The percent H_2S in liquids is zero. The percent of HAPs in the liquids is estimated based on the ratio of VOC and HAP in the previous gas analysis. Total HAPs is the sum of n-Hexane, Benzene, Toluene, Ethylbenzene, and Xylene.

Haul Road Emissions (Unit HAUL)

Unpaved haul road emissions were estimated based on Equations 1a and 2 of AP-42 Section 13.2.1 (1/11). Particle size multipliers and constants for these equations are found in AP-42 Table 13.2.2-2, Industrial Roads. Silt content is taken from AP-42 Table 13.2.2-1 and annual wet days is from AP-42 Figure 13.2.2-1. The control efficiency is based on the NMED guidance document entitled Department Accepted Values For: Aggregate Handling, Storage Pile, and Haul Road Emissions. The length of the haul road is estimated from Google Earth.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Uncontrolled Emissions

		NO_x		CO		VOC		TSP		PM_{10}		$PM_{2.5}$		SO_2		H_2S		Total HAP		Formaldehyde	
Unit ID	Equipment Description	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	lb/hr	ton/yr
ENG-1	Caterpillar G3616 Compressor Engine	3.31	14.48	24.47	107.18	3.31	14.48	0.37	1.63	0.37	1.63	0.37	1.63	0.20	0.86	-	-	1.83	8.02	1.21	5.31
ENG-2	Caterpillar G3616 Compressor Engine	3.31	14.48	24.47	107.18	3.31	14.48	0.37	1.63	0.37	1.63	0.37	1.63	0.20	0.86	-	-	1.83	8.02	1.21	5.31
ENG-3	Caterpillar G3616 Compressor Engine	3.31	14.48	24.47	107.18	3.31	14.48	0.37	1.63	0.37	1.63	0.37	1.63	0.20	0.86	-	-	1.83	8.02	1.21	5.31
HT-101	Plant 1 - Mole Sieve Heater	0.64	2.82	0.54	2.37	0.035	0.16	0.049	0.21	0.049	0.21	0.037	0.16	3.87E-03	0.017	-	-	-	-	-	-
HT-801	Plant 1 - Stabilizer Heater	0.64	2.82	0.54	2.37	0.035	0.16	0.049	0.21	0.049	0.21	0.037	0.16	3.87E-03	0.017	-	-	-	-	-	-
HT-102	Plant 2 - Mole Sieve Heater	0.64	2.82	0.54	2.37	0.035	0.16	0.068	0.30	0.068	0.30	0.051	0.22	5.40E-03	0.024	-	-	-	-	-	-
AR-1	Plant 2 - Amine Reboiler	1.95	8.54	1.64	7.17	0.11	0.47	0.15	0.65	0.15	0.65	0.11	0.49	0.012	0.051	-	-	-	-	-	-
DR-1	Plant 2 - Dehy Regen Heater	0.27	1.17	0.23	0.99	0.015	0.065	0.020	0.089	0.020	0.089	0.015	0.067	1.61E-03	7.04E-03	-	-	-	-	-	-
HT-103	Plant 3 - Mole Sieve Heater	0.90	3.94	0.76	3.31	0.050	0.22	0.068	0.30	0.068	0.30	0.051	0.22	5.40E-03	0.024	-	-	-	-	-	-
HT-802	Plant 3 - Stabilizer Heater 1	0.57	2.51	0.48	2.11	0.032	0.14	0.044	0.19	0.044	0.19	0.033	0.14	3.44E-03	0.015	-	-	-	-	-	-
AR-2	Plant 3 - Amine Reboiler	2.21	9.68	1.86	8.14	0.12	0.53	0.17	0.74	0.17	0.74	0.13	0.55	0.013	0.058	-	-	-	-	-	-
DR-2	Plant 3 - Dehy Regen Heater	0.23	1.01	0.19	0.85	0.013	0.056	0.018	0.077	0.018	0.077	0.013	0.058	1.39E-03	6.07E-03	-	-	-	-	-	-
HT-803	Plant 3 - Stabilizer Heater 2	0.57	2.51	0.48	2.11	0.032	0.14	0.044	0.19	0.044	0.19	0.033	0.14	3.44E-03	0.015	-	-	-	-	-	-
HT-804	Plant 4- Stabilizer Heater	0.86	3.76	0.72	3.16	0.047	0.21	0.065	0.29	0.065	0.29	0.065	0.29	5.047E-03	0.02	-	-	0.016	0.071	6.44E-04	2.82E-03
HT-201	Plant 4- Amine HMO Heater	1.67	7.33	4.23	18.53	0.28	1.21	0.38	1.68	0.38	1.68	0.38	1.68	0.03	0.13	-	-	0.095	0.42	3.78E-03	0.017
HT-104	Plant 4- Mole Sieve Heater	1.35	5.91	3.36	14.72	0.22	0.96	0.30	1.33	0.30	1.33	0.30	1.33	0.02	0.10	-	-	0.075	0.33	3.00E-03	0.013
HT-301	Plant 4- Cryo HMO Heater	0.75	3.27	1.98	8.65	0.13	0.57	0.18	0.78	0.18	0.78	0.18	0.78	0.01	0.06	-	-	0.044	0.19	1.76E-03	7.72E-03
DR-3	Plant 4- Dehy Reboiler	0.39	1.72	0.33	1.44	0.022	0.094	0.030	0.13	0.030	0.13	0.030	0.13	2.305E-03	0.010	-	-	7.38E-03	0.032	2.94E-04	1.29E-03
DEHY-1	Plant 2 - Dehy Unit	-	-	-	-	193.81	848.88	-	-	-	-	-	-	-	-	0.052	0.23	30.16	132.09	-	-
AM-1	Plant 2 - Amine Unit	-	-	-	-	19.40	85.35	-	-	-	-	-	-	-	-	5.45	23.86	0.29	1.28	-	-
DEHY-2	Plant 3 - Dehy Unit	-	-	-	-	190.32	833.99	-	-	-	-	-	-	-	-	0.052	0.23	0.28	1.21	-	-
AM-2	Plant 3 - Amine Unit	-	-	-	-	18.95	82.99	-	-	-	-	-	-	-	-	4.11	17.99	7.53	33.00	-	-
DEHY-3	Plant 4- Dehy Unit	-	-	-	-	199.47	873.66	-	-	-	-	-	-	-	-	4.23E-04	1.85E-03	8.71	38.14	-	-
AM-3	Plant 4- Amine Unit	-	-	-	-	166.83	730.70	-	-	-	-	-	-	-	-	4.05	17.74	3.75	16.41	-	-
TO-1	Plant 2 -Thermal Oxidizer	No emissions from these unit in an uncontrolled scenario																			
TO-2	Plant 3 -Thermal Oxidizer	No emissions from these unit in an uncontrolled scenario																			
TO-3	Plant 4- Thermal Oxidizer	No emissions from these unit in an uncontrolled scenario																			
TO-1 SSM	Plant 2 -Thermal Oxidizer SSM	No emissions from these unit in an uncontrolled scenario																			
TO-2 SSM	Plant 3 -Thermal Oxidizer SSM	No emissions from these unit in an uncontrolled scenario																			
DEHY-1 SSM	Plant 2 - Dehy Overhead SSM	No emissions from these unit in an uncontrolled scenario																			
FL-1	Plant 1 - SSM	No emissions from these unit in an uncontrolled scenario																			
FL-2	Plant 2 - Dehy-1 Control and SSM/M	No emissions from these unit in an uncontrolled scenario																			
FL-3	Plant 3 - SSM	No emissions from these unit in an uncontrolled scenario																			
FL-4b	Plant 4- Low Pressure Process Flare	0.011	0.049	0.022	0.097	0.00E00	0.00E00	-	-	-	-	-	-	3.71E-04	1.63E-03	0.00E00	0.00E00	0.00E00	0.00E00	-	-
FL-4a	Plant 4- SSM Flare	0.033	0.15	0.067	0.29	-	-	-	-	-	-	-	-	1.11E-03	4.88E-03	-	-	-	-		
VCU-1	Tanks Control	No emissions from these unit in an uncontrolled scenario																			
VCU-1 SSM	VCU-1 Downtime	No emissions from these unit in an uncontrolled scenario																			
TK-702A-F	Condensate Tanks	-	-	-	-	17.89	78.35	-	-	-	-	-	-	-	-	0.00E00	0.00E00	9.52	9.52	-	-
TK-702 G	Plant 4- Condensate Tank	-	-	-	-	9.69	42.44	-	-	-	-	-	-	-	-	0.00E00	0.00E00	2.16	9.46	-	-
TK-701	Produced Water Tanks	-	-	-	-	156.54	685.65	-	-	-	-	-	-	-	-	2.82E-04	1.23E-03	49.24	49.24	-	-
TK-701 B	Plant 4- Produced Water Tank 1	-	-	-	-	24.82	108.72	-	-	-	-	-	-	-	-	1.07E-03	4.70E-03	0.81	3.55	-	-
TK-701 C	Plant 4- Produced Water Tank 2	-	-	-	-	24.82	108.72	-	-	-	-	-	-	-	-	1.07E-03	4.70E-03	0.81	3.55	-	-
TL-1	Condensate Truck Loading	-	-	-	-	45.00	5.19	-	-	-	-	-	-	-	-	0.00E00	0.00E00	0.38	0.043	-	-
TL-2	Produced Water Truck Loading	-	-	-	-	86.33	0.27	-	-	-	-	-	-	-	-	1.65E-04	5.11E-07	1.41	4.36E-03	-	-
TL-3	Plant 4- Condensate Loading	-	-	-	-	24.46	1.39	-	-	-	-	-	-	-	-	0.00E00	0.00E00	5.45	0.31	-	-
TL-4	Plant 4- Produced Water Loading	-	-	-	-	120.46	0.25	-	-	-	-	-	-	-	-	6.41E-03	1.36E-07	4.43	9.37E-03	-	-
FUG	Fugitives	-	-	-	-	7.89	34.54	-	-	-	-	-	-	-	-	0.037	0.16	7.81E-03	0.034	-	-
FUG-4	Plant 4- Fugitives	-	-	-	-	3.10	13.57	-	-	-	-	-	-	-	-	4.33E-05	1.90E-04	0.19	0.85	-	-
SSM	Pig Launcher/Receiver (SSM 1, 2, 3, 4)	-	-	-	-	233.23	42.56	-	-	-	-	-	-	-	-	0.01	1.99E-03	0.086	0.016	-	-
SSM- Plant 4	Plant 4- SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAL (FL-1, 2, 3, 4)	Malfunction (FL-1, FL-2, FL-3, FL-4)	517.79	4.97	1033.70	9.92	498.35	4.78	-	-	-	-	-	-	2.94	0.029	0.232	3.06E-04	0.24	2.34E-03	-	-
Totals		**541.41**	**108.45**	**1125.06**	**410.15**	**2052.50**	**4640.19**	**2.75**	**12.06**	**2.75**	**12.06**	**2.58**	**11.32**	**3.66**	**3.18**	**13.80**	**60.23**	**131.18**	**323.84**	**3.65**	**15.97**

Controlled Emissions

		NO_x		CO		VOC		TSP		PM_{10}		$PM_{2.5}$		SO_2		H_2S		Total HAP			
Unit ID	Equipment Description	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	Caterpillar G3616 Compressor Engine	3.31	14.48	2.45	10.72	1.45	6.37	0.37	1.63	0.37	1.63	0.37	1.63	0.20	0.86	-	-	0.86	3.78		
ENG-2	Caterpillar G3616 Compressor Engine	3.31	14.48	2.45	10.72	1.45	6.37	0.37	1.63	0.37	1.63	0.37	1.63	0.20	0.86	-	-	0.86	3.78		
ENG-3	Caterpillar G3616 Compressor Engine	3.31	14.48	2.45	10.72	1.45	6.37	0.37	1.63	0.37	1.63	0.37	1.63	0.20	0.86	-	-	0.86	3.78		
HT-101	Plant 1 - Mole Sieve Heater	0.64	2.82	0.54	2.37	0.035	0.16	0.049	0.21	0.049	0.21	0.037	0.16	3.87E-03	0.017	-	-	-	-		
HT-801	Plant 1 - Stabilizer Heater	0.64	2.82	0.54	2.37	0.035	0.16	0.049	0.21	0.049	0.21	0.037	0.16	3.87E-03	0.017	-	-	-	-		
HT-102	Plant 2 - Mole Sieve Heater	0.90	3.94	0.76	3.31	0.050	0.22	0.068	0.30	0.068	0.30	0.051	0.22	5.40E-03	0.024	-	-	-	-		
AR-1	Plant 2 - Amine Reboiler	1.95	8.54	1.64	7.17	0.11	0.47	0.15	0.65	0.15	0.65	0.11	0.49	0.012	0.051	-	-	-	-		
DR-1	Plant 2 - Dehy Regen Heater	0.27	1.17	0.23	0.99	0.015	0.065	0.020	0.089	0.020	0.089	0.015	0.067	1.61E-03	7.04E-03	-	-	-	-		
HT-103	Plant 3 - Mole Sieve Heater	0.90	3.94	0.76	3.31	0.050	0.22	0.068	0.30	0.068	0.30	0.051	0.22	5.40E-03	0.024	-	-	-	-		
HT-802	Plant 3 - Stabilizer Heater 1	0.57	2.51	0.48	2.11	0.032	0.14	0.044	0.19	0.044	0.19	0.033	0.14	3.44E-03	0.015	-	-	-	-		
AR-2	Plant 3 - Amine Reboiler	2.21	9.68	1.86	8.14	0.12	0.53	0.17	0.74	0.17	0.74	0.13	0.55	0.013	0.058	-	-	-	-		
DR-2	Plant 3 - Dehy Regen Heater	0.23	1.01	0.19	0.85	0.013	0.056	0.018	0.077	0.018	0.077	0.013	0.058	1.39E-03	6.07E-03	-	-	-	-		
HT-803	Plant 3 - Stabilizer Heater 2	0.57	2.51	0.48	2.11	0.032	0.14	0.044	0.19	0.044	0.19	0.033	0.14	3.44E-03	0.015	-	-	-	-		
HT-804	Plant 4- Stabilizer Heater	0.86	3.76	0.72	3.16	0.047	0.21	0.065	0.29	0.065	0.29	0.065	0.29	5.047E-03	0.02	-	-	0.016	0.071		
HT-201	Plant 4- Amine HMO Heater	1.67	7.33	4.23	18.53	0.28	1.21	0.38	1.68	0.38	1.68	0.38	1.68	0.03	0.13	-	-	0.095	0.42		
HT-104	Plant 4- Mole Sieve Heater	1.35	5.91	3.36	14.72	0.22	0.96	0.30	1.33	0.30	1.33	0.30	1.33	0.02	0.10	-	-	0.075	0.33		
HT-301	Plant 4- Cryo HMO Heater	0.75	3.27	1.98	8.65	0.13	0.57	0.18	0.78	0.18	0.78	0.18	0.78	0.01	0.06	-	-	0.044	0.19		
DR-3	Plant 4- Dehy Reboiler	0.39	1.72	0.33	1.44	0.022	0.094	0.030	0.131	0.030	0.13	0.030	0.13	2.305E-03	0.010	-	-	7.38E-03	0.032		
DEHY-1	Plant 2 - Dehy Unit	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.																			
AM-1	Plant 2 - Amine Unit	Emissions are controlled by thermal oxidizer, TO-1. Emissions are represented under TO-1.																			
DEHY-2	Plant 3 - Dehy Unit	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.																			
AM-2	Plant 3 - Amine Unit	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.																			
DEHY-3	Plant 4- Dehy Unit	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.																			
AM-3	Plant 4- Amine Unit	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.																			
TO-1	Plant 2 -Thermal Oxidizer	4.61	20.21	4.00	17.51	0.54	1.59	0.74	2.38	0.74	2.38	0.62	1.74	10.13	44.36	0.16	0.90	0.15	0.66		
TO-2	Plant 3 -Thermal Oxidizer	2.82	12.35	2.56	11.22	3.81	16.71	0.46	2.00	0.46	2.00	0.36	1.59	7.84	34.32	0.09	0.41	0.52	2.30		
TO-3	Plant 4- Thermal Oxidizer	3.14	13.62	1.30	11.09	7.38	18.10	0.21	0.90	0.21	0.90	0.21	0.90	7.54	32.73	0.08	0.35	0.25	0.97		
TO-1 SSM	Plant 2 -Thermal Oxidizer SSM	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.																			
TO-2 SSM	Plant 3 -Thermal Oxidizer SSM	Emissions are controlled by flare, FL-3. Emissions are represented under FL-3.																			
DEHY-1 SSM	Plant 2 - Dehy Overhead SSM	-	-	-	-	193.81	16.98	-	-	-	-	-	-	-	-	0.052	4.56E-03	18.75	1.64		
FL-1	Plant 1 - SSM	104.51	3.90	208.64	7.79	100.81	3.705	-	-	-	-	-	-	0.606	0.03	6.45E-03	2.43E-04	0.05	1.85E-03		
FL-2	Plant 2 - Dehy-1 Control and SSM/M	180.44	17.92	360.16	35.51	175.01	31.43	-	-	-	-	-	-	11.16	5.01	0.13	0.06	0.64	1.81		
FL-3	Plant 3 - SSM	147.49	7.67	294.45	15.32	143.99	8.55	-	-	-	-	-	-	8.51	3.51	0.097	0.04	0.60	0.244		
FL-4a	Plant 4- Low Pressure Process Flare	0.2462	1.0869	0.4954	2.1699	1.1807	5.1977	-	-	-	-	-	-	0.0046	0.0200	0.0000	0.0002	0.0756	0.3312		
FL-4b	Plant 4- SSM Flare	16.97	8.55	33.87	17.06	9.25	6.34	-	-	-	-	-	-	8.40	3.71	0.08	0.036	0.25	0.13		
VCU-1	Tanks Control	0.51	2.25	1.03	4.49	3.20	14.03	8.473E-03	0.037	8.473E-03	0.037	6.355E-03	0.028	5.37E-04	2.35E-03	9.48E-06	4.14E-05	0.234	1.02		
VCU-1 SSM	VCU-1 Downtime	-	-	-	-	160.12	56.11	-	-	-	-	-	-	-	-	2.82E-04	9.87E-05	2.76	0.968		
TK-702A-F	Condensate Tanks	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.																			
TK-702 G	Plant 4- Condensate Tank	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																			
TK-701	Produced Water Tanks	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.																			
TK-701 B	Plant 4- Produced Water Tank 1	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																			
TK-701 C	Plant 4- Produced Water Tank 2	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.																			
TL-1	Condensate Truck Loading	-	-	-	-	45.00	5.19	-	-	-	-	-	-	-	-	0.00E00	0.00E00	0.38	0.043		
TL-2	Produced Water Truck Loading	-	-	-	-	86.33	0.27	-	-	-	-	-	-	-	-	1.65E-04	5.11E-07	1.41	4.36E-03		
TL-3	Plant 4- Condensate Loading	-	-	-	-	24.46	1.39	-	-	-	-	-	-	-	-	0.00E00	0.00E00	5.45	0.31		
TL-4	Plant 4- Produced Water Loading	-	-	-	-	120.46	0.25	-	-	-	-	-	-	-	-	6.41E-03	1.36E-07	4.43	9.37E-03		
FUG	Fugitives	-	-	-	-	7.89	34.54	-	-	-	-	-	-	-	-	0.037	0.16	7.81E-03	0.034		
FUG-4	Plant 4- Fugitives	-	-	-	-	3.10	13.57	-	-	-	-	-	-	-	-	4.33E-05	1.90E-04	0.19	0.85		
SSM	Pig Launcher/Receiver (SSM 1, 2, 3, 4)	Emissions are controlled by Flares, FL-1, FL-2, FL-3, and FL-4. Emissions for SSM-1 are represented under FL-1, SSM-2 under FL-2, SSM-3 under FL-3, and SSM-4 under FL-4 SSM.																			
SSM- Plant 4	Plant 4- SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-		
MAL (FL-1, 2, 3, 4)	Malfunction (FL-1, FL-2, FL-3, FL-4)	689.57	6.69	1376.64	13.35	719.07	7.03	-	-	-	-	-	-	3.65	0.04	0.039	3.80E-04	1.01	0.010		
Facility Totals		**1174.14**	**198.66**	**2308.57**	**247.80**	**1811.85**	**275.37**	**4.16**	**17.37**	**4.16**	**17.37**	**3.78**	**15.57**	**58.56**	**126.57**	**0.78**	**1.96**	**39.99**	**23.71**		
Facility Totals w/out Fugitives		**1174.14**	**198.66**	**2308.57**	**247.80**	**1800.06**	**227.36**	**4.16**	**17.37**	**4.16**	**17.37**	**3.78**	**15.57**	**58.56**	**126.57**	**0.74**	**1.80**	**39.79**	**22.83**		

Facility HAPs

		Formaldehyde		Benzene		Toulene		Hexane		Acetaldehyde		Acrolein		Xylene	
Unit ID	Equipment Description	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	Caterpillar G3616 Compressor Engine	0.24	1.06	0.02	0.076	0.02	0.071	0.04	0.19	0.33	1.45	0.203	0.89	7.27E-03	0.032
ENG-2	Caterpillar G3616 Compressor Engine	0.24	1.06	0.02	0.076	0.02	0.071	0.04	0.19	0.33	1.45	0.203	0.89	7.27E-03	0.032
ENG-3	Caterpillar G3616 Compressor Engine	0.24	1.06	0.02	0.076	0.02	0.071	0.04	0.19	0.33	1.45	0.203	0.89	7.27E-03	0.032
HT-101	Plant 1 - Mole Sieve Heater	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-801	Plant 1 - Stabilizer Heater	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-102	Plant 2 - Mole Sieve Heater	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AR-1	Plant 2 - Amine Reboiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR-1	Plant 2 - Dehy Regen Heater	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-103	Plant 3 - Mole Sieve Heater	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-802	Plant 3 - Stabilizer Heater 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AR-2	Plant 3 - Amine Reboiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DR-2	Plant 3 - Dehy Regen Heater	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-803	Plant 3 - Stabilizer Heater 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HT-804	Plant 4- Stabilizer Heater	6.44E-04	2.82E-03	1.80E-05	7.90E-05	2.92E-05	1.28E-04	0.015	0.068	-	-	-	-	-	-
HT-201	Plant 4- Amine HMO Heater	3.78E-03	0.017	1.06E-04	4.63E-04	1.71E-04	7.50E-04	0.091	0.40	-	-	-	-	-	-
HT-104	Plant 4- Mole Sieve Heater	3.00E-03	0.013	8.40E-05	3.68E-04	1.36E-04	5.96E-04	0.072	0.32	-	-	-	-	-	-
HT-301	Plant 4- Cryo HMO Heater	1.76E-03	7.72E-03	4.94E-05	2.16E-04	7.99E-05	3.50E-04	0.042	0.19	-	-	-	-	-	-
DR-3	Plant 4- Dehy Reboiler	2.94E-04	1.29E-03	8.24E-06	3.61E-05	1.33E-05	5.84E-05	7.06E-03	0.031	-	-	-	-	-	-
DEHY-1	Plant 2 - Dehy Unit	Emissions are controlled by flare, FL-2. Emissions are represented under FL-2.													
AM-1	Plant 2 - Amine Unit	Emissions are controlled by thermal oxidizer, TO-1. Emissions are represented under TO-1.													
DEHY-2	Plant 3 - Dehy Unit	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.													
AM-2	Plant 3 - Amine Unit	Emissions are controlled by thermal oxidizer, TO-2. Emissions are represented under TO-2.													
DEHY-3	Plant 4- Dehy Unit	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.													
AM-3	Plant 4- Amine Unit	Emissions are controlled by thermal oxidizer, TO-3. Emissions are represented under TO-3.													
TO-1	Plant 2 -Thermal Oxidizer	-	-	0.15	0.66	-	-	-	-	-	-	-	-	-	-
TO-2	Plant 3 -Thermal Oxidizer	-	-	0.041	0.18	0.086	0.38	0.14	0.62	-	-	-	-	0.23	0.99
TO-3	Plant 4- Thermal Oxidizer	-	-	0.03	0.12	0.031	0.14	0.020	0.089	-	-	-	-	-	-
TO-1 SSM	Plant 2 -Thermal Oxidizer SSM	-	-	7.58	0.66	-	-	-	-	-	-	-	-	-	-
TO-2 SSM	Plant 3 -Thermal Oxidizer SSM	-	-	1.47	0.13	3.06	0.27	5.03	0.44	-	-	-	-	8.08	0.71
DEHY-1 SSM	Plant 2 - Dehy Overhead SSM	-	-	18.75	1.64	-	-	-	-	-	-	-	-	-	-
FL-1	Plant 1 - SSM	-	-	0.05	1.85E-03	-	-	-	-	-	-	-	-	-	-
FL-2	Plant 2 - Dehy-1 Control and SSM/M	-	-	0.64	1.81	-	-	-	-	-	-	-	-	-	-
FL-3	Plant 3 - SSM	-	-	0.60	0.244	-	-	-	-	-	-	-	-	-	-
FL-4a	Plant 4- Low Pressure Process Flare	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-4b	Plant 4- SSM Flare	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VCU-1	Tanks Control	-	-	0.055	0.24	-	-	-	-	-	-	-	-	-	-
VCU-1 SSM	VCU-1 Downtime	-	-	2.76	0.968	-	-	-	-	-	-	-	-	-	-
TK-702A-F	Condensate Tanks	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.													
TK-702 G	Plant 4- Condensate Tank	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.													
TK-701	Produced Water Tanks	Emissions are controlled by Vapor Combustion Unit, VCU-1. Emissions are represented under VCU-1.													
TK-701 B	Plant 4- Produced Water Tank 1	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.													
TK-701 C	Plant 4- Produced Water Tank 2	Emissions are controlled by Flare, FL-4. Emissions are represented under FL-4 LP.													
TL-1	Condensate Truck Loading	-	-	0.38	0.043	-	-	-	-	-	-	-	-	-	-
TL-2	Produced Water Truck Loading	-	-	1.41	4.36E-03	-	-	-	-	-	-	-	-	-	-
TL-3	Plant 4- Condensate Loading	-	-	1.05	0.06	0.20	0.011	4.18	0.24	-	-	-	-	-	-
TL-4	Plant 4- Produced Water Loading	-	-	1.34	2.84E-03	2.11	4.458E-03	0.98	2.069E-03	-	-	-	-	-	-
FUG	Fugitives	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG-2	Plant 4- Fugitives	-	-	0.029	0.13	0.023	0.10	3.83E-03	0.017	-	-	-	-	-	-
SSM	Pig Launcher/Receiver (SSM 1 & 2)	Emissions are controlled by Flares, FL-1, FL-2, FL-3, and FL-4. Emissions for SSM-1 are represented under FL-1, SSM-2 under FL-2, SSM-3 under FL-3, and SSM-4 under FL-4 LP.													
SSM- Plant 4	Plant 4- SSM	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAL (FL-1 , 2, 3, 4)	Malfunction (FL-1, FL-2, FL-3, FL-4)	-	-	0.24	2.34E-03	-	-	-	-	-	-	-	-	-	-
	Totals	**0.74**	**3.23**	**36.64**	**7.14**	**5.56**	**1.11**	**10.71**	**2.97**	**0.99**	**4.34**	**0.610**	**2.67**	**8.33**	**1.80**
	Totals wout Fugitives	**0.74**	**3.23**	**36.61**	**7.01**	**5.53**	**1.01**	**10.71**	**2.95**	**0.99**	**4.34**	**0.610**	**2.67**	**8.33**	**1.80**

Caterpillar G3616 5000 hp Compressor Engine

Emission Unit:	ENG-1 to ENG-3
Source Description:	Caterpillar G3616 Compressor Engine
Manufacturer:	Caterpillar
Model:	G3616
Type:	4SLB

Fuel Consumption

Site horsepower	5000	hp	Manufacturer Rating
Fuel heat value	1081.80	Btu/scf	Fuel Gas Analysis
Heat input	37.3	MMBtu/hr	Fuel consumption * Fuel heat value
Fuel consumption	34.5	Mscf/hr	Heat input / fuel heat value
Hours of Operation	8760.0	hrs/yr	
Annual fuel usage	301.8	MMscf/yr	8760 hrs/yr operation
Fuel Consumption	**7454**	Btu/hp-hr	Manufacturer Spec Sheet @ Max Rating

Emission Calculations

Uncontrolled	**NO_x**	**CO**	**VOC**	**SO_2[2]**	**HCHO**	**PM_{10}[4]**	**$PM_{2.5}$[4]**	**Total HAPs[3]**	**Units**	**Notes**
Emission Factors	0.30	2.22	0.16		0.11				g/hp-hr	Catalyst Guarantee
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
				0.02					gr/scf	Engineering Estimate
Emissions	**3.31**	**24.47**	**3.31**	**0.197**	**1.21**	**0.37**	**0.37**	**1.83**	lb/hr	
	14.48	**107.18**	**14.48**	**0.86**	**5.31**	**1.63**	**1.63**	**8.02**	tpy	

Controlled	**NO_x**	**CO**	**VOC[1]**	**SO_2[2]**	**HCHO**	**PM_{10}[4]**	**$PM_{2.5}$[4]**	**Total HAPs[3]**	**Units**	**Notes**
Emission Factors	0.30	0.22	0.08		0.02				g/hp-hr	Catalyst Guarantee
	0.00%	90.00%	56.00%		80.00%					% Reduction
						9.99E-03	9.99E-03		lb/MMBtu	AP-42 Table 3.2-2
Emissions	**3.31**	**2.45**	**1.45**	**0.197**	**0.24**	**0.37**	**0.37**	**0.86**	lb/hr	
	14.48	**10.72**	**6.37**	**0.86**	**1.06**	**1.63**	**1.63**	**3.78**	tpy	

Acetaldehyde[5]	**Acrolein[5]**	**Benzene[5]**	**E-Benzene[5]**	**n-Hexane[5]**	**Toluene[5]**	**Xylene[5]**	**Units**	**Notes**
8.36E-03	5.14E-03	4.40E-04	3.97E-05	1.10E-03	4.08E-04	1.84E-04	lb/MMBtu	AP-42 Table 3.2-2
8.87E-03	5.45E-03	4.67E-04	4.21E-05	1.17E-03	4.33E-04	1.95E-04	lb/MMBtu	AP-42 Table 3.2-2 (adjusted)
0.33	**0.203**	**0.02**	**1.57E-03**	**0.043**	**0.02**	**7.27E-03**	lb/hr	
1.45	**0.89**	**0.076**	**6.87E-03**	**0.190**	**0.071**	**0.032**	tpy	

NOTES

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

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

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

[3] HAPs emissions factors are referenced from AP-42 Table 3.2-2 (except formaldehyde: provided in mfg spec sheet).

[4] Assumes PM (Filterable + Condensable) = PM_{10} = $PM_{2.5}$

[5] AP-42 Table 3.2-2 & adjusted for 1081.80 Btu/scf

DLK Black River Midstream LLC
Black River Gas Processing Plant

Heater Treater/Bioler Calculations

Unit No.	HT-101	
Heater/Boiler rating (MMBtu/hr):	6.97	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	**Emission Factor (lb/MMCF)**	**lb/hr**	**tpy**
NO_x	100.000	0.644	2.822
CO	84.000	0.541	2.370
VOC	5.500	0.035	0.155
PM_{10}	7.600	0.049	0.214
$PM_{2.5}$	5.700	0.037	0.161
SO_2	0.600	0.004	0.017

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:
SO2 MW 64.06 lb/lb-mole
Ideal Gas Law 378.61 SCF/lb-mole

Unit No.	HT-801	
Heater/Boiler rating (MMBtu/hr):	6.97	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	**Emission Factor (lb/MMCF)**	**lb/hr**	**tpy**
NO_x	100.000	0.644	2.822
CO	84.000	0.541	2.370
VOC	5.500	0.035	0.155
PM_{10}	7.600	0.049	0.214
$PM_{2.5}$	5.700	0.037	0.161
SO_2	0.600	0.004	0.017

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:
SO2 MW 64.06 lb/lb-mole
Ideal Gas Law 378.61 SCF/lb-mole

Unit No.	HT-102	
Heater/Boiler rating (MMBtu/hr):	9.74	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	0.900	3.944
CO	84.000	0.756	3.313
VOC	5.500	0.050	0.217
PM_{10}	7.600	0.068	0.300
$PM_{2.5}$	5.700	0.051	0.225
SO_2	0.600	0.005	0.024

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Unit No.	AR-1	
Heater/Boiler rating (MMBtu/hr):	21.09	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	1.950	8.539
CO	84.000	1.638	7.173
VOC	5.500	0.107	0.470
PM_{10}	7.600	0.148	0.649
$PM_{2.5}$	5.700	0.111	0.487
SO_2	0.600	0.012	0.051

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Unit No.	DR-1	
Heater/Boiler rating (MMBtu/hr):	2.9	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	0.268	1.174
CO	84.000	0.225	0.986
VOC	5.500	0.015	0.065
PM_{10}	7.600	0.020	0.089
$PM_{2.5}$	5.700	0.015	0.067
SO_2	0.600	0.002	0.007

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Unit No.	HT-103	
Heater/Boiler rating (MMBtu/hr):	9.74	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	0.900	3.944
CO	84.000	0.756	3.313
VOC	5.500	0.050	0.217
PM_{10}	7.600	0.068	0.300
$PM_{2.5}$	5.700	0.051	0.225
SO_2	0.600	0.005	0.024

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Unit No.	HT-802	
Heater/Boiler rating (MMBtu/hr):	6.2	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	0.573	2.510
CO	84.000	0.481	2.109
VOC	5.500	0.032	0.138
PM_{10}	7.600	0.044	0.191
$PM_{2.5}$	5.700	0.033	0.143
SO_2	0.600	0.003	0.015

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Unit No.	AR-2	
Heater/Boiler rating (MMBtu/hr):	23.92	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	2.211	9.685
CO	84.000	1.857	8.135
VOC	5.500	0.122	0.533
PM_{10}	7.600	0.168	0.736
$PM_{2.5}$	5.700	0.126	0.552
SO_2	0.600	0.013	0.058

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Unit No.	DR-2	
Heater/Boiler rating (MMBtu/hr):	2.5	
Rating above is **(select from list)**:	*below 100 MMBtu/hr, uncontrolled*	(assume uncontrolled, unless specifically stated otherwise)
Operating hours/year:	8760	
Fuel Heat Value, LHV (Btu/SCF):	1081.8	

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
NO_x	100.000	0.231	1.012
CO	84.000	0.194	0.850
VOC	5.500	0.013	0.056
PM_{10}	7.600	0.018	0.077
$PM_{2.5}$	5.700	0.013	0.058
SO_2	0.600	0.001	0.006

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0000**
SO_2 produced (lb/hr) =	**0.0000**
SO_2 produced (tpy) =	**0.0000**

assumptions:		
SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

Black River Gas Plant - Train 4

Plant 4- Stabilizer Hot Oil Heater

Unit:	HT-804	
Heat Input:	8.76	MMBTU/hr
Fuel Heat Value:	1239	BTU/scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	7066.02	scf/hr
Fuel Usage:	0.007	MMscf/hr

Criteria Pollutant Emission Rates per Unit

	NO_x[6]	CO[3]	VOC[3]	SO_2[1]	H_2S[1]	PM[2]	Units	Notes
Emission Factors	100	84	5.5	-	-	7.60	lb/MMscf	AP-42 Table 1.4-1 & 2
	121.5	102.1	6.7	-	-	9.23	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	0.25	-	-	gr / 100 scf	
Emissions	0.86	0.72	0.05	5.05E-03	-	0.065	lb/hr[3]	lb/ MMscf * hourly fuel usage
	3.76	3.16	0.21	0.022	-	0.29	tons/year[4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80E+00	2.10E-03	3.40E-03	7.50E-02	1.88	lb/MMscf	AP-42 Table 1.4-3
	2.19E+00	2.55E-03	4.13E-03	9.11E-02	2.29E+00	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.02	1.80E-05	2.92E-05	6.44E-04	0.02	lb/hr[3]	
	0.07	7.90E-05	1.28E-04	2.820E-03	0.07	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (gr/100 scf)

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:
Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

[6] PV= nRT = n = PV/RT

P=	1.00	ATM		
Gas Constant, R=	1.31	(atm*ft3)/(lb-mole*K)		
T=	495 °F =	257.22 °C =	530.37 K	

Black River Gas Plant - Train 4

Plant 4- Amine HMO Heater

Unit:	HT-201	
Heat Input:	51.37	MMBTU/hr
Fuel Heat Value:	1239	BTU/scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	41450.43	scf/hr
Fuel Usage:	0.041	MMscf/hr

Criteria Pollutant Emission Rates per Unit

	NO_x[6]	CO[3]	VOC[3]	SO_2[1]	H_2S[1]	PM[2]	Units	Notes
Emission Factors	30	-	-	-	-	-	ppmv @ 3% O_2	Ozone Precursor Limit.
	46	-	-	-	-	-	lb/lb-mol	molecular weight
	-	84	5.5	-	-	7.60	lb/MMscf	AP-42 Table 1.4-1 & 2
	-	102.1	6.7	-	-	9.23	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	0.25	-	-	gr / 100 scf	
Emissions	1.67	4.23	0.28	0.030	-	0.38	lb/hr[3]	lb/ MMscf * hourly fuel usage
	7.33	18.53	1.21	0.13	-	1.68	tons/year[4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80E+00	2.10E-03	3.40E-03	7.50E-02	1.88	lb/MMscf	AP-42 Table 1.4-3
	2.19E+00	2.55E-03	4.13E-03	9.11E-02	2.29	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.09	1.06E-04	1.71E-04	3.78E-03	0.09	lb/hr[3]	
	0.40	4.63E-04	7.50E-04	0.017	0.42	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (gr/100 scf)

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:
Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

[6] PV= nRT = n = PV/RT

P=	1.00	ATM			
Gas Constant, R=	1.31	(atm*ft3)/(lb-mole*K)			
T=	509.00	°F =	265.000	°C =	538.1500 K

Black River Gas Plant - Train 4

Plant 4 - Mole Sieve Heater

Unit:	HT-201	
Heat Input:	40.80	MMBTU/hr
Fuel Heat Value:	1239	BTU/scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	32921.50	scf/hr
Fuel Usage:	0.033	MMscf/hr

Criteria Pollutant Emission Rates per Unit

	NO_x[6]	CO[3]	VOC[3]	SO_2[1]	H_2S[1]	PM[2]	Units	Notes
Emission Factors	30	-	-	-	-	-	ppmv @ 3% O_2	Ozone Precursor Limit.
	46	-	-	-	-	-	lb/lb-mol	molecular weight
	-	84	5.5	-	-	7.60	lb/MMscf	AP-42 Table 1.4-1 & 2
	-	102.1	6.7	-	-	9.23	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	0.25	-	-	gr / 100 scf	
Emissions	1.35	3.36	0.22	0.024	-	0.30	lb/hr[3]	lb/ MMscf * hourly fuel usage
	5.91	14.72	0.96	0.10	-	1.33	tons/year[4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80E+00	2.10E-03	3.40E-03	7.50E-02	1.88	lb/MMscf	AP-42 Table 1.4-3
	2.19E+00	2.55E-03	4.13E-03	9.11E-02	2.29	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.072	8.40E-05	1.36E-04	3.00E-03	0.075	lb/hr[3]	
	0.32	3.68E-04	5.96E-04	0.013	0.33	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (gr/100 scf)

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:
Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

[6] PV= nRT = n = PV/RT

P=	1.00	ATM			
Gas Constant, R=	1.31	(atm*ft3)/(lb-mole*K)			
T=	495.00	°F =	257.222	°C =	530.3722 K

Black River Gas Plant - Train 4

Plant 4- Cryo HMO Heater

Unit:	HT-301	
Heat Input:	23.98	MMBTU/hr
Fuel Heat Value:	1239	BTU/scf
Fuel Sulfur Content:	0.2	gr/100 scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	19351.87	scf/hr
Fuel Usage:	0.019	MMscf/hr

Criteria Pollutant Emission Rates per Unit

	NO_x[6]	CO[3]	VOC[3]	SO_2[1]	H_2S[1]	PM[2]	Units	Notes
Emission Factors	30	-	-	-	-	-	ppmv @ 3% O_2	Ozone Precursor Limit.
	46	-	-	-	-	-	lb/lb-mol	molecular weight
	-	84	5.5	-	-	7.60	lb/MMscf	AP-42 Table 1.4-1 & 2
	-	102.1	6.7	-	-	9.23	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-1 and 1.4-2
	-	-	-	0.25	-	-	gr / 100 scf	
Emissions	0.75	1.98	0.13	0.014	-	0.18	lb/hr[3]	lb/ MMscf * hourly fuel usage
	3.27	8.65	0.57	0.061	-	0.78	tons/year[4]	lb/ MMscf * annual fuel usage / 2000 lb/ton

Speciated HAP Emission Rates

	n-Hexane	Benzene	Toluene	HCHO	Total HAPs[5]	Units	Notes
Emission Factors	1.80E+00	2.10E-03	3.40E-03	7.50E-02	1.88	lb/MMscf	AP-42 Table 1.4-3
	2.19E+00	2.55E-03	4.13E-03	9.11E-02	2.29	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	0.042	4.94E-05	7.99E-05	1.76E-03	0.044	lb/hr[3]	
	0.19	2.16E-04	3.50E-04	7.724E-03	0.19	tons/year[4]	

Notes:

[1] SO_2 emissions based on fuel sulfur (gr/100 scf)

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:
Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

[4] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

[5] Total HAP emissions are the sum of all individual HAPs calculated.

[6] PV= nRT = n = PV/RT

P=	1.00	ATM			
Gas Constant, R=	1.31	(atm*ft3)/(lb-mole*K)			
T=	555.00	°F =	290.556	°C =	563.7056 K

Black River Gas Plant - Train 4

Train 4 Dehydrator Reboiler

Unit:	DR-3	
Heat Input:	4.00	MMBTU/hr
Fuel Heat Value:	1239.31	BTU/scf
Operating Hours:	8,760	hours/yr
Fuel Usage:	3227.60	scf/hr
Fuel Usage:	0.003	MMscf/hr

Uncontrolled Emissions

	NO_x	CO	VOC	SO_2[1]	H_2S	PM[2]	Units	Notes
Emission Factors	100	84	5.5	-	-	7.6	lb/MMscf	AP-42 Table 1.4-1 & 2
	122	102	6.7	-	-	9.2	lb/MMscf	Adjusted EF, per footnote a in Tables 1.4-2
	-	-	-	0.25	-	-	gr/100 scf	Fuel Sulfur Content
Emissions	0.39	0.33	0.022	2.31E-03	-	0.030	lb/hr[3]	
	1.72	1.44	0.09	0.010	-	0.13	tons/year[4]	

HAP Emission Rates

	Formaldehyde	Benzene	Hexane	Toluene	Total HAPs[5]	Units	Notes
Emission Factors	0.075	2.10E-03	1.80	3.40E-03	1.88	lb/MMscf	AP-42 Table 1.4-3
	0.091	2.55E-03	2.19	4.13E-03	2.29	lb/MMscf	Adjusted EF, per footnote a in Table 1.4-3
Emissions	2.94E-04	8.24E-06	7.06E-03	1.33E-05	7.38E-03	lb/hr[3]	lb/ MMscf * hourly natural gas usage
	1.29E-03	3.61E-05	0.031	5.84E-05	0.032	tons/year[4]	lb/ MMscf * annual natural gas usage

[1] SO_2 emissions based on fuel sulfur of 2 gr/100 scf.

[2] Assumes $PM_{10} = PM_{2.5}$

[3] lb/hr emissions calculated using the following methods:

[4] Criteria and HAPs lb/hr = EF (lb/MMscf) * Rating (MMBtu/hr) / Heat value (Btu/scf)

[5] For all pollutant calculations, tons/year = lb/hr * Operating hours * 1ton/2000lb

DLK Black River Midstream LLC
Black River Gas Processing Plant

Glycol Dehydrator Emissions

Calculated Using GRI-GLYCalc or a Process Simulator
A) Enter information into the yellow boxes.

B) VOC and H2S control efficiencies may be entered (if applicable). VOC, benzene, and H2S regenerator condenser efficiencies may also be entered (if applicable).

C) There are two separate areas to enter information about the two emissions points, the flash tank and the regenerator. Then underneath, there is a table of the sum of flash tank and regenerator emissions.

D) The program results and any lab analysis results used as the calculation basis must be provided.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) Make sure to answer the control device question.

G) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

EPN	DEHY-1
Identifier	Plant 2 - Dehy Unit

Glycol Dehydrator Unit Information	
Are you using GLYCalc or a Process Simulator?	Process Simulator
GLYCalc Calculation Method (if using GLYCalc)	NA
Type of Glycol Used:	TEG
Annual Hours of Operation (hrs/yr):	8760
Dry Gas Flow Rate (MMscf/day)	291.66
Laboratory Wet Gas Analysis Provided? If not, explain why. (Use notes box below if more space needed.)	Yes
Date of Sample:	2/11/2021
Is sample site specific or representative? If representative, please justify. (Use notes box below if more space needed.)	Site specific
At what point in the process was the sample taken?	Dehy Inlet
Wet Gas Temperature (°F)	105.02
Wet Gas Pressure (psig)	926.10
Lean Glycol Pump Type	Multi Stage Centrifugal
Lean Glycol Pump Make and Model	Multi Stage Centrifugal
Lean Glycol Flow Rate (gpm)	51.00
Number of Pump Stokes per Minute for the Lean Glycol Pump (pump strokes/min, if applicable)	NA
Flash Tank Temperature (°F)	109.51
Flash Tank Pressure (psig)	80.00

Flash Tank		
Is there a flash tank? (If no, leave the inputs in this block blank.)	Yes	
	lb/hr	tpy
Emissions Uncontrolled VOC,(lb/hr, tpy)	104.804	459.041
Emissions Uncontrolled Benzene, (lb/hr, tpy)	0.279	1.223
Emissions Uncontrolled H2S, (lb/hr, tpy)	0.011	0.048
Are flash tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(C) controlled by another type of control device	
VOC Control Efficiency (%)	100	
H2S Control Efficiency (%)	100	
VOC Results, (lb/hr, tpy)	0	0
Benzene Results, (lb/hr, tpy)	0	0
H2S Results, (lb/hr, tpy)	0	0

Regenerator		
	lb/hr	tpy
Emissions Uncontrolled VOC (lb/hr, tpy)	253.877	1111.980
Emissions Uncontrolled Benzene, (lb/hr, tpy)	30.158	132.093
Emissions Uncontrolled H2S, (lb/hr, tpy)	0.053	0.233
Are regenerator vapors controlled by a condenser?	Yes	
VOC Condenser Efficiency (%) - if applicable	23.66	
Benzene Condenser Efficiency (%) - if applicable	37.83	
H2S Condenser Efficiency (%) - if applicable	2.00	
Are regenerator vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(B) cont. by flare/ VC/TO/VRU	
VOC Results, (lb/hr, tpy)	193.808	848.880
Benzene Results, (lb/hr, tpy)	18.749	82.119
H2S Results, (lb/hr, tpy)	0.052	0.228

Sum of Flash Tank and Regenerator Results		
	lb/hr	tpy
VOC Results	0	0
Benzene Results	0	0
H2S Results	0	0

Federal Applicability	
40 CFR Part 63 - Subpart HH	
All area sources, with TEG dehydration units, will have some requirements under the rule. Emission reduction requirements may apply or only recordkeeping requirements may apply.	
Is this subpart applicable?	Yes
If yes, how will compliance be achieved? If no, please explain why.	The permittee shall monitor as required by 40 CFR 63.772(b)(2) to demonstrate facility is exempt from general standards. The permittee shall generate and maintain the records required by 40 CFR 63.774(d)(1)(ii) to demonstrate compliance with the general standard exemptions found in 40 CFR 63.764(e).

Enter any notes here:
TEG Flash routed back to the process. Regenerator stream is routed to Flare, FL-2

DLK Black River Midstream LLC
Black River Gas Processing Plant

Plant 2 - Dehydrator Overhead SSM

A) Enter information into the yellow boxes.

B) Please provide a separate detailed calculation for these emissions; also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

C) Since these emissions fall into the category of "Other", which does not have a pre-made emission estimation sheet with pre-approved methods, the time to review this project cannot be guaranteed to be as quick as if only pre-made sheets had been used.

D) VOC and H2S control efficiencies may be entered (if applicable).

E) Make sure to answer the control device question.

menus below.

EPN:	DEHY-1 SSM
Name:	Dehydrator Overhead SSM

Are these vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(A) uncontrolled

Uncontrolled Emissions			
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Control Efficiency
Total VOC	193.808	16.978	0
NOx	0.000	0.000	0
CO	0.000	0.000	0
PM2.5	0.000	0.000	0
PM10	0.000	0.000	0
H2S	0.052	0.005	0
SO2	0.000	0.000	0
benzene	18.749	1.642	0
formaldehyde	0.000	0.000	0

Total Emissions (control efficiencies factored in if applicable)		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Total VOC	193.81	16.98
NOx	0.00	0.00
CO	0.00	0.00
PM2.5	0.00	0.00
PM10	0.00	0.00
H2S	0.052	0.005
SO2	0.00	0.00
benzene	18.75	1.64
formaldehyde	0.00	0.00

Enter any notes here:
SSM assumed 2% of total hours of operation in a year.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Glycol Dehydrator Emissions

Calculated Using GRI-GLYCalc or a Process Simulator
A) Enter information into the yellow boxes.

B) VOC and H2S control efficiencies may be entered (if applicable). VOC, benzene, and H2S regenerator condenser efficiencies may also be entered (if applicable).

C) There are two separate areas to enter information about the two emissions points, the flash tank and the regenerator. Then underneath, there is a table of the sum of flash tank and regenerator emissions.

D) The program results and any lab analysis results used as the calculation basis must be provided.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) Make sure to answer the control device question.

G) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

EPN	DEHY-2
Identifier	Plant 3 - Dehy Unit

Glycol Dehydrator Unit Information	
Are you using GLYCalc or a Process Simulator?	Process Simulator
GLYCalc Calculation Method (if using GLYCalc)	NA
Type of Glycol Used:	TEG
Annual Hours of Operation (hrs/yr):	8760
Dry Gas Flow Rate (MMscf/day)	220.8
Laboratory Wet Gas Analysis Provided? If not, explain why. (Use notes box below if more space needed.)	Yes
Date of Sample:	2/11/2021
Is sample site specific or representative? If representative, please justify. (Use notes box below if more space needed.)	Site specific
At what point in the process was the sample taken?	Dehy Inlet
Wet Gas Temperature (°F)	104.96
Wet Gas Pressure (psig)	940.80
Lean Glycol Pump Type	Multi Stage Centrifugal
Lean Glycol Pump Make and Model	Multi Stage Centrifugal
Lean Glycol Flow Rate (gpm)	51.00
Number of Pump Stokes per Minute for the Lean Glycol Pump (pump strokes/min, if applicable)	NA
Flash Tank Temperature (°F)	109.57
Flash Tank Pressure (psig)	80.00

Flash Tank		
Is there a flash tank? (If no, leave the inputs in this block blank.)	Yes	
	lb/hr	tpy
Emissions Uncontrolled VOC,(lb/hr, tpy)	104.502	457.717
Emissions Uncontrolled Benzene, (lb/hr, tpy)	0.277	1.212
Emissions Uncontrolled H2S, (lb/hr, tpy)	0.011	0.048
Are flash tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(C) controlled by another type of control device	
VOC Control Efficiency (%)	100	
H2S Control Efficiency (%)	100	
VOC Results, (lb/hr, tpy)	0	0
Benzene Results, (lb/hr, tpy)	0	0
H2S Results, (lb/hr, tpy)	0	0

Regenerator		
	lb/hr	tpy
Emissions Uncontrolled VOC (lb/hr, tpy)	248.279	1087.463
Emissions Uncontrolled Benzene, (lb/hr, tpy)	29.819	130.605
Emissions Uncontrolled H2S, (lb/hr, tpy)	0.053	0.231
Are regenerator vapors controlled by a condenser?	Yes	
VOC Condenser Efficiency (%) - if applicable	23.35	
Benzene Condenser Efficiency (%) - if applicable	37.35	
H2S Condenser Efficiency (%) - if applicable	1.68	
Are regenerator vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(B) cont. by flare/ VC/TO/VRU	
VOC Results, (lb/hr, tpy)	190.317	833.590
Benzene Results, (lb/hr, tpy)	18.680	81.819
H2S Results, (lb/hr, tpy)	0.052	0.227

Sum of Flash Tank and Regenerator Results		
	lb/hr	tpy
VOC Results	0	0
Benzene Results	0	0
H2S Results	0	0

Federal Applicability	
40 CFR Part 63 - Subpart HH	
All area sources, with TEG dehydration units, will have some requirements under the rule. Emission reduction requirements may apply or only recordkeeping requirements may apply.	
Is this subpart applicable?	Yes
If yes, how will compliance be achieved? If no, please explain why.	The permittee shall monitor as required by 40 CFR 63.772(b)(2) to demonstrate facility is exempt from general standards. The permittee shall generate and maintain the records required by 40 CFR 63.774(d)(1)(ii) to demonstrate compliance with the general standard exemptions found in 40 CFR 63.764(e).

Enter any notes here:
TEG Flash routed back to the process. Regenerator stream is routed to thermal oxidizer TO-2

Black River Gas Plant - Train 4

Train 4- TEG Dehydration Unit

Emission Unit: DEHY-3
Source Description: Train 4-TEG Dehydration Unit
Operating Hours: 8,760 hrs/yr
Throughput: 323 MMSCFD
Regenerator Capture Efficieny: 100%
Flash Capture Efficiency: 100%

Uncontrolled [1]	VOC		H_2S		Total HAP		Benzene		Toluene		Ethylbenzene		Xylene		Hexane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Uncontrolled Flash Tank Overheads	133.44	584.49	1.740E-04	7.622E-04	0.98	4.29	0.27	1.17	0.09	0.40	0.28	1.22	-	-	1.03	4.53
Uncontrolled Condenser Overheads	66.02	289.18	2.493E-04	1.09E-03	7.73	33.84	0.30	1.31	0.13	0.56	4.35	19.06	-	-	0.61	2.66
Uncontrolled Emissions Per Unit	199.47	873.66	4.233E-04	1.85E-03	8.71	38.14	0.57	2.48	0.22	0.96	4.63	20.28	-	-	1.64	7.19

Controlled	VOC		H_2S		Total HAP		Benzene		Toluene		Ethylbenzene		Xylene		Hexane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Controlled Flash Tank Overheads [2]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Controlled Regenerator Overheads [2]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Controlled Emissions Per Unit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Emissions estimated using BR&E ProMax.

[2] Flash tank vapors are routed to the process. Non-condensable BTEX emissions from the condenser are sent to unit TO-3 with a 100% capture efficiency and a 98% DRE.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Amine Unit Emissions

Calculated Using GRI-GLYCalc or a Process Simulator
A) Enter information into the yellow boxes.

B) VOC and H2S control efficiencies may be entered (if applicable). VOC, benzene, and H2S regenerator condenser efficiencies may also be entered (if applicable).

C) There are two separate areas to enter information about the two emissions points, the flash tank and the regenerator. Then underneath, there is a table of the sum of flash tank and regenerator emissions.

D) The program results and any lab analysis results used as the calculation basis must be provided.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) Make sure to answer the control device question.

G) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

EPN	AM-1
Identifier	Plant 1 & 2 - Amine Unit

Amine Unit Information	
Are you using AmineCalc or a Process Simulator?	Process Simulator
AmineCalc Model Selection (if using AmineCalc):	NA
Type of Amine Used:	DEA
Annual Hours of Operation (hrs/yr):	8760
Feed Gas Flow Rate (MMscf/day):	146.385
Laboratory Feed Gas Analysis Provided? If not, explain why. (Use notes box below if more space needed.)	Yes
Date of Sample:	2/11/2021
Is sample site specific or representative? If representative, please justify. (Use notes box below if more space needed.)	Site specific
At what point in the process was the sample taken?	Amine inlet
Feed Gas Temperature (°F)	89.62
Feed Gas Pressure (psia)	914.70
Lean Amine Flow Rate (gpm)	290.00
Flash Tank Temperature (°F)	94.84
Flash Tank Pressure (psia)	84.69

Flash Tank		
Is there a flash tank? (If no, leave the inputs in this block blank.)	Yes	
	lb/hr	tpy
Emissions Uncontrolled VOC,(lb/hr, tpy)	23.8881	104.6298
Emissions Uncontrolled Benzene, (lb/hr, tpy)	0.2928	1.2826
Emissions Uncontrolled H2S, (lb/hr, tpy)	0.0048	0.0212
Are flash tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(C) controlled by another type of control device	
VOC Control Efficiency (%)	100	
H2S Control Efficiency (%)	100	
VOC Results, (lb/hr, tpy)	0	0
Benzene Results, (lb/hr, tpy)	0	0
H2S Results, (lb/hr, tpy)	0	0

Regenerator		
	lb/hr	tpy
Emissions Uncontrolled VOC (lb/hr, tpy)	19.4865	85.3507
Emissions Uncontrolled Benzene, (lb/hr, tpy)	7.5842	33.2187
Emissions Uncontrolled H2S, (lb/hr, tpy)	5.4483	23.8636
Are regenerator vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(B) cont. by flare/ VC/TO/VRU	
VOC Results, (lb/hr, tpy)	19.4865	85.3507
Benzene Results, (lb/hr, tpy)	7.5842	33.2187
H2S Results, (lb/hr, tpy)	5.4483	23.8636

Sum of Flash Tank and Regenerator Results		
	lb/hr	tpy
VOC Results	0	0
Benzene Results	0	0
H2S Results	0	0

Federal Applicability	
40 CFR Part 60 - Subpart LLL	
Is this subpart applicable?	No
If yes, how will compliance be achieved? If no, please explain why.	The facility is a natural gas processing plant, however, there is not sulfur recovery plant, thus this location does not meet the applicability criteria of 40 CFR 60.640.

Enter any notes here:
Amine flash is routed back to the process or burned as fuel and regenerator stream is routed to the thermal oxidizer, TO-1.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Amine Unit Emissions

Calculated Using AmineCalc or a Process Simulator
A) Enter information into the yellow boxes.
B) VOC and H2S control efficiencies may be entered (if applicable).

C) There are two separate areas to enter information about the two emissions points, the flash tank and the regenerator. Then underneath, there is a table of the sum of flash tank and regenerator emissions.

D) The program results and any lab analysis results used as the calculation basis must be provided.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) Make sure to answer the control device question.

EPN	AM-2
Identifier	Plant 3 - Amine Unit

Amine Unit Information	
Are you using AmineCalc or a Process Simulator?	Process Simulator
AmineCalc Model Selection (if using AmineCalc):	NA
Type of Amine Used:	DEA
Annual Hours of Operation (hrs/yr):	8760
Feed Gas Flow Rate (MMscf/day):	219.2
Laboratory Feed Gas Analysis Provided? If not, explain why. (Use notes box below if more space needed.)	Yes
Date of Sample:	2/11/2021
Is sample site specific or representative? If representative, please justify. (Use notes box below if more space needed.)	Site specific
At what point in the process was the sample taken?	Amine inlet
Feed Gas Temperature (°F)	80.01
Feed Gas Pressure (psia)	1014.70
Lean Amine Flow Rate (gpm)	290.00
Flash Tank Temperature (°F)	96.19
Flash Tank Pressure (psia)	77.30

Flash Tank		
Is there a flash tank? (If no, leave the inputs in this block blank.)	Yes	
	lb/hr	tpy
Emissions Uncontrolled VOC,(lb/hr, tpy)	27.3166	119.6468
Emissions Uncontrolled Benzene, (lb/hr, tpy)	0.3337	1.4618
Emissions Uncontrolled H2S, (lb/hr, tpy)	0.0037	0.0161
Are flash tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(C) controlled by another type of control device	
VOC Control Efficiency (%)	100	
H2S Control Efficiency (%)	100	
VOC Results, (lb/hr, tpy)	0	0
Benzene Results, (lb/hr, tpy)	0	0
H2S Results, (lb/hr, tpy)	0	0

Regenerator		
	lb/hr	tpy
Emissions Uncontrolled VOC (lb/hr, tpy)	18.9481	82.9925
Emissions Uncontrolled Benzene, (lb/hr, tpy)	7.5346	33.0017
Emissions Uncontrolled H2S, (lb/hr, tpy)	4.1066	17.9868
Are regenerator vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(B) cont. by flare/ VC/TO/VRU	
VOC Results, (lb/hr, tpy)	18.9481	82.9925
Benzene Results, (lb/hr, tpy)	7.5346	33.0017
H2S Results, (lb/hr, tpy)	4.1066	17.9868

Sum of Flash Tank and Regenerator Results		
	lb/hr	tpy
VOC Results	0	0
Benzene Results	0	0
H2S Results	0	0

Federal Applicability	
40 CFR Part 60 - Subpart LLL	
Is this subpart applicable?	No
If yes, how will compliance be achieved? If no, please explain why.	The facility is a natural gas processing plant, however, there is not sulfur recovery plant, thus this location does not meet the applicability criteria of 40 CFR 60.640.

Enter any notes here:
Amine flash is routed back to the process or burned as fuel and regenerator stream is routed to the thermal oxidizer, TO-2.

Black River Gas Plant - Train 4

Train 4- Amine Sweetening Unit

Emission Unit: AM-3
Source Description: Train 4- Amine Treating Unit
Operating Hours: 8,760 hrs/yr
Throughput: 330.00 MMSCFD
Regenerator Capture Efficieny: 100%
Flash Capture Efficiency: 100%

Uncontrolled [1]	VOC		H_2S		Total HAP		Benzene		Toluene		Ethylbenzene		Xylene		n-Hexane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Uncontrolled Flash Tank Overheads	69.46	304.24	0.011	0.047	0.80	3.49	0.07	0.30	0.08	0.35	-	-	-	-	0.65	2.84
Uncontrolled Regenerator Overheads	97.37	426.46	4.04	17.70	2.95	12.92	1.11	4.87	1.43	6.28	-	-	-	-	0.40	1.77
Uncontrolled Emissions Per Unit	166.83	730.70	4.05	17.74	3.75	16.41	1.18	5.17	1.52	6.64	-	-	-	-	1.05	4.60

Controlled	VOC		H_2S		Total HAP		Benzene		Toluene		Ethylbenzene		Xylene		n-Hexane	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Controlled Flash Tank Overheads [3]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Controlled Regenerator Overheads [2]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Controlled Emissions Per Unit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Emissions estimated using BR&E ProMax.

[2] Acid gas emissions from the regenerator are sent to unit TO-3 with a 100% capture efficiency and a 98% DRE.

[3] Emissions from the flash tank are captured and routed back to process.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Tank Emissions - Process Simulator

A) Enter information into the yellow boxes.
B) VOC and H2S control efficiencies may be entered (if applicable).
C) A reduction for produced water tank emissions calculated as oil/condensate may be entered.
D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).
E) Make sure to answer the control device question.
F) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

Process Simulator

EPN	Tank Identifier	Throughput (gal/year)	Stream Identification	Turnovers per year	Mixture/ Component	RVP (psia)	Temperature (°F)	Emissions Uncontrolled VOC (lb/hr)	Emissions Uncontrolled VOC (ton/yr)	Emissions Uncontrolled HAPs (lb/hr)	Emissions Uncontrolled HAPs (ton/yr)	Emissions Uncontrolled Benzene (lb/hr)	Emissions Uncontrolled Benzene (ton/yr)	Emissions Uncontrolled H2S (lb/hr)	Emissions Uncontrolled H2S (ton/yr)	Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	VOC Control Efficiency (%)	H2S Control Efficiency (%)	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	VRU Downtime (%)	VOC Results (lb/hr)	VOC Results (tpy)	HAPs Results (lb/hr)	HAPs Results (tpy)	Benzene Results (lb/hr)	Benzene Results (tpy)	H2S Results (lb/hr)	H2S Results (tpy)
TK-702A	Condensate Storage Tanks	15330000	T-702 CONDENSATE STORAGE TAN	906	Condensate	5.809371	75.55977658	2.98	13.06	0.36	1.59	0.02	0.11	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0.00	20	0.60	2.61	0.07	0.32	0.00	0.02	0.00	0.00
TK-702B	Condensate Storage Tanks	15330000	T-702 CONDENSATE STORAGE TAN	906	Condensate	5.809371	75.55977658	2.98	13.06	0.36	1.59	0.02	0.11	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0.00	20	0.60	2.61	0.07	0.32	0.00	0.02	0.00	0.00
TK-702C	Condensate Storage Tanks	15330000	T-702 CONDENSATE STORAGE TAN	906	Condensate	5.809371	75.55977658	2.98	13.06	0.36	1.59	0.02	0.11	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0.00	20	0.60	2.61	0.07	0.32	0.00	0.02	0.00	0.00
TK-702D	Condensate Storage Tanks	15330000	T-702 CONDENSATE STORAGE TAN	906	Condensate	5.809371	75.55977658	2.98	13.06	0.36	1.59	0.02	0.11	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0.00	20	0.60	2.61	0.07	0.32	0.00	0.02	0.00	0.00
TK-702E	Condensate Storage Tanks	15330000	T-702 CONDENSATE STORAGE TAN	906	Condensate	5.809371	75.55977658	2.98	13.06	0.36	1.59	0.02	0.11	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0.00	20	0.60	2.61	0.07	0.32	0.00	0.02	0.00	0.00
TK-702F	Condensate Storage Tanks	15330000	T-702 CONDENSATE STORAGE TAN	906	Condensate	5.809371	75.55977658	2.98	13.06	0.36	1.59	0.02	0.11	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0.00	20	0.60	2.61	0.07	0.32	0.00	0.02	0.00	0.00
																			Totals:		3.58	15.67	0.43	1.90	0.03	0.13	0.00	0.00

VOC Type:
Crude Oil or Condensate VOC

Emission Type:
Steady State (continuous)

Enter any notes here:

Black River Gas Plant - Train 4

Plant 4- Condensate Storage Tank

Emission unit number(s): TK-702 G
Source description: Condensate Storage Tanks

Annual Operating Hours: 8,760
Capture Efficiency: 100%
Control: Flare (FL-4)
Control Efficiency: 98%
Number of Tanks: 1
Capacity of Tanks: 1,000 bbl
Hourly Throughout: 446.38 bbl/hr
Daily Throughput: 10713.03 bbl/d
Annual Throughput: 3,910,255.92 bbl/yr

Condensate Tank Emissions

Component			Uncontrolled Emissions [1]		Controlled Emissions [2]	
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total per Tank (lb/hr)	Total Per Tank (tpy)	Total per Tank (lb/hr)	Total Per Tank (tpy)
Nitrogen	-	5.522E-12	5.52E-12	2.42E-11	-	-
Carbon Dioxide	-	4.849E-05	4.85E-05	2.124E-04	-	-
H2S	-	-	-	-	-	-
Methane	-	3.03E-06	3.03E-06	1.33E-05	-	-
Ethane	-	6.13E-03	6.13E-03	0.03	-	-
Propane	-	0.09	0.09	0.41	-	-
i-Butane	-	0.12	0.12	0.54	-	-
n-Butane	-	0.48	0.48	2.09	-	-
i-Pentane	-	0.39	0.39	1.70	-	-
n-Pentane	-	0.43	0.43	1.87	-	-
Hexane	-	1.66	1.66	7.26	-	-
Heptane	-	0.19	0.19	0.82	-	-
Octane	-	0.04	0.04	0.15	-	-
Nonane	-	2.27E-03	2.27E-03	9.93E-03	-	-
Decane	-	0.07	0.07	0.29	-	-
Water	-	-	-	-	-	-
2,2-Dimethylbutane	-	0.16	0.16	0.70	-	-
Cyclopentane	-	0.73	0.73	3.18	-	-
2-Methylpentane	-	1.91	1.91	8.37	-	-
3-Methylpentane	-	0.90	0.90	3.94	-	-
2,3-Dimethylpentane	-	0.04	0.04	0.20	-	-
Methylcyclopentane	-	0.76	0.76	3.34	-	-
2,2,3-Trimethylbutane	-	-	-	-	-	-
Benzene	-	0.42	0.42	1.82	-	-
Cyclohexane	-	0.68	0.68	2.98	-	-
2-Methylhexane	-	0.12	0.12	0.50	-	-
3-Methylhexane	-	-	-	-	-	-
1,1-Dimethylcyclopentane	-	0.18	0.18	0.80	-	-
Methylcyclohexane	-	0.23	0.23	1.00	-	-
2,5-Dimethylhexane	-	2.46E-03	2.46E-03	0.01	-	-
Toluene	-	0.08	0.08	0.35	-	-
2-Methylheptane	-	0.01	0.01	0.06	-	-
Ethylcyclohexane	-	2.580E-03	2.58E-03	0.01	-	-
Ethylbenzene	-	1.05E-03	1.05E-03	4.582E-03	-	-
m-Xylene	-	4.84E-03	4.838E-03	0.02	-	-
o-Xylene	-	7.03E-04	7.03E-04	3.08E-03	-	-
MDEA	-	-	-	-	-	-
TEG	-	-	-	-	-	-
Oxygen	-	-	-	-	-	-
NO	-	-	-	-	-	-
NO2	-	-	-	-	-	-
N2O	-	-	-	-	-	-
SO2	-	-	-	-	-	-
VOC	**-**	**9.69**	**9.69**	**42.44**	**-**	**-**
Total HAPS	**-**	**2.16**	**2.16**	**9.46**	**-**	**-**
H_2S	**-**	**-**	**-**	**-**	**-**	**-**

[1] Uncontrolled emissions are calculated using BR&E ProMax.
2 Emissions from the condensate tank are sent to the FL-4 with a 100% capture efficiency and a 98% DRE.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Tank Emissions - Process Simulator

A) Enter information into the yellow boxes.
B) VOC and H2S control efficiencies may be entered (if applicable).
C) A reduction for produced water tank emissions calculated as oil/condensate may be entered.
D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).
E) Make sure to answer the control device question.
F) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

Process Simulator

EPN	Tank Identifier	Throughput (gal/year)	Stream Identification	Turnovers per year	Mixture/ Component	RVP (psia)	Temperature (°F)	Emissions Uncontrolled VOC (lb/hr)	Emissions Uncontrolled VOC (ton/yr)	Emissions Uncontrolled HAPs (lb/hr)	Emissions Uncontrolled HAPs (ton/yr)	Emissions Uncontrolled Benzene (lb/hr)	Emissions Uncontrolled Benzene (ton/yr)	Emissions Uncontrolled H2S (lb/hr)	Emissions Uncontrolled H2S (ton/yr)	Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	VOC Control Efficiency (%)	H2S Control Efficiency (%)	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	VRU Downtime (%)	VOC Results (lb/hr)	VOC Results (tpy)	HAPs Results (lb/hr)	HAPs Results (tpy)	Benzene Results (lb/hr)	Benzene Results (tpy)	H2S Results (lb/hr)	H2S Results (tpy)
TK-701	Produced Water Tank	2076371	T-701 PRODUCED WATER TANK	150	Produced Water	13.484069	75.55977658	156.54	685.65	11.24	49.24	2.73	11.97	0.00	0.00	(B) cont. by flare/ VC/TO/VRU	98	98	0	100.00	156.54	685.65	11.24	49.24	2.73	11.97	0.00	0.00
																			Totals:		156.54	685.65	11.24	49.24	2.73	11.97	0.00	0.00

VOC Type:
Crude Oil or Condensate VOC

Emission Type:
Steady State (continuous)

Enter any notes here:

	ProMax Tank emissions	
	lb/hr	tpy
CO2	0.02	0.072
H2S	0.00	0.001
N2	0.00	0.000
C1	0.03	0.129
C2	1.06	4.650
C3	15.59	68.271
iC4	17.14	75.066
nC4	60.54	265.169
iC5	24.86	108.874
nC5	23.72	103.902
C6	6.97	30.510
C7	1.65	7.232
Benzene	2.73	11.973
Toluene	1.43	6.247
o-Xylene	0.00	0.004
p-Xylene	0.11	0.503
C8	0.29	1.281
Water	1.62	7.086
Triethylene Glycol	0.00	0.000
Ethylbenzene	0.00	0.004
C9	0.05	0.227
C10	0.03	0.140
Cyclohexane	0.82	3.594
2-Methylpentane	0.37	1.621
3-Methylpentane	0.24	1.034
Undecane	0.00	0.000
Dodecane	0.00	0.000
Argon	0.00	0.000
O2	0.00	0.000
VOCs	156.54	685.65
HAPs	11.24	49.24
H2S	0.00	0.00

Black River Gas Plant - Train 4

Plant 4- Produced Water Storage Tanks

Emission unit number(s): TK-701 B & C
Source description: Produced Water Storage Tank

Annual Operating Hours: 8,760
Capture Efficiency: 100%
Control: Flare (FL-4)
Control Efficiency: 98%
Number of Tanks: 2
Capacity of Tanks: 1,000 bbl
Hourly Throughout: 16.67 bbl/hr
Daily Throughput: 400.00 bbl/d
Annual Throughput: 146,000.00 bbl/yr

Produced Water Tank Emissions

Component			Uncontrolled Emissions [1]		Controlled Emissions [2]	
	Flash (lb/hr)	Working and Breathing (lb/hr)	Total per Tank (lb/hr)	Total Per Tank (tpy)	Total per Tank (lb/hr)	Total Per Tank (tpy)
Nitrogen	0.10	2.53E-04	0.05	0.228	-	-
Carbon Dioxide	5.03	0.40	2.72	11.90	-	-
H2S	1.88E-03	2.67E-04	1.07E-03	4.70E-03	-	-
Methane	11.20	0.07	5.63	24.68	-	-
Ethane	9.57	0.213	4.889	21.416	-	-
Propane	14.50	0.968	7.734	33.87	-	-
i-Butane	4.30	0.596	2.447	10.716	-	-
n-Butane	11.51	1.584	6.548	28.68	-	-
i-Pentane	4.18	0.562	2.369	10.38	-	-
n-Pentane	4.70	0.628	2.664	11.67	-	-
Hexane	0.31	0.041	0.178	0.78	-	-
Heptane	0.09	0.011	0.049	0.21	-	-
Octane	0.45	0.055	0.252	1.10	-	-
Nonane	0.24	0.029	0.136	0.60	-	-
Decane	0.20	0.023	0.109	0.48	-	-
Water	1.06	0.128	0.593	2.60	-	-
2,2-Dimethylbutane	0.06	8.191E-03	0.035	0.15	-	-
Cyclopentane	0.20	0.026	0.111	0.49	-	-
2-Methylpentane	0.17	0.023	0.098	0.43	-	-
3-Methylpentane	0.09	0.012	0.052	0.23	-	-
2,3-Dimethylpentane	0.37	0.048	0.210	0.92	-	-
Methylcyclopentane	0.30	0.039	0.170	0.74	-	-
2,2,3-Trimethylbutane	0.05	7.018E-03	0.031	0.13	-	-
Benzene	0.43	0.056	0.242	1.06	-	-
Cyclohexane	0.13	0.017	0.073	0.32	-	-
2-Methylhexane	0.02	2.852E-03	0.013	0.06	-	-
3-Methylhexane	0.05	6.079E-03	0.027	0.12	-	-
1,1-Dimethylcyclopentane	0.37	0.048	0.211	0.93	-	-
Methylcyclohexane	0.04	4.673E-03	0.021	0.09	-	-
2,5-Dimethylhexane	0.10	0.013	0.059	0.258	-	-
Toluene	0.69	0.09	0.39	1.71	-	-
2-Methylheptane	-	-	-	-	-	-
Ethylcyclohexane	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-
m-Xylene	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-
MDEA	8.41E-04	1.21E-04	4.81E-04	2.108E-03	-	-
TEG	1.75E-08	1.35E-09	9.43E-09	4.13E-08	-	-
Oxygen	-	-	-	-	-	-
NO	-	-	-	-	-	-
NO2	-	-	-	-	-	-
N2O	-	-	-	-	-	-
SO2	-	-	-	-	-	-
VOC	**44.62**	**5.02**	**24.82**	**108.72**	**-**	**-**
Total HAPS	**1.44**	**0.18**	**0.81**	**3.55**	**-**	**-**
H_2S	**1.88E-03**	**2.67E-04**	**1.07E-03**	**4.70E-03**	**-**	**-**

[1] Uncontrolled emissions are calculated using BR&E ProMax.
[2] Emissions from the produced water tanks are sent to the FL-4 with a 100% capture efficiency and a 98% DRE.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Loading Emissions

Truck Hourly Loading Emission Calculations

Using equation L_L = 12.46* SPM/T from AP-42, Chapter 5, Section 5.2-4

S =	0.60	Saturation Factor
P =	5.81	True vapor pressure of liquid loaded (psia)
M =	72.48	Molecular Weight of Vapors (lb/lb-mole)
T =	559.67	Temperature of bulk liquid loaded (in degrees Rankine)
Hourly Loading Rate	8000.00	Gallons Loaded per Hour
L_L =	5.62	Loading Loss (lb VOC released/1000 gal liquid loaded)
	45.00	VOC Uncontrolled Emissions (lb/hr)
		Tank Vapor Weight Percents
VOC	100.00	Tank Vapor VOC wt%
HAPs	12.15	Tank Vapor HAP wt%
benzene	0.83	Tank Vapor Benzene wt%
H_2S	0.00	Tank Vapor H2S wt%
		Produced Water Reduction
	0.00	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)
		Uncontrolled Emissions
VOC	45.00	Emissions Uncontrolled VOC (lb/hr)
HAPs	5.47	Emissions Uncontrolled HAPs (lb/hr)
benzene	0.38	Emissions Uncontrolled Benzene (lb/hr)
H_2S	0.00	Emissions Uncontrolled H_2S (lb/hr)
		Collection Efficiency (only fill out if loading vapors are routed to a control device)
VOC	0.00	VOC Collection Efficiency (%)
H_2S	0.00	H_2S Collection Efficiency (%)
		Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)
VOC	45.00	VOC Uncaptured Vapors (lb/hr)
HAPs	5.47	HAPs Uncaptured Vapors (lb/hr)
benzene	0.38	benzene Uncaptured Vapors (lb/hr)
H_2S	0.00	H_2S Uncaptured Vapors (lb/hr)
		Control Efficiency (only fill out if loading vapors are routed to a control device)
VOC	0.00	VOC Control Efficiency (%)
H_2S	0.00	H_2S Control Efficiency (%)
		Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)
VOC	0.00	VOC Results (lb/hr)
HAPs	0.00	HAPs Results (lb/hr)
benzene	0.00	Benzene Results (lb/hr)
H_2S	0.00	H_2S Results (lb/hr)

Enter temperature in Fahrenheit °F):	Temperature in Rankine (°R):
100	559.67

Enter Barrels of	Gallons of liquid:
8000	336000

Gallons per Year	Barrels per day:
	0

Enter any notes here:

Truck Annual Loading Emission Calculations Using equation L_L = 12.46* SPM/T from AP-42, Chapter 5, Section 5.2-4		
S =	0.60	= Saturation Factor
P =	5.81	= True vapor pressure of liquid loaded (psia)
M =	72.48	= Molecular Weight of Vapors (lb/lb-mole)
T =	535.23	= Temperature of bulk liquid loaded (in degrees Rankine)
Annual Loading Rate	1764000.00	= Gallons Loaded per Year
L_L =	5.88	Loading Loss (lb VOC released/1000 gal liquid loaded)
	5.19	VOC Uncontrolled Emissions (ton/yr)
Tank Vapor Weight Percents		
VOC	100.00	Tank Vapor VOC wt%
HAPs	12.15	Tank Vapor HAPs wt%
benzene	0.83	Tank Vapor Benzene wt%
H_2S	0.00	Tank Vapor H2S wt%
Produced Water Reduction		
	0.00	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)
Uncontrolled Emissions		
VOC	5.19	Emissions Uncontrolled VOC (ton/yr)
HAPs	0.63	Emissions Uncontrolled HAPs (ton/yr)
benzene	0.04	Emissions Uncontrolled Benzene (ton/yr)
H_2S	0.00	Emissions Uncontrolled H_2S (ton/yr)
Collection Efficiency (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Collection Efficiency (%)
H_2S	0.00	H_2S Collection Efficiency (%)
Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)		
VOC	5.19	VOC Uncaptured Vapors (ton/yr)
HAPs	0.63	HAPs Uncaptured Vapors (ton/yr)
benzene	0.04	benzene Uncaptured Vapors (ton/yr)
H_2S	0.00	H_2S Uncaptured Vapors (ton/yr)
Control Efficiency (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Control Efficiency (%)
H_2S	0.00	H_2S Control Efficiency (%)
Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Results (ton/yr)
HAPs	0.00	HAPs Results (ton/yr)
benzene	0.00	Benzene Results (ton/yr)
H_2S	0.00	H_2S Results (ton/yr)

Enter temperature in Fahrenheit °F):	Temperature in Rankine (°R):
75.55977658	535.2297766

Enter Barrels of Liquid	Gallons of liquid:
6000	252000

Enter gallons per year	Barrels per day:
1764000	115.0684932

Enter any notes here:

The condensate liquids have LACT to transfer the liquids out of the facility. Truck loading equal to 7 days condensate production is included in case the LACT is down.

Loading Emissions		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC	45.00	5.19
HAPs	0.00	0.00
benzene	0.38	0.04
H2S	0.00	0.00

DLK Black River Midstream LLC
Black River Gas Processing Plant

Loading Emissions

Truck Hourly Loading Emission Calculations

Using equation L_L = 12.46* SPM/T from AP-42, Chapter 5, Section 5.2-4

S =	0.60	Saturation Factor
P =	13.48	True vapor pressure of liquid loaded (psia)
M =	59.91	Molecular Weight of Vapors (lb/lb-mole)
T =	559.67	Temperature of bulk liquid loaded (in degrees Rankine)
Hourly Loading Rate	8000.00	Gallons Loaded per Hour
L_L =	10.79	Loading Loss (lb VOC released/1000 gal liquid loaded)
	86.33	VOC Uncontrolled Emissions (lb/hr)
Tank Vapor Weight Percents		
VOC	99.53	Tank Vapor VOC wt%
HAPs	6.62	Tank Vapor HAP wt%
benzene	1.62	Tank Vapor Benzene wt%
H_2S	0.00	Tank Vapor H2S wt%
Produced Water Reduction		
	0.00	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)
Uncontrolled Emissions		
VOC	86.33	Emissions Uncontrolled VOC (lb/hr)
HAPs	5.74	Emissions Uncontrolled HAPs (lb/hr)
benzene	1.41	Emissions Uncontrolled Benzene (lb/hr)
H_2S	0.00	Emissions Uncontrolled H_2S (lb/hr)
Collection Efficiency (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Collection Efficiency (%)
H_2S	0.00	H_2S Collection Efficiency (%)
Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)		
VOC	86.33	VOC Uncaptured Vapors (lb/hr)
HAPs	5.74	HAPs Uncaptured Vapors (lb/hr)
benzene	1.41	benzene Uncaptured Vapors (lb/hr)
H_2S	0.00	H_2S Uncaptured Vapors (lb/hr)
Control Efficiency (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Control Efficiency (%)
H_2S	0.00	H_2S Control Efficiency (%)
Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Results (lb/hr)
HAPs	0.00	HAPs Results (lb/hr)
benzene	0.00	Benzene Results (lb/hr)
H_2S	0.00	H_2S Results (lb/hr)

Enter temperature in Fahrenheit °F):	Temperature in Rankine (°R):
100	559.67

Enter Barrels of	Gallons of liquid:
8000	336000

Gallons per Year	Barrels per day:
	0

Enter any notes here:

Truck Annual Loading Emission Calculations
Using equation L_L = 12.46* SPM/T from AP-42, Chapter 5, Section 5.2-4

S =	0.60	= Saturation Factor
P =	13.48	= True vapor pressure of liquid loaded (psia)
M =	59.91	= Molecular Weight of Vapors (lb/lb-mole)
T =	535.23	= Temperature of bulk liquid loaded (in degrees Rankine)
Annual Loading Rate	47334.00	= Gallons Loaded per Year
L_L =	11.28	Loading Loss (lb VOC released/1000 gal liquid loaded)
	0.27	VOC Uncontrolled Emissions (ton/yr)
Tank Vapor Weight Percents		
VOC	99.53	Tank Vapor VOC wt%
HAPs	6.62	Tank Vapor HAPs wt%
benzene	1.62	Tank Vapor Benzene wt%
H_2S	0.00	Tank Vapor H2S wt%
Produced Water Reduction		
	0.00	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)
Uncontrolled Emissions		
VOC	0.27	Emissions Uncontrolled VOC (ton/yr)
HAPs	0.02	Emissions Uncontrolled HAPs (ton/yr)
benzene	0.00	Emissions Uncontrolled Benzene (ton/yr)
H_2S	0.00	Emissions Uncontrolled H_2S (ton/yr)
Collection Efficiency (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Collection Efficiency (%)
H_2S	0.00	H_2S Collection Efficiency (%)
Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)		
VOC	0.27	VOC Uncaptured Vapors (ton/yr)
HAPs	0.02	HAPs Uncaptured Vapors (ton/yr)
benzene	0.00	benzene Uncaptured Vapors (ton/yr)
H_2S	0.00	H_2S Uncaptured Vapors (ton/yr)
Control Efficiency (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Control Efficiency (%)
H_2S	0.00	H_2S Control Efficiency (%)
Vapors Uncaptured by Control Device (only fill out if loading vapors are routed to a control device)		
VOC	0.00	VOC Results (ton/yr)
HAPs	0.00	HAPs Results (ton/yr)
benzene	0.00	Benzene Results (ton/yr)
H_2S	0.00	H_2S Results (ton/yr)

Enter temperature in Fahrenheit °F):	Temperature in Rankine (°R):
75.55977658	535.2297766

Enter Barrels of Liquid	Gallons of liquid:
161	6762

Enter gallons per year	Barrels per day:
47334	3.087671233

Enter any notes here:

The produced water liquids are transfered by pipe out of the facility. Truck loading equal to 7 days produced water production is included in case the pipe is down.

Loading Emissions		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC	86.33	0.27
benzene	1.41	0.00
H2S	0.0002	0.00000051

Black River Gas Plant - Train 4

Plant 4 - Truck Loading (Condensate Tanks)

Equation[1]:

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

Variables[1]:

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

															TL - 3		
Unit	**Material Loaded [2]**	**Loading Method**	**S**	**P_{max}[6] (psia)**	**M[6] (lb/lbmol)**	**T_{max}[4] (°R)**	**L_L (lbs/1000 gal)**	**Hourly Throughput[5] (gal/hr)**	**VOC Wt %**	**HAP Wt %**	**H_2S Wt %[3]**	**VOC Vapor Loading Losses (lb/hr)**	**HAP Vapor Loading Losses (lb/hr)**	**H_2S Vapor Loading Losses (lb/hr)**	**Hourly VOC Emissions (lb/hr)**	**Hourly HAP Emissions (lb/hr)**	**Hourly H_2S Emissions[3] (lb/hr)**
TL - 3	Condensate	Submerged	0.6	1.49	80.78	555.00	1.62	15,120	99.94%	22.27%	0.00%	24.46	5.45	-	24.46	5.45	-
											Uncontrolled Total	24.46	5.45	-	**24.46**	**5.45**	**-**

															TL - 3		
Unit	**Material Loaded [2]**	**Loading Method**	**S**	**P_{avg}[6] (psia)**	**M[6] (lb/lbmol)**	**T_{avg}[4] (°R)**	**L_L (lbs/1000 gal)**	**Annual Throughput[7] (gal/yr)**	**VOC Wt %**	**HAP Wt %**	**H_2S Wt %[3]**	**VOC Vapor Loading Losses (tpy)**	**HAP Vapor Loading Losses (tpy)**	**H_2S Vapor Loading Losses (tpy)**	**Annual VOC Emissions (tpy)**	**Annual HAP Emissions (tpy)**	**Annual H_2S Emissions[3] (tpy)**
TL - 3	Condensate	Submerged	0.6	1.49	80.78	531.68	1.69	1,642,307	99.94%	22.27%	0.00%	1.39	0.31	-	1.39	0.31	-
											Uncontrolled Total	1.39	0.31	-	**1.39**	**0.31**	**-**

[1] Loading loss equation and variables are from AP-42, Section 5.2, Transportation and Marketing of Petroleum Liquids.
[2] Material loaded is 100% Condensate.
[3] H_2S content is conservatively assumed.
[4] The max temperature is 95° F and the average temperature is 72.08° F.
[5] The maximum hourly throughput is based on the assumption that two trucks with a 180 bbl capacity can be loaded in an hour.
[6] TVP and MW pulled from Max Hourly promax
[7] Condensate will be primarily transported via pipeline. Matador is conservatively permitting 1% of throughput to be transported via truck loading for pipeline downtime.

Black River Gas Plant - Train 4

Plant 4 -Truck Loading (Produced Water)

Equation[1]:

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

Variables[1]:

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

															TL-4		
Unit	**Material Loaded [2]**	**Loading Method**	**S**	**P_{max} [6] (psia)**	**M [6] (lb/lbmol)**	**T_{max} [4] (°R)**	**L_L (lbs/1000 gal)**	**Hourly Throughput [5] (gal/hr)**	**VOC Wt %**	**HAP Wt %**	**H_2S Wt %[3]**	**VOC Vapor Loading Losses (lb/hr)**	**HAP Vapor Loading Losses (lb/hr)**	**H_2S Vapor Loading Losses (lb/hr)**	**Hourly VOC Emissions (lb/hr)**	**Hourly HAP Emissions (lb/hr)**	**Hourly H_2S Emissions [3] (lb/hr)**
TL-4	Produced Water/Slop	Submerged	0.6	12.88	52.13	555.00	9.05	15,120	88.06%	3.24%	0.005%	120.46	4.43	6.41E-03	120.46	4.43	6.41E-03
										Uncontrolled Total		120.46	4.43	6.41E-03	**120.46**	**4.43**	**6.41E-03**

															TL-4		
Unit	**Material Loaded [2]**	**Loading Method**	**S**	**P_{avg} [6] (psia)**	**M [6] (lb/lbmol)**	**T_{avg} [4] (°R)**	**L_L (lbs/1000 gal)**	**Annual Trucked Throughput [7] (gal/yr)**	**VOC Wt %**	**HAP Wt %**	**H_2S Wt %[3]**	**VOC Vapor Loading Losses (tpy)**	**HAP Vapor Loading Losses (tpy)**	**H_2S Vapor Loading Losses (tpy)**	**Annual VOC Emissions (tpy)**	**Annual HAP Emissions (tpy)**	**Annual H_2S Emissions [3] (tpy)**
TL-4	Produced Water/Slop	Submerged	0.6	12.88	52.13	531.68	9.44	61,320	88.06%	3.24%	0.005%	0.25	9.37E-03	1.36E-05	0.25	9.37E-03	1.36E-07
										Uncontrolled Total		0.25	9.37E-03	1.36E-05	**0.25**	**9.37E-03**	**1.36E-07**

[1] Loading loss equation and variables are from AP-42, Section 5.2, Transportation and Marketing of Petroleum Liquids.
[2] Material loaded is 100% Condensate.
[3] H_2S content is conservatively assumed.
[4] The max temperature is 95° F and the average temperature is 72.08° F.
[5] The maximum hourly throughput is based on the assumption that two trucks with a 180 bbl capacity can be loaded in an hour.
[6] TVP and MW pulled from Max Hourly promax
[7] Produced Water/Slop will be primarily transported via pipeline. Matador is conservatively permitting 1% of throughput to be transported via truck loading for pipeline downtime.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Thermal Oxidizer Emissions

General Information

Flare functions as emergency control device. When streams are fed to flare it will be treated as an emission event.

(1) Control Equipment:	Thermal Oxidizer
(2) EPN:	TO-1
(3) What kind of device is this? Pick from list.	Thermal Oxidizer

Emission Factors for Waste Gas Stream(s) (lb/MMbtu)

NOx	0.14
CO	0.13

(4) Is there one or more pilot streams fired with pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	

Enter pilot stream information into the boxes in the column for Stream No. 1 below. If there is more than one pilot stream, please enter it as one combined stream.

Emission Factors for Pilot Stream (lb/MMscf)

NOx	100
CO	84

(5) Is there one or more pilot streams fired with field gas? Pick Yes or No. Follow instructions below.	No	

Please move on to next question below.

Emission Factors for Pilot Stream (ppmv)

NOx	0
CO	0

(6) Is there an added fuel stream made up of pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	

Enter added fuel stream information into the boxes in the column for Steam No. 2 below.

Emission Factors for Added Fuel Stream (ppmv)

NOx	
CO	

Emission Factors

[1]Emission Factors from Zeeco Guarantee (lb/MMBtu)

NOx	0.14	lb/MMBtu
CO	0.13	lb/MMBtu

[2]Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

PM10	7.6	lb/MMscf
PM2.5	5.7	lb/MMscf
VOC	5.5	lb/MMscf

Zeeco Guarantee (MMBtu/hr)

Maximum Heating Value Acid Gas	9.9	MMBtu/hr
Maximum Heating Value Glycol Gas	5.6	MMBtu/hr
Maximum Heat Value from Fuel	26.1	MMBtu/hr

Emission Factors

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

NOx	100	
CO	84	
PM10, PM2.5	7.6	5.7

(7) Is there an added fuel stream made up of field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (lb/MMBtu) NOx 0 CO 0	
(8) VOC percent destruction efficiency (%)	98	
(9) propane percent destruction efficiency (%) *OPTIONAL*	99	
(10) H_2S percent destruction efficiency (%)	98	
(11) Which is utilized for this device?	automatic ignition system	

Thermal Oxidizer No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Thermal Oxidizer Name (Enter Names of Each Stream Here)	**Fuel**	**Waste Gas from Amine, AM-1 (stream 219)**											-
Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr)	32278	64872											**97150.30701**
Amount of Time Stream Fired (hrs/yr)	8760	8760											-
Maximum Expected Annual Volumtric Flow Rate of Stream (scf/yr)	282,757,239	568,279,450											**851,036,689**
Heat Value of Stream - from program results or gas analysis (Btu/scf)	1081.80	16.67											-
propane weight percent of total stream (%) *OPTIONAL*	0.73	0.04											-
VOC weight percent of total stream (%) *OPTIONAL*	0.77	0.27											-

Hourly (lb/hr)

Stream Sent to Thermal Oxidizer No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Thermal Oxidizer Name	Fuel	Waste Gas from Amine, AM-1 (stream 219)											-
H2S	-	5.45											**5.45**
Crude or Condensate VOC	-												**0.00**
Natural Gas VOC	-	19.49											**19.49**
Total VOC	-	19.49											**19.49**
Benzene	-	7.58											**7.58**

Annual (tpy)

H2S	-	23.86											**23.86**
Crude or Condensate VOC	-												**0.00**
Natural Gas VOC	-	85.35											**85.35**
Total VOC	-	85.35											**85.35**
Benzene	-	33.22											**33.22**

Controlled Emissions

Hourly (lb/hr)

Stream Sent to Thermal Oxidizer No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Thermal Oxidizer Name	Fuel	Waste Gas from Amine, AM-1 (stream 219)											-
NOx	3.228	1.386	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**4.61**
CO	2.711	1.287	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**4.00**
PM2.5	0.245	0.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.62**
PM10	0.245	0.493	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.74**
H2S	0.049	0.109	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.16**
SO2	0.092	10.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**10.13**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	**0.00**
Natural Gas VOC	0.18	0.36	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.54**
Total VOC	0.18	0.36	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.54**
Benzene	0.000	0.15168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.15**

Annual (tpy)													
Stream Sent to Thermal Oxidizer No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Thermal Oxidizer Name	**Fuel**	**Waste Gas from Amine, AM-1 (stream 219)**											-
NOx	14.138	6.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**20.21**
CO	11.876	5.637	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**17.51**
PM2.5	0.119	1.620	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.74**
PM10	0.224	2.159	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.38**
H2S	0.421	0.477	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.90**
SO2	0.792	44.856	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**45.65**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Natural Gas VOC	0.000	1.592	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.59**
Total VOC	0.000	1.592	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.59**
Benzene	0.000	0.6644	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.66**

[1] CO and NOx emissions calculated based on the emission gurantees from manufacturer and the exhaust flue from the TO.
[2] $PM_{10}/PM_{2.5}$ AP-42 Factors

Thermal Oxidizer Total Emissions		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude or Condensate VOC	0.00	0.00
Natural Gas VOC	0.54	1.59
Total VOC	0.54	1.59
NO_x	4.61	20.21
CO	4.00	17.51
$PM_{2.5}$	0.62	1.74
PM_{10}	0.74	2.38
H_2S	0.16	0.90
SO_2	10.13	44.36
Benzene	0.15	0.66

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Thermal Oxidizer SSM

A) Enter information into the yellow boxes.

B) Please provide a separate detailed calculation for these emissions; also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

C) Since these emissions fall into the category of "Other", which does not have a pre-made emission estimation sheet with pre-approved methods, the time to review this project cannot be guaranteed to be as quick as if only pre-made sheets had been used.
D) VOC and H2S control efficiencies may be entered (if applicable).
E) Make sure to answer the control device question.

F) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

EPN:	TO-1 SSM
Name:	Thermal Oxidizer SSM

Are these vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(B) controlled by a flare

Uncontrolled Emissions			
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Control Efficiency
Total VOC	19.486	1.707	0
NO_x	0.000	0.000	0
CO	0.000	0.000	0
$PM_{2.5}$	0.000	0.000	0
PM_{10}	0.000	0.000	0
H_2S	5.448	0.477	0
SO_2	0.000	0.000	0
Benzene	7.584	0.664	0
Formaldehyde	0.000	0.000	0

Total Emissions (control efficiencies factored in if applicable)		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Total VOC	19.49	1.71
NO_x	0.00	0.00
CO	0.00	0.00
$PM_{2.5}$	0.00	0.00
PM_{10}	0.00	0.00
H_2S	5.45	0.48
SO_2	0.00	0.00
Benzene	7.58	0.66
Formaldehyde	0.00	0.00

Enter any notes here:
SSM assumed 2% of total hours of operation in a year. SSM emissions are controlled by FL-2.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Thermal Oxidizer Emissions

General Information		
Flare functions as emergency control device. When streams are fed to flare it will be treated as an emission event.		
(1) Control Equipment:	Thermal Oxidizer	
(2) EPN:	TO-2	
(3) What kind of device is this? Pick from list.	Thermal Oxidizer	
	Emission Factors for Waste Gas Stream(s) (lb/MMbtu) NOx 0.14 CO 0.13	
(4) Is there one or more pilot streams fired with pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	
	Enter pilot stream information into the boxes in the column for Stream No. 1 below. If there is more than one pilot stream, please enter it as one combined stream.	
	Emission Factors for Pilot Stream (lb/MMscf) NOx 100 CO 84	
(5) Is there one or more pilot streams fired with field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Pilot Stream (ppmv) NOx 0 CO 0	
(6) Is there an added fuel stream made up of pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (ppmv) NOx CO	
(7) Is there an added fuel stream made up of field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (lb/MMBtu) NOx 0 CO 0	
(8) VOC percent destruction efficiency (%)	98	
(9) propane percent destruction efficiency (%) *OPTIONAL*	99	
(10) H_2S percent destruction efficiency (%)	98	
(11) Which is utilized for this device?	automatic ignition system	

Emission Factors

[1] **Emission Factors from Zeeco Guarantee (lb/MMBtu)**

NOx	0.14	lb/MMBtu
CO	0.13	lb/MMBtu

[2] **Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)**

PM10	7.6	lb/MMscf
PM2.5	5.7	lb/MMscf
VOC	5.5	lb/MMscf

Zeeco Guarantee (MMBtu/hr)

Maximum Heating Value Acid Gas	9.9	MMBtu/hr
Maximum Heating Value Glycol Gas	5.6	MMBtu/hr
Maximum Heat Value from Fuel	2.1	MMBtu/hr

Emission Factors

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

NOx	100	
CO	84	
PM10, PM2.5	7.6	5.7

Stream Sent to Thermal Oxidizer No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Thermal Oxidizer Name	Fuel	Waste Gas from Amine, AM-2 (Stream 94)	Waste gas from Dehy, DEHY-2 (Stream Condenser OVHD2)										-
Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr)	6507	53575	1550										61631.59762
Amount of Time Stream Fired (hrs/yr)	8760	8760	8760										-
Maximum Expected Annual Volumtric Flow Rate of Stream (scf/yr)	56,999,255	469,317,000	13,576,540										539,892,795
Heat Value of Stream - from program results or gas analysis (Btu/scf)	1081.80	18.51	2561.12										-
propane weight percent of total stream (%) *OPTIONAL*	0.73	0.04	16.24										-
VOC weight percent of total stream (%) *OPTIONAL*	0.77	0.32	81.25										-

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Fuel	Waste Gas from Amine, AM-2 (Stream 94)	Waste gas from Dehy, DEHY-2 (Stream Condenser OVHD2)										
H2S	-	4.11	0.05										4.16
Crude or Condensate VOC	-	-	-										0.00
Natural Gas VOC	-	18.95	190.32										209.27
Total VOC	-	18.95	190.32										209.27
Benzene	-	7.53	18.68										26.21
Annual (tpy)													
H2S	-	17.99	0.23										18.21
Crude or Condensate VOC	-	-	-										0.00
Natural Gas VOC	-	82.99	833.59										916.58
Total VOC	-	82.99	833.59										916.58
Total HAPs	-	33.00	81.82										114.82

Controlled Emissions

Hourly (lb/hr)

Stream Sent to Thermal Oxidizer No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Thermal Oxidizer Name	Fuel	Waste Gas from Amine, AM-2 (Stream 94)	Waste gas from Dehy, DEHY-2 (Stream Condenser OVHD2)										-
NOx	0.651	1.386	0.784	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.82**
CO	0.547	1.287	0.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.56**
PM2.5	0.049	0.305	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.36**
PM10	0.037	0.407	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.46**
H2S	0.010	0.082	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.09**
SO2	0.019	7.719	0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**7.84**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	**0.00**
Natural Gas VOC	0.04	0.35	3.426	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**3.81**
Total VOC	0.04	0.35	3.426	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**3.81**
Total HAPs	0.000	0.15069	0.374	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.52**
Hexane	0.00	0.04	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
Benzene	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Toluene	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Ethylbenzene	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Xylenes	0.00	0.07	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23

Annual (tpy)													
Stream Sent to Thermal Oxidizer No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Thermal Oxidizer Name	**Fuel**	**Waste Gas from Amine, AM-2 (Stream 94)**	**Waste gas from Dehy, DEHY-2 (Stream Condenser OVHD2)**										[1]
NOx	2.850	6.071	3.434	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**12.35**
CO	2.394	5.637	3.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**11.22**
PM2.5	0.217	1.338	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.59**
PM10	0.162	1.783	0.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.00**
H2S	0.043	0.360	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.41**
SO2	0.081	33.810	0.428	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**34.32**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Natural Gas VOC	0.157	1.546	15.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**16.71**
Total VOC	0.157	1.546	15.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**16.71**
Total HAPs	0.000	0.6600	1.636	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.30**
Hexane	0.000	0.18	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
Benzene	0.000	0.05	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
Toluene	0.000	0.11	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Ethylbenzene	0.000	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
Xylenes	0.000	0.29	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99

[1] CO and NOx emissions calculated based on the emission guarantees from manufacturer and the exhaust flue from the TO.
[2] $PM_{10}/PM_{2.5}$ AP-42 Factors

Thermal Oxidizer Total Emissions		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude or Condensate VOC	0.00	0.00
Natural Gas VOC	3.81	16.71
Total VOC	3.81	16.71
NO_x	2.82	12.35
CO	2.56	11.22
$PM_{2.5}$	0.36	1.59
PM_{10}	0.46	2.00
H_2S	0.09	0.41
SO_2	7.84	34.32
Total HAP	0.52	2.30
Hexane	0.14	0.62
Benzene	0.04	0.18
Toluene	0.09	0.38
Ethylbenzene	0.03	0.13
Xylenes	0.23	0.99

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Thermal Oxidizer SSM

A) Enter information into the yellow boxes.

B) Please provide a separate detailed calculation for these emissions; also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

C) Since these emissions fall into the category of "Other", which does not have a pre-made emission estimation sheet with pre-approved methods, the time to review this project cannot be guaranteed to be as quick as if only pre-made sheets had been used.

D) VOC and H2S control efficiencies may be entered (if applicable).
E) Make sure to answer the control device question.

F) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

EPN:	TO-2 SSM
Name:	Thermal Oxidizer SSM

Are these vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(A) uncontrolled

Uncontrolled Emissions			
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Control Efficiency
Total VOC	190.317	16.672	0
NOx	0.000	0.000	0
CO	0.000	0.000	0
PM2.5	0.000	0.000	0
PM10	0.000	0.000	0
H2S	0.052	0.005	0
SO2	0.000	0.000	0
Total HAP	18.680	1.636	0
Hexane	5.030	0.441	0
Benzene	1.474	0.129	0
Toluene	3.062	0.268	0
Ethylbenzene	1.032	0.090	0
Xylenes	8.083	0.708	0
formaldehyde	0.000	0.000	0

Total Emissions (control efficiencies factored in if applicable)		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Total VOC	190.32	16.67
NOx	0.00	0.00
CO	0.00	0.00
PM2.5	0.00	0.00
PM10	0.00	0.00
H2S	0.05	0.00
SO2	0.00	0.00
Total HAP	18.68	1.64
Hexane	5.030	0.44
Benzene	1.474	0.13
Toluene	3.062	0.27
Ethylbenzene	1.032	0.09
Xylenes	8.083	0.71
formaldehyde	0.00	0.00

Enter any notes here:
SSM assumed 2% of total hours of operation in a year.

Black River Gas Plant - Train 4

Train 4- Thermal Oxidizer

Emission Unit: TO-03
Source Description: Train 4- Thermal Oxidizer
Operating Hours: 8,760 hrs/yr
DRE: 98%

Emissions, Heat Input, and Flow Rate Calculation

Parameters	Value	Unit	Notes
Amine Regenerator VOC Emissions	97.37	lb/hr	Regenerator Overheads
Amine Regenerator HAP Emissions	2.95	lb/hr	Regenerator Overheads
Amine Regenerator H_2S Emissions	4.04	lb/hr	Regenerator Overheads
Amine Flash Tank Excess VOC Emissions	69.46	lb/hr	Routed to TO-03 when Flash Gas cannot be routed to process
Amine Flash Tank HAP Emissions	0.80	lb/hr	Routed to TO-03 when Flash Gas cannot be routed to process
Amine Flash Tank Excess H_2S Emissions	0.047	lb/hr	Routed to TO-03 when Flash Gas cannot be routed to process
Dehy Condenser VOC Emissions	66.02	lb/hr	Condenser Overheads
Dehy Condenser HAP Emissions	7.73	lb/hr	Condenser Overheads
Dehy Condenser H_2S Emissions	2.49E-04	lb/hr	Condenser Overheads
Dehy Flash Tank Excess VOC Emissions	133.44	lb/hr	Routed to TO-03 when Flash Gas cannot be routed to process
Dehy Flash Tank Excess HAP Emissions	0.98	lb/hr	Routed to TO-03 when Flash Gas cannot be routed to process
Dehy Flash Tank Excess H_2S Emissions	7.62E-04	lb/hr	Routed to TO-03 when Flash Gas cannot be routed to process
Amine Regenerator Heating Value	12.08	Btu/scf	BR&E ProMax Acid Gas Stream
Amine Flash Tank Heating Value	1208.37	Btu/scf	BR&E ProMax Flash Gas Stream.
Dehy Condenser Heating Value	2421.63	Btu/scf	BR&E ProMax Condenser Overheads Stream
Dehy Flash Tank Heating Value	1599.36	Btu/scf	BR&E ProMax Flash Gas Stream.
Amine Regenerator Flow Rate	262,889.32	scf/hr	BR&E ProMax Acid Gas Stream
Amine Flash Tank Flow Rate	5,800.35	scf/hr	BR&E ProMax Flash Gas Stream.
Dehy Condenser Flow Rate	651.98	scf/hr	BR&E ProMax Condenser Overheads Stream
Dehy Flash Tank Flow Rate	3,849.94	scf/hr	BR&E ProMax Flash Gas Stream.
Total Heating Value	65.60	Btu/scf	Weighted average heating value of all streams
Total Flow	269,341.65	scf/hr	Combined flow
Total Heating Value	17.67	MMBtu/hr	Btu/scf x scf/hr
Flow Rate with Safety Factor	0	%	Safety Factor
	269,341.65	scf/hr	Flow with safety factor
	2,325.53	MMscf/yr	Annual flow rate with safety factor
Heating Rate	17.67	MMBtu/hr	Btu/scf x scf/hr

Assist Gas	Value	Unit	Notes
Hourly Volume Flow Rate	7996.0	scf/hr	Worst case hourly assist gas requirement
Assist Gas Heat Value	1239	Btu/scf	
Annual Volume Flow Rate	70.04	MMscf/yr	Annual Assist gas requirement
Total Flare Stream Heat Value	1241.10	Btu/scf	
Total Flare Stream Hourly Heat Rate	344.20	MMBtu/hr	
Hourly Heat Rate	9.91	MMBtu/hr	
Annual Heat Rate	86,807.44	MMBtu/yr	

Fuel	Value	Unit	Notes
Hourly Volume Flow Rate	90.00	scf/hr	
	0	%	Safety Factor
	90.00	scf/hr	Pilot flow with safety factor
	9.00E-05	MMscf/hr	scf/hr / 10^6 scf / MMscf
Natural Gas Heat Value	1,239.31	Btu/scf	Treated Natural Gas
Hourly Heat Rate	0.11	MMBtu/hr	Btu/scf * scf/hr
Annual Flow Rate	0.79	MMscf/yr	MMscf/hr * annual hours of operation for pilot

Emission Rates

	NOx	CO	VOC[1]	SO_2[2]	H_2S[1,3]	PM[4]	HAPs[1]	Benzene[1]	Toluene[1]	Xylene[1]	n-Hexane[1]	Units	Notes
Emission Factors	0.14	0.13										lb/MMBtu	Manufacturer Specifications
	100.00	84.00	5.50			7.60						lb/MMscf	AP-42 Chapter 1.4
	121.50	102.06	6.68			9.23						lb/MMscf	Adjusted for Fuel
	6.43	5.40				0.49						lb/MMscf	Adjusted for Combustion Stream
				2.571E-04								lb S/hr	2 gr/100 scf
			366.29		4.09	-	12.45	1.41	1.56	-	1.01	lb/hr	Hourly emissions from Amine and Dehy
			893.38		17.74		48.32	6.47	7.00	-	5.90	tpy	100% annual Amine Regenerator and Dehy Condenser, 20% annual Amine and Dehy Flash Gas.
Fuel Emissions	0.016	0.014	6.01E-04	5.14E-04	-	8.31E-04	-	-	-	-	-	lb/hr	hourly rate
	0.068	0.064	2.63E-03	2.25E-03	-	3.64E-03	-	-	-	-	-	tpy	8760 hr/yr/2000 lb/ton
Assist Gas	1.39	1.29	0.053	5.14E-04	-	0.074	-	-	-	-	-	lb/hr	hourly rate
	6.08	5.64	0.23	2.25E-03	-	0.32	-	-	-	-	-	tpy	8760 hr/yr/2000 lb/ton
Process Emissions	1.73	2.30E-06	7.33	7.54	0.082	0.13	0.25	0.03	0.031	-	0.020	lb/hr	hourly rate
	7.48	6.28	17.87	32.72	0.35	0.57	0.97	0.12	0.14	-	0.09	tpy	8760 hr/yr/2000 lb/ton
Total Emissions	**3.14**	**1.30**	**7.38**	**7.54**	**0.082**	**0.21**	**0.25**	**0.03**	**0.031**	**-**	**0.020**	lb/hr	Pilot Emissions + Process Emissions
	13.62	**11.99**	**18.10**	**32.73**	**0.35**	**0.90**	**0.97**	**0.12**	**0.14**	**-**	**0.09**	tpy	Pilot Emissions + Process Emissions

[1] Efficiency for combustion of VOC, H_2S and HAPs in TO-3 is: 98% lb/hr emission rate based on DRE of flare: lb/hr * (1 - DRE)
[2] Fuel sulfur content is assumed to be 2 gr/100 Scf
[3] Mass balance of H_2S is assuming 98% combustion and 100% conversion of combusted H_2S to SO_2.
[4] Assumes PM = PM_{10} = $PM_{2.5}$
"-" Indicates emissions of this pollutant are not expected

Emission Unit: **EP-1, 2-EP-1**
Source Description: Flare SSM
Manufacturer:

Destruction Efficiency:	98%	Manufacturer guaranteed DRE for C3+ & H_2S

Fuel Data

Flare Pilot

Flow Rate	500.0	scf/hr	Design
Flow Rate	0.00050	MMscf/hr	
Fuel heat value	1,050.00	Btu/scf	Estimated pipeline gas, HHV
Fuel usage	0.53	MMBtu/hr	
Flow Rate	4.38	MMscf/yr	

Purge Gas

Flow Rate	2,000.00	scf/hr	Eng Estimate
Flow Rate	0.0020	MMscf/hr	scf/hr / 10^6
Fuel heat value	1050.00	Btu/scf	Estimated pipeline gas, HHV
Fuel usage	2.1	MMBtu/hr	MMscf/hr * Btu/scf
Flow Rate	17.5	MMscf/yr	

Flare SSM

Flow Rate	200.00	MMscf/d	Engineering estimate
Flow Rate	8,333.33	Mscf/hr	
Flow Rate	8,333,333.33	scf/hr	Input flow rate (MMscf/day) * (1 day/24 hr) * (10^6 scf/MMscf)
Flow Rate	100,000.00	Mscf/yr	
Fuel heat value	1,204.95	Btu/scf	ProMax, Inlet Gas
Fuel usage	10,041.25	MMBtu/hr	(scf/hr) * (Btu/scf) * (MMBtu/10^6 Btu)

Flare SSM Events

Flaring Time	6.0	hours/event
Events Per Year	2.0	

Emission Unit: **EP-1, 2-EP-1**
Source Description: Flare SSM
Manufacturer:

Inlet Gas Analysis[4]

Composition[1]	Mol%	MW[1]	MW*Mol%	Spec. Volume (scf/lb)[1]	Heating Value (Btu/scf)[1]	Mass Flow (lb/hr)[2]	Mass Flow (lb/yr)[3]
Carbon Dioxide	6.009%	44.01	2.645	8.623	0.0	58072.2	696866.3
Nitrogen	2.305%	28.013	0.646	13.547	0.0	14176.9	170122.9
Hydrogen Sulfide	0.0012%	34.076	0.000	11.136	637.0	9.0	107.8
Methane	70.694%	16.043	11.341	23.65	1009.7	249098.3	2989180.0
Ethane	11.117%	30.07	3.343	12.62	1768.7	73407.4	880888.3
Propane	5.881%	44.097	2.593	8.606	2517.2	56949.2	683390.7
i-Butane	0.744%	58.123	0.432	6.529	3252.6	9495.3	113944.0
n-Butane	1.818%	58.123	1.057	6.529	3262	23203.5	278442.4
i-Pentane	0.450%	72.15	0.325	5.26	3999.7	7134.6	85615.4
n-Pentane	0.464%	72.15	0.335	5.26	4008.7	7355.4	88264.5
Hexanes	0.286%	86.178	0.246	4.4	4756.1	5414.7	64976.2
Heptanes	0.143%	100.205	0.143	3.787	5502.8	3146.7	37760.0
Benzene	0.024%	78.114	0.019	4.858	3741.9	412.4	4948.3
Toluene	0.011%	92.141	0.010	4.119	4474.8	212.8	2553.3
Xylene	0.004%	106.16	0.005	3.574	4957	102.8	1233.1
Ethylbenzene	0.001%	106.17	0.001	3.574	4970.6	21.0	252.3
Octane	0.048%	114.23	0.054	3.322	5796.1	1194.9	14338.6
VOC Total	**9.9%**		**5.22**			**114,643.2**	**1,375,718.7**
Total	**100%**		**23.20**			**509,407.0**	**6,112,884.0**

Emission Unit: **EP-1, 2-EP-1**
Source Description: Flare SSM
Manufacturer:

Emission Rates

Pilot+ Purge Gas

NOx	CO	VOC	H_2S	SO_2	Units	
0.0680	0.31				lb/MMBtu	Table 13.5-1; AP-42 Section 13
			3.57E-04		lb H_2S/Mscf	Purchased sweet natural gas fuel, 0.25 gr H_2S/100scf
			8.93E-04		lb H_2S/hr	H_2S rate * fuel usage
				7.14E-03	lb S/Mscf	Purchased sweet natural gas fuel, 5 gr S/100scf
				1.79E-02	lb SO_2/hr	SO_2 rate * fuel usage
		0.00%			mol%	Assume no VOC content in purchased fuel (methane)
		23.7			ft^3/lb	Specific volume
		0.00			lb/hr	vol. Gas * mole fraction / specific volume
				98%	%	Estimated conversion of combusted H_2S to SO_2
0.179	0.814	0.00E+00	1.79E-05	0.0016	lb/hr	
0.78	3.56	0.0	7.82E-05	0.0072	tpy	

Potential SSM Emission Rate

NOx	CO	VOC	H_2S	SO_2	Units	
0.068	0.31				lb/MMBtu	AP-42 Table 13.5 Emission Factors
				98%	%	Estimated conversion of combusted H_2S to SO_2
682.8	**3,112.8**	**2,292.9**	**0.180**	**16.6**	lb/hr	lb/MMBtu * MMBtu/hr
4.1	**18.7**	**13.8**	**0.00108**	**0.099**	tpy	lb/hr * hrs/event * events/yr * 1 ton/2000 lb

n-Hexane	Benzene	Toluene	Xylene	Ethylbenzene	Total HAPs	
108.3	**8.2**	**4.3**	**2.1**	**0.4**	**123.3**	**lb/hr**
0.65	**0.049**	**0.026**	**0.0123**	**0.00252**	**0.74**	**tons/yr**

Emission Unit: **EP-1, 2-EP-1**
Source Description: Flare SSM
Manufacturer:

Notes

[1] From "Physical Properties of Hydrocarbons"
[2] Flow (lb/hr) = Volume (Mscf/event) / Duration (hr/event) * 1000cf/Mscf / Sp. Vol. (scf/lb) * Mol%
4-EP-2a Flare (SSM)
[2] Flow (lb/hr) = Volume (Mscf/event) / Duration (hr/event) * 1000cf/Mscf / Sp. Vol. (scf/lb) * Mol%
[3] Flow (tons/yr) = Volume (Mscf/yr) * 1000scf/Mscf / Sp. Vol. (scf/lb) * Mol%
[4] Inlet analysis form ProMax

Pilot+Purge+SSM

Fuel gas molecular weight:	23.2	g/mol	Mol. wt. of the gas being burned - Assumed to be methane
Heat release (q):	7.03E+08	cal/sec	MMBtu/hr * 10^6 * 252 cal/Btu ÷ 3600 sec/hr
$q_{n:}$	5.41E+08		$q_n = q(1\text{-}0.048(MW)^{1/2})$
Effective stack diameter (D):	23.249	m	$D = (10^{-6}q_n)^{1/2}$

Pilot+Purge

Fuel gas molecular weight:	23.2	g/mol	Mol. wt. of the gas being burned - Assumed to be methane
Heat release (q):	1.84E+05	cal/sec	MMBtu/hr * 10^6 * 252 cal/Btu ÷ 3600 sec/hr
$q_{n:}$	1.41E+05		$q_n = q(1\text{-}0.048(MW)^{1/2})$
Effective stack diameter (D):	0.376	m	$D = (10^{-6}q_n)^{1/2}$

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Flare/Vapor Combustor Emissions

General Information

Flare functions as emergency control device. When streams are fed to flare it will be treated as an emission event.

(1) Control Equipment:	Plant 1 SSM/M	
(2) EPN:	FL-1	
(3) What kind of device is this? Pick from list.	Flare	
	Emission Factors for Waste Gas Stream(s) (lb/MMbtu)	
	NOx	0.138
	CO	0.2755
(4) Is there one or more pilot streams fired with pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	
	Enter pilot stream information into the boxes in the column for Stream No. 1 below. If	
	Emission Factors for Pilot Stream (lb/MMscf)	
	NOx	100
	CO	84
(5) Is there one or more pilot streams fired with field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Pilot Stream (ppmv)	
	NOx	0
	CO	0
(6) Is there an added fuel stream made up of pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (ppmv)	
	NOx	
	CO	
(7) Is there an added fuel stream made up of field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (lb/MMBtu)	
	NOx	0
	CO	0

Emission Factors

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

NOx	100
CO	84

Emission Factors from TCEQ Guidance (lb/MMBtu)

Non-steam assisted, high Btu		Steam assisted, high Btu	
NOx	0.138	NOx	0.0485
CO	0.2755	CO	0.3503
Non-steam assisted, low Btu		Steam assisted, low Btu	
NOx	0.0641	NOx	0.068
CO	0.5496	CO	0.3465

Emission Factors from AP-42 Table 1.4-2 and 1.4-3 (lb/MMscf)

SO_2	0.6
VOC	5.5
benzene	0.002

(8) VOC percent destruction efficiency (%)	98	
(9) propane percent destruction efficiency (%) *OPTIONAL*	99	
(10) H_2S percent destruction efficiency (%)	98	
(11) Which is utilized for this device?	continuous pilot	

Stream Sent to Flare/Vapor Combustor No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Flare/Vapor Combustor Name (Enter Names of Each Stream Here)	**Pilot + Sweep Gas**	**Compressor Blowdowns**	**Plant 1 Malfunction**	**Plant 1 Pigging**									-
Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr)	360	600000	1000000	5,500									**1605860**
Amount of Time Stream Fired (hrs/yr)	8760	72	19	365									-
Maximum Expected Annual Volumtric Flow Rate of Stream (scf/yr)	3,153,600	43,200,000	19,200,000	2,007,500									**67,561,100**
Heat Value of Stream - from program results or gas analysis (Btu/scf)	1081.80	1250.70	1,250.70	1,250.70									-
propane weight percent of total stream (%) *OPTIONAL*	0.733805024	11.18068475	11.18	11.18									-
VOC weight percent of total stream (%) *OPTIONAL*	0.77	20.84	20.840	20.840									-
MMBTUH	0.39	750.42	1,250.70	6.88									
Hourly (lb/hr)													
Stream Sent to Flare/Vapor Combustor No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Flare/Vapor Combustor Name	**Pilot + Sweep Gas**	**Compressor Blowdowns**	**Plant 1 Malfunction**	**Plant 1 Pigging**									
H2S	-	0.3187	0.53	0.00									**0.85**
Crude or Condensate VOC	-												**0.00**
Natural Gas VOC	-	6810.41	11350.69	77.65									**18238.75**
Total VOC	-	6810.41	11350.69	77.65									**18238.75**
Benzene	-	2.43	4.06	0.03									**6.52**
Annual (tpy)													
H2S	-	0.01147	0.01	0.00									**0.02**
Crude or Condensate VOC	-												**0.00**
Natural Gas VOC	-	245.17	108.97	14.17									**368.31**
Total VOC	-	245.17	108.97	14.17									**368.31**
Benzene	-	0.0876	0.04	0.01									**0.13**

Controlled Emissions

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	**Pilot + Sweep Gas**	**Compressor Blowdowns**	**Plant 1 Malfunction**	**Plant 1 Pigging**									
NOx	0.036	103.558	172.597	0.949	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**277.14**
CO	0.030	206.741	344.568	1.895	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**553.23**
H2S	0.000	0.006	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.02**
SO2	0.000	0.599	0.978	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.58**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	**0.00**
Natural Gas VOC	0.00	99.67	166.116	1.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**266.92**
Total VOC	0.00	99.67	166.116	1.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**266.92**
Benzene	0.000	0.04869	0.081	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.13**

Annual (tpy)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	**Pilot + Sweep Gas**	**Compressor Blowdowns**	**Plant 1 Malfunction**	**Plant 1 Pigging**									
NOx	0.158	3.728	1.657	0.173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**5.72**
CO	0.132	7.443	3.308	0.346	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**11.23**
H2S	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
SO2	0.001	0.022	0.010	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.03**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Natural Gas VOC	0.009	3.588	1.595	0.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**5.40**
Total VOC	0.009	3.588	1.595	0.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**5.40**
Benzene	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**

Flare/Vapor Combustor Total Emissions

	Normal Operations Emissions		**SSM Emissions**		**Malfunction Emissions**	
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude or Condensate VOC	-	-	0.00	0.00	0.00	0.00
Natural Gas VOC	0.00	0.01	100.81	3.80	166.12	1.59
Total VOC	0.00	0.01	100.81	3.80	166.12	1.59
NO_x	0.04	0.16	104.51	3.90	172.60	1.66
CO	0.03	0.13	208.64	7.79	344.57	3.31
H_2S	0.00	0.0005	0.01	0.0002	0.01	0.0001
SO_2	0.00	0.00	0.61	0.02	0.98	0.01
Benzene	0.00	0.00	0.05	0.00	0.08	0.00

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Flare/Vapor Combustor Emissions

General Information		
Flare functions as emergency control device. When streams are fed to flare it will be treated as an emission event.		
(1) Control Equipment:	Plant 2 - DEHY-1 Control and SSM/M	
(2) EPN:	FL-2	
(3) What kind of device is this? Pick from list.	Flare	
	Emission Factors for Waste Gas Stream(s) (lb/MMbtu)	
	NOx	0.138
	CO	0.2755
(4) Is there one or more pilot streams fired with pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	
	Enter pilot stream information into the boxes in the column for Stream No. 1 below. If	
	Emission Factors for Pilot Stream (lb/MMscf)	
	NOx	100
	CO	84
(5) Is there one or more pilot streams fired with field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Pilot Stream (ppmv)	
	NOx	0
	CO	0
(6) Is there an added fuel stream made up of pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (ppmv)	
	NOx	
	CO	
(7) Is there an added fuel stream made up of field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (lb/MMBtu)	
	NOx	0
	CO	0

Emission Factors

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

NOx	100
CO	84

Emission Factors from TCEQ Guidance (lb/MMBtu)

Non-steam assisted, high Btu		Steam assisted, high Btu	
NOx	0.138	NOx	0.0485
CO	0.2755	CO	0.3503
Non-steam assisted, low Btu		Steam assisted, low Btu	
NOx	0.0641	NOx	0.068
CO	0.5496	CO	0.3465

Emission Factors from AP-42 Table 1.4-2 and 1.4-3 (lb/MMscf)

SO_2	0.6
VOC	5.5
benzene	2.10E-03

(8) VOC percent destruction efficiency (%)	98	
(9) propane percent destruction efficiency (%) *OPTIONAL*	99	
(10) H_2S percent destruction efficiency (%)	98	
(11) Which is utilized for this device?	automatic ignition system	

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name (Enter Names of Each Stream Here)	Pilot + Sweep Gas	Dehy-1 SSM Flash Gas - Stream 16	AM-1 SSM Flash Gas Stream220	Compressor Blowdowns	Plant 2 Malfunction	Dehy Overhead, DEHY-1 (Stream Condenser Ovhd)	Plant 2 Pigging	Waste Gas from Amine, AM-1 (stream 219) during TO-1 downtime	VRU Downtime	TO-1 Downtime Assist Gas			-
Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr)	510	3446	2725	1000000.00	1000000.00	4676.21	5500.00	64872	795.8793313	23709.16978			2106234.224
Amount of Time Stream Fired (hrs/yr)	8760	1752	1752	72.00	19.20	8760	365	880	8760	880			-
Maximum Expected Annual Volumetric Flow Rate of Stream (scf/yr)	4,467,600	6,037,589	4,773,791	72000000.00	19200000.00	40963621.5	2007500.00	57087433.33	6971902.94	20864069.40			234,373,507
Heat Value of Stream - from program results or gas analysis (Btu/scf)	1081.80	1560.44	1,220.51	1250.70	1250.70	2554.53	1250.70	16.67	2953.76	1075.24			-
propane weight percent of total stream (%) *OPTIONAL*	0.733805024	19.94	9.48	11.18	11.18	16.25	11.18	0.04	22.97	-			-
VOC weight percent of total stream (%) *OPTIONAL*	0.77	41.97	16.33	20.84	20.84	81.09	20.84	0.27	94.05	-			-

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Pilot + Sweep Gas	Dehy-1 SSM Flash Gas - Stream 16	AM-1 SSM Flash Gas Stream220	Compressor Blowdowns	Plant 2 Malfunction	Dehy Overhead, DEHY-1 (Stream Condenser Ovhd)	Plant 2 Pigging	Waste Gas from Amine, AM-1 (stream 219) during TO-1 downtime	VRU Downtime	TO-1 Downtime Assist Gas			-
H2S	-	0.0109	0.00	0.53	0.53	0.05	0.00	5.45	0.000714303	-			6.58
Crude or Condensate VOC	-												0.00
Natural Gas VOC	-	104.80	23.89	11350.69	11350.69	193.81	77.65	19.49	104.51	-			23225.52
Total VOC	-	104.80	23.89	11350.69	11350.69	193.81	77.65	19.49	104.51	-			23225.52
Benzene	-	0.28	0.29	4.06	4.06	18.75	0.03	7.58	1.013873197	-			36.06

Annual (tpy)

H2S	-	0.00954	0.00424	0.01912	0.00510	0.23	0.00066	2.39726	0.00313	-			2.67
Crude or Condensate VOC	-												0.00
Natural Gas VOC	-	91.81	20.93	408.62	108.97	848.88	14.17	8.57404	457.76077	-			1959.71
Total VOC	-	91.81	20.93	408.62	108.97	848.88	14.17	8.57404	457.76077	-			1959.71
Benzene	-	0.2446	0.2565	0.1461	0.0390	82.12	0.0051	3.33704	4.44076	-			90.59

Controlled Emissions

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Pilot + Sweep Gas	Dehy-1 SSM Flash Gas - Stream 16	AM-1 SSM Flash Gas Stream220	Compressor Blowdowns	Plant 2 Malfunction	Dehy Overhead, DEHY-1 (Stream Condenser Ovhd)	Plant 2 Pigging	Waste Gas from Amine, AM-1 (stream 219) during TO-1 downtime	VRU Downtime	TO-1 Downtime Assist Gas			-
NOx	0.051	0.742	0.459	172.597	172.597	1.648	0.949	0.149	0.324	3.518	0.000	0.000	**353.03**
CO	0.043	1.481	0.916	344.568	344.568	3.291	1.895	0.298	0.648	7.023	0.000	0.000	**704.73**
H2S	0.000	0.000	0.000	0.011	0.011	0.001	0.000	0.109	0.000	0.007	0.000	0.000	**0.14**
SO2	0.000	0.020	0.009	0.978	0.978	0.096	0.007	10.036	0.001	0.014	0.000	0.000	**12.14**
Crude or Condensate VOC	-	-	-	-	-	-	-	-	-	-	0.000	0.000	**0.00**
Natural Gas VOC	0.003	1.60	0.339	166.116	166.116	3.488	1.136	0.363	1.835	0.130	0.000	0.000	**341.12**
Total VOC	0.003	1.60	0.339	166.116	166.116	3.488	1.136	0.363	1.835	0.130	0.000	0.000	**341.12**
Benzene	0.000	0.00559	0.006	0.081	0.081	0.375	0.001	0.152	0.020	0.000	0.000	0.000	**0.72**

Annual (tpy)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Pilot + Sweep Gas	Dehy-1 SSM Flash Gas - Stream 16	AM-1 SSM Flash Gas Stream220	Compressor Blowdowns	Plant 2 Malfunction	Dehy Overhead, DEHY-1 (Stream Condenser Ovhd)	Plant 2 Pigging	Waste Gas from Amine, AM-1 (stream 219) during TO-1 downtime	VRU Downtime	TO-1 Downtime Assist Gas			-
NOx	0.223	0.650	0.402	6.213	1.657	7.220	0.173	0.066	1.421	1.548	0.000	0.000	**19.57**
CO	0.188	1.298	0.803	12.404	3.308	14.415	0.346	0.131	2.837	3.090	0.000	0.000	**38.82**
H2S	0.001	0.000	0.000	0.000	0.000	0.005	0.000	0.048	0.000	0.003	0.000	0.000	**0.06**
SO2	0.001	0.018	0.008	0.036	0.010	0.429	0.001	4.506	0.006	0.006	0.000	0.000	**5.02**
Crude or Condensate VOC	-	-	-	-	-	-	0.000	0.000	0.000	-	0.000	0.000	**0.00**
Natural Gas VOC	0.012	1.400	0.297	5.980	1.595	15.276	0.207	0.160	8.037	0.057	0.000	0.000	**33.02**
Total VOC	0.012	1.400	0.297	5.980	1.595	15.276	0.207	0.160	8.037	0.057	0.000	0.000	**33.02**
Benzene	0.000	0.005	0.005	0.003	0.001	1.642	0.000	0.067	0.089	0.000	0.000	0.000	**1.81**

Flare/Vapor Combustor Emissions

	Normal Operations Emissions		SSM Emissions		Malfunction Emissions	
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude or Condensate VOC	-	-	-	-	-	-
Natural Gas VOC	3.49	15.29	171.52	16.14	166.12	1.59
Total VOC	3.49	15.29	171.52	16.14	166.12	1.59
NO_x	1.70	7.44	178.74	10.47	172.60	1.66
CO	3.33	14.60	356.83	20.91	344.57	3.31
H_2S	0.00	0.0053	0.13	0.0520	0.01	0.0001
SO_2	0.10	0.43	11.07	4.58	0.98	0.01
Benzene	0.37	1.64	0.27	0.17	0.08	0.00

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Black River Gas Processing Plant

Flare/Vapor Combustor Emissions

General Information		
Flare functions as emergency control device. When streams are fed to flare it will be treated as an emission event.		
(1) Control Equipment:	Plant 3 SSM/M	
(2) EPN:	FL-3	
(3) What kind of device is this? Pick from list.	Flare	
	Emission Factors for Waste Gas Stream(s) (lb/MMbtu)	
	NOx	0.138
	CO	0.2755
(4) Is there one or more pilot streams fired with pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	
	Enter pilot stream information into the boxes in the column for Stream No. 1 below. If	
	Emission Factors for Pilot Stream (lb/MMscf)	
	NOx	100
	CO	84
(5) Is there one or more pilot streams fired with field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Pilot Stream (ppmv)	
	NOx	0
	CO	0
(6) Is there an added fuel stream made up of pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (ppmv)	
	NOx	
	CO	
(7) Is there an added fuel stream made up of field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (lb/MMBtu)	
	NOx	0
	CO	0

Emission Factors

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

NOx	100
CO	84

Emission Factors from TCEQ Guidance (lb/MMBtu)

Non-steam assisted, high Btu		Steam assisted, high Btu	
NOx	0.138	NOx	0.0485
CO	0.2755	CO	0.3503
Non-steam assisted, low Btu		Steam assisted, low Btu	
NOx	0.0641	NOx	0.068
CO	0.5496	CO	0.3465

Emission Factors from AP-42 Table 1.4-2 and 1.4-3 (lb/MMscf)

SO_2	0.6
VOC	5.5
benzene	2.10E-03

(8) VOC percent destruction efficiency (%)	98	
(9) propane percent destruction efficiency (%) *OPTIONAL*	99	
(10) H_2S percent destruction efficiency (%)	98	
(11) Which is utilized for this device?	continuous pilot	

Stream Sent to Flare/Vapor Combustor No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Flare/Vapor Combustor Name (Enter Names of Each Stream Here)	**Pilot + Sweep Gas**	**Dehy-2 SSM Flash Gas - Stream 30**	**AM-2 SSM Flash Gas Stream 95**	**Compressor Blowdowns**	**Plant 3 Malfunction**	**AM-2 To Thermal Oxidizer Stream Stream 94**	**Plant 3 Pigging**	**TO-2 Downtime Assist Gas**	**DEHY-2 to TO-2 Stream**				-
Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr)	460	3437	3033	825,000	1000000	53575	5500	14932.76415	1550				**1907488.385**
Amount of Time Stream Fired (hrs/yr)	8760	1752	1752	72	19	880	365	880	880				-
Maximum Expected Annual Volumtric Flow Rate of Stream (scf/yr)	4,029,600	6,022,456	5,314,364	59,400,000	19,200,000	47,146,000	2,007,500	13,140,832	1,363,853				**157,624,605**
Heat Value of Stream - from program results or gas analysis (Btu/scf)	1081.80	1561	1,223.94	1,251	1,250.70	18.51	1,250.70	1075.24	2561.12				-
propane weight percent of total stream (%) *OPTIONAL*	0.733805024	19.97	4.44	11.18068475	11.18068475	0.04	11.18068475	-	16.24				-
VOC weight percent of total stream (%) *OPTIONAL*	0.77	41.95	6.770	20.84	20.83959131	0.18	20.83959131	-	81.25				-
	0.50	5.36	3.71	1,031.83	1,250.70	0.99	**2,293.09**						
					Hourly (lb/hr)								
Stream Sent to Flare/Vapor Combustor No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Stream Sent to Flare/Vapor Combustor Name	**Pilot + Sweep Gas**	**Dehy-2 SSM Flash Gas - Stream 30**	**AM-2 SSM Flash Gas Stream 95**	**Compressor Blowdowns**	**Plant 3 Malfunction**	**AM-2 To Thermal Oxidizer Stream Stream 94**	**Plant 3 Pigging**	**TO-2 Downtime Assist Gas**	**DEHY-2 to TO-2 Stream**				-
H2S	-	0.0109	0.00	0.44	0.53	4.11	0.00	-	0.05				**5.15**
Crude or Condensate VOC	-							-					**0.00**
Natural Gas VOC	-	104.50	27.32	9364.32	11350.69	18.95	77.65	-	190.32				**21133.74**
Total VOC	-	104.50	27.32	9364.32	11350.69	18.95	77.65	-	190.32				**21133.74**
Benzene	-	0.28	0.33	3.35	4.06	7.53	0.03	-	18.68				**34.26**
					Annual (tpy)								
H2S	-	0.00959	0.00322	0.01578	0.00510	1.81	0.00066	-	0.0229				**1.86**
Crude or Condensate VOC	-							-					**0.00**
Natural Gas VOC	-	91.54	23.93	337.12	108.97	8.34	14.17	-	83.74				**667.80**
Total VOC	-	91.54	23.93	337.12	108.97	8.34	14.17	-	83.74				**667.80**
Benzene	-	0.2425	0.2924	0.1205	0.0390	3.32	0.0051	-	8.22				**12.23**

Controlled Emissions

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	**Pilot + Sweep Gas**	**Dehy-2 SSM Flash Gas - Stream 30**	**AM-2 SSM Flash Gas Stream 95**	**Compressor Blowdowns**	**Plant 3 Malfunction**	**AM-2 To Thermal Oxidizer Stream Stream 94**	**Plant 3 Pigging**	**TO-2 Downtime Assist Gas**	**DEHY-2 to TO-2 Stream**				**-**
NOx	0.046	0.740	0.512	142.392	172.597	0.137	0.949	2.216	0.548	0.000	0.000	0.000	**320.14**
CO	0.039	1.478	1.023	284.268	344.568	0.273	1.895	4.424	1.094	0.000	0.000	0.000	**639.06**
H2S	0.000	0.000	0.000	0.009	0.011	0.082	0.000	0.005	0.001	0.000	0.000	0.000	**0.11**
SO2	0.000	0.020	0.007	0.807	0.978	7.565	0.007	0.009	0.098	0.000	0.000	0.000	**9.49**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	-	0.000	0.000	-	0.000	**0.00**
Natural Gas VOC	0.00	1.59	0.367	137.046	166.116	0.337	1.136	0.082	3.426	0.000	0.000	0.000	**310.11**
Total VOC	0.00	1.59	0.367	137.046	166.116	0.337	1.136	0.082	3.426	0.000	0.000	0.000	**310.11**
Benzene	0.000	0.00554	0.007	0.067	0.081	0.151	0.001	0.000	0.374	0.000	0.000	0.000	**0.69**

Annual (tpy)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	**Pilot + Sweep Gas**	**Dehy-2 SSM Flash Gas - Stream 30**	**AM-2 SSM Flash Gas Stream 95**	**Compressor Blowdowns**	**Plant 3 Malfunction**	**AM-2 To Thermal Oxidizer Stream Stream 94**	**Plant 3 Pigging**	**TO-2 Downtime Assist Gas**	**DEHY-2 to TO-2 Stream**				**-**
NOx	0.201	0.649	0.449	5.126	1.657	0.060	0.173	0.975	0.241	0.000	0.000	0.000	**9.53**
CO	0.169	1.295	0.896	10.234	3.308	0.120	0.346	1.946	0.481	0.000	0.000	0.000	**18.80**
H2S	0.001	0.000	0.000	0.000	0.000	0.036	0.000	0.002	0.000	0.000	0.000	0.000	**0.04**
SO2	0.001	0.018	0.006	0.030	0.010	3.396	0.001	0.004	0.043	0.000	0.000	0.000	**3.51**
Crude or Condensate VOC	-	-	0.000	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	**0.00**
Natural Gas VOC	0.011	1.395	0.322	4.934	1.595	0.148	0.207	0.036	1.507	0.000	0.000	0.000	**10.16**
Total VOC	0.011	1.395	0.322	4.934	1.595	0.148	0.207	0.036	1.507	0.000	0.000	0.000	**10.16**
Benzene	0.000	0.005	0.006	0.002	0.001	0.066	0.000	0.000	0.164	0.000	0.000	0.000	**0.24**

Flare/Vapor Combustor Total Emissions

	Normal Operations Emissions		**SSM Emissions**		**Malfunction Emissions**	
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude or Condensate VOC	-	-	0.00	0.00	0.00	0.00
Natural Gas VOC	0.00	0.01	143.99	8.55	166.12	1.59
Total VOC	0.00	0.01	143.99	8.55	166.12	1.59
NO_x	0.05	0.20	147.49	7.67	172.60	1.66
CO	0.04	0.17	294.45	15.32	344.57	3.31
H_2S	0.00	0.0006	0.10	0.0393	0.01	0.0001
SO_2	0.00	0.00	8.51	3.51	0.98	0.01
Benzene	0.00	0.00	0.60	0.24	0.08	0.00

Black River Gas Plant - Train 4

Plant 4- Facility Flare (High Pressure SSM)

Emission Unit: FL-4 (HP)
Source Description: Train 4 SSM and M Flare
Operating Hours: 8,760 hr/yr
DRE: 98%

Amine and Dehy Flash Gas, Compressor Blowdowns Pigging and Malfunction Emissions, Heat Input, and Flow Rate Calculation

Parameters	Value	Unit	Notes
Amine Flash Gas VOC Emissions	69.46	lb/hr	SSM Flash Gas from Amine
Amine Flash Gas HAP Emissions	0.80	lb/hr	SSM Flash Gas from Amine
Amine Flash Gas H_2S Emissions	0.0107	lb/hr	SSM Flash Gas from Amine
Dehy Flash Gas VOC Emissions	133.44	lb/hr	SSM Flash Gas from Dehy
Dehy Flash Gas HAP Emissions	0.98	lb/hr	SSM Flash Gas from Dehy
Dehy Flash Gas H_2S Emissions	1.74E-04	lb/hr	SSM Flash Gas from Dehy
Plant 4 Compressor Blowdown VOC Emissions	220.85	lb/hr	Compressor Blowdowns associated with Train 4
Plant 4 Compressor Blowdown HAP Emissions	0.832	lb/hr	Compressor Blowdowns associated with Train 4
Plant 4 Compressor Blowdown H_2S Emissions	0.01	lb/hr	Compressor Blowdowns associated with Train 4
Plant 4 Pigging VOC Emissions	74.44	lb/hr	Pigging associated with Train 4
Plant 4 Pigging HAP Emissions	0.28	lb/hr	Pigging associated with Train 4
Plant 4 Pigging H_2S Emissions	2.36E-03	lb/hr	Pigging associated with Train 4
Plant 4 Malfunction VOC Emissions	10,860.39	lb/hr	Malfunction Emissions associated with Train 4
Plant 4 Malfunction HAP Emissions	37.57	lb/hr	Malfunction Emissions associated with Train 4
Plant 4 Malfunction H_2S Emissions	0.36	lb/hr	Malfunction Emissions associated with Train 4
Amine Flash Tank Heating Value	1,208.37	Btu/scf	SSM Flash Gas from Amine
Dehy Flash Tank Heating Value	1,599.36	Btu/scf	SSM Flash Gas from Dehy
Plant 4 Compressor Blowdown Heating Value	1,225.61	Btu/scf	Compressor Blowdowns associated with Train 4
Plant 4 Pigging Heating Value	1,225.61	Btu/scf	Pigging associated with Train 4
Plant 4 Malfunction Heating Value	1,225.61	Btu/scf	Malfunction Emissions associated with Train 4
Amine Flash Tank Flow Rate	5,800.35	scf/hr	SSM Flash Gas from Amine
Dehy Flash Tank Flow Rate	3,849.94	scf/hr	SSM Flash Gas from Dehy
Plant 4 Compressor Blowdown Flow Rate	15,625.00	scf/hr	Compressor Blowdowns associated with Train 4
Plant 4 Pigging Flow Rate	5,500.00	scf/hr	Pigging associated with Train 4
Plant 4 Malfunction Flow Rate	1,000,000.00	scf/hr	Malfunction Emissions associated with Train 4
Amine Flash Tank Heat Rate	7.01	MMBtu/hr	SSM Flash Gas from Amine
Dehy Flash Tank Heat Rate	6.16	MMBtu/hr	SSM Flash Gas from Dehy
Plant 4 Compressor Blowdown Heat Rate	19.15	MMBtu/hr	Compressor Blowdowns associated with Train 4
Plant 4 Pigging Heat Rate	6.74	MMBtu/hr	Pigging associated with Train 4
Plant 4 Malfunction Heat Rate	1,225.61	MMBtu/hr	Malfunction Emissions associated with Train 4
Amine Flash Tank Annual Hours	2,190.00	hrs/yr	SSM Flash Gas from Amine, 20% annually
Dehy Flash Tank Annual Hours	2,190.00	hrs/yr	SSM Flash Gas from Dehy, 20% annually
Plant 4 Compressor Blowdown Annual Hours	72.00	hrs/yr	Compressor Blowdowns associated with Train 4
Plant 4 Pigging Annual Hours	365.00	hrs/yr	Pigging associated with Train 4
Plant 4 Malfunction Annual Hours	19.20	hrs/yr	Malfunction Emissions associated with Train 4

TO-3 Downtime Emissions, Heat Input, and Flow Rate Calculation

Parameters	Value	Unit	Notes
Dehy Regenerator VOC Emissions	66.02	lb/hr	Regenerator Emissions during TO downtime
Dehy Regenerator HAP Emissions	7.73	lb/hr	Regenerator Emissions during TO downtime
Dehy Regenerator H_2S Emissions	2.49E-04	lb/hr	Regenerator Emissions during TO downtime
Amine Regenerator VOC Emissions	97.37	lb/hr	Regenerator Emissions during TO downtime
Amine Regenerator HAP Emissions	2.95	lb/hr	Regenerator Emissions during TO downtime
Amine Regenerator H_2S Emissions	4.04	lb/hr	Regenerator Emissions during TO downtime
Dehy Regenerator Heating Value	2421.63	Btu/scf	Regenerator Emissions during TO downtime
Amine Regenerator Heating Value	12.08	Btu/scf	Regenerator Emissions during TO downtime
Assist Gas Heating Value	1239.31	Btu/scf	Plant 4 Assist Gas
Dehy Regenerator Flow Rate	651.98	scf/hr	Regenerator Emissions during TO downtime
Amine Regenerator Flow Rate	262,889.32	scf/hr	Regenerator Emissions during TO downtime
Assist Gas Flow Rate	79,108.05	scf/hr	Assist Gas
Dehy Regenerator Heat Rate	1.58	MMBtu/hr	Regenerator Emissions during TO downtime
Amine Regenerator Heat Rate	3.18	MMBtu/hr	Regenerator Emissions during TO downtime
Assist Gas Heat Rate	98.04	MMBtu/hr	Assist Gas
Total TO-3 Downtime SSM Heat Rate	102.79	MMBtu/hr	Total Heat Rate
TO-3 Downtime Annual Hours	880.00	hrs/yr	Regenerator Emissions during TO downtime, 2% annually
Total Stream Heating Value	300.00	Btu/scf	

Pilot	Value	Unit	Notes
	195.00	scf/hr	Based on Initial Facility Information
Hourly Volume Flow Rate	0	%	Safety Factor
	195	scf/hr	Pilot flow with safety factor
	1.95E-04	MMscf/hr	
Treated Gas Heat Value	1,239.31	Btu/scf	Treated Natural Gas
Hourly Heat Rate	0.24	MMBtu/hr	
Annual Flow Rate	1.71	MMscf/yr	

Emission Rates

	NOx[1]	CO[1]	VOC[2]	SO_2[3]	H_2S[2]	HAPs[2]	Units	Notes
Emission Factors	0.138	0.28					lb/MMBtu	TNRCC RG-109 (low Btu; other)
			5.50				lb/MMscf	AP-42 ch 1.4
				0.23			lb S/hr	2 gr/100 scf in TO-3 downtime assist gas
				5.57E-04			lb S/hr	2 gr/100 scf in Pilot Gas
Pilot Emissions	0.033	0.067	-	1.11E-03	-	-	lb/hr	hourly rate
	0.15	0.29	-	4.88E-03	-	-	tpy	hrs/yr/2000 lb/ton
Amine Flash Gas SSM	0.97	1.93	1.39	0.021	2.14E-04	0.016	lb/hr	hourly rate
	1.06	2.11	1.52	0.023	2.35E-04	0.017	tpy	hrs/yr/2000 lb/ton
Dehy Flash Gas SSM	0.85	1.70	2.67	3.411E-04	3.48E-06	0.02	lb/hr	hourly rate
	0.93	1.86	2.92	3.735E-04	3.81E-06	0.02	tpy	hrs/yr/2000 lb/ton
Plant 4 Compressor Blowdowns	2.64	5.28	4.42	0.014	1.40E-04	0.017	lb/hr	hourly rate
	0.10	0.19	0.16	4.95E-04	5.05E-06	5.99E-04	tpy	hrs/yr/2000 lb/ton
Plant 4 Pigging	0.93	1.86	1.49	4.63E-03	4.73E-05	5.61E-03	lb/hr	hourly rate
	0.17	0.34	0.27	8.46E-04	8.63E-06	1.02E-03	tpy	hrs/yr/2000 lb/ton
Plant 4 Malfunction	169.13	337.66	217.21	0.70	7.174E-03	0.751	lb/hr	hourly rate
	1.62	3.24	2.09	6.749E-03	6.89E-05	7.213E-03	tpy	hrs/yr/2000 lb/ton
TO-3 Downtime Assist Gas	13.53	27.01	0.44	0.45	-	-	lb/hr	hourly rate
	5.95	11.88	0.19	0.20	-	-	tpy	hrs/yr/2000 lb/ton
TO-3 Downtime SSM	0.66	1.31	3.27	7.92	0.081	0.21	lb/hr	hourly rate
	0.289	0.58	1.44	3.48	0.036	0.094	tpy	hrs/yr/2000 lb/ton
Total SSM Emissions	**16.97**	**33.87**	**9.25**	**8.40**	**0.081**	**0.25**	lb/hr	SSM + Pilot Emissions
	8.55	**17.06**	**6.34**	**3.71**	**0.036**	**0.13**	tpy	
Total M Emissions	**171.78**	**342.93**	**221.62**	**0.72**	**7.314E-03**	**0.77**	lb/hr	Malfunction Only
	1.72	**3.43**	**2.24**	**7.24E-03**	**7.39E-05**	**7.81E-03**	tpy	

[1] Flare NO_X and CO emission factors: TNRCC RG-109 (high Btu; other).

[2] Efficiency for combustion of VOC, H_2S and HAPs in the FL-4 is: 98% lb/hr emission rate based on DRE of flare: lb/hr * (1 - DRE)

[3] Fuel sulfur content is assumed to be 2 gr/100 Scf

"-" Indicates emissions of this pollutant are not expected

Black River Gas Plant - Train 4

Train 4- Facility Flare (Low Pressure Utility)

Emission Unit:	FL-4 (LP)	
Source Description:	Utility Flare	
Operating Hours:	8,760	hr/yr
DRE:	98%	

TO-02 Downtime Emissions, Heat Input, and Flow Rate Calculation

Parameters	Value	Unit	Notes
Tank VOC Emissions	59.33	lb/hr	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) VOC emissions
Tank HAP Emissions	3.78	lb/hr	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) HAP emissions
Tank H_2S Emissions	2.14E-03	lb/hr	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) H_2S emissions
Tank VOC Emissions	259.89	tpy	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) VOC emissions
Tank HAP Emissions	16.56	tpy	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) HAP emissions
Tank H_2S Emissions	0.009	tpy	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) H_2S emissions
Tank Heating Value	2,063.96	Btu/scf	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) Total Heating Value
Tank Flow Rate	832.21	scf/hr	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) Flow rate
Tank Heat Rate	1.72	MMBtu/hr	Condensate Tank (TK-702 G) and Produced Water (TK-701 B & C) heat rate
Tank Annual Hours	8,760.00	hrs/yr	Facility hours

Pilot	Value	Unit	Notes
Hourly Volume Flow Rate	65.00	scf/hr	Based on Initial Facility Information
	0	%	Safety Factor
	65	scf/hr	Pilot flow with safety factor
	6.50E-05	MMscf/hr	
Treated Gas Heat Value	1,239.31	Btu/scf	Treated Natural Gas
Hourly Heat Rate	0.08	MMBtu/hr	
Annual Flow Rate	0.57	MMscf/yr	

Emission Rates

	NO_x[1]	CO[1]	VOC[2]	SO_2[3]	H_2S[2]	HAPs[2]	Units	Notes
Emission Factors	0.138	0.28					lb/MMBtu	TNRCC RG-109 (high Btu; other)
				1.86E-04			lb S/hr	2 gr/100 scf
Pilot Emissions	0.011	0.02	-	3.71E-04	-	-	lb/hr	hourly rate
	0.05	0.10	-	1.627E-03	-	-	tpy	hrs/yr/2000 lb/ton
Process Emissions	0.24	0.47	1.19	4.202E-03	4.29E-05	0.076	lb/hr	hourly rate
	1.04	2.07	5.20	0.018	1.88E-04	0.33	tpy	hrs/yr/2000 lb/ton
Total Emissions	**0.25**	**0.50**	**1.19**	**4.57E-03**	**4.29E-05**	**0.076**	lb/hr	Malfunction Only
	1.09	**2.17**	**5.20**	**0.020**	**1.88E-04**	**0.33**	tpy	

[1] Flare NO_x and CO emission factors: TNRCC RG-109 (high Btu; other).

[2] Efficiency for combustion of VOC, H_2S and HAPs in the FL-4 is: 98% lb/hr emission rate based on DRE of flare: lb/hr * (1 - DRE)

[3] Fuel sulfur content is assumed to be 2 gr/100 Scf

"-" Indicates emissions of this pollutant are not expected

Parameters	Value	Unit	Note
Input heat rate	1.80	MMBtu/hr	Maximum
Exhaust temp	1832	°F	NMED Modeling Guidelines
Stack height	20	ft	Based on Initial Facility Information
Stack diameter	0.15	ft	Calculated
Exhaust flow (standard)	13.87	scfm	Flow (scfm) = Flow Rate (scf/hr) / 60 (min/hr)
Exhaust flow (Actual)	68.57	acfm	Flow (acfm) = Flow (scfm) * (Stack Temp + 460) / 520 * 29.92 / Site Bar. Pres.
Exhaust flow (Actual)	1.14	acfs	Flow (acfs) = Flow (acfm) / 60s/min
Exhaust velocity	65.67	ft/sec	NMED Modeling Guidelines
F factor:	10610	wscf/MMBtu	40 CFR 60 Appx A Method 19
Site Elevation	3,139	ft MSL	
Pressure at Elevation	26.68	in Hg	

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Flare/Vapor Combustor Emissions

General Information		
Flare functions as emergency control device. When streams are fed to flare it will be treated as an emission event.		
(1) Control Equipment:	Vapor Combustion Unit	
(2) EPN:	VCU-1	
(3) What kind of device is this? Pick from list.	Vapor Combustor	
	Emission Factors for Waste Gas Stream(s) (lb/MMbtu)	
	NOx 0.138	
	CO 0.2755	
(4) Is there one or more pilot streams fired with pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	Yes	
	Enter pilot stream information into the boxes in the column for Stream No. 1 below. If	
	Emission Factors for Pilot Stream (lb/MMscf)	
	NOx 100	
	CO 84	
(5) Is there one or more pilot streams fired with field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Pilot Stream (ppmv)	
	NOx 0	
	CO 0	
(6) Is there an added fuel stream made up of pipeline quality natural gas or propane? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (ppmv)	
	NOx	
	CO	
(7) Is there an added fuel stream made up of field gas? Pick Yes or No. Follow instructions below.	No	
	Please move on to next question below.	
	Emission Factors for Added Fuel Stream (lb/MMBtu)	
	NOx 0	
	CO 0	
(8) VOC percent destruction efficiency (%)	98	
(9) propane percent destruction efficiency (%) *OPTIONAL*	98	
(10) H_2S percent destruction efficiency (%)	98	
(11) Which is utilized for this device?	automatic ignition system	

Emission Factors

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

NOx	100	
CO	84	
PM10, PM2.5	7.6	5.7

Emission Factors from TCEQ Guidance (lb/MMBtu)

Non-steam assisted, high Btu		Steam assisted, high Btu	
NOx	0.138	NOx	0.0485
CO	0.2755	CO	0.3503
Non-steam assisted, low Btu		Steam assisted, low Btu	
NOx	0.0641	NOx	0.068
CO	0.5496	CO	0.3465

Emission Factors from AP-42 Table 1.4-2 and 1.4-3 (lb/MMscf)

SO_2	0.6
VOC	5.5
benzene	2.10E-03

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name (Enter Names of Each Stream Here)	Pilot	Condensate Tanks	Produced Water Tanks										-
Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr)	12	93.66	1009.22										1114.877602
Amount of Time Stream Fired (hrs/yr)	8760	8760	8760										-
Maximum Expected Annual Volumtric Flow Rate of Stream (scf/yr)	105,120	820,446	8,840,762										9,766,328
Heat Value of Stream - from program results or gas analysis (Btu/scf)	1081.80	4017.81	3312.16										-
propane weight percent of total stream (%) *OPTIONAL*	0.73	0.13	16.23										-
VOC weight percent of total stream (%) *OPTIONAL*	0.77	100.00	94.83										-

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Pilot	Condensate Tanks	Produced Water Tanks										-
H2S	-	0.0000	0.0003										0.00
Crude or Condensate VOC	-	3.58	156.54										160.12
Natural Gas VOC	-												0.00
Total VOC	-	3.58	156.54										160.12
Total HAPs	-	0.43	11.24										
Benzene	-	0.03	2.73										2.76

Annual (tpy)

H2S	-	0.00000	0.00123										0.00
Crude or Condensate VOC	-	15.67	685.64819										701.32
Natural Gas VOC	-	0.00	0.00										0.00
Total VOC	-	15.67	685.65										701.32
Total HAPs	-	1.90	49.24										
Benzene	-	0.1307	11.9726										12.10

Controlled Emissions

Hourly (lb/hr)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Pilot	Condensate Tanks	Produced Water Tanks										-
NOx	0.001	0.052	0.461	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.51**
CO	0.001	0.104	0.921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.03**
PM2.5	0.000	0.001	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00635**
PM10	0.000	0.001	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00847**
H2S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
SO2	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Crude or Condensate VOC	0.000	0.072	3.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**3.20**
Natural Gas VOC	-	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Total VOC	0.00	0.07	3.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**3.20**
Total HAPs	0.000	0.009	0.225	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.23**
Benzene	0.000	0.00060	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.06**

Annual (tpy)

Stream Sent to Flare/Vapor Combustor No.	1	2	3	4	5	6	7	8	9	10	11	12	Total
Stream Sent to Flare/Vapor Combustor Name	Pilot	Condensate Tanks	Produced Water Tanks										-
NOx	0.005	0.227	2.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.25**
CO	0.004	0.454	4.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**4.49**
PM2.5	0.000	0.002	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.03**
PM10	0.000	0.003	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.04**
H2S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
SO2	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Crude or Condensate VOC	-	-	13.713	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**13.71**
Natural Gas VOC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
Total VOC	0.000	0.313	13.713	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**14.03**
Total HAPs	0.000	0.038	0.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**1.02**
Benzene	0.000	0.003	0.239	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.24**

Flare/Vapor Combustor Total Emissions

	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude or Condensate VOC	3.20	13.71
Natural Gas VOC	0.00	0.00
Total VOC	3.20	14.03
NO_x	0.51	2.25
CO	1.03	4.49
$PM_{2.5}$	0.01	0.03
PM_{10}	0.01	0.04
H_2S	0.00001	0.00004
SO_2	0.0005	0.0023
Total HAPs	0.234	1.02
Benzene	0.06	0.24

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Flare/Vapor Combustor SSM Emissions

A) Enter information into the yellow boxes.

B) Please provide a separate detailed calculation for these emissions; also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

C) Since these emissions fall into the category of "Other", which does not have a pre-made emission estimation sheet with pre-approved methods, the time to review this project cannot be guaranteed to be as quick as if only pre-made sheets had been used.

D) VOC and H2S control efficiencies may be entered (if applicable).

E) Make sure to answer the control device question.

F) Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

EPN:	VCU-1 SSM
Name:	Vapor Combustion Unit SSM

Are these vapors (A) uncontrolled, (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(A) uncontrolled

Uncontrolled Emissions			
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Control Efficiency
Total VOC	160.119	56.106	0
NOx	0.000	0.000	0
CO	0.000	0.000	0
PM2.5	0.000	0.000	0
PM10	0.000	0.000	0
H2S	0.000	0.000	0
SO2	0.000	0.000	0
benzene	2.763	0.968	0
formaldehyde	0.000	0.000	0

Total Emissions (control efficiencies factored in if applicable)		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Total VOC	160.12	56.11
NOx	0.00	0.00
CO	0.00	0.00
PM2.5	0.00	0.00
PM10	0.00	0.00
H2S	0.00	0.00
SO2	0.00	0.00
benzene	2.76	0.97
formaldehyde	0.00	0.00

Enter any notes here:
SSM assumed 0.78% of total hours of operation in a year.

DLK Black River Midstream LLC
Black River Gas Processing Plant

Fugitive Emissions

Equip Cat	Type	Monitor Frequency	Component Count	Emission Factor[1] (kg/hr/source)	Control (%)	Inlet Gas % VOC	Inlet Gas % HAP	Inlet Gas % H_2S	Inlet Gas % CH4	Inlet Gas % CO2	Uncontrolled Rate (lb/hr)	Controlled Rate (lb/hr)
Connector	Vapor	Yearly (SS)	6611	2.00E-04	0%	20.84%	0.02%	0.10%	60.01%	1.26%	2.9149	2.9149
Press Relief Device	Vapor	Yearly (SS)	51	8.80E-03	0%						0.9894	0.9894
Valve	Vapor	Monthly (SS)	3408	4.50E-03	0%						33.8097	33.8097
Pumps	Vapor	Monthly (SS)	24	2.40E-03	0%						0.1270	0.1270
Hourly Total											37.84	37.84
Annual											165.7	165.7

		VOC		**Total HAP**		**H_2S**		**CH_4**		**CO_2**	
Equip Cat	Type	Uncontrolled Rate (lb/hr)	Controlled Rate (lb/hr)	Uncontrolled Rate (lb/hr)	Controlled Rate (lb/hr)	Uncontrolled Rate (lb/hr)	Controlled Rate (lb/hr)	Uncontrolled Rate (lb/hr)	Controlled Rate (lb/hr)	Uncontrolled Rate (lb/hr)	Controlled Rate (lb/hr)
Connector	Vapor	0.61	0.61	6.01E-04	6.01E-04	2.84E-03	2.84E-03	1.75E+00	1.75E+00	3.66E-02	3.66E-02
Press Relief Device	Vapor	0.206	0.206	2.04E-04	2.04E-04	9.65E-04	9.65E-04	5.94E-01	5.94E-01	1.24E-02	1.24E-02
Valve	Vapor	7.05	7.05	6.98E-03	6.98E-03	3.30E-02	3.30E-02	2.03E+01	2.03E+01	4.24E-01	4.24E-01
Pumps	Vapor	0.03	0.03	2.62E-05	2.62E-05	1.24E-04	1.24E-04	7.62E-02	7.62E-02	1.59E-03	1.59E-03
Hourly Total		**7.89**	**7.89**	**0.01**	**0.01**	**0.04**	**0.04**	**22.71**	**22.71**	**0.47**	**0.47**
Annual Total (tpy)		**34.5**	**34.5**	**0.03**	**0.034**	**0.16**	**0.16**	**99.47**	**99.47**	**2.08**	**2.08**

Notes
[1] Emission factors from Table 2-4 of the EPA Protocol for Equipment Leak Emission Estimates, November 1995

Black River Gas Plant - Train 4

Plant 4 Fugitives

Unit: FUG-04
Annual Operating Hours: 8,760
Safety Factor: 0%

Facility-wide Fugitive Emissions Per Piece of Equipment

Subcomponent		Emission Factor[1] (lb/hr/comp)	VOC Content[2] (wt%)	H_2S Content[2] (wt%)	HAP Content[2] (wt%)	Benzene Content[2] (wt%)	n-Hexane Content[2] (wt%)	Toluene Content[2] (wt%)	Ethylbenzene Content[2] (wt%)	Subcomponent Counts[3]
Valves	Gas	9.92E-03	20.18%	0.0006%	0.08%	0.01%	0.06%	0.013%	0.0000%	395
	Light Oil	5.51E-03	100.00%	0.0000%	13.98%	2.10%	0.00%	1.63%	0.08%	162
	Water/Oil	2.16E-04	99.6250%	0.0000%	0.1549%	0.0209%	0%	0.1194%	0.000000%	162
Flanges	Gas	8.60E-04	20.18%	0.0006%	0.08%	0.01%	0.06%	0.013%	0.0000%	395
	Light Oil	2.43E-04	100.00%	0.0000%	13.98%	2.10%	0.00%	1.63%	0.08%	162
	Water/Oil	6.39E-06	99.6250%	0.0000%	0.1549%	0.0209%	0%	0.1194%	0.000000%	162
Connectors	Gas	4.41E-04	20.18%	0.0006%	0.08%	0.01%	0.06%	0.013%	0.0000%	2435
	Light Oil	4.63E-04	100.00%	0.0000%	13.98%	2.10%	0.00%	1.63%	0.08%	395
	Water/Oil	2.43E-04	99.6250%	0.0000%	0.1549%	0.0209%	0%	0.1194%	0.000000%	395
Other	Gas	1.94E-02	20.18%	0.0006%	0.08%	0.01%	0.06%	0.013%	0.0000%	53
	Light Oil	1.65E-02	100.00%	0.0000%	13.98%	2.10%	0.00%	1.63%	0.08%	8
	Water/Oil	3.09E-02	99.6250%	0.0000%	0.1549%	0.0209%	0%	0.1194%	0.000000%	8
Pump Seals	Gas	5.29E-03	20.18%	0.0006%	0.08%	0.01%	0.06%	0.013%	0.0000%	0
	Light Oil	2.87E-02	100.00%	0.0000%	13.98%	2.10%	0.00%	1.63%	0.08%	2
	Water/Oil	5.29E-05	99.6250%	0.0000%	0.1549%	0.0209%	0%	0.1194%	0.000000%	2
Open Ended Lines	Gas	4.41E-03	20.18%	0.0006%	0.08%	0.01%	0.06%	0.013%	0.0000%	88
	Light Oil	3.09E-03	100.00%	0.0000%	13.98%	2.10%	0.00%	1.63%	0.08%	15
	Water/Oil	5.51E-04	99.6250%	0.0000%	0.1549%	0.0209%	0%	0.1194%	0.000000%	15
	Hourly Emission Rate (lb/hr)[4]	**3.10**	**4.33E-05**	**0.19**	**0.029**	**3.83E-03**	**2.34E-02**	**1.15E-03**		
	Annual Emission Rate (tpy)[5]	**13.57**	**1.90E-04**	**0.85**	**0.13**	**0.017**	**0.10**	**5.02E-03**		

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

DLK Black River Midstream LLC
Black River Gas Processing Plant

Planned MSS Emissions

A) Enter information into the yellow boxes.
B) VOC and H_2S control efficiencies may be entered (if applicable).
C) The vapor VOC, benzene, and H_2S weight percents may be entered. The weight percents from the Analyses tab are displayed

D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

E) Make sure to answer the control device question.

F) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

EPN	SSM-1
Identifier	Pig Launcher Blowdowns

Describe this MSS event in detail, include specifically what is being done	Pig Launcher = 82.39 acf each 1 pig launch/day for 12 months

Venting Emission Calculation

Warning: This calculation should provide a conservatively high (potentially overestimated) result for emissions from venting when only gas is present in a unit. If liquids are present in the unit, this calculation could potentially significantly underestimate emissions because this calculation does not factor in emissions resulting from the evaporation of liquids present in the unit. If liquids are present or if you wish to use another calculation methodology, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

If emissions from this source are uncontrolled:

The formula is set up to do one calculation, which assumes that the entire volume of gas inside the unit is vented from the unit. The calculation of the mass of vented gas is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

If emissions from this source are controlled:

The formula is set up to do two calculations. To preface the explanation of the two calculations, it is understood that for a release from a pressurized vessel, initial venting due to depressurization could occur rapidly until the vapor inside the vessel is equal to the atmospheric pressure, then further venting of the vapor still left in the vessel at atmospheric conditions could occur at a slower rate. This calculation assumes that any releases at atmospheric pressure cannot be controlled.

In order to move the vapor present in the vessel at atmospheric conditions to a control device, a flare for example, some sort of extra operation is needed such as using air or nitrogen to move the vapor out, and if all of that vapor is routed to the control device, it may be diluted to the point where it would not have a sufficient heating value to combust, and if a supplemental fuel stream is added, there would be additional emissions associated with this.

If you do have a way to move the vapor present in the vessel at atmospheric conditions to a control device, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs). Also, please describe this MSS event in detail, include specifically what is being done, how it is being done, and how all of the vapor is controlled.

The first calculation of the mass of vented gas, which assumes that the entire volume of gas inside the unit is vented from the unit, is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

The second calculation is done the same as the first one except using the atmospheric pressure (instead of the pressure inside the unit before the venting occurs) and represents all of the mass vented from the vessel that is present at atmospheric conditions (after the vessel depressurization).

The final result is the first calculation plus the second calculation, with the control efficiency only applied to the first calculation (which uses the pressure inside the unit before venting and represents the entire volume of gas inside the unit being vented).

Ideal Gas Constant, [(ft3*psia)/(R*lb-mol)]
10.73159

Actual Volume of the Vented Unit	93.27
Pressure of Gas Inside the Unit	900.00
Final Pressure (psia)	14.7
Pressure of Gas Inside the Unit	914.696
Temperature of Gas Inside the Unit Before Venting (°F)	100
Temperature of Gas Inside the Unit Before Venting (°R)	559.27
Duration of Each Event	1
Frequency of Events (events/year)	365
mol)	20.97
VOC wt %	20.84
benzene wt%	0.01
H_2S wt%	0.00

Gas Molecular Weight and Weight Percents From Analyses Tab:

Molecular Weight	20.97
VOC wt %	20.84
Benzene wt %	0.01
H2S wt %	0.00

Safety Factor	25%

Vapors Captured by Control Device

You need to input these values into the appropriate control device emission calculation tab.

	Hourly Emissions (lb/hr)	**Annual Emissions (tpy)**
VOC Results:	62.119	11.337
Benzene Results:	0.022	0.004
H_2S Results:	0.003	0.0005

Planned MSS Emissions with Safety Factor

	Hourly Emissions (lb/hr)	**Annual Emissions (tpy)**
VOC Results:	77.65	14.17
Benzene Results:	0.03	0.01
H_2S Results:	0.004	0.0007

VOC Type: (pick from
Natural Gas VOC

Emission Type: (pick
Low Pressure Periodic

DLK Black River Midstream LLC
Black River Gas Processing Plant

Planned MSS Emissions

A) Enter information into the yellow boxes.
B) VOC and H_2S control efficiencies may be entered (if applicable).
C) The vapor VOC, benzene, and H_2S weight percents may be entered. The weight percents from the Analyses tab are displayed

D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

E) Make sure to answer the control device question.

F) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

EPN	SSM-2
Identifier	Pig Launcher Blowdowns

Describe this MSS event in detail, include specifically what is being done	Pig Launcher = 42.25 acf 1 pig launch/day for 12 months

Venting Emission Calculation

Warning: This calculation should provide a conservatively high (potentially overestimated) result for emissions from venting when only gas is present in a unit. If liquids are present in the unit, this calculation could potentially significantly underestimate emissions because this calculation does not factor in emissions resulting from the evaporation of liquids present in the unit. If liquids are present or if you wish to use another calculation methodology, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

If emissions from this source are uncontrolled:

The formula is set up to do one calculation, which assumes that the entire volume of gas inside the unit is vented from the unit. The calculation of the mass of vented gas is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

If emissions from this source are controlled:

The formula is set up to do two calculations. To preface the explanation of the two calculations, it is understood that for a release from a pressurized vessel, initial venting due to depressurization could occur rapidly until the vapor inside the vessel is equal to the atmospheric pressure, then further venting of the vapor still left in the vessel at atmospheric conditions could occur at a slower rate. This calculation assumes that any releases at atmospheric pressure cannot be controlled.

In order to move the vapor present in the vessel at atmospheric conditions to a control device, a flare for example, some sort of extra operation is needed such as using air or nitrogen to move the vapor out, and if all of that vapor is routed to the control device, it may be diluted to the point where it would not have a sufficient heating value to combust, and if a supplemental fuel stream is added, there would be additional emissions associated with this.

If you do have a way to move the vapor present in the vessel at atmospheric conditions to a control device, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs). Also, please describe this MSS event in detail, include specifically what is being done, how it is being done, and how all of the vapor is controlled.

The first calculation of the mass of vented gas, which assumes that the entire volume of gas inside the unit is vented from the unit, is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

The second calculation is done the same as the first one except using the atmospheric pressure (instead of the pressure inside the unit before the venting occurs) and represents all of the mass vented from the vessel that is present at atmospheric conditions (after the vessel depressurization).

The final result is the first calculation plus the second calculation, with the control efficiency only applied to the first calculation (which uses the pressure inside the unit before venting and represents the entire volume of gas inside the unit being vented).

Ideal Gas Constant, [(ft3*psia)/(R*lb-mol)]
10.73159

Actual Volume of the Vented Unit	93.27
Pressure of Gas Inside the Unit	900.00
Final Pressure (psia)	14.7
Pressure of Gas Inside the Unit	914.696
Temperature of Gas Inside the Unit	100
Temperature of Gas Inside the Unit	559.27
Duration of Each Event	1
Frequency of Events (events/year)	365
mol)	20.97
VOC wt %	20.84
benzene wt%	0.01
H_2S wt%	0.00

Gas Molecular Weight and Weight Percents From Analyses Tab:

Molecular Weight	20.97
VOC wt %	20.84
Benzene wt %	0.01
H2S wt %	0.00

Safety Factor	25%

Vapors Captured by Control Device
You need to input these values into the appropriate control device emission calculation tab.

	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC Results:	62.119	11.337
Benzene Results:	0.022	0.004
H_2S Results:	0.003	0.0005

Planned MSS Emissions with Safety Factor

	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC Results:	77.65	14.17
Benzene Results:	0.03	0.01
H_2S Results:	0.0036	0.0007

VOC Type: (pick from
Natural Gas VOC

Emission Type: (pick
Periodic

DLK Black River Midstream LLC
Black River Gas Processing Plant

Planned MSS Emissions

A) Enter information into the yellow boxes.
B) VOC and H_2S control efficiencies may be entered (if applicable).
C) The vapor VOC, benzene, and H_2S weight percents may be entered. The weight percents from the Analyses tab are displayed

D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

E) Make sure to answer the control device question.

F) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

EPN	SSM-3
Identifier	Pig Launcher Blowdowns

Describe this MSS event in detail, include specifically what is being done	Pig Launcher = 65.06 acf 1 pig launch/day for 12 months

Venting Emission Calculation

Warning: This calculation should provide a conservatively high (potentially overestimated) result for emissions from venting when only gas is present in a unit. If liquids are present in the unit, this calculation could potentially significantly underestimate emissions because this calculation does not factor in emissions resulting from the evaporation of liquids present in the unit. If liquids are present or if you wish to use another calculation methodology, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

If emissions from this source are uncontrolled:

The formula is set up to do one calculation, which assumes that the entire volume of gas inside the unit is vented from the unit. The calculation of the mass of vented gas is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

If emissions from this source are controlled:

The formula is set up to do two calculations. To preface the explanation of the two calculations, it is understood that for a release from a pressurized vessel, initial venting due to depressurization could occur rapidly until the vapor inside the vessel is equal to the atmospheric pressure, then further venting of the vapor still left in the vessel at atmospheric conditions could occur at a slower rate. This calculation assumes that any releases at atmospheric pressure cannot be controlled.

In order to move the vapor present in the vessel at atmospheric conditions to a control device, a flare for example, some sort of extra operation is needed such as using air or nitrogen to move the vapor out, and if all of that vapor is routed to the control device, it may be diluted to the point where it would not have a sufficient heating value to combust, and if a supplemental fuel stream is added, there would be additional emissions associated with this.

If you do have a way to move the vapor present in the vessel at atmospheric conditions to a control device, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs). Also, please describe this MSS event in detail, include specifically what is being done, how it is being done, and how all of the vapor is controlled.

The first calculation of the mass of vented gas, which assumes that the entire volume of gas inside the unit is vented from the unit, is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

The second calculation is done the same as the first one except using the atmospheric pressure (instead of the pressure inside the unit before the venting occurs) and represents all of the mass vented from the vessel that is present at atmospheric conditions (after the vessel depressurization).

The final result is the first calculation plus the second calculation, with the control efficiency only applied to the first calculation (which uses the pressure inside the unit before venting and represents the entire volume of gas inside the unit being vented).

Ideal Gas Constant, [(ft3*psia)/(R*lb-mol)]
10.73159

Actual Volume of the Vented Unit	84.08
Pressure of Gas Inside the Unit	1000.00
Final Pressure (psia)	14.7
Pressure of Gas Inside the Unit	1014.7
Temperature of Gas Inside the Unit	100
Temperature of Gas Inside the Unit	559.27
Duration of Each Event	1
Frequency of Events (events/year)	365
mol)	20.97
VOC wt %	20.84
benzene wt%	0.01
H_2S wt%	0.00

Gas Molecular Weight and Weight Percents From Analyses Tab:

Molecular Weight	20.97
VOC wt %	20.84
Benzene wt %	0.01
H2S wt %	0.00

Safety Factor	25%

Vapors Captured by Control Device
You need to input these values into the appropriate control device emission calculation tab.

	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC Results:	62.119	11.337
Benzene Results:	0.022	0.004
H_2S Results:	0.003	0.0005

Planned MSS Emissions with Saftety Factor

	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC Results:	77.65	14.17
Benzene Results:	0.03	0.01
H_2S Results:	0.0036	0.0007

VOC Type: (pick from
Natural Gas VOC

Emission Type: (pick
Periodic

Black River Gas Plant - Train 4

Planned MSS Emissions

A) Enter information into the yellow boxes.
B) VOC and H_2S control efficiencies may be entered (if applicable).
C) The vapor VOC, benzene, and H_2S weight percents may be entered. The weight percents from the Analyses tab are displayed below.

D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

E) Make sure to answer the control device question.

F) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

EPN	SSM 4
Identifier	Plant 4 Pig Launcher Blowdowns

Describe this MSS event in detail, include specifically what is being done	Pig Launcher = 82.39 acf each 1 pig launch/day for 12 months

Venting Emission Calculation

Warning: This calculation should provide a conservatively high (potentially overestimated) result for emissions from venting when only gas is present in a unit. If liquids are present in the unit, this calculation could potentially significantly underestimate emissions because this calculation does not factor in emissions resulting from the evaporation of liquids present in the unit. If liquids are present or if you wish to use another calculation methodology, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

If emissions from this source are uncontrolled:

The formula is set up to do one calculation, which assumes that the entire volume of gas inside the unit is vented from the unit. The calculation of the mass of vented gas is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

If emissions from this source are controlled:

The formula is set up to do two calculations. To preface the explanation of the two calculations, it is understood that for a release from a pressurized vessel, initial venting due to depressurization could occur rapidly until the vapor inside the vessel is equal to the atmospheric pressure, then further venting of the vapor still left in the vessel at atmospheric conditions could occur at a slower rate. This calculation assumes that any releases at atmospheric pressure cannot be controlled.

In order to move the vapor present in the vessel at atmospheric conditions to a control device, a flare for example, some sort of extra operation is needed such as using air or nitrogen to move the vapor out, and if all of that vapor is routed to the control device, it may be diluted to the point where it would not have a sufficient heating value to combust, and if a supplemental fuel stream is added, there would be additional emissions associated with this.

If you do have a way to move the vapor present in the vessel at atmospheric conditions to a control device, do not use this calculation tab. Instead, use the calculation tab for "Other" and make sure to provide a separate detailed calculation for these emissions and also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs). Also, please describe this MSS event in detail, include specifically what is being done, how it is being done, and how all of the vapor is controlled.

The first calculation of the mass of vented gas, which assumes that the entire volume of gas inside the unit is vented from the unit, is done based on the volume of the unit vented, which is assumed to be saturated with vapor, and the temperature and pressure inside the unit before the venting occurs.

The second calculation is done the same as the first one except using the atmospheric pressure (instead of the pressure inside the unit before the venting occurs) and represents all of the mass vented from the vessel that is present at atmospheric conditions (after the vessel depressurization).

The final result is the first calculation plus the second calculation, with the control efficiency only applied to the first calculation (which uses the pressure inside the unit before venting and represents the entire volume of gas inside the unit being vented).

Ideal Gas Constant, [(ft3*psia)/(R*lb-mol)]
10.73159

Actual Volume of the Vented Unit	82.39
Pressure of Gas Inside the Unit	976.5
Final Pressure (psia)	14.7
Pressure of Gas Inside the Unit	991.2
Temperature of Gas Inside the Unit Before Venting (°F)	89
Temperature of Gas Inside the Unit Before Venting (°R)	548.37
Duration of Each Event	1
Frequency of Events (events/year)	365
mol)	21.27
VOC wt %	20.18
HAP wt%	0.08
H_2S wt%	0.00

Gas Molecular Weight and Weight Percents From Analyses Tab:

Molecular Weight	21.27
VOC wt %	20.18
HAP wt %	0.08
H2S wt %	0.00

Safety Factor	25%

Vapors Captured by Control Device

You need to input these values into the appropriate control device emission calculation tab.

	Hourly Emissions (lb/hr)	**Annual Emissions (tpy)**
VOC Results:	59.55	10.87
HAP Results:	0.224	0.041
H_2S Results:	0.002	0.0003

Planned MSS Emissions with Safety Factor

	Hourly Emissions (lb/hr)	**Annual Emissions (tpy)**
VOC Results:	74.44	13.58
HAP Results:	0.28	0.05
H_2S Results:	0.002	0.0004

VOC Type: (pick from
Natural Gas VOC

Emission Type: (pick
Low Pressure Periodic

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMA__

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

Global Warming Potentials (GWP):

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

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

Metric to Short Ton Conversion:

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

Section 7

Information Used to Determine Emissions

Information Used to Determine Emissions shall include the following:

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

Engine (Unit ENG-1 through ENG-3)

- Manufacturers data and catalyst specification sheet
- AP-42 Tables 1.4-1 and 1.4-2 from AP-42
- 40 CFR Part 98 methodology
- 40 CFR 98 Tables C-1 and C-2 Emission Factors

Heaters (Units HT-101, HT-801, HT-102, HT-103, HT-802, HT-803, HT-804, HT-201, HT-104, HT-301)

- AP-42 Tables 1.4-1 and 1.4-2 from AP-42
- 40 CFR Part 98 methodology
- 40 CFR 98 Tables C-1 and C-2 Emission Factors

Reboilers (Units AR-1, AR-2, DR-1, DR-2, DR-3)

- AP-42 Tables 1.4-1 and 1.4-2 from AP-42
- Manufacture spec sheet
- 40 CFR Part 98 methodology
- 40 CFR 98 Tables C-1 and C-2 Emission Factors

Glycol Dehydrators (Units DEHY-1, DEHY-2, DEHY-3)

- ProMax

Amine Vents (Units AM-1, AM-2, AM-3)

- ProMax

Flare SSM (Units FL-1, FL-2b, FL-3, FL-4b)

- AP-42 Table 13.5-1
- ProMax
- 40 CFR Part 98 methodology

Thermal Oxidizes (Units TO-1, TO-2, TO-3)

- AP-42 Tables 1.4-1 and 1.4-2 from AP-42
- Manufacturer's specifications
- 40 CFR Part 98 methodology
- 40 CFR 98 Tables C-1 and C-2 Emission Factors

Vapor Combustion Unit (Unit VCU-1)

- AP-42 Tables 1.4-1 and 1.4-2 from AP-42
- 40 CFR Part 98 methodology

Condensate Storage Tanks (Unit TK-702-A-F, TK-702 G)

- ProMax

Produced Water Tank (Unit TK-701, TK-701 B, TK-701 C)

- Promax

Loading Emissions (Unit TL-1, TL-2, TL-3, TL-4)

- AP-42, Table 5.2-1 from AP-42

SSM (Units SSM-1, SSM-2, SSM-3, SSM-4)

- Ideal Gas law
- Inlet gas analysis, pressure temperature

Fugitive Emissions (Unit FUG-1, FUG-4)

- Tables 2-4 and 5-2 of the EPA Protocol for Equipment Leak Emission Estimates, November 1995
- Inlet gas and liquid analyses from ProMax

Haul Road Emissions (Unit HAUL-1)

- Equations 1a and 2 of AP-42 Section 13.2.2 (11/06)
- AP-42 Table 13.2.2-1
- AP-42 Figure 13.2.2-1
- AP-42 Table 13.2.2-2, Industrial Roads
- NMED Guidance Document - Department Accepted Values For: Aggregate Handling, Storage Pile, and Haul Road Emissions
- Google Earth

September 26, 2016

Emission Control Application Data Sheet

Maxim Silencers
6545 N. Eldridge Pkwy
Houston, TX 77041
Phone: 713-682-6777
Fax: 713-682-3628

Customer: **SEC Energy** | Project: **10694-4668 Matador Residue** | Date: **3/12/2025**

Customer Contact **Chris Behan** | Powertherm Contact: **Matthew Long** | Order/Quote #: **0**

Engine Data:

Engine Model:	**Caterpillar G3616**		Speed:	**1200**	RPM
Fuel & Operating Type:	**Natural Gas Lean Burn**		Engine Power:	**5000**	Hp
				4624	KW
Exhaust Flow Rate:	**31360**	**acfm**	Exhaust Temperature:	**813**	°F
	53281	**m^3/hr**		**434**	°C
	58532	**lbs/hr**			

Catalyst Data:

Number of Core layers:	**1**				
Model:	**MACC4-F8-3430C2-19738**		Inlet Size:	**30**	in
Grade:	**Super Critical/Hospital**		Outlet Size:	**34**	in
Body Diameter:	**84.5**	in	Body Length:	**345**	in
Estimated weight:	**11327**	lbs	Estimated Back Pressure of the unit:	**5.87**	in of WC
		Kg		**14.6**	mbar
Core Part Number:	**APX2-OX-SQ-1500-3600-350**	Qty **4**	Speed through inlet:	**5123**	ft/min
Cell Density	300	cpsi	Back Pressure across Element(s) only	2.27	in of WC
				5.7	mbar

Emission:

Min. Temp. at Core Face: **752** °F **400** °C
Max. Temp. at Core Face: **910** °F **488** °C

Catalyst Type: **Oxidation**

O_2 in Exhaust 11.1 vol %
H_2O in Exhaust vol %

	Pollutant					
	NOx	CO	NMNEHC/VOC	CH_2O/CHCO	ORGANIC PM10	
Engine Out / Pre Emission:	**0.3**	**2.22**	**0.16**		**0**	g/bhp-hr
	72.84	**539.02**	**38.85**	**0.00**	**0.00**	mg/Nm3
Post Emission:	**0.300**	**0.222**	**0.080**	**0.000**	**0.000**	g/bhp-hr
	72.84	**53.90**	**19.42**	**0.00**	**0.00**	mg/Nm3
	0.0	***90.0***	***50.0***	***96.2***	***50.0***	% Reduction
	3.31	2.45	0.88			lb/hr
	14.48	10.72	3.86			tons/year operation
	35.0	25.9	9.3			ppmv
						ppmvd @ 15% O2

8760 hr/year

Acoustics:

Frequency Band (Hz):	31.5	63	125	250	500	1000	2000	4000	8000	
Raw Noise SPL (dB) at 3.28 ft.:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	7 dBA
Estimated Attenuation (dB):	**30**	**42**	**41**	**38**	**39**	**36**	**33**	**37**	**39**	No Element
Plus:	**30**	**43**	**43**	**40**	**43**	**41**	**39**	**43**	**44**	One Element Layer
Silenced SPL (dB) at 3.28 ft.:	**-30**	**-43**	**-43**	**-40**	**-43**	**-41**	**-39**	**-43**	**-44**	-34.2 dBA

Warranty & Notes:

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

Rev level: 86

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EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Plant 3 Inlet Port # 3		**For:**	11376G
Sample Date:	02/11/2021		**Cyl. Ident.:**	2021039068
Sampled By:	JP		**Company:**	San Mateo
Time Sampled:	14:30		**Analysis Date:**	02/13/2021
Sample Temp:	88.7 F		**Analysis By:**	TG
Sample Press:	976.5	**H_2S (PPM) = 1.0**	**Data File:**	LS_6131.D

Component	Mole%	GPM REAL	GPM IDEAL
H_2S	0.000		
Nitrogen	0.994		
Methane	78.444		
CO2	0.598		
Ethane	11.552	3.089	3.082
Propane	5.317	1.464	1.461
Isobutane	0.716	0.234	0.234
N-Butane	1.525	0.481	0.480
Isopentane	0.305	0.112	0.111
N-Pentane	0.302	0.109	0.109
Hexanes+	0.247	0.126	0.124
Total	100.000	5.615	5.601

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	20.975
VAPOR PRESS PSIA:	4026.1
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.7265
AIR = 1 (IDEAL):	0.7242
H2O = 1 (IDEAL):	0.348
REPORTED BASIS:	14.73
Unnormalized Total:	102.332

HEATING VALUE

BTU/CUFT (DRY)	1250.7
BTU/CUFT (WET)	1229.4

BTEX SUMMARY

WT% BENZENE	14.961
WT% TOLUENE	2.642
WT% E BENZENE	0.000
WT% XYLENES	0.000

LAB MANAGER

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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Sample Name: Plant 3 Inlet Port # 3
Company: San Mateo

Data File: LS_6131.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.003	0.013
CYCLOPENTANE	0.006	0.024
2-METHYLPENTANE	0.008	0.033
3-METHYLPENTANE	0.004	0.017
HEXANE (C6)	0.014	0.056
DIMETHYLPENTANES	0.014	0.069
METHYLCYCLOPENTANE	0.007	0.030
2,2,3 TRIMETHYLBUTANE	0.002	0.011
BENZENE	0.002	0.006
CYCLOHEXANE	0.003	0.012
2-METHYLHEXANE	0.001	0.004
3-METHYLHEXANE	0.002	0.010
DIMETHYCYCLOPENTANES	0.008	0.040
HEPTANE (C7)	0.004	0.017
METHYLCYCLOHEXANE	0.001	0.007
2,5 DIMETHYLHEXANE	0.006	0.031
TOLUENE	0.003	0.015
2-METHYLHEPTANE	0.000	0.000
OTHER OCTANES	0.033	0.167
OCTANE (C8)	0.000	0.000
ETHYLCYCLOHEXANE	0.000	0.000
ETHYL BENZENE	0.000	0.000
M,P-XYLENE	0.000	0.000
O-XYLENE	0.000	0.000
OTHER NONANES	0.035	0.205
NONANE (C-9)	0.000	0.000
IC3 BENZENE	0.004	0.025
CYCLOOCTANE	0.002	0.014
NC3 BENZENE	0.000	0.000
TM BENZENE(S)	0.002	0.015
IC4 BENZENE	0.003	0.018
NC4 BENZENE	0.002	0.010
DECANES + (C10+)	0.072	0.504

*HEXANES PLUS SUMMARY

AVG MOLE WT	117.507
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	57.7
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.748

COMPONENT RATIOS

HEXANES (C6) MOLE%	14.379
HEPTANES (C7) MOLE%	19.994
OCTANES (C8) MOLE%	17.167
NONANES (C9) MOLE%	13.771
DECANES+ (C10+) MOLE%	34.689

HEXANES (C6) WT%	10.369
HEPTANES (C7) WT%	16.470
OCTANES (C8) WT%	15.824
NONANES (C9) WT%	14.916
DECANES+ (C10+) WT%	42.421

Remarks:

* Hexane+ portion calculated by Allocation Process

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Amine Gas Port # 5	**For:**	11375G
Sample Date:	02/11/2021	**Cyl. Ident.:**	2021039067
Sampled By:	JP	**Company:**	San Mateo
Time Sampled:	12:00	**Analysis Date:**	02/12/2021
Sample Temp:	71.4 F	**Analysis By:**	TG
Sample Press:	940.8	**Data File:**	LS_6130.D

H_2S (PPM) = 0.5

Component	Mole%	GPM REAL	GPM IDEAL
H_2S	0.000		
Nitrogen	1.018		
Methane	76.636		
CO2	0.590		
Ethane	11.575	3.095	3.088
Propane	5.682	1.565	1.561
Isobutane	0.856	0.280	0.279
N-Butane	1.934	0.610	0.608
Isopentane	0.490	0.179	0.179
N-Pentane	0.524	0.190	0.189
Hexanes+	0.695	0.281	0.278
Total	100.000	6.200	6.182

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	21.799
VAPOR PRESS PSIA:	3937.0
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.7551
AIR = 1 (IDEAL):	0.7525
H2O = 1 (IDEAL):	0.356
REPORTED BASIS:	14.73
Unnormalized Total:	100.575

HEATING VALUE

BTU/CUFT (DRY)	1295.1
BTU/CUFT (WET)	1273.1

BTEX SUMMARY

WT% BENZENE	2.525
WT% TOLUENE	1.787
WT% E BENZENE	0.000
WT% XYLENES	0.687

LAB MANAGER

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

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Sample Name: Amine Gas Port # 5
Company: San Mateo

Data File: LS_6130.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.009	0.034
CYCLOPENTANE	0.039	0.140
2-METHYLPENTANE	0.122	0.483
3-METHYLPENTANE	0.063	0.248
HEXANE (C6)	0.149	0.578
DIMETHYLPENTANES	0.007	0.032
METHYLCYCLOPENTANE	0.058	0.225
2,2,3 TRIMETHYLBUTANE	0.001	0.003
BENZENE	0.020	0.070
CYCLOHEXANE	0.063	0.241
2-METHYLHEXANE	0.015	0.070
3-METHYLHEXANE	0.021	0.097
DIMETHYCYCLOPENTANES	0.006	0.029
HEPTANE (C7)	0.027	0.124
METHYLCYCLOHEXANE	0.040	0.181
2,5 DIMETHYLHEXANE	0.001	0.003
TOLUENE	0.012	0.050
2-METHYLHEPTANE	0.004	0.022
OTHER OCTANES	0.013	0.068
OCTANE (C8)	0.003	0.017
ETHYLCYCLOHEXANE	0.001	0.005
ETHYL BENZENE	0.000	0.002
M,P-XYLENE	0.003	0.014
O-XYLENE	0.001	0.002
OTHER NONANES	0.001	0.014
NONANE (C-9)	0.001	0.006
IC3 BENZENE	0.000	0.001
CYCLOOCTANE	0.000	0.000
NC3 BENZENE	0.000	0.000
TM BENZENE(S)	0.000	0.002
IC4 BENZENE	0.000	0.000
NC4 BENZENE	0.000	0.000
DECANES + (C10+)	0.000	0.010

*HEXANES PLUS SUMMARY

AVG MOLE WT	89.290
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	69.8
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.703

COMPONENT RATIOS

HEXANES (C6) MOLE%	54.494
HEPTANES (C7) MOLE%	33.506
OCTANES (C8) MOLE%	10.544
NONANES (C9) MOLE%	1.177
DECANES+ (C10+) MOLE%	0.279
HEXANES (C6) WT%	52.088
HEPTANES (C7) WT%	33.945
OCTANES (C8) WT%	12.008
NONANES (C9) WT%	1.524
DECANES+ (C10+) WT%	0.435

Remarks:

* Hexane+ portion calculated by Allocation Process

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Dehy Inlet Port #7	**For:**	11378G
Sample Date:	02/11/2021	**Cyl. Ident.:**	2021039070
Sampled By:	JP	**Company:**	San Mateo
Time Sampled:	13:30	**Analysis Date:**	02/12/2021
Sample Temp:	91.0 F	**Analysis By:**	TG
Sample Press:	940.8	**Data File:**	LS_6129.D

H_2S (PPM) = 0.5

Component	Mole%	GPM REAL	GPM IDEAL
H_2S	0.000		
Nitrogen	0.976		
Methane	76.552		
CO2	0.594		
Ethane	11.732	3.137	3.130
Propane	5.850	1.611	1.608
Isobutane	0.887	0.290	0.290
N-Butane	1.985	0.626	0.624
Isopentane	0.478	0.175	0.174
N-Pentane	0.500	0.181	0.181
Hexanes+	0.446	0.179	0.176
Total	100.000	6.199	6.183

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	21.694
VAPOR PRESS PSIA:	3934.4
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.7515
AIR = 1 (IDEAL):	0.7489
H2O = 1 (IDEAL):	0.355
REPORTED BASIS:	14.73
Unnormalized Total:	102.072

HEATING VALUE

BTU/CUFT (DRY)	1290.2
BTU/CUFT (WET)	1268.3

BTEX SUMMARY

WT% BENZENE	2.572
WT% TOLUENE	1.634
WT% E BENZENE	0.000
WT% XYLENES	0.269

LAB MANAGER

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
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Sample Name: Dehy Inlet Port #7
Company: San Mateo

Data File: LS_6129.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.006	0.025
CYCLOPENTANE	0.027	0.096
2-METHYLPENTANE	0.082	0.326
3-METHYLPENTANE	0.042	0.166
HEXANE (C6)	0.101	0.381
DIMETHYLPENTANES	0.004	0.020
METHYLCYCLOPENTANE	0.037	0.145
2,2,3 TRIMETHYLBUTANE	0.000	0.001
BENZENE	0.013	0.045
CYCLOHEXANE	0.039	0.152
2-METHYLHEXANE	0.009	0.043
3-METHYLHEXANE	0.013	0.059
DIMETHYCYCLOPENTANES	0.004	0.018
HEPTANE (C7)	0.016	0.074
METHYLCYCLOHEXANE	0.023	0.107
2,5 DIMETHYLHEXANE	0.000	0.002
TOLUENE	0.007	0.030
2-METHYLHEPTANE	0.002	0.013
OTHER OCTANES	0.008	0.041
OCTANE (C8)	0.002	0.010
ETHYLCYCLOHEXANE	0.001	0.003
ETHYL BENZENE	0.000	0.001
M,P-XYLENE	0.001	0.007
O-XYLENE	0.000	0.002
OTHER NONANES	0.000	0.007
NONANE (C-9)	0.000	0.003
IC3 BENZENE	0.000	0.000
CYCLOOCTANE	0.000	0.000
NC3 BENZENE	0.000	0.000
TM BENZENE(S)	0.000	0.001
IC4 BENZENE	0.000	0.000
NC4 BENZENE	0.000	0.000
DECANES + (C10+)	0.000	0.003

*HEXANES PLUS SUMMARY

AVG MOLE WT	88.871
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	70.4
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.701

COMPONENT RATIOS

HEXANES (C6) MOLE%	56.723
HEPTANES (C7) MOLE%	32.522
OCTANES (C8) MOLE%	9.627
NONANES (C9) MOLE%	0.989
DECANES+ (C10+) MOLE%	0.139
HEXANES (C6) WT%	54.464
HEPTANES (C7) WT%	33.024
OCTANES (C8) WT%	11.006
NONANES (C9) WT%	1.286
DECANES+ (C10+) WT%	0.220

Remarks:

* Hexane+ portion calculated by Allocation Process

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Mole Sieve Port #10	**For:**	11377G
Sample Date:	02/11/2021	**Cyl. Ident.:**	2021039069
Sampled By:	JP	**Company:**	San Mateo
Time Sampled:	14:00	**Analysis Date:**	02/12/2021
Sample Temp:	85.0 F	**Analysis By:**	TG
Sample Press:	919.0	**Data File:**	LS_6128.D

H_2S (PPM) = 2.0

Component	Mole%	GPM REAL	GPM IDEAL
H_2S	0.000		
Nitrogen	1.017		
Methane	77.476		
CO2	0.602		
Ethane	11.602	3.102	3.095
Propane	5.583	1.538	1.534
Isobutane	0.800	0.262	0.261
N-Butane	1.781	0.561	0.560
Isopentane	0.399	0.146	0.146
N-Pentane	0.408	0.148	0.148
Hexanes+	0.332	0.134	0.133
Total	100.000	5.891	5.877

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	21.308
VAPOR PRESS PSIA:	3978.8
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.7380
AIR = 1 (IDEAL):	0.7356
H2O = 1 (IDEAL):	0.351
REPORTED BASIS:	14.73
Unnormalized Total:	101.023

HEATING VALUE

BTU/CUFT (DRY)	1268.3
BTU/CUFT (WET)	1246.8

BTEX SUMMARY

WT% BENZENE	3.083
WT% TOLUENE	1.877
WT% E BENZENE	0.000
WT% XYLENES	1.081

LAB MANAGER

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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Sample Name: Mole Sieve Port #10
Company: San Mateo

Data File: LS_6128.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.004	0.018
CYCLOPENTANE	0.021	0.077
2-METHYLPENTANE	0.060	0.244
3-METHYLPENTANE	0.031	0.125
HEXANE (C6)	0.073	0.276
DIMETHYLPENTANES	0.003	0.015
METHYLCYCLOPENTANE	0.028	0.111
2,2,3 TRIMETHYLBUTANE	0.000	0.001
BENZENE	0.010	0.035
CYCLOHEXANE	0.029	0.113
2-METHYLHEXANE	0.006	0.030
3-METHYLHEXANE	0.009	0.043
DIMETHYCYCLOPENTANES	0.003	0.015
HEPTANE (C7)	0.011	0.052
METHYLCYCLOHEXANE	0.017	0.079
2,5 DIMETHYLHEXANE	0.000	0.002
TOLUENE	0.006	0.024
2-METHYLHEPTANE	0.002	0.009
OTHER OCTANES	0.007	0.031
OCTANE (C8)	0.001	0.007
ETHYLCYCLOHEXANE	0.000	0.002
ETHYL BENZENE	0.000	0.001
M,P-XYLENE	0.002	0.012
O-XYLENE	0.001	0.003
OTHER NONANES	0.000	0.005
NONANE (C-9)	0.000	0.002
IC3 BENZENE	0.000	0.000
CYCLOOCTANE	0.000	0.001
NC3 BENZENE	0.000	0.000
TM BENZENE(S)	0.001	0.008
IC4 BENZENE	0.000	0.000
NC4 BENZENE	0.000	0.001
DECANES + (C10+)	0.000	0.014

*HEXANES PLUS SUMMARY

AVG MOLE WT	89.271
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	69.5
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.704

COMPONENT RATIOS

HEXANES (C6) MOLE%	55.861
HEPTANES (C7) MOLE%	32.095
OCTANES (C8) MOLE%	9.571
NONANES (C9) MOLE%	1.493
DECANES+ (C10+) MOLE%	0.980
HEXANES (C6) WT%	53.352
HEPTANES (C7) WT%	32.392
OCTANES (C8) WT%	10.894
NONANES (C9) WT%	1.876
DECANES+ (C10+) WT%	1.486

Remarks:

* Hexane+ portion calculated by Allocation Process

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Plant 3 Residue	**For:**	11374G
Sample Date:	02/11/2021	**Cyl. Ident.:**	2021039066
Sampled By:	JP	**Company:**	San Mateo
Time Sampled:	13:00	**Analysis Date:**	02/12/2021
Sample Temp:	99.6 F	**Analysis By:**	TG
Sample Press:	903.1	**Data File:**	LS_6127.D

H_2S (PPM) = 0.2

Component	Mole%	GPM REAL	GPM IDEAL
H_2S	0.000		
Nitrogen	1.083		
Methane	87.508		
CO2	0.646		
Ethane	10.454	2.795	2.789
Propane	0.298	0.082	0.082
Isobutane	0.005	0.002	0.002
N-Butane	0.006	0.002	0.002
Isopentane	0.000	0.000	0.000
N-Pentane	0.000	0.000	0.000
Hexanes+	0.000	0.000	0.000
Total	100.000	2.881	2.875

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	17.907
VAPOR PRESS PSIA:	4459.6
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.6195
AIR = 1 (IDEAL):	0.6183
H2O = 1 (IDEAL):	0.316
REPORTED BASIS:	14.73
Unnormalized Total:	102.028

HEATING VALUE

BTU/CUFT (DRY)	1081.8
BTU/CUFT (WET)	1063.4

BTEX SUMMARY

WT% BENZENE	#
WT% TOLUENE	#
WT% E BENZENE	#
WT% XYLENES	#

LAB MANAGER

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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Sample Name: Plant 3 Residue
Company: San Mateo

Data File: LS_6127.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.000	0.000
CYCLOPENTANE	0.000	0.000
2-METHYLPENTANE	0.000	0.000
3-METHYLPENTANE	0.000	0.000
HEXANE (C6)	0.000	0.000
DIMETHYLPENTANES	0.000	0.000
METHYLCYCLOPENTANE	0.000	0.000
2,2,3 TRIMETHYLBUTANE	0.000	0.000
BENZENE	0.000	0.000
CYCLOHEXANE	0.000	0.000
2-METHYLHEXANE	0.000	0.000
3-METHYLHEXANE	0.000	0.000
DIMETHYCYCLOPENTANES	0.000	0.000
HEPTANE (C7)	0.000	0.000
METHYLCYCLOHEXANE	0.000	0.000
2,5 DIMETHYLHEXANE	0.000	0.000
TOLUENE	0.000	0.000
2-METHYLHEPTANE	0.000	0.000
OTHER OCTANES	0.000	0.000
OCTANE (C8)	0.000	0.000
ETHYLCYCLOHEXANE	0.000	0.000
ETHYL BENZENE	0.000	0.000
M,P-XYLENE	0.000	0.000
O-XYLENE	0.000	0.000
OTHER NONANES	0.000	0.000
NONANE (C-9)	0.000	0.000
IC3 BENZENE	0.000	0.000
CYCLOOCTANE	0.000	0.000
NC3 BENZENE	0.000	0.000
TM BENZENE(S)	0.000	0.000
IC4 BENZENE	0.000	0.000
NC4 BENZENE	0.000	0.000
DECANES + (C10+)	0.000	0.000

*HEXANES PLUS SUMMARY

AVG MOLE WT	0.000
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	#
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.000

COMPONENT RATIOS

HEXANES (C6) MOLE%	0.000
HEPTANES (C7) MOLE%	0.000
OCTANES (C8) MOLE%	0.000
NONANES (C9) MOLE%	0.000
DECANES+ (C10+) MOLE%	0.000
HEXANES (C6) WT%	0.000
HEPTANES (C7) WT%	0.000
OCTANES (C8) WT%	0.000
NONANES (C9) WT%	0.000
DECANES+ (C10+) WT%	0.000

Remarks:

* Hexane+ portion calculated by Allocation Process

Constants: GPA 2145
Method(s): GPA 2286.m ; GPA 2172.m

Report Rev 18-05.16
Template: eC6+ Gas

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EXTENDED LIQUID REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Plant 3 Condensate Port #15	**For code:**	11379L
Sample Date:	02/11/2021	**Identification:**	2021039071
Sampled By:	JP	**Company:**	San Mateo
Time Sampled:	11:30	**Analysis Date:**	02/15/2021
Sample Temp:	54.0 F	**Analysis By:**	TG
Sample Press:	300.0	**Data File:**	LS_6132.D

Component	Mole%	Wt%	L.V.%
H_2S	0.000	0.000	0.000
Nitrogen	0.029	0.014	0.010
Methane	8.025	2.263	4.309
CO2	0.203	0.157	0.110
Ethane	12.908	6.823	10.936
Propane	20.504	15.894	17.895
Isobutane	6.002	6.132	6.221
N-Butane	16.912	17.285	16.895
Isopentane	7.240	9.183	8.388
N-Pentane	9.040	11.465	10.380
*Hexanes+	19.137	30.784	24.856
Total	100.000	100.000	100.000

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	56.886
SP. GRAVITY (IDEAL):	0.571
API GRAVITY @ 60F	116.300
ABS. DENSITY (LBS/GAL)	4.760
ft3 VAPOR/GAL LIQUID:	31.68
VAPOR PRESSURE:	559.92
REPORTED BASIS:	14.73
UNNORMALIZED TOTAL:	90.81

HEATING VALUE

BTU/CUFT	3181.0
BTU/GAL	100776.9
BTU/LB	21171.6

RATIOS

C1 to C2	28.27 : 1
CO2 to C2	1.00 : 1

BTEX SUMMARY

WT% BENZENE	1.991
WT% TOLUENE	2.300
WT% E BENZENE	0.103
WT% XYLENES	0.958

LAB MANAGER

* Hexane+ portion calculated by Allocation Process

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Sample Name: Plant 3 Condensate Port #15
Company: San Mateo

Data File: LS_6132.D

ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%	L.V.%
2,2 DIMETHYL BUTANE	0.154	0.233	0.203
CYCLOPENTANE	0.718	0.986	0.795
2-METHYLPENTANE	2.636	3.993	3.466
3-METHYLPENTANE	1.415	2.144	1.830
HEXANE (C6)	3.626	5.491	4.718
DIMETHYLPENTANES	0.227	0.399	0.329
METHYLCYCLOPENTANE	1.400	2.071	1.569
2,2,3 TRIMETHYLBUTANE	0.000	0.000	0.000
BENZENE	0.430	0.590	0.381
CYCLOHEXANE	1.780	2.634	1.919
2-METHYLHEXANE	0.563	0.991	0.828
3-METHYLHEXANE	0.730	1.287	1.063
DIMETHYCYCLOPENTANES	0.203	0.350	0.264
OTHER HEPTANES	0.487	0.922	0.753
HEPTANE (C7)	1.136	2.000	1.659
METHYLCYCLOHEXANE	1.587	2.760	2.124
2,5 DIMETHYLHEXANE	0.034	0.067	0.055
TOLUENE	0.433	0.701	0.459
2-METHYLHEPTANE	0.253	0.508	0.413
OTHER OCTANES	0.638	1.245	0.958
OCTANE (C8)	0.225	0.452	0.365
ETHYLCYCLOHEXANE	0.056	0.110	0.079
ETHYL BENZENE	0.017	0.032	0.021
M,P-XYLENE	0.138	0.257	0.178
O-XYLENE	0.020	0.038	0.025
OTHER NONANES	0.138	0.304	0.235
NONANE (C-9)	0.046	0.103	0.081
IC3 BENZENE	0.002	0.005	0.003
CYCLOOCTANE	0.007	0.016	0.011
NC3 BENZENE	0.000	0.000	0.000
TM BENZENE(S)	0.007	0.016	0.011
IC4 BENZENE	0.000	0.000	0.000
NC4 BENZENE	0.001	0.001	0.001
DECANES + (C10+)	0.030	0.078	0.060

Remarks NR=NOT REPORTED ON FIELD TAG

HEXANES PLUS SUMMARY

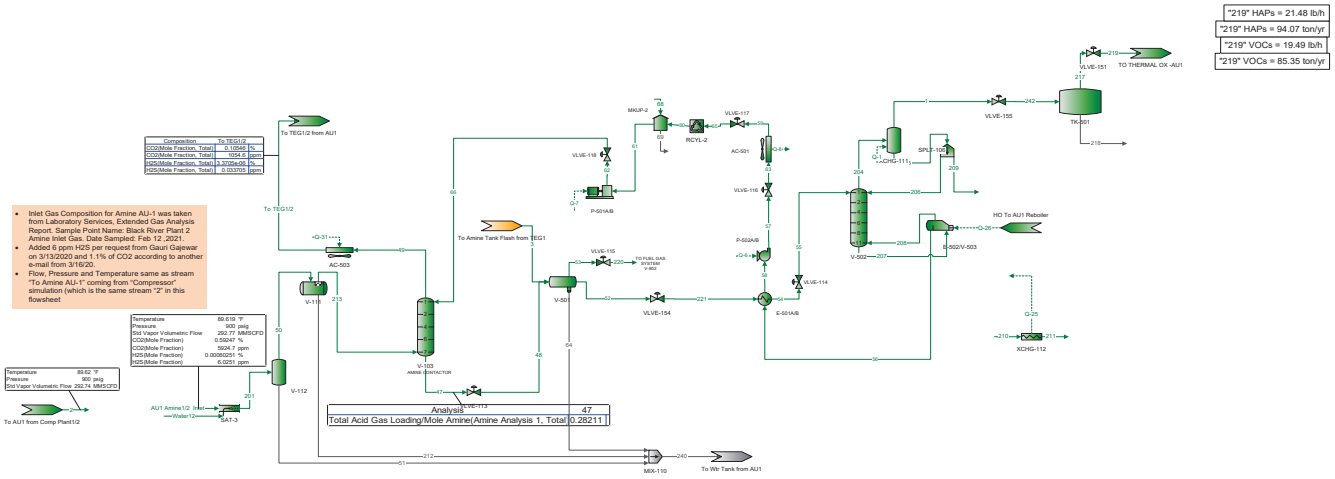
AVG MOLE WT	91.505
SP GRAV @ 60F	0.707
API GRAVITY @ 60F	68.6
ABS. DENSITY (LBS/GAL)	5.896
VAPOR PRESSURE:	3.98

COMPONENT RATIOS

HEXANES (C6) MOLE%	44.652
HEPTANES (C7) MOLE%	36.342
OCTANES (C8) MOLE%	16.562
NONANES (C9) MOLE%	2.181
DECANES+ (C10+) MOLE%	0.263
HEXANES (C6) WT%	41.725
HEPTANES (C7) WT%	36.524
OCTANES (C8) WT%	18.625
NONANES (C9) WT%	2.746
DECANES+ (C10+) WT%	0.380
HEXANES (C6) LV%	44.308
HEPTANES (C7) LV%	35.261
OCTANES (C8) LV%	17.597
NONANES (C9) LV%	2.490
DECANES+ (C10+) LV%	0.344

Constants: GPA 2145
Method: GPA 2186.m

Report Rev 18-05.22
Template: eC6+ Liq


"219" HAPs = 21.48 lb/h
"219" HAPs = 94.07 ton/yr
"219" VOCs = 19.49 lb/h
"219" VOCs = 85.35 ton/yr
Composition To TEG1/2
CO2(Mole Fraction, Total) 0.10945 %
CO2(Mole Fraction, Total) 1054.6 ppm
H2S(Mole Fraction, Total) 3.3726e-06 %
H2S(Mole Fraction, Total) 0.03705 ppm
Inlet Gas Composition for Amine AU-1 was taken from Laboratory Services, Extended Gas Analysis Report. Sample Point Name: Black River Plant 2 Amine Inlet Gas. Date Sampled: Feb 12 ,2021.
Added 6 ppm H2S per request from Gauri Gajewar on 3/13/2020 and 1.1% of CO2 according to another e-mail from 3/16/20.
Flow, Pressure and Temperature same as stream "To Amine AU-1" coming from "Compressor" simulation (which is the same stream "2" in this flowsheet
Temperature 89.619 °F
Pressure 900 psig
Std Vapor Volumetric Flow 292.77 MMSCFD
CO2(Mole Fraction) 0.59247 %
CO2(Mole Fraction) 5924.7 ppm
H2S(Mole Fraction) 0.000665251 %
H2S(Mole Fraction) 6.6251 ppm
Temperature 89.62 °F
Pressure 900 psig
Std Vapor Volumetric Flow 292.74 MMSCFD
To AU1 from Comp Plant1/2
AU1 Amine1/2 Inlet
Water12
SAT-3
To TEG1/2 from AU1
To TEG1/2
To Amine Tank Flash from TEG1
AC-503
V-113
V-112
V-103
AMINE CONTACTOR
V-501
P-501A/B
MKUP-2
RCYL-2
VLVE-117
AC-501
VLVE-118
VLVE-116
P-502A/B
VLVE-115
TO FUEL GAS SYSTEM V-902
VLVE-154
E-501A/B
VLVE-114
VLVE-113
VLVE-151
TO THERMAL OX -AU1
VLVE-155
TK-501
XCHG-111
SPLT-100
V-502
E-502/V-503
HO To AU1 Reboiler
XCHG-112
MIX-110
To Wtr Tank from AU1
Analysis 47
Total Acid Gas Loading/Mole Amine(Amine Analysis 1, Total 0.28211

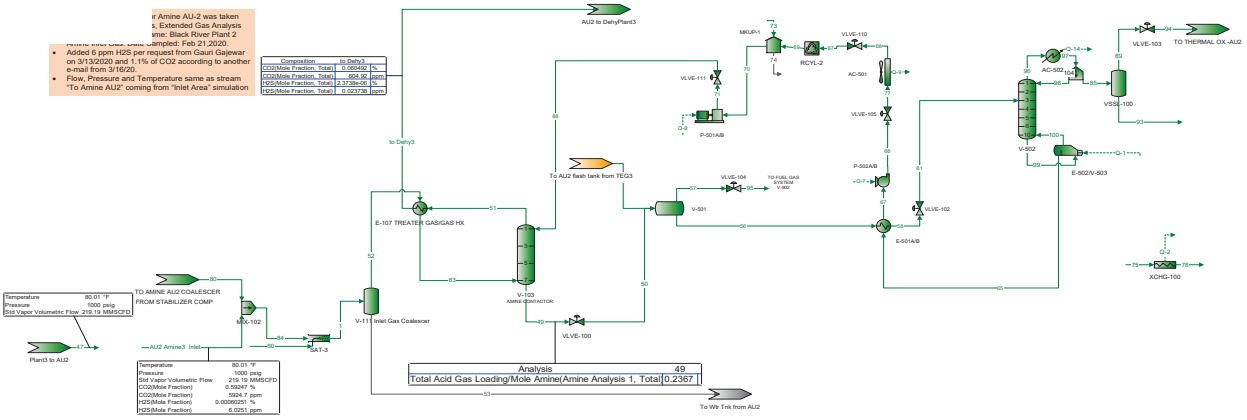
Process Streams		AU1 Amine1/2 Inlet	To TEG1/2	53	61	219	220	242
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	--	AC-503	V-501	MKUP-2	VLVE-151	VLVE-115	VLVE-155
	To Block:	SAT-3	To TEG1/2 from AU1	VLVE-115	P-501A/B	TO THERMAL OX -AU1	--	TK-501
Mole Fraction		%	%	%	%	%	%	%
CO2		0.592467*	0.105460	0.218856	0.111092	91.5183	0.218856	91.5183
H2S		0.000602509*	3.37047E-06	0.00197681	0.000428754	0.112220	0.00197681	0.112220
N2		1.02226*	1.02603	0.450768	0	0.000769415	0.450768	0.000769415
C1		76.9564*	77.2287	78.0829	0	0.405544	78.0829	0.405544
C2		11.6234*	11.6637	13.7796	0	0.128880	13.7796	0.128880
C3		5.70576*	5.72624	4.38213	0	0.0340489	4.38213	0.0340489
iC4		0.859579*	0.862735	0.408544	0	0.00241151	0.408544	0.00241151
nC4		1.94209*	1.94912	1.21744	0	0.0104790	1.21744	0.0104790
iC5		0.492049*	0.493871	0.173032	0	0.00106638	0.173032	0.00106638
nC5		0.526191*	0.528128	0.222057	0	0.00165741	0.222057	0.00165741
C6		0.149623*	0.150180	0.0401273	0	0.000244418	0.0401273	0.000244418
C7		0.0271129*	0.0272149	0.00343203	0	1.21920E-05	0.00343203	1.21920E-05
Benzene		0.0200836*	0.0198441	0.0522115	0	0.0567974	0.0522115	0.0567974
Toluene		0.0120502*	0.0119224	0.0244099	0	0.0314128	0.0244099	0.0314128
o-Xylene		0.00100418*	0.000990934	0.00142936	0	0.00312772	0.00142936	0.00312772
p-Xylene		0.00301254*	0.00296981	0.00452058	0	0.00993331	0.00452058	0.00993331
C8		0.00301254*	0.00302391	0.000254245	0	8.01383E-07	0.000254245	8.01383E-07
Water		0*	0.136201	0.868971	88.2093	7.68055	0.868971	7.68055
Triethylene Glycol		0*	0	0	0	0	0	0
Ethylbenzene		0*	0	0	0	0	0	0
Cyclohexane		0.0632634*	0.0634749	0.0671924	0	0.00251944	0.0671924	0.00251944
UCARSOL™ AP-814		0*	0.000217207	5.22784E-05	11.6792	7.53466E-08	5.22784E-05	7.53466E-08
2-Methylpentane		0*	0	2.44636E-07	0	0	2.44636E-07	0
3-Methylpentane		0*	0	2.79457E-07	0	0	2.79457E-07	0
C9		0*	0	0	0	0	0	0
C10		0*	0	0	0	0	0	0
Mass Fraction		%	%	%	%	%	%	%
CO2		1.21214*	0.216921	0.472686	0.168693	96.0876	0.472686	96.0876
H2S		0.000954586*	5.36868E-06	0.00330631	0.000504183	0.0912417	0.00330631	0.0912417
N2		1.33127*	1.34336	0.619709	0	0.000514209	0.619709	0.000514209
C1		57.3927*	57.9049	61.4746	0	0.155211	61.4746	0.155211
C2		16.2478*	16.3916	20.3342	0	0.0924526	20.3342	0.0924526
C3		11.6963*	11.8013	9.48307	0	0.0358189	9.48307	0.0358189
iC4		2.32257*	2.34361	1.16533	0	0.00334384	1.16533	0.00334384
nC4		5.24749*	5.29478	3.47264	0	0.0145303	3.47264	0.0145303
iC5		1.65036*	1.66536	0.612668	0	0.00183551	0.612668	0.00183551
nC5		1.76487*	1.78088	0.786253	0	0.00285280	0.786253	0.00285280
C6		0.599408*	0.604870	0.169704	0	0.000502491	0.169704	0.000502491
C7		0.126297*	0.127453	0.0168770	0	2.91450E-05	0.0168770	2.91450E-05
Benzene		0.0729289*	0.0724461	0.200148	0	0.105842	0.200148	0.105842
Toluene		0.0516149*	0.0513417	0.110376	0	0.0690495	0.110376	0.0690495
o-Xylene		0.00495603*	0.00491691	0.00744720	0	0.00792177	0.00744720	0.00792177
p-Xylene		0.0148681*	0.0147359	0.0235529	0	0.0251587	0.0235529	0.0251587
C8		0.0159974*	0.0161439	0.00142527	0	2.18387E-06	0.00142527	2.18387E-06
Water		0*	0.114680	0.768272	54.8308	3.30101	0.768272	3.30101
Triethylene Glycol		0*	0	0	0	0	0	0
Ethylbenzene		0*	0	0	0	0	0	0
Cyclohexane		0.247512*	0.249673	0.277518	0	0.00505847	0.277518	0.00505847
UCARSOL™ AP-814		0*	0.000935096	0.000270987	45	1.74739E-07	0.000270987	1.74739E-07
2-Methylpentane		0*	0	1.03460E-06	0	0	1.03460E-06	0
3-Methylpentane		0*	0	1.18186E-06	0	0	1.18186E-06	0
C9		0*	0	0	0	0	0	0
C10		0*	0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
CO2		8381.67*	1486.32	0.691576	240.958	6885.23	0.691576	6885.23
H2S		6.60077*	0.0367856	0.00483739	0.720168	6.53799	0.00483739	6.53799
N2		9205.47*	9204.53	0.906682	0	0.0368460	0.906682	0.0368460
C1		396859*	396758	89.9421	0	11.1217	89.9421	11.1217
C2		112350*	112314	29.7504	0	6.62475	29.7504	6.62475
C3		80877.7*	80861.3	13.8745	0	2.56663	13.8745	2.56663
iC4		16060.1*	16058.2	1.70497	0	0.239605	1.70497	0.239605
nC4		36285.3*	36279.2	5.08074	0	1.04118	5.08074	1.04118
iC5		11411.9*	11410.9	0.896380	0	0.131524	0.896380	0.131524
nC5		12203.7*	12202.4	1.15035	0	0.204419	1.15035	0.204419
C6		4144.78*	4144.50	0.248290	0	0.0360064	0.248290	0.0360064
C7		873.318*	873.291	0.0246924	0	0.00208841	0.0246924	0.00208841
Benzene		504.289*	496.392	0.292832	0	7.58418	0.292832	7.58418
Toluene		356.906*	351.788	0.161489	0	4.94779	0.161489	4.94779
o-Xylene		34.2700*	33.6901	0.0108958	0	0.567640	0.0108958	0.567640
p-Xylene		102.810*	100.968	0.0344596	0	1.80276	0.0344596	1.80276
C8		110.619*	110.616	0.00208527	0	0.000156487	0.00208527	0.000156487
Water		0*	785.775	1.12404	78319.5	236.536	1.12404	236.536
Triethylene Glycol		0*	0	0	0	0	0	0
Ethylbenzene		0*	0	0	0	0	0	0
Cyclohexane		1711.50*	1710.73	0.406031	0	0.362468	0.406031	0.362468
UCARSOL™ AP-814		0*	6.40717	0.000396475	64277.3	1.25211E-05	0.000396475	1.25211E-05
2-Methylpentane		0*	0	1.51370E-06	0	0	1.51370E-06	0
3-Methylpentane		0*	0	1.72915E-06	0	0	1.72915E-06	0
C9		0*	0	0	0	0	0	0
C10		0*	0	0	0	0	0	0

Process Streams		AU1 Amine1/2 Inlet	To TEG1/2	53	61	219	220	242
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	--	AC-503	V-501	MKUP-2	VLVE-151	VLVE-115	VLVE-155
	To Block:	SAT-3	To TEG1/2 from AU1	VLVE-115	P-501A/B	TO THERMAL OX -AU1	--	TK-501
Property	**Units**							
Temperature	°F	89.6189*	105*	94.8381	119.258	119.182	94.4475	119.182
Pressure	psia	914.696*	912.129	84.6959*	47.3	15.6959*	79.6959*	15.6959*
Mole Fraction Vapor	%	100	100	100	0	100	100	100
Mole Fraction Light Liquid	%	0	0	0	100	0	0	0
Mole Fraction Heavy Liquid	%	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	21.5109	21.3961	20.3766	28.9822	41.9167	20.3766	41.9167
Mass Density	lb/ft^3	4.19783	3.94096	0.295353	63.9853	0.106442	0.277824	0.106442
Molar Flow	lbmol/h	32145.5	32024.0	7.18019	4928.50	170.948	7.18019	170.948
Mass Flow	lb/h	691480	685188	146.308	142839	7165.57	146.308	7165.57
Vapor Volumetric Flow	ft^3/h	164723	173863	495.365	2232.37	67319.0	526.620	67319.0
Liquid Volumetric Flow	gpm	20536.9	21676.4	61.7598	278.321	8393.02	65.6565	8393.02
Std Vapor Volumetric Flow	MMSCFD	292.769*	291.663	0.0653944	44.8869	1.55693	0.0653944	1.55693
Std Liquid Volumetric Flow	sgpm	3916.56	3900.25	0.860377	290*	17.4948	0.860377	17.4948
Compressibility		0.795147	0.817202	0.981931	0.00344845	0.995017	0.982952	0.995017
Specific Gravity		0.742717	0.738751	0.703551	1.02592	1.44727	0.703551	1.44727
API Gravity					4.34869			
Enthalpy	Btu/h	-1.14211E+09	-1.11291E+09	-246630	-6.18989E+08	-2.78028E+07	-246630	-2.78028E+07
Mass Enthalpy	Btu/lb	-1651.68	-1624.25	-1685.69	-4333.48	-3880.06	-1685.69	-3880.06
Mass Cp	Btu/(lb*°F)	0.645312	0.633658	0.498437	0.840861	0.217506	0.497713	0.217506
Ideal Gas CpCv Ratio		1.23923	1.23508	1.24890	1.16436	1.28038	1.24900	1.28038
Dynamic Viscosity	cP	0.0129599	0.0130285	0.0110509	2.89863	0.0160536	0.0110380	0.0160536
Kinematic Viscosity	cSt	0.192733	0.206381	2.33580	2.82808	9.41541	2.48026	9.41541
Thermal Conductivity	Btu/(h*ft*°F)	0.0217692	0.0222011	0.0184026	0.210266	0.0106617	0.0183692	0.0106617
Surface Tension	lbf/ft				0.00374821			
Net Ideal Gas Heating Value	Btu/ft^3	1154.31	1158.39	1106.16	407.382	11.8511	1106.16	11.8511
Net Liquid Heating Value	Btu/lb	20299.9	20480.4	20534.8	4605.94	-0.425818	20534.8	-0.425818
Gross Ideal Gas Heating Value	Btu/ft^3	1271.74	1276.30	1220.51	487.917	16.6733	1220.51	16.6733
Gross Liquid Heating Value	Btu/lb	22371.9	22572.2	22664.9	5660.44	43.2327	22664.9	43.2327

r Amine AU-2 was taken
s, Extended Gas Analysis
ime: Black River Plant 2
sampled: Feb 21,2020.

- Added 6 ppm H2S per request from Gauri Gajewar on 3/13/2020 and 1.1% of CO2 according to another e-mail from 3/16/20.
- Flow, Pressure and Temperature same as stream "To Amine AU2" coming from "Inlet Area" simulation

Composition	to Dehy3	
CO2(Mole Fraction, Total)	0.060492	%
CO2(Mole Fraction, Total)	604.92	ppm
H2S(Mole Fraction, Total)	2.3738e-05	%
H2S(Mole Fraction, Total)	0.023738	ppm



Temperature	80.01 °F
Pressure	1000 psig
Std Vapor Volumetric Flow	219.19 MMSCFD

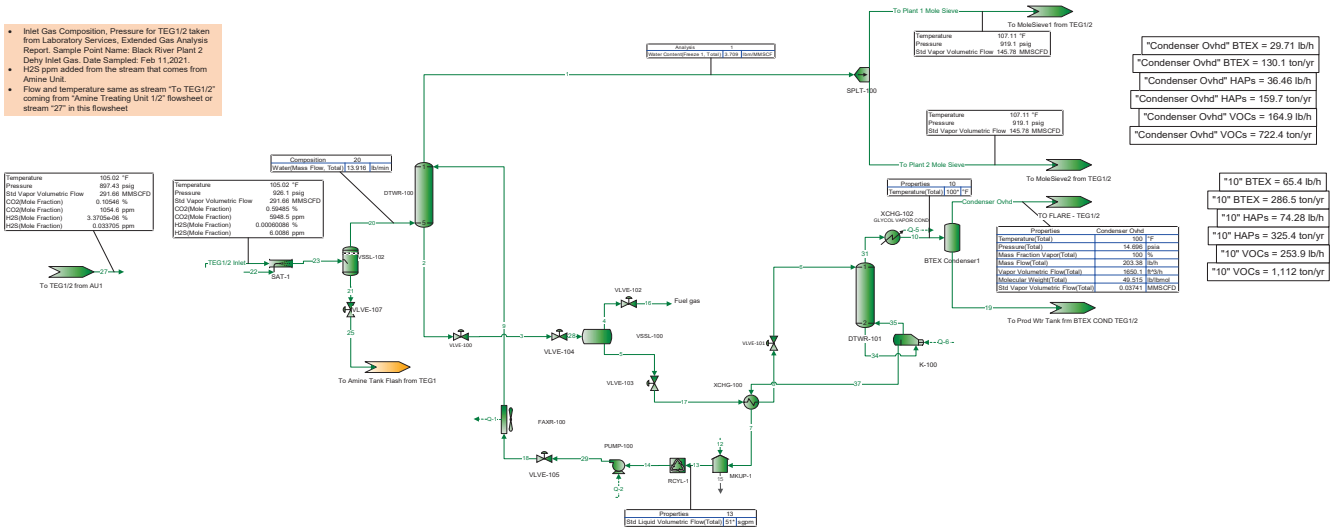
Temperature	80.01 °F
Pressure	1000 psig
Std Vapor Volumetric Flow	219.19 MMSCFD
CO2(Mole Fraction)	0.59247 %
CO2(Mole Fraction)	5924.7 ppm
H2S(Mole Fraction)	0.00065251 %
H2S(Mole Fraction)	6.5251 ppm

Analysis	49
Total Acid Gas Loading/Mole Amine(Amine Analysis 1, Total	0.2367

Process Streams		AU2 Amine3 Inlet	to Dehy3	57	70	94	95	100
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	--	E-107 TREATER GAS/GAS HX	V-501	MKUP-1	VLVE-103	VLVE-104	E-502/V-503
	To Block:	MIX-102	AU2 to DehyPlant3	VLVE-104	P-501A/B	TO THERMAL OX -AU2	--	V-502
Mole Fraction		%	%	%	%	%	%	%
CO2		0.592467*	0.0604916	0.135010	0.139007	91.4219	0.135010	0.746496
H2S		0.000602509*	2.37382E-06	0.00134868	0.000392090	0.102419	0.00134868	0.00110347
N2		1.02226*	1.01078	0.444412	0	0.000831150	0.444412	0
C1		76.9564*	76.2533	77.8580	0	0.455992	77.8580	0
C2		11.6234*	11.7797	13.8035	0	0.149115	13.8035	0
C3		5.70576*	6.08065	4.43898	0	0.0400367	4.43898	0
iC4		0.859579*	0.973644	0.429335	0	0.00298731	0.429335	0
nC4		1.94209*	2.25526	1.31471	0	0.0133851	1.31471	0
iC5		0.492049*	0.562463	0.177220	0	0.00130250	0.177220	0
nC5		0.526191*	0.588788	0.223516	0	0.00199052	0.223516	0
C6		0.149623*	0.166352	0.0389529	0	0.000287368	0.0389529	0
C7		0.0271129*	0.0325948	0.00346656	0	1.49564E-05	0.00346656	0
Benzene		0.0200836*	0.0204826	0.0534518	0	0.0683244	0.0534518	0
Toluene		0.0120502*	0.0120465	0.0235859	0	0.0363594	0.0235859	0
o-Xylene		0.00100418*	0.000976323	0.00128391	0	0.00340424	0.00128391	0
p-Xylene		0.00301254*	0.00294802	0.00412189	0	0.0109704	0.00412189	0
C8		0.00301254*	0.00421846	0.000292930	0	1.14541E-06	0.000292930	0
Water		0*	0.131967	0.988649	88.1767	7.68798	0.988649	99.0490
Triethylene Glycol		0*	0	0	0	0	0	0
Ethylbenzene		0*	4.87354E-06	6.42423E-06	0	1.05653E-05	6.42423E-06	0
Cyclohexane		0.0632634*	0.0624966	0.0600364	0	0.00268582	0.0600364	0
UCARSOL™ AP-814		0*	0.000261216	8.05251E-05	11.6839	1.31287E-12	8.05251E-05	0.203444
2-Methylpentane		0*	0.000113044	2.98548E-05	0	2.21929E-07	2.98548E-05	0
3-Methylpentane		0*	5.67637E-05	1.49393E-05	0	1.10992E-07	1.49393E-05	0
C9		0*	0.000193140	4.87370E-06	0	9.17160E-09	4.87370E-06	0
C10		0*	0.000152597	2.20295E-06	0	0	2.20295E-06	0
Mass Fraction		%	%	%	%	%	%	%
CO2		1.21214*	0.122329	0.290963	0.210998	96.0093	0.290963	1.78898
H2S		0.000954586*	3.71746E-06	0.00225085	0.000460883	0.0832930	0.00225085	0.00204787
N2		1.33127*	1.30110	0.609645	0	0.000555600	0.609645	0
C1		57.3927*	56.2105	61.1646	0	0.174560	61.1646	0
C2		16.2478*	16.2758	20.3252	0	0.106993	20.3252	0
C3		11.6963*	12.3206	9.58528	0	0.0421280	9.58528	0
iC4		2.32257*	2.60034	1.22198	0	0.00414323	1.22198	0
nC4		5.24749*	6.02318	3.74194	0	0.0185644	3.74194	0
iC5		1.65036*	1.86470	0.626136	0	0.00224246	0.626136	0
nC5		1.76487*	1.95198	0.789704	0	0.00342699	0.789704	0
C6		0.599408*	0.658718	0.164380	0	0.000590933	0.164380	0
C7		0.126297*	0.150076	0.0170099	0	3.57618E-05	0.0170099	0
Benzene		0.0729289*	0.0735171	0.204459	0	0.127353	0.204459	0
Toluene		0.0516149*	0.0510021	0.106419	0	0.0799418	0.106419	0
o-Xylene		0.00495603*	0.00476280	0.00667484	0	0.00862418	0.00667484	0
p-Xylene		0.0148681*	0.0143813	0.0214291	0	0.0277920	0.0214291	0
C8		0.0159974*	0.0221419	0.00163857	0	3.12213E-06	0.00163857	0
Water		0*	0.109243	0.872187	54.7885	3.30499	0.872187	97.1678
Triethylene Glycol		0*	0	0	0	0	0	0
Ethylbenzene		0*	2.37746E-05	3.33986E-05	0	2.67658E-05	3.33986E-05	0
Cyclohexane		0.247512*	0.241683	0.247425	0	0.00539382	0.247425	0
UCARSOL™ AP-814		0*	0.00110748	0.000401843	45	2.78448E-12	0.000401843	1.04113
2-Methylpentane		0*	0.000447629	0.000125986	0	4.56366E-07	0.000125986	0
3-Methylpentane		0*	0.000224772	6.30434E-05	0	2.28241E-07	6.30434E-05	0
C9		0*	0.00113824	3.06097E-05	0	2.80696E-08	3.06097E-05	0
C10		0*	0.000997657	1.53490E-05	0	0	1.53490E-05	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
CO2		6275.31*	648.648	0.474936	301.358	5680.22	0.474936	268.110
H2S		4.94195*	0.0197118	0.00367404	0.658258	4.92788	0.00367404	0.306909
N2		6892.08*	6899.07	0.995118	0	0.0328711	0.995118	0
C1		297126*	298055	99.8384	0	10.3275	99.8384	0
C2		84115.7*	86302.2	33.1766	0	6.33008	33.1766	0
C3		60552.7*	65330.1	15.6460	0	2.49243	15.6460	0
iC4		12024.1*	13788.3	1.99463	0	0.245127	1.99463	0
nC4		27166.6*	31937.9	6.10794	0	1.09833	6.10794	0
iC5		8544.01*	9887.58	1.02204	0	0.132671	1.02204	0
nC5		9136.86*	10350.4	1.28903	0	0.202752	1.28903	0
C6		3103.17*	3492.85	0.268316	0	0.0349615	0.268316	0
C7		653.848*	795.778	0.0277650	0	0.00211578	0.0277650	0
Benzene		377.558*	389.824	0.333736	0	7.53463	0.333736	0
Toluene		267.214*	270.438	0.173707	0	4.72962	0.173707	0
o-Xylene		25.6577*	25.2547	0.0108953	0	0.510234	0.0108953	0
p-Xylene		76.9732*	76.2569	0.0349785	0	1.64426	0.0349785	0
C8		82.8195*	117.407	0.00267462	0	0.000184715	0.00267462	0
Water		0*	579.258	1.42366	78251.9	195.534	1.42366	14562.3
Triethylene Glycol		0*	0	0	0	0	0	0
Ethylbenzene		0*	0.126065	5.45162E-05	0	0.00158355	5.45162E-05	0
Cyclohexane		1281.39*	1281.52	0.403870	0	0.319116	0.403870	0
UCARSOL™ AP-814		0*	5.87238	0.000655925	64271.4	1.64739E-10	0.000655925	156.031
2-Methylpentane		0*	2.37355	0.000205646	0	2.70001E-05	0.000205646	0
3-Methylpentane		0*	1.19185	0.000102905	0	1.35034E-05	0.000102905	0
C9		0*	6.03551	4.99640E-05	0	1.66069E-06	4.99640E-05	0
C10		0*	5.29006	2.50540E-05	0	0	2.50540E-05	0

Process Streams		AU2 Amine3 Inlet	to Dehy3	57	70	94	95	100
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	--	E-107 TREATER GAS/GAS HX	V-501	MKUP-1	VLVE-103	VLVE-104	E-502/V-503
	To Block:	MIX-102	AU2 to DehyPlant3	VLVE-104	P-501A/B	TO THERMAL OX -AU2	--	V-502
Property	**Units**							
Temperature	°F	80.0104*	104.697	96.1590	119.186	119.182	96.3484	247.227
Pressure	psia	1014.70*	1005.70	77.3	47.3	15.6959*	79.6959*	25.3
Mole Fraction Vapor	%	100	99.9958	100	0	100	100	100
Mole Fraction Light Liquid	%	0	0.00418768	0	100	0	0	0
Mole Fraction Heavy Liquid	%	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	21.5109	21.7627	20.4209	28.9938	41.9067	20.4209	18.3640
Mass Density	lb/ft^3	4.95974	4.55863	0.269068	64.0312	0.106417	0.277452	0.0620517
Molar Flow	lbmol/h	24067.1	24365.0	7.99325	4926.06	141.179	7.99325	816.090
Mass Flow	lb/h	517707	530249	163.229	142825	5916.32	163.229	14986.7
Vapor Volumetric Flow	ft^3/h	104382	116318	606.645	2230.56	55595.8	588.315	241520
Liquid Volumetric Flow	gpm	13013.9	14501.9	75.6337	278.096	6931.42	73.3484	30111.6
Std Vapor Volumetric Flow	MMSCFD	219.194*	221.908	0.0727995	44.8647	1.28580	0.0727995	7.43264
Std Liquid Volumetric Flow	sgpm	2932.31	2989.51	0.958418	290*	14.4527	0.958418	30.1603
Compressibility		0.759865	0.792720	0.983527	0.00344779	0.995016	0.983038	0.986997
Specific Gravity		0.742717		0.705079	1.02666	1.44693	0.705079	0.634063
API Gravity					4.26568			
Enthalpy	Btu/h	-8.60812E+08	-8.53006E+08	-274468	-6.18805E+08	-2.29424E+07	-274468	-8.40118E+07
Mass Enthalpy	Btu/lb	-1662.74	-1608.69	-1681.49	-4332.61	-3877.81	-1681.49	-5605.75
Mass Cp	Btu/(lb*°F)	0.686626	0.659112	0.498194	0.839896	0.217667	0.498541	0.461309
Ideal Gas CpCv Ratio		1.24177	1.23136	1.24782	1.16434	1.28020	1.24777	1.31091
Dynamic Viscosity	cP	0.0133588		0.0110536	2.92045	0.0160472	0.0110599	0.0133885
Kinematic Viscosity	cSt	0.168147		2.56461	2.84733	9.41389	2.48852	13.4697
Thermal Conductivity	Btu/(h*ft*°F)	0.0222135		0.0184120	0.210103	0.0106674	0.0184281	0.0166478
Surface Tension	lbf/ft				0.00374708			
Net Ideal Gas Heating Value	Btu/ft^3	1154.31	1178.00	1109.21	407.545	13.5439	1109.21	6.66526
Net Liquid Heating Value	Btu/lb	20299.9	20473.6	20545.3	4606.35	14.8527	20545.3	-896.272
Gross Ideal Gas Heating Value	Btu/ft^3	1271.74	1297.35	1223.84	488.079	18.5000	1223.84	57.0450
Gross Liquid Heating Value	Btu/lb	22371.9	22555.0	22675.8	5660.41	59.7346	22675.8	144.801

- Inlet Gas Composition, Pressure for TEG1/2 taken from Laboratory Services, Extended Gas Analysis Report. Sample Point Name: Black River Plant 2 Dehy Inlet Gas. Date Sampled: Feb 11,2021.
- H2S ppm added from the stream that comes from Amine Unit.
- Flow and temperature same as stream "To TEG1/2" coming from "Amine Treating Unit 1/2" flowsheet or stream "27" in this flowsheet



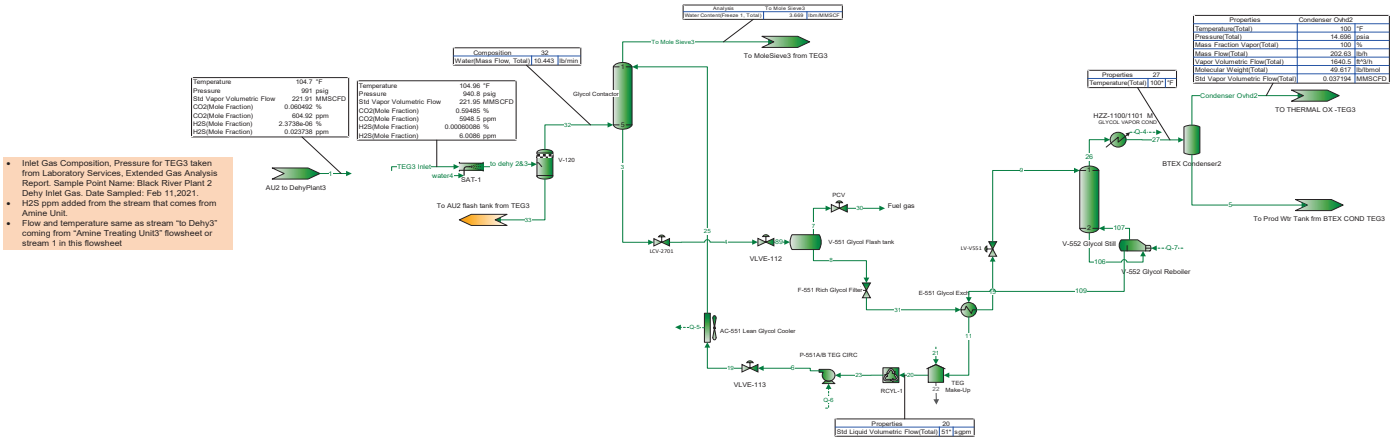
"Condenser Ovhd" BTEX = 29.71 lb/h
"Condenser Ovhd" BTEX = 130.1 ton/yr
"Condenser Ovhd" HAPs = 36.46 lb/h
"Condenser Ovhd" HAPs = 159.7 ton/yr
"Condenser Ovhd" VOCs = 164.9 lb/h
"Condenser Ovhd" VOCs = 722.4 ton/yr

"10" BTEX = 65.4 lb/h
"10" BTEX = 286.5 ton/yr
"10" HAPs = 74.28 lb/h
"10" HAPs = 325.4 ton/yr
"10" VOCs = 253.9 lb/h
"10" VOCs = 1,112 ton/yr

Process Streams		Condenser Ovhd	TEG1/2 Inlet	10	14	16	28	37
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser1	--	XCHG-102	RCYL-1	VLVE-102	VLVE-104	K-100
	To Block:	TO FLARE - TEG1/2	SAT-1	BTEX Condenser1	PUMP-100	--	VSSL-100	XCHG-100
Mole Fraction		%	%	%	%	%	%	%
CO2		4.86071	0.594847*	0.414034	1.49094E-07	2.32781	0.156452	1.24770E-07
H2S		0.0372147	0.000600856*	0.00321453	5.24913E-08	0.00351908	0.000713189	4.40949E-08
N2		0.00934219	0.977392*	0.000791033	0	0.209490	0.00736472	3.21718E-13
C1		10.6064	76.6612*	0.898522	0	55.5314	2.07907	5.07559E-09
C2		14.4577	11.7487*	1.22801	9.21155E-08	19.7106	0.905344	7.59473E-08
C3		18.2505	5.85834*	1.55967	4.58753E-07	12.4352	0.715701	3.77796E-07
iC4		3.68634	0.888265*	0.319508	1.93641E-07	1.83625	0.122108	1.58975E-07
nC4		14.5587	1.98783*	1.27673	1.55436E-06	4.82249	0.401267	1.28240E-06
iC5		4.88412	0.478682*	0.448465	1.48450E-06	1.04904	0.118726	1.22279E-06
nC5		6.48441	0.500713*	0.609867	2.80141E-06	1.17724	0.152863	2.30446E-06
C6		1.89172	0.101144*	0.211050	9.47087E-06	0.211554	0.0461566	7.76852E-06
C7		0.347769	0.0160228*	0.0578939	2.72268E-06	0.0290229	0.0116618	2.24432E-06
Benzene		5.84350	0.0130185*	0.795701	0.00166814	0.0393689	0.148978	0.00142073
Toluene		2.67673	0.00700998*	0.658258	0.00410418	0.0169524	0.124542	0.00352433
o-Xylene		0	0*	0	0	0	0	0
p-Xylene		0.190827	0.00100143*	0.112917	0.00172287	0.00181835	0.0220219	0.00149467
C8		0.0293860	0.00200285*	0.0104420	1.20169E-06	0.00294556	0.00202494	9.92468E-07
Water		6.41862	0*	90.3183	8.01776	0.223906	22.9121	8.02938
Triethylene Glycol		7.25057E-07	0*	0.518970	91.9746	6.03490E-05	71.9574	91.9641
Ethylbenzene		0	0*	0	0	0	0	0
C9		0	0*	0	0	0	0	0
C10		0	0*	0	0	0	0	0
Cyclohexane		2.55465	0.0390556*	0.324784	6.39410E-05	0.0974153	0.0632005	5.31542E-05
2-Methylpentane		1.34400	0.0821169*	0.140132	4.42294E-06	0.179123	0.0319776	3.63659E-06
3-Methylpentane		0.867346	0.0420599*	0.0927426	4.31890E-06	0.0947357	0.0203439	3.56624E-06
Undecane		0	0*	0	0	0	0	0
Dodecane		0	0*	0	0	0	0	0
Argon		0	0*	0	0	0	0	0
O2		0	0*	0	0	0	0	0
UCARSOL™ AP-814		0	0*	0	0	0	0	0
Mass Fraction		%	%	%	%	%	%	%
CO2		4.32024	1.21247*	0.820777	4.70119E-08	3.72517	0.0603519	3.93460E-08
H2S		0.0256146	0.000948415*	0.00493482	1.28174E-08	0.00436105	0.000213048	1.07683E-08
N2		0.00528538	1.26810*	0.000998167	0	0.213393	0.00180836	6.45783E-14
C1		3.43637	56.9592*	0.649296	0	32.3937	0.292349	5.83450E-10
C2		8.77973	16.3617*	1.66328	1.98451E-08	21.5512	0.238614	1.63636E-08
C3		16.2529	11.9643*	3.09793	1.44935E-07	19.9388	0.276624	1.19371E-07
iC4		4.32712	2.39112*	0.836500	8.06380E-08	3.88084	0.0622084	6.62088E-08
nC4		17.0894	5.35105*	3.34260	6.47283E-07	10.1921	0.204427	5.34088E-07
iC5		7.11667	1.59953*	1.45747	7.67379E-07	2.75216	0.0750825	6.32159E-07
nC5		9.44846	1.67315*	1.98201	1.44813E-06	3.08847	0.0966706	1.19136E-06
C6		3.29232	0.403683*	0.819242	5.84754E-06	0.662911	0.0348642	4.79697E-06
C7		0.703766	0.0743588*	0.261308	1.95467E-06	0.105747	0.0102425	1.61141E-06
Benzene		9.21832	0.0470974*	2.79969	0.000933578	0.111821	0.102000	0.000795195
Toluene		4.98088	0.0299141*	2.73200	0.00270937	0.0567968	0.100582	0.00232682
o-Xylene		0	0*	0	0	0	0	0
p-Xylene		0.409151	0.00492400*	0.539988	0.00131049	0.00701956	0.0204926	0.00113703
C8		0.0677916	0.0105960*	0.0537279	9.83482E-07	0.0122347	0.00202745	8.12338E-07
Water		2.33531	0*	73.2925	1.03489	0.146675	3.61800	1.03650
Triethylene Glycol		2.19900E-06	0*	3.51056	98.9601	0.000329544	94.7173	98.9592
Ethylbenzene		0	0*	0	0	0	0	0
C9		0	0*	0	0	0	0	0
C10		0	0*	0	0	0	0	0
Cyclohexane		4.34206	0.152231*	1.23123	3.85552E-05	0.298113	0.0466214	3.20543E-05
2-Methylpentane		2.33908	0.327743*	0.543954	2.73083E-06	0.561287	0.0241542	2.24555E-06
3-Methylpentane		1.50951	0.167868*	0.360002	2.66659E-06	0.296857	0.0153667	2.20211E-06
Undecane		0	0*	0	0	0	0	0
Dodecane		0	0*	0	0	0	0	0
Argon		0	0*	0	0	0	0	0
O2		0	0*	0	0	0	0	0
UCARSOL™ AP-814		0	0*	0	0	0	0	0

Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
CO2	8.78671	8383.55*	8.84140	1.35295E-05	9.30316	18.1446	1.13071E-05
H2S	0.0520961	6.55778*	0.0531578	3.68870E-06	0.0108912	0.0640521	3.09455E-06
N2	0.0107497	8768.20*	0.0107522	0	0.532924	0.543676	1.85583E-11
C1	6.98905	393842*	6.99421	0	80.8995	87.8937	1.67670E-07
C2	17.8566	113132*	17.9169	5.71121E-06	53.8215	71.7383	4.70251E-06
C3	33.0559	82726.8*	33.3709	4.17110E-05	49.7949	83.1658	3.43045E-05
iC4	8.80070	16533.3*	9.01077	2.32068E-05	9.69194	18.7027	1.90269E-05
nC4	34.7572	36999.6*	36.0064	0.000186281	25.4536	61.4602	0.000153485
iC5	14.4742	11059.9*	15.6999	0.000220844	6.87318	22.5733	0.000181668
nC5	19.2167	11568.9*	21.3502	0.000416756	7.71309	29.0637	0.000342370
C6	6.69607	2791.25*	8.82486	0.00168286	1.65554	10.4818	0.00137854
C7	1.43135	514.151*	2.81480	0.000562533	0.264091	3.07936	0.000463083
Benzene	18.7486	325.653*	30.1582	0.268674	0.279259	30.6660	0.228521
Toluene	10.1303	206.840*	29.4290	0.779728	0.141843	30.2395	0.668675
o-Xylene	0	0*	0	0	0	0	0
p-Xylene	0.832150	34.0468*	5.81674	0.377145	0.0175305	6.16103	0.326756
C8	0.137878	73.2655*	0.578756	0.000283036	0.0305547	0.609544	0.000233447
Water	4.74966	0*	789.506	297.831	0.366304	1087.74	297.866
Triethylene Glycol	4.47243E-06	0*	37.8158	28479.7	0.000822997	28476.4	28438.6
Ethylbenzene	0	0*	0	0	0	0	0
C9	0	0*	0	0	0	0	0
C10	0	0*	0	0	0	0	0
Cyclohexane	8.83109	1052.60*	13.2628	0.0110958	0.744502	14.0166	0.00921167
2-Methylpentane	4.75733	2266.17*	5.85946	0.000785905	1.40175	7.26186	0.000645320
3-Methylpentane	3.07012	1160.72*	3.87794	0.000767419	0.741366	4.61994	0.000632836
Undecane	0	0*	0	0	0	0	0
Dodecane	0	0*	0	0	0	0	0
Argon	0	0*	0	0	0	0	0
O2	0	0*	0	0	0	0	0
UCARSOL™ AP-814	0	0*	0	0	0	0	0

Process Streams		Condenser Ovhd	TEG1/2 Inlet	10	14	16	28	37
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser1	--	XCHG-102	RCYL-1	VLVE-102	VLVE-104	K-100
	To Block:	TO FLARE - TEG1/2	SAT-1	BTEX Condenser1	PUMP-100	--	VSSL-100	XCHG-100
Property	Units							
Temperature	°F	100	105.019*	100*	207.614	108.016	109.512	390
Pressure	psia	14.6959	940.8*	14.6959	14.1959	79.6959*	94.6959	15.1959
Mole Fraction Vapor	%	100	100	8.46528	0	100	3.44602	0
Mole Fraction Light Liquid	%	0	0	1.21925	100	0	96.5540	100
Mole Fraction Heavy Liquid	%	0	0	90.3155	0	0	0	0
Molecular Weight	lb/lbmol	49.5152	21.5915	22.2002	139.572	27.5010	114.087	139.558
Mass Density	lb/ft^3	0.123254	4.13675	0.647219	65.4363	0.370293	29.9872	58.4753
Molar Flow	lbmol/h	4.10752	32024.0	48.5220	206.194	9.08105	263.523	205.920
Mass Flow	lb/h	203.385	691446	1077.20	28779.0	249.738	30064.6	28737.7
Vapor Volumetric Flow	ft^3/h	1650.12	167147	1664.35	439.802	674.434	1002.58	491.450
Liquid Volumetric Flow	gpm	205.730	20839.1	207.503	54.8324	84.0853	124.997	61.2717
Std Vapor Volumetric Flow	MMSCFD	0.0374097	291.663*	0.441920	1.87794	0.0827067	2.40006	1.87544
Std Liquid Volumetric Flow	sgpm	0.703998	3910.51	2.46745	51	1.24558	54.6398	50.9268
Compressibility		0.982966	0.810302	0.0839282	0.00422836	0.971556	0.0589818	0.00397736
Specific Gravity		1.70963	0.745498		1.04918	0.949539		0.937574
API Gravity					-6.66702			-6.66694
Enthalpy	Btu/h	-208183	-1.13449E+09	-5.64448E+06	-6.55046E+07	-362716	-7.32383E+07	-6.18678E+07
Mass Enthalpy	Btu/lb	-1023.59	-1640.76	-5239.96	-2276.13	-1452.39	-2436.03	-2152.85
Mass Cp	Btu/(lb*°F)	0.388340	0.637610	0.840981	0.640318	0.462907	0.609107	0.709017
Ideal Gas CpCv Ratio		1.11611	1.23424	1.26247	1.03030	1.18978	1.04211	1.02644
Dynamic Viscosity	cP	0.00885961	0.0131654		3.69444	0.0106062		0.797942
Kinematic Viscosity	cSt	4.48737	0.198680		3.52459	1.78811		0.851879
Thermal Conductivity	Btu/(h*ft*°F)	0.0108492	0.0223035		0.113707?	0.0165066		0.107256?
Surface Tension	lbf/ft				0.00267654?			0.00204974?
Net Ideal Gas Heating Value	Btu/ft^3	2363.56	1159.06	269.909	3474.02	1424.06	2813.06	3473.57
Net Liquid Heating Value	Btu/lb	17941.1	20306.8	3791.65	9177.60	19546.4	9070.54	9177.37
Gross Ideal Gas Heating Value	Btu/ft^3	2554.53	1276.87	335.910	3801.65	1560.44	3085.90	3801.17
Gross Liquid Heating Value	Btu/lb	19405.1	22377.9	4919.88	10068.4	21428.9	9978.09	10068.2



- Inlet Gas Composition, Pressure for TEG3 taken from Laboratory Services, Extended Gas Analysis Report. Sample Point Name: Black River Plant 2 Dehy Inlet Gas. Date Sampled: Feb 11,2021.
- H2S ppm added from the stream that comes from Amine Unit.
- Flow and temperature same as stream "to Dehy3" coming from "Amine Treating Unit3" flowsheet or stream 1 in this flowsheet

Process Streams		Condenser Ovhd2	TEG3 Inlet	To Mole Sieve3	8	23	27	30	109
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	BTEX Condenser2	--	Glycol Contactor	V-551 Glycol Flash tank	RCYL-1	HZZ-1100/1101 M	PCV	52 Glycol Reboiler
	To Block:	TO THERMAL OX -TEG3	SAT-1	MoleSieve3 from T	F-551 Rich Glycol Filter	P-551A/B TEG CIRC	BTEX Condenser2	--	-551 Glycol Exch
Mole Fraction		%	%	%	%	%	%	%	%
CO2		4.81745	0.594847*	0.593449	0.0812213	1.70644E-07	0.527011	2.33605	1.95741E-07
H2S		0.0373142	0.000600856*	0.000593459	0.000636623	6.02791E-08	0.00413041	0.00354647	6.86715E-08
N2		0.00913882	0.977392*	0.977776	0.000153321	0	0.000994840	0.208701	5.22821E-13
C1		10.4779	76.6612*	76.6751	0.175868	0	1.14114	55.5257	8.21441E-09
C2		14.4007	11.7487*	11.7445	0.242338	1.07489E-07	1.57243	19.7418	1.22558E-07
C3		18.2793	5.85834*	5.85340	0.309489	5.32836E-07	2.00815	12.4558	6.09631E-07
iC4		3.69874	0.888265*	0.887369	0.0635073	2.25007E-07	0.412072	1.83574	2.57616E-07
nC4		14.6019	1.98783*	1.98445	0.253642	1.79798E-06	1.64577	4.81860	2.05551E-06
iC5		4.90309	0.478682*	0.477629	0.0891469	1.71809E-06	0.578428	1.04409	1.95984E-06
nC5		6.56053	0.500713*	0.499293	0.122160	3.24359E-06	0.792625	1.17379	3.70770E-06
C6		1.91580	0.101144*	0.100691	0.0422840	1.10689E-05	0.274295	0.209816	1.25365E-05
C7		0.352862	0.0160228*	0.0159038	0.0116017	3.12713E-06	0.0752590	0.0286470	3.56824E-06
Benzene		5.85596	0.0130185*	0.0114407	0.158576	0.00184269	1.01736	0.0391231	0.00210917
Toluene		2.66488	0.00700998*	0.00571488	0.133067	0.00447423	0.835421	0.0167710	0.00510089
o-Xylene		0	0*	0	0	0	0	0	0
p-Xylene		0.187162	0.00100143*	0.000781815	0.0235218	0.00185362	0.141128	0.00178844	0.00209441
C8		0.0299235	0.00200285*	0.00198179	0.00209563	1.37182E-06	0.0135891	0.00289294	1.56393E-06
Water		6.41212	0*	0.00772869	20.2939	8.01638	87.6461	0.188746	8.02264
Triethylene Glycol		8.44877E-07	0*	7.12788E-05	77.8858	91.9753	0.594457	6.36017E-05	91.9679
Ethylbenzene		0	0*	0	0	0	0	0	0
C9		0	0*	0	0	0	0	0	0
C10		0	0*	0	0	0	0	0	0
Cyclohexane		2.57196	0.0390556*	0.0383925	0.0646635	7.32231E-05	0.419118	0.0965389	8.33117E-05
2-Methylpentane		1.35372	0.0821169*	0.0818106	0.0279326	5.17217E-06	0.181211	0.177830	5.84337E-06
3-Methylpentane		0.869548	0.0420599*	0.0418610	0.0183988	5.02822E-06	0.119351	0.0939538	5.67471E-06
Undecane		0	0*	0	0	0	0	0	0
Dodecane		0	0*	0	0	0	0	0	0
Argon		0	0*	0	0	0	0	0	0
O2		0	0*	0	0	0	0	0	0
UCARSOL™ AP-814		0	0*	0	0	0	0	0	0
Mass Fraction		%	%	%	%	%	%	%	%
CO2		4.27300	1.21247*	1.21010	0.0293845	5.38062E-08	0.995602	3.73818	6.17237E-08
H2S		0.0256303	0.000948415*	0.000937116	0.000178359	1.47188E-08	0.00604259	0.00439481	1.67691E-08
N2		0.00515971	1.26810*	1.26910	3.53078E-05	0	0.00119630	0.212580	1.04940E-13
C1		3.38777	56.9592*	56.9925	0.0231932	0	0.785830	32.3890	9.44215E-10
C2		8.72715	16.3617*	16.3624	0.0599022	2.31569E-08	2.02960	21.5844	2.64050E-08
C3		16.2452	11.9643*	11.9590	0.112187	1.68339E-07	3.80111	19.9710	1.92613E-07
iC4		4.33277	2.39112*	2.38967	0.0303437	9.36988E-08	1.02810	3.87960	1.07285E-07
nC4		17.1049	5.35105*	5.34409	0.121190	7.48725E-07	4.10611	10.1835	8.56023E-07
iC5		7.12965	1.59953*	1.59666	0.0528735	8.88118E-07	1.79142	2.73904	1.01315E-06
nC5		9.53975	1.67315*	1.66908	0.0724536	1.67668E-06	2.45480	3.07929	1.91671E-06
C6		3.32738	0.403683*	0.402038	0.0299545	6.83414E-06	1.01466	0.657438	7.74075E-06
C7		0.712608	0.0743588*	0.0738363	0.00955651	2.24501E-06	0.323708	0.104373	2.56185E-06
Benzene		9.21901	0.0470974*	0.0414059	0.101826	0.00103125	3.41124	0.111118	0.00118046
Toluene		4.94865	0.0299141*	0.0243972	0.100789	0.00295362	3.30419	0.0561867	0.00336752
o-Xylene		0	0*	0	0	0	0	0	0
p-Xylene		0.400469	0.00492400*	0.00384572	0.0205284	0.00140993	0.643153	0.00690381	0.00159319
C8		0.0688901	0.0105960*	0.0104888	0.00196785	1.12271E-06	0.0666323	0.0120156	1.28001E-06
Water		2.32816	0*	0.00645118	3.00545	1.03470	67.7786	0.123638	1.03558
Triethylene Glycol		2.55714E-06	0*	0.000495957	96.1506	98.9598	3.83205	0.000347291	98.9582
Ethylbenzene		0	0*	0	0	0	0	0	0
C9		0	0*	0	0	0	0	0	0
C10		0	0*	0	0	0	0	0	0
Cyclohexane		4.36250	0.152231*	0.149707	0.0447367	4.41517E-05	1.51411	0.295419	5.02380E-05
2-Methylpentane		2.35116	0.327743*	0.326652	0.0197878	3.19339E-06	0.670329	0.557211	3.60803E-06
3-Methylpentane		1.51024	0.167868*	0.167142	0.0130339	3.10451E-06	0.441498	0.294395	3.50389E-06
Undecane		0	0*	0	0	0	0	0	0
Dodecane		0	0*	0	0	0	0	0	0
Argon		0	0*	0	0	0	0	0	0
O2		0	0*	0	0	0	0	0	0
UCARSOL™ AP-814		0	0*	0	0	0	0	0	0
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
CO2		8.65823	6379.68*	6361.66	8.70284	1.54849E-05	8.70282	9.31266	1.77412E-05
H2S		0.0519338	4.99031*	4.92654	0.0528247	4.23593E-06	0.0528199	0.0109485	4.81995E-06
N2		0.0104549	6672.39*	6671.85	0.0104571	0	0.0104571	0.529585	3.01630E-11
C1		6.86452	299705*	299617	6.86915	0	6.86915	80.6883	2.71395E-07
C2		17.6835	86090.9*	86019.4	17.7413	6.66433E-06	17.7413	53.7716	7.58958E-06
C3		32.9171	62953.1*	62870.1	33.2265	4.84462E-05	33.2265	49.7524	5.53627E-05
iC4		8.77934	12581.5*	12562.8	8.98691	2.69655E-05	8.98688	9.66496	3.08369E-05
nC4		34.6590	28155.8*	28094.6	35.8929	0.000215475	35.8926	25.3693	0.000246046
iC5		14.4466	8416.33*	8393.85	15.6596	0.000255591	15.6593	6.82356	0.000291209
nC5		19.3301	8803.69*	8774.56	21.4586	0.000482532	21.4581	7.67121	0.000550919
C6		6.74216	2124.08*	2113.57	8.87164	0.00196679	8.86942	1.63783	0.00222492
C7		1.44393	391.257*	388.167	2.83036	0.000646090	2.82962	0.260017	0.000736352
Benzene		18.6802	247.814*	217.676	30.1578	0.296784	29.8185	0.276819	0.339299
Toluene		10.0273	157.400*	128.259	29.8508	0.850021	28.8828	0.139974	0.967925
o-Xylene		0	0*	0	0	0	0	0	0
p-Xylene		0.811456	25.9088*	20.2174	6.07990	0.405764	5.62198	0.0171990	0.457929
C8		0.139590	55.7533*	55.1408	0.582819	0.000323105	0.582451	0.0299337	0.000367914
Water		4.71746	0*	33.9147	890.126	297.776	592.471	0.308010	297.655
Triethylene Glycol		5.18144E-06	0*	2.60731	28477.0	28479.6	33.4970	0.000865181	28443.5
Ethylbenzene		0	0*	0	0	0	0	0	0
C9		0	0*	0	0	0	0	0	0
C10		0	0*	0	0	0	0	0	0
Cyclohexane		8.83959	801.002*	787.029	13.2497	0.0127064	13.2353	0.735955	0.0144399
2-Methylpentane		4.76407	1724.50*	1717.25	5.86056	0.000919025	5.85953	1.38814	0.00103705
3-Methylpentane		3.06015	883.280*	878.687	3.86026	0.000893447	3.85925	0.733404	0.00100712
Undecane		0	0*	0	0	0	0	0	0
Dodecane		0	0*	0	0	0	0	0	0
Argon		0	0*	0	0	0	0	0	0
O2		0	0*	0	0	0	0	0	0
UCARSOL™ AP-814		0	0*	0	0	0	0	0	0

Process Streams		Condenser Ovhd2	TEG3 Inlet	To Mole Sieve	8	23	27	30	109
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	BTEX Condenser2	--	Glycol Contactor	V-551 Glycol Flash tank	RCYL-1	HZZ-1100/1101 M	PCV	52 Glycol Reboiler
	To Block:	TO THERMAL OX -TEG3	SAT-1	loleSieve3 from T	F-551 Rich Glycol Filter	P-551A/B TEG CIRC	BTEX Condenser2	--	-551 Glycol Exch
Property	**Units**								
Temperature	°F	100	104.955*	107.188	109.565	211.239	100*	108.069	390
Pressure	psia	14.6959	955.496*	948.496	94.6959	14.1959	14.6959	79.6959*	15.1959
Mole Fraction Vapor	%	100	100	100	0	0	10.8836	100	0
Mole Fraction Light Liquid	%	0	0	0	100	100	1.55238	0	100
Mole Fraction Heavy Liquid	%	0	0	0	0	0	87.5640	0	0
Molecular Weight	lb/lbmol	49.6170	21.5915	21.5828	121.646	139.574	23.2960	27.5022	139.565
Mass Density	lb/ft^3	0.123517	4.21513	4.14380	68.3145	65.3028	0.529312	0.370271	58.4747
Molar Flow	lbmol/h	4.08381	24369.5	24358.0	243.469	206.192	37.5227	9.05829	205.947
Mass Flow	lb/h	202.627	526174	525713	29617.1	28779.0	874.127	249.123	28743.0
Vapor Volumetric Flow	ft^3/h	1640.47	124830	126867	433.540	440.700	1651.44	672.812	491.545
Liquid Volumetric Flow	gpm	204.526	15563.2	15817.2	54.0517	54.9444	205.894	83.8830	61.2835
Std Vapor Volumetric Flow	MMSCFD	0.0371938	221.948*	221.843	2.21743	1.87791	0.341742	0.0824994	1.87568
Std Liquid Volumetric Flow	sgpm	0.700882	2975.80	2973.81	52.9969	51	2.06052	1.24278	50.9364
Compressibility		0.982890	0.807749	0.812094	0.0276033	0.00421414	0.107689	0.971564	0.00397761
Specific Gravity		1.71315	0.745498	0.745198	1.09533	1.04704		0.949579	0.937565
API Gravity					-5.22488	-6.66684			-6.66625
Enthalpy	Btu/h	-206982	-8.63669E+08	-8.62399E+08	-7.15175E+07	-6.54371E+07	-4.29356E+06	-361663	-6.18767E+07
Mass Enthalpy	Btu/lb	-1021.49	-1641.41	-1640.44	-2414.74	-2273.78	-4911.83	-1451.75	-2152.76
Mass Cp	Btu/(lb*°F)	0.388401	0.640897	0.637535	0.605692	0.641917	0.809809	0.462902	0.709008
Ideal Gas CpCv Ratio		1.11583	1.23426	1.23375	1.03942	1.03019	1.25012	1.18977	1.02644
Dynamic Viscosity	cP	0.00885017	0.0132196	0.0132084	14.8312	3.54336		0.0106066	0.797899
Kinematic Viscosity	cSt	4.47304	0.195788	0.198990	13.5533	3.38737		1.78829	0.851841
Thermal Conductivity	Btu/(h*ft*°F)	0.0108341	0.0223853	0.0224070	0.115145	0.113663?		0.0165084	0.107253?
Surface Tension	lbf/ft				0.00296112	0.00266474?			0.00204966?
Net Ideal Gas Heating Value	Btu/ft^3	2369.70	1159.06	1158.58	2991.50	3474.07	344.087	1424.30	3473.84
Net Liquid Heating Value	Btu/lb	17950.8	20306.8	20306.7	9049.38	9177.65	4832.44	19549.1	9177.62
Gross Ideal Gas Heating Value	Btu/ft^3	2561.12	1276.87	1276.37	3279.45	3801.71	414.371	1560.70	3801.46
Gross Liquid Heating Value	Btu/lb	19415.2	22377.9	22378.1	9947.68	10068.5	5977.39	21431.6	10068.4

"2" HAPs = 21.48 lb/h

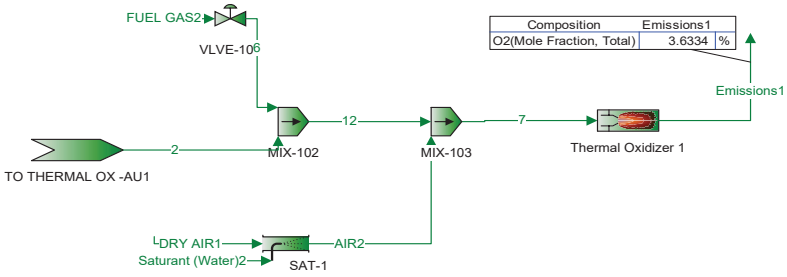
"2" BTEX = 14.9 lb/h

"2" VOCs = 19.49 lb/h

"2" HAPs = 94.07 ton/yr

"2" BTEX = 65.27 ton/yr

"2" VOCs = 85.35 ton/yr



"3" HAPs = 19.38 lb/h

"3" BTEX = 14.42 lb/h

"3" VOCs = 18.95 lb/h

"3" HAPs = 84.9 ton/yr

"3" BTEX = 63.16 ton/yr

"3" VOCs = 82.99 ton/yr

"5" HAPs = 36.31 lb/h

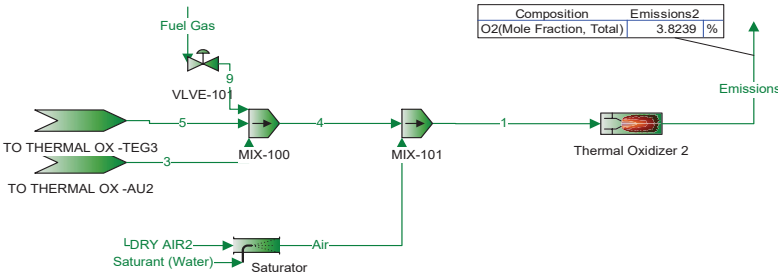
"5" BTEX = 29.52 lb/h

"5" VOCs = 164.6 lb/h

"5" HAPs = 159.1 ton/yr

"5" BTEX = 129.3 ton/yr

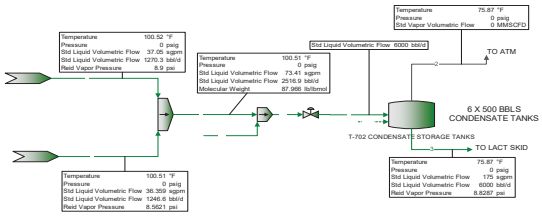
"5" VOCs = 721.1 ton/yr



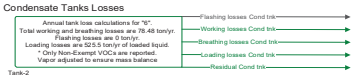
Process Streams		Air	AIR2	DRY AIR1	DRY AIR2	Emissions1	Emissions2	Fuel Gas	FUEL GAS2	12
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	Saturator	SAT-1	--	--	Thermal Oxidizer 1	Thermal Oxidizer 2	--	--	MIX-102
	To Block:	MIX-101	MIX-103	SAT-1	Saturator	--	--	VLVE-101	VLVE-100	MIX-103
Mole Fraction		%	%	%	%	%	%	%	%	%
CO2		0.0319272	0.0319272	0.033*	0.033*	32.2641	31.9512	0.0170073*	0.0252378*	81.0862
H2S		0	0	0*	0*	0.0331184	0.0296334	0*	0*	0.0994244
N2		75.5486	75.5486	78.087*	78.087*	49.9633	50.8987	0.528291*	0.525969*	0.0606529
C1		0	0	0*	0*	0	0	79.3471*	79.0312*	9.37048
C2		0	0	0*	0*	0	0	13.5741*	13.6855*	1.67461
C3		0	0	0*	0*	0	0	4.02259*	4.19361*	0.508324
iC4		0	0	0*	0*	0	0	0.337022*	0.361004*	0.0432984
nC4		0	0	0*	0*	0	0	0.972671*	1.03898*	0.127749
iC5		0	0	0*	0*	0	0	0.103732*	0.114854*	0.0140405
nC5		0	0	0*	0*	0	0	0.117050*	0.128756*	0.0161492
C6		0	0	0*	0*	0	0	0.0339009*	0.0384297*	0.00459832
C7		0	0	0*	0*	0	0	1.87457E-06*	0*	1.08019E-05
Benzene		0	0	0*	0*	0	0	2.23902E-05*	0*	0.0503213
Toluene		0	0	0*	0*	0	0	2.05705E-06*	0*	0.0278311
o-Xylene		0	0	0*	0*	0	0	1.00978E-08*	0*	0.00277110
p-Xylene		0	0	0*	0*	0	0	6.84740E-08*	0*	0.00880071
C8		0	0	0*	0*	0	0	8.60715E-08*	0*	7.10009E-07
Water		3.25076	3.25076	0*	0*	13.5087	12.6879	0.946350*	0.856422*	6.90246
Triethylene Glycol		0	0	0*	0*	0	0	0*	0*	0
Ethylbenzene		0	0	0*	0*	0	0	1.08038E-08*	0*	0
C9		0	0	0*	0*	0	0	0*	0*	0
C10		0	0	0*	0*	0	0	0.000184351*	0*	0
Cyclohexane		0	0	0*	0*	0	0	0*	0*	0.00223217
2-Methylpentane		0	0	0*	0*	0	0	0*	0*	0
3-Methylpentane		0	0	0*	0*	0	0	0*	0*	0
Undecane		0	0	0*	0*	0	0	0*	0*	0
Dodecane		0	0	0*	0*	0	0	0*	0*	0
Argon		0.903638	0.903638	0.934*	0.934*	0.597370	0.608668	0*	0*	0
O2		20.2651	20.2651	20.946*	20.946*	3.63338	3.82391	0*	0*	0
UCARSOL™ AP-814		0	0	0*	0*	0	0	0*	0*	6.67555E-08
Mass Fraction		%	%	%	%	%	%	%	%	%
CO2		0.0491140	0.0491140	0.0501404*	0.0501404*	44.3148	43.8292	0.0376867*	0.0555958*	90.5377
H2S		0	0	0*	0*	0.0352259	0.0314791	0*	0*	0.0859686
N2		73.9758	73.9758	75.5218*	75.5218*	43.6816	44.4429	0.745155*	0.737514*	0.0431075
C1		0	0	0*	0*	0	0	64.0929*	63.4621*	3.81389
C2		0	0	0*	0*	0	0	20.5512*	20.5980*	1.27752
C3		0	0	0*	0*	0	0	8.93118*	9.25610*	0.568685
iC4		0	0	0*	0*	0	0	0.986299*	1.05026*	0.0638484
nC4		0	0	0*	0*	0	0	2.84653*	3.02269*	0.188380
iC5		0	0	0*	0*	0	0	0.376834*	0.414780*	0.0257008
nC5		0	0	0*	0*	0	0	0.425216*	0.464986*	0.0295608
C6		0	0	0*	0*	0	0	0.147096*	0.165766*	0.0100535
C7		0	0	0*	0*	0	0	9.45771E-06*	0*	2.74607E-05
Benzene		0	0	0*	0*	0	0	8.80610E-05*	0*	0.0997251
Toluene		0	0	0*	0*	0	0	9.54317E-06*	0*	0.0650590
o-Xylene		0	0	0*	0*	0	0	5.39781E-08*	0*	0.00746395
p-Xylene		0	0	0*	0*	0	0	3.66029E-07*	0*	0.0237047
C8		0	0	0*	0*	0	0	4.95042E-07*	0*	2.05766E-06
Water		2.04703	2.04703	0*	0*	7.59513	7.12461	0.858422*	0.772277*	3.15486
Triethylene Glycol		0	0	0*	0*	0	0	0*	0*	0
Ethylbenzene		0	0	0*	0*	0	0	5.77517E-08*	0*	0
C9		0	0	0*	0*	0	0	0*	0*	0
C10		0	0	0*	0*	0	0	0.00132070*	0*	0
Cyclohexane		0	0	0*	0*	0	0	0*	0*	0.00476613
2-Methylpentane		0	0	0*	0*	0	0	0*	0*	0
3-Methylpentane		0	0	0*	0*	0	0	0*	0*	0
Undecane		0	0	0*	0*	0	0	0*	0*	0
Dodecane		0	0	0*	0*	0	0	0*	0*	0
Argon		1.26179	1.26179	1.28816*	1.28816*	0.744767	0.757889	0*	0*	0
O2		22.6663	22.6663	23.1399*	23.1399*	3.62850	3.81392	0*	0*	0
UCARSOL™ AP-814		0	0	0*	0*	0	0	0*	0*	1.64641E-07
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
CO2		4.66676	5.38047	5.38047*	4.66676*	8224.89	6933.53	0.0748481*	0.244355*	6885.47
H2S		0	0	0*	0*	6.53799	4.97982	0*	0*	6.53799
N2		7029.10	8104.10	8104.10*	7029.10*	8107.38	7030.62	1.47992*	3.24152*	3.27837
C1		0	0	0*	0*	0	0	127.292*	278.928*	290.050
C2		0	0	0*	0*	0	0	40.8159*	90.5321*	97.1568
C3		0	0	0*	0*	0	0	17.7378*	40.6824*	43.2490
iC4		0	0	0*	0*	0	0	1.95885*	4.61612*	4.85572
nC4		0	0	0*	0*	0	0	5.65338*	13.2853*	14.3265
iC5		0	0	0*	0*	0	0	0.748415*	1.82304*	1.95457
nC5		0	0	0*	0*	0	0	0.844504*	2.04370*	2.24812
C6		0	0	0*	0*	0	0	0.292142*	0.728572*	0.764578
C7		0	0	0*	0*	0	0	1.87836E-05*	0*	0.00208841
Benzene		0	0	0*	0*	0	0	0.000174894*	0*	7.58418
Toluene		0	0	0*	0*	0	0	1.89533E-05*	0*	4.94779
o-Xylene		0	0	0*	0*	0	0	1.07204E-07*	0*	0.567640
p-Xylene		0	0	0*	0*	0	0	7.26954E-07*	0*	1.80276
C8		0	0	0*	0*	0	0	9.83182E-07*	0*	0.000156487
Water		194.506	224.253	0*	0*	1409.67	1127.07	1.70488*	3.39431*	239.930
Triethylene Glycol		0	0	0*	0*	0	0	0*	0*	0
Ethylbenzene		0	0	0*	0*	0	0	1.14698E-07*	0*	0
C9		0	0	0*	0*	0	0	0*	0*	0
C10		0	0	0*	0*	0	0	0.00262298*	0*	0
Cyclohexane		0	0	0*	0*	0	0	0*	0*	0.362468
2-Methylpentane		0	0	0*	0*	0	0	0*	0*	0
3-Methylpentane		0	0	0*	0*	0	0	0*	0*	0
Undecane		0	0	0*	0*	0	0	0*	0*	0
Dodecane		0	0	0*	0*	0	0	0*	0*	0
Argon		119.894	138.230	138.230*	119.894*	138.230	119.894	0*	0*	0
O2		2153.72	2483.10	2483.10*	2153.72*	673.455	603.340	0*	0*	0
UCARSOL™ AP-814		0	0	0*	0*	0	0	0*	0*	1.25211E-05

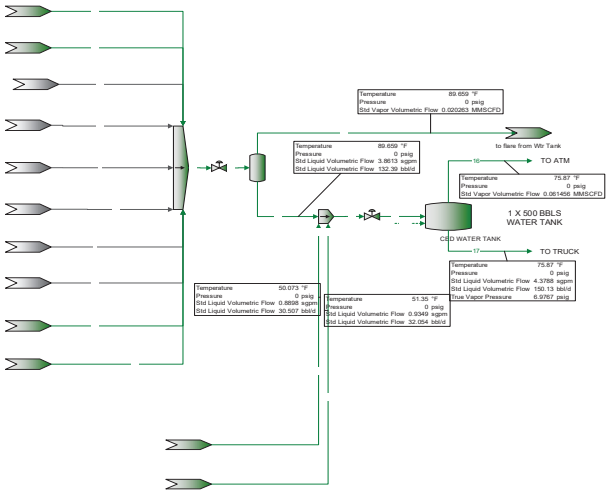
Process Streams		Air	AIR2	DRY AIR1	DRY AIR2	Emissions1	Emissions2	Fuel Gas	FUEL GAS2	12
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	Saturator	SAT-1	--	--	Thermal Oxidizer 1	Thermal Oxidizer 2	--	--	MIX-102
	To Block:	MIX-101	MIX-103	SAT-1	Saturator	--	--	VLVE-101	VLVE-100	MIX-103
Property	**Units**									
Temperature	°F	80	80	80*	80*	1929.84	1956.89	94.9840*	94.0663*	115.422
Pressure	psia	15.6959	15.6959	15.6959*	15.6959*	15.4459	14.4459	79.6959*	79.6959*	15.6959
Mole Fraction Vapor	%	100	100	100	100	100	100	100	100	100
Mole Fraction Light Liquid	%	0	0	0	0	0	0	0	0	0
Mole Fraction Heavy Liquid	%	0	0	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	28.6090	28.6090	28.9649	28.9649	32.0419	32.0826	19.8606	19.9782	39.4153
Mass Density	lb/ft^3	0.0775745	0.0775745	0.0785278	0.0785278	0.0192960	0.0178677	0.270287	0.272417	0.100714
Molar Flow	lbmol/h	332.129	382.924	370.476*	321.333*	579.246	493.084	10*	22*	192.948
Mass Flow	lb/h	9501.88	10955.1	10730.8	9307.38	18560.2	15819.4	198.606	439.520	7605.09
Vapor Volumetric Flow	ft^3/h	122487	141220	136650	118523	961868	885366	734.797	1613.41	75512.0
Liquid Volumetric Flow	gpm	15271.1	17606.6	17036.9	14776.9	119921	110383	91.6111	201.152	9414.49
Std Vapor Volumetric Flow	MMSCFD	3.02491	3.48753	3.37415	2.92658	5.27556	4.49082	0.0910762	0.200368	1.75730
Std Liquid Volumetric Flow	sgpm	21.7562	25.0835	24.6352	21.3673	44.4185	37.8739	1.18706	2.61961	20.1144
Compressibility		0.999491	0.999491	0.999643	0.999643	1.00022	1.00020	0.983826	0.983537	0.995319
Specific Gravity		0.987794	0.987794	1.00008	1.00008	1.10632	1.10773	0.685734	0.689794	1.36091
API Gravity										
Enthalpy	Btu/h	-1.13484E+06	-1.30840E+06	-14346.6	-12443.5	-2.98584E+07	-2.46237E+07	-339471	-747122	-2.85500E+07
Mass Enthalpy	Btu/lb	-119.433	-119.433	-1.33695	-1.33695	-1608.73	-1556.54	-1709.27	-1699.86	-3754.06
Mass Cp	Btu/(lb*°F)	0.244872	0.244872	0.240567	0.240567	0.322509	0.321520	0.502623	0.501468	0.233538
Ideal Gas CpCv Ratio		1.39691	1.39691	1.39987	1.39987	1.23790	1.23843	1.25384	1.25275	1.27684
Dynamic Viscosity	cP	0.0182602	0.0182602	0.0183453	0.0183453	0.0491630	0.0494945	0.0110925	0.0110609	0.0155513
Kinematic Viscosity	cSt	14.6948	14.6948	14.5841	14.5841	159.056	172.929	2.56202	2.53476	9.63959
Thermal Conductivity	Btu/(h*ft*°F)	0.0149197	0.0149197	0.0149444	0.0149444	0.0513687	0.0517183	0.0185583	0.0184789	0.0116262
Surface Tension	lbf/ft									
Net Ideal Gas Heating Value	Btu/ft^3	0	0	0	0	0.194336	0.173886	1083.55	1090.19	134.803
Net Liquid Heating Value	Btu/lb	-21.7303	-21.7303	-0.0375319	-0.0375319	-111.431	-106.318	20641.4	20645.4	1192.75
Gross Ideal Gas Heating Value	Btu/ft^3	1.63546	1.63546	0	0	7.00720	6.57208	1196.48	1203.57	152.004
Gross Liquid Heating Value	Btu/lb	-0.0367636	-0.0367636	-0.0375319	-0.0375319	-30.7433	-30.6381	22799.6	22799.6	1358.39

ProMax Flowsheet



Condensate Tanks Losses



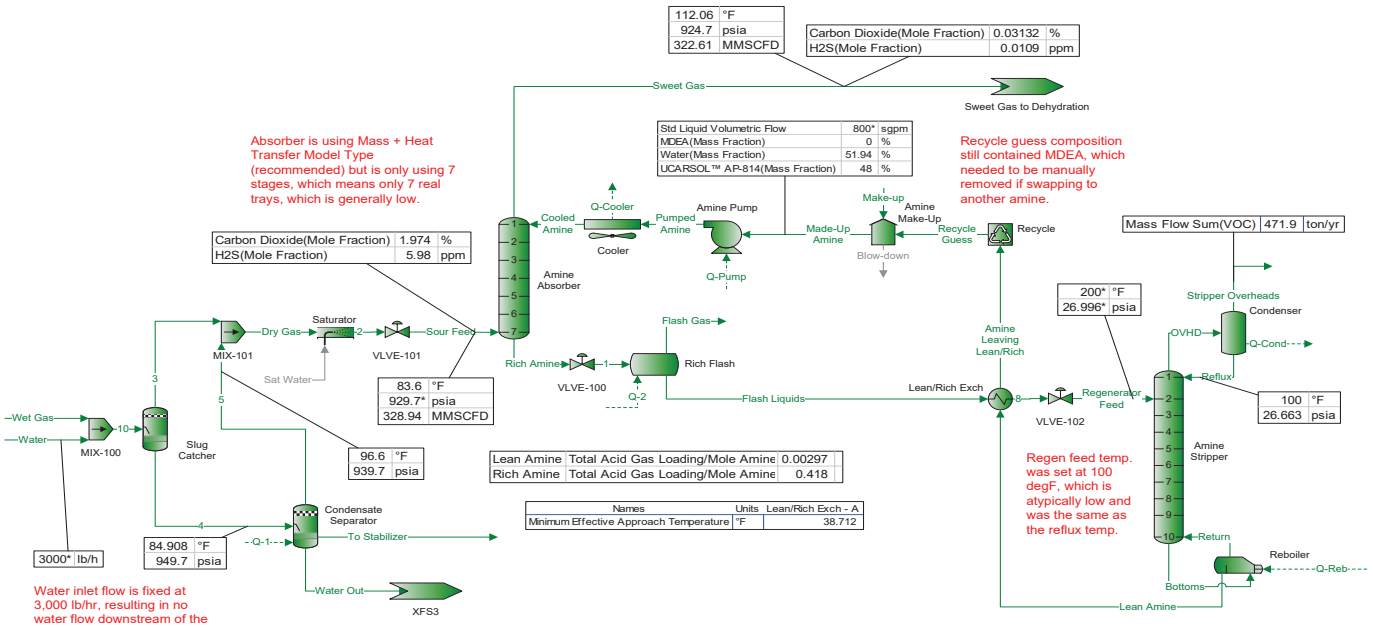


Water Tanks Losses



	UOM	Gas	T-701 PRODUCED WATER TANK	T-702 CONDENSATE STORAGE TANKS
Daily Rate	MMSCFD	510		
Daily Throughput	bbl/d		150	6000
Annual Throughput	gal/yr		2301523	91980000
Per Tank Throughput	gal/yr		2301523	15330000
# of Tanks			1	6
Turnover Per Tank	per year		133	906
Total Flow	lb/hr		408.75	17.92
VOC [C3+] total	lb/hr		387.60	17.92
VOC [C3+] per tank	lb/hr		387.60	2.99
Bz total	lb/hr		6.40	0.14
Bz per tank	lb/hr		6.40	0.02
H2S total	lb/hr		0.00	0.00
H2S per tank	lb/hr		0.0003	0.0000
Temperature	°F		75.87	75.56
VOC [C3+] wt %	%		94.83	100.00
Bz wt %	%		1.57	0.81
H2S wt %	%		0.0000767	0.0000000
MW Vapors	lb/lbmol		56.01	72.44
SCF/hr	SCF/hr		2768.64	93.86
HV	btu/ft^3		3098.29	4015.82
C3 % (mass)	%		16.23	0.13
			17	3
RVP	psi		18.28	8.83
Vapor Pressure @ 100 °F	psia		21.67	8.96
Vapor Pressure @ 65 °F	psia		12.23	4.47

*Results for vapor streams are for flashing, working ,and breathing combined unless otherwise noted in cell comments


112.06 °F
924.7 psia
322.61 MMSCFD
Carbon Dioxide(Mole Fraction) 0.03132 %
H2S(Mole Fraction) 0.0109 ppm
Sweet Gas
Sweet Gas to Dehydration
Absorber is using Mass + Heat Transfer Model Type (recommended) but is only using 7 stages, which means only 7 real trays, which is generally low.
Std Liquid Volumetric Flow 800* sgpm
MDEA(Mass Fraction) 0 %
Water(Mass Fraction) 51.94 %
UCARSOL™ AP-814(Mass Fraction) 48 %
Recycle guess composition still contained MDEA, which needed to be manually removed if swapping to another amine.
Mass Flow Sum(VOC) 471.9 ton/yr
Carbon Dioxide(Mole Fraction) 1.974 %
H2S(Mole Fraction) 5.98 ppm
Q-Cooler
Cooled Amine
Cooler
Pumped Amine
Amine Pump
Make-up
Amine Make-Up
Made-Up Amine
Recycle Guess
Recycle
Blow-down
Q-Pump
Amine Absorber
Stripper Overheads
Condenser
OVHD
Q-Cond
200* °F
26.996* psia
Reflux
100 °F
26.663 psia
Flash Gas
Rich Amine
VLVE-100
Q-2
Rich Flash
Amine Leaving Lean/Rich
Lean/Rich Exch
Flash Liquids
Regenerator Feed
VLVE-102
Amine Stripper
Return
Reboiler
Q-Reb
Bottoms
Lean Amine
Dry Gas
Saturator
Sour Feed
VLVE-101
MIX-101
Sat Water
83.6 °F
929.7* psia
328.94 MMSCFD
Wet Gas
Water
MIX-100
Slug Catcher
96.6 °F
939.7 psia
Lean Amine Total Acid Gas Loading/Mole Amine 0.00297
Rich Amine Total Acid Gas Loading/Mole Amine 0.418
Names Units Lean/Rich Exch - A
Minimum Effective Approach Temperature °F 38.712
Regen feed temp. was set at 100 degF, which is atypically low and was the same as the reflux temp.
Condensate Separator
To Stabilizer
Q-1
84.908 °F
949.7 psia
3000* lb/h
Water Out
XFS3
Water inlet flow is fixed at 3,000 lb/hr, resulting in no water flow downstream of the condensate separator.

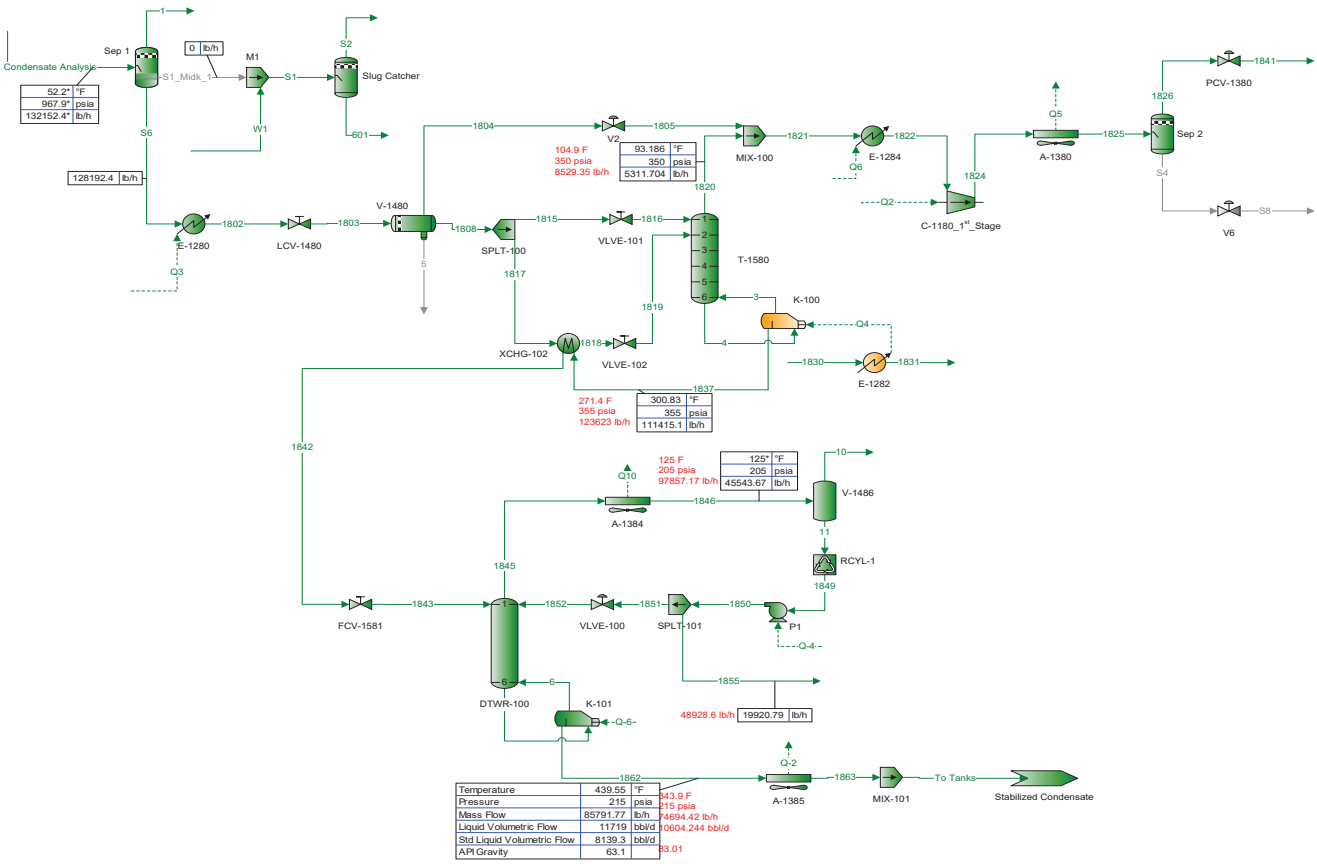
Process Streams		Flash Gas	Stripper Overheads	Wet Gas
Composition	Status:	Solved	Solved	Solved
Phase: Total	From Block:	Rich Flash	Condenser	--
	To Block:	--	--	MIX-100
Mole Fraction		%	%	%
H2S		0.00201069	0.0294590	0.000599997*
Nitrogen		0.412686	0.000384162	0.980328*
Methane		75.3108	0.209387	77.3651*
Carbon Dioxide		2.60212	95.9423	1.97249*
Ethane		12.7090	0.0599541	11.3931*
Propane		3.71240	0.0154933	5.24387*
i-Butane		0.609935	0.00222823	0.706152*
n-Butane		1.64359	0.00883676	1.50402*
i-Pentane		0.466701	0.00253544	0.300805*
n-Pentane		0.546528	0.00373380	0.297846*
2,2-Dimethylbutane		0.00699674	5.85528E-05	0.00295874*
Cyclopentane		0.0123982	0.000222294	0.00591747*
2-Methylpentane		0.0218529	0.000233055	0.00788997*
3-Methylpentane		0.0113661	0.000131376	0.00394498*
Hexane		0.0438604	0.000600093	0.0138074*
2,3-Dimethylpentane		0.0532905	0.00124605	0.0138074*
Methylcyclopentane		0.0202561	0.000360042	0.00690372*
2,2,3-Trimethylbutane		0.00696703	0.000118915	0.00197249*
Benzene		0.0360434	0.0168909	0.0128212*
Cyclohexane		0.00869166	0.000245602	0.00295874*
2-Methylhexane		0.00378942	8.95612E-05	0.000986246*
3-Methylhexane		0.00774205	0.000198312	0.00197249*
1,1-Dimethylcyclopentane		0.0281720	0.000695685	0.00788997*
Heptane		0.0158751	0.000515738	0.00394498*
Methylcyclohexane		0.00374839	0.000135633	0.000986246*
2,5-Dimethylhexane		0.0233938	0.00115146	0.00591747*
Toluene		0.00545269	0.00289049	0.00295874*
2-Methylheptane		0	0	0*
Octane		0.111818	0.0105576	0.0325461*
Ethylcyclohexane		0	0	0*
Ethylbenzene		0	0	0*
m-Xylene		0	0	0*
o-Xylene		0	0	0*
Nonane		0.0760268	0.0191205	0.0345186*
Decane		0.0713952	0.0501263	0.0710097*
Water		1.41502	3.62007	0*
Piperazine		0	0	0*
MDEA		0	0	0*
TEG		0	0	0*
UCARSOL™ AP-814		7.20568E-05	6.73582E-13	0*

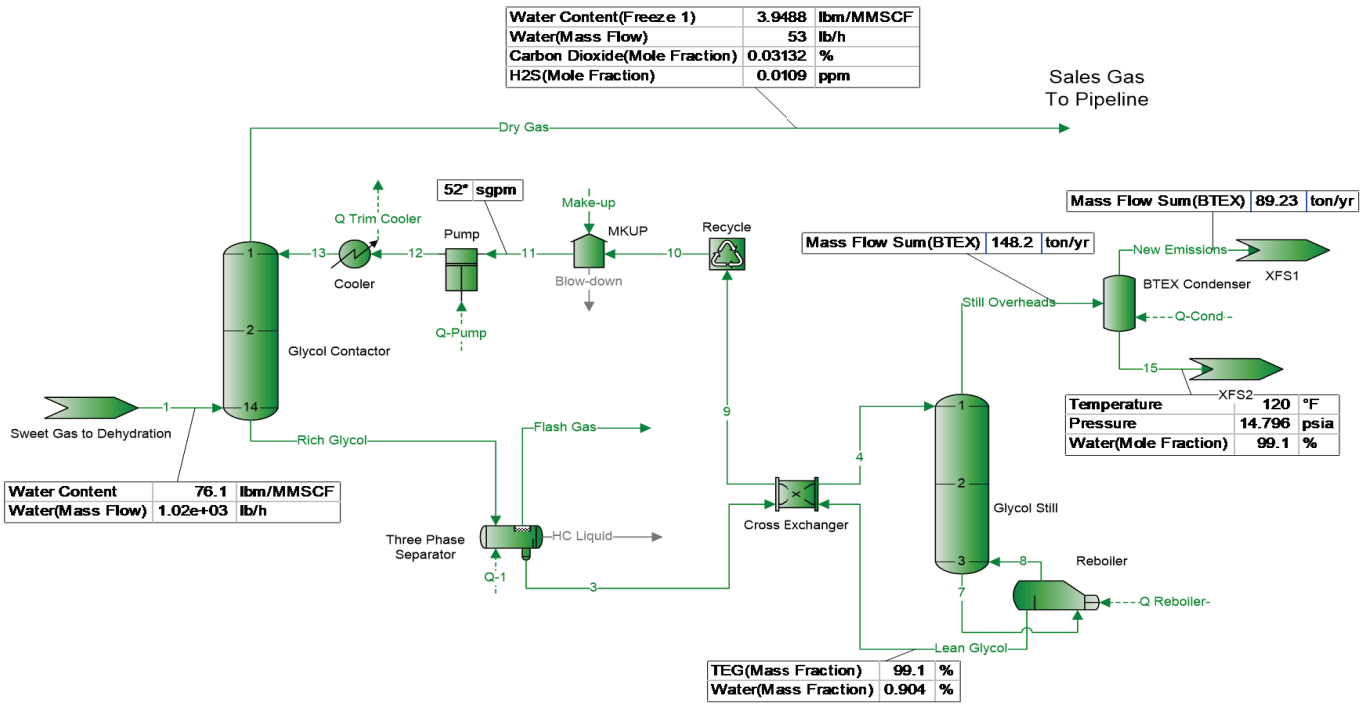
Molar Flow	lbmol/h	lbmol/h	lbmol/h
H2S	0.000375096	0.215327	0.217399*
Nitrogen	0.0769872	0.00280798	355.206*
Methane	14.0493	1.53049	28032.0*
Carbon Dioxide	0.485429	701.278	714.701*
Ethane	2.37087	0.438227	4128.11*
Propane	0.692552	0.113246	1900.03*
i-Butane	0.113784	0.0162869	255.863*
n-Butane	0.306615	0.0645912	544.959*
i-Pentane	0.0870637	0.0185325	108.992*
n-Pentane	0.101956	0.0272917	107.920*
2,2-Dimethylbutane	0.00130525	0.000427984	1.07205*
Cyclopentane	0.00231290	0.00162483	2.14410*
2-Methylpentane	0.00407668	0.00170348	2.85880*
3-Methylpentane	0.00212036	0.000960273	1.42940*
Hexane	0.00818222	0.00438630	5.00291*
2,3-Dimethylpentane	0.00994141	0.00910782	5.00291*
Methylcyclopentane	0.00377880	0.00263168	2.50145*
2,2,3-Trimethylbutane	0.00129971	0.000869193	0.714701*
Benzene	0.00672394	0.123462	4.64556*
Cyclohexane	0.00162144	0.00179520	1.07205*
2-Methylhexane	0.000706922	0.000654636	0.357350*
3-Methylhexane	0.00144429	0.00144954	0.714701*
1,1-Dimethylcyclopentane	0.00525553	0.00508502	2.85880*
Heptane	0.00296152	0.00376972	1.42940*
Methylcyclohexane	0.000699267	0.000991390	0.357350*
2,5-Dimethylhexane	0.00436415	0.00841645	2.14410*
Toluene	0.00101721	0.0211276	1.07205*
2-Methylheptane	0	0	0*
Octane	0.0208598	0.0771693	11.7926*
Ethylcyclohexane	0	0	0*
Ethylbenzene	0	0	0*
m-Xylene	0	0	0*
o-Xylene	0	0	0*
Nonane	0.0141829	0.139759	12.5073*
Decane	0.0133189	0.366392	25.7292*
Water	0.263973	26.4605	0*
Piperazine	0	0	0*
MDEA	0	0	0*
TEG	0	0	0*
UCARSOL™ AP-814	1.34423E-05	4.92346E-12	0*

Mass Fraction	%	%	%
H2S	0.00315658	0.0233025	0.000960952*
Nitrogen	0.532535	0.000249778	1.29056*
Methane	55.6533	0.0779641	58.3254*
Carbon Dioxide	5.27516	98.0009	4.07947*
Ethane	17.6032	0.0418419	16.0992*
Propane	7.54071	0.0158567	10.8665*
i-Butane	1.63301	0.00300590	1.92878*
n-Butane	4.40047	0.0119209	4.10808*
i-Pentane	1.55107	0.00424576	1.01990*
n-Pentane	1.81637	0.00625249	1.00986*
2,2-Dimethylbutane	0.0277742	0.000117113	0.0119821*
Cyclopentane	0.0400537	0.000361845	0.0195029*
2-Methylpentane	0.0867469	0.000466138	0.0319522*
3-Methylpentane	0.0451187	0.000262767	0.0159761*
Hexane	0.174108	0.00120026	0.0559163*
2,3-Dimethylpentane	0.245973	0.00289790	0.0650177*
Methylcyclopentane	0.0785274	0.000703282	0.0273041*
2,2,3-Trimethylbutane	0.0321578	0.000276558	0.00928824*
Benzene	0.129689	0.0306227	0.0470638*
Cyclohexane	0.0336952	0.000479743	0.0117018*
2-Methylhexane	0.0174909	0.000208290	0.00464412*
3-Methylhexane	0.0357351	0.000461211	0.00928824*
1,1-Dimethylcyclopentane	0.127418	0.00158539	0.0364055*
Heptane	0.0732748	0.00119944	0.0185765*
Methylcyclohexane	0.0169534	0.000309092	0.00455069*
2,5-Dimethylhexane	0.123094	0.00305279	0.0317653*
Toluene	0.0231427	0.00618137	0.0128112*
2-Methylheptane	0	0	0*
Octane	0.588367	0.0279906	0.174709*
Ethylcyclohexane	0	0	0*
Ethylbenzene	0	0	0*
m-Xylene	0	0	0*
o-Xylene	0	0	0*
Nonane	0.449163	0.0569178	0.208051*
Decane	0.467929	0.165534	0.474798*
Water	1.17426	1.51367	0*
Piperazine	0	0	0*
MDEA	0	0	0*
TEG	0	0	0*
UCARSOL™ AP-814	0.000378166	1.49148E-12	0*

Mass Flow	lb/h	lb/h	lb/h
H2S	0.0127836	7.33853	7.40916*
Nitrogen	2.15667	0.0786612	9950.54*
Methane	225.386	24.5528	449702*
Carbon Dioxide	21.3635	30862.9	31453.6*
Ethane	71.2899	13.1771	124128*
Propane	30.5385	4.99367	83783.1*
i-Butane	6.61338	0.946633	14871.3*
n-Butane	17.8211	3.75418	31674.2*
i-Pentane	6.28154	1.33710	7863.63*
n-Pentane	7.35597	1.96907	7786.28*
2,2-Dimethylbutane	0.112480	0.0368817	92.3844*
Cyclopentane	0.162210	0.113954	150.372*
2-Methylpentane	0.351310	0.146798	246.358*
3-Methylpentane	0.182723	0.0827519	123.179*
Hexane	0.705106	0.377991	431.127*
2,3-Dimethylpentane	0.996149	0.912621	501.301*
Methylcyclopentane	0.318022	0.221481	210.521*
2,2,3-Trimethylbutane	0.130233	0.0870948	71.6144*
Benzene	0.525219	9.64385	362.873*
Cyclohexane	0.136460	0.151083	90.2233*
2-Methylhexane	0.0708349	0.0655958	35.8072*
3-Methylhexane	0.144721	0.145247	71.6144*
1,1-Dimethylcyclopentane	0.516019	0.499279	280.695*
Heptane	0.296750	0.377734	143.229*
Methylcyclohexane	0.0686582	0.0973406	35.0868*
2,5-Dimethylhexane	0.498510	0.961399	244.918*
Toluene	0.0937237	1.94667	98.7771*
2-Methylheptane	0	0	0*
Octane	2.38278	8.81493	1347.05*
Ethylcyclohexane	0	0	0*
Ethylbenzene	0	0	0*
m-Xylene	0	0	0*
o-Xylene	0	0	0*
Nonane	1.81903	17.9248	1604.12*
Decane	1.89503	52.1308	3660.80*
Water	4.75555	476.693	0*
Piperazine	0	0	0*
MDEA	0	0	0*
TEG	0	0	0*
UCARSOL™ AP-814	0.00153150	4.69704E-10	0*

Process Streams		Flash Gas	Stripper Overheads	Wet Gas
Properties	Status:	Solved	Solved	Solved
Phase: Total	From Block:	Rich Flash	Condenser	--
	To Block:	--	--	MIX-100
Property	Units			
Temperature	°F	110*	100.0000	88.7*
Pressure	psig	65*	11.9667	976.5*
Mole Fraction Vapor	%	100	100	99.6455
Mole Fraction Light Liquid	%	0	0	0.354481
Mole Fraction Heavy Liquid	%	0	0	0
Phase Mole Fraction	%	100	100	100
Molecular Weight	lb/lbmol	21.7089	43.0851	21.2793
Mass Density	lb/ft^3	0.287829	0.193030	4.51832
Molar Flow	lbmol/h	18.6551	730.937	36233.4
Mass Flow	lb/h	404.982	31492.5	771023
Vapor Volumetric Flow	ft^3/h	1407.02	163148	170644
Liquid Volumetric Flow	gpm	175.421	20340.5	21275.1
Std Vapor Volumetric Flow	MMSCFD	0.169904	6.65710	330*
Std Liquid Volumetric Flow	sgpm	2.24967	77.0115	4364.41
Compressibility		0.983224	0.990851	0.793238
Specific Gravity		0.749552	1.48762	
API Gravity				
Enthalpy	Btu/h	-715302	-1.21402E+08	-1.34800E+09
Mass Enthalpy	Btu/lb	-1766.26	-3854.97	-1748.33
Mass Cp	Btu/(lb*°F)	0.486260	0.211351	0.647201
Ideal Gas CpCv Ratio		1.23669	1.28241	1.24552
Dynamic Viscosity	cP	0.0113834	0.0156540	
Kinematic Viscosity	cSt	2.46897	5.06267	
Thermal Conductivity	Btu/(h*ft*°F	0.0186486	0.0101267	
Surface Tension	lbf/ft			
Net Ideal Gas Heating Value	Btu/ft^3	1112.67	10.4538	1111.67
Net Liquid Heating Value	Btu/lb	19376.0	2.02189	19765.2
Gross Ideal Gas Heating Value	Btu/ft^3	1226.82	13.1441	1225.61
Gross Liquid Heating Value	Btu/lb	21371.9	25.7210	21797.6


Condensate Analysis
52.2* °F
967.9* psia
132152.4* lb/h
Sep 1
1
S1_Mixk_1
0 lb/h
M1
S1
S2
Slug Catcher
601
W1
S6
128192.4 lb/h
E-1280
Q3
1802
LCV-1480
1803
V-1480
5
1804
1808
SPLT-100
1815
VLVE-101
1816
T-1580
1817
1819
XCHG-102
1818
VLVE-102
1820
V2
1805
104.9 F
350 psia
8529.35 lb/h
93.186 °F
350 psia
5311.704 lb/h
MIX-100
1821
E-1284
Q6
1822
Q2
C-1180_1st_Stage
1824
A-1380
Q5
1825
Sep 2
1826
S4
PCV-1380
1841
V6
S8
K-100
Q4
E-1282
1830
1831
1837
271.4 F
355 psia
123623 lb/h
300.83 °F
355 psia
111415.1 lb/h
1842
125 F
205 psia
97857.17 lb/h
125* °F
205 psia
45543.67 lb/h
Q10
A-1384
1846
V-1486
10
11
RCYL-1
1849
1845
FCV-1581
1843
1852
VLVE-100
1851
SPLT-101
1850
P1
Q-4
DTWR-100
6
1855
48928.6 lb/h
19920.79 lb/h
K-101
Q-6
1862
Q-2
A-1385
1863
MIX-101
To Tanks
Stabilized Condensate
Temperature 439.55 °F
Pressure 215 psia
Mass Flow 85791.77 lb/h
Liquid Volumetric Flow 11719 bbl/d
Std Liquid Volumetric Flow 8139.3 bbl/d
API Gravity 63.1
843.9 F
215 psia
74694.42 lb/h
10604.244 bbl/d
63.01


Water Content(Freeze 1) 3.9488 lbm/MMSCF
Water(Mass Flow) 53 lb/h
Carbon Dioxide(Mole Fraction) 0.03132 %
H2S(Mole Fraction) 0.0109 ppm
Sales Gas
To Pipeline
Dry Gas
52* sgpm
Make-up
Q Trim Cooler
Pump
MKUP
Recycle
Mass Flow Sum(BTEX) 89.23 ton/yr
Mass Flow Sum(BTEX) 148.2 ton/yr
New Emissions
XFS1
BTEX Condenser
Still Overheads
Q-Cond
Cooler
Blow-down
Q-Pump
Glycol Contactor
Sweet Gas to Dehydration
Rich Glycol
Flash Gas
Three Phase
Separator
HC Liquid
Q-1
Cross Exchanger
Glycol Still
Reboiler
Q Reboiler
Lean Glycol
XFS2
Temperature 120 °F
Pressure 14.796 psia
Water(Mole Fraction) 99.1 %
Water Content 76.1 lbm/MMSCF
Water(Mass Flow) 1.02e+03 lb/h
TEG(Mass Fraction) 99.1 %
Water(Mass Fraction) 0.904 %

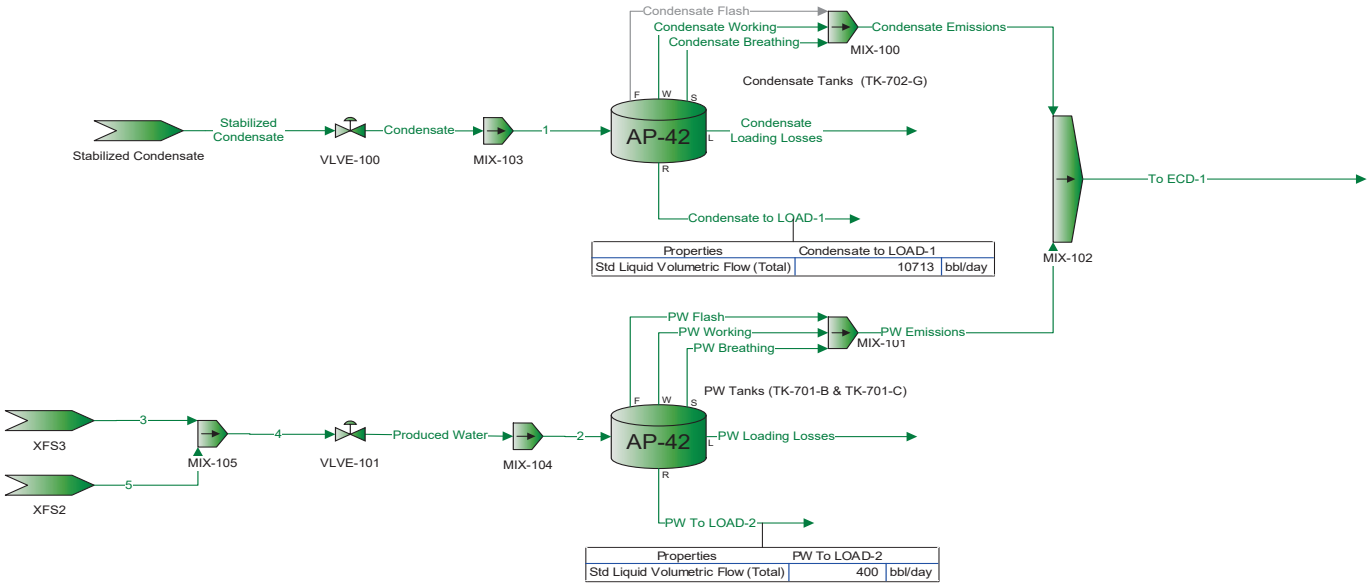
Process Streams		Dry Gas	Flash Gas	Still Overheads
Composition	Status:	Solved	Solved	Solved
Phase: Total	From Block:	Glycol Contactor	Three Phase Separator	Glycol Still
	To Block:	--	--	BTEX Condenser
Mole Fraction		%	%	%
Nitrogen		1.00393	0.190163	0.000429539
Carbon Dioxide		0.0313166	0.161763	0.00966151
H2S		1.08786E-06	1.31381E-05	3.55638E-06
Methane		79.1317	52.3296	0.410237
Ethane		11.6074	20.2991	0.497047
Propane		5.30592	13.5604	0.605774
i-Butane		0.707668	1.94544	0.115250
n-Butane		1.49687	5.46734	0.465130
i-Pentane		0.292589	1.14548	0.148714
n-Pentane		0.286092	1.27942	0.194808
Hexane		0.0122219	0.0575151	0.0179594
Heptane		0.00302094	0.0170317	0.00801175
Octane		0.0187804	0.103982	0.0783207
Nonane		0.0125803	0.0668511	0.0833162
Decane		0.0151465	0.0726810	0.150994
Water		0.00831732	2.74528	96.1098
2,2-Dimethylbutane		0.00277136	0.0110360	0.00228090
Cyclopentane		0.00553193	0.0508112	0.0292852
2-Methylpentane		0.00720716	0.0306641	0.00771369
3-Methylpentane		0.00357029	0.0168678	0.00512831
2,3-Dimethylpentane		0.0112261	0.0667285	0.0318233
Methylcyclopentane		0.00608059	0.0543709	0.0375562
2,2,3-Trimethylbutane		0.00168904	0.00917920	0.00350866
Benzene		0.0101565	0.170831	0.568746
Cyclohexane		0.00253507	0.0209055	0.0166400
2-Methylhexane		0.000804505	0.00409149	0.00146885
3-Methylhexane		0.00157990	0.00900019	0.00393758
1,1-Dimethylcyclopentane		0.00647019	0.0550080	0.0480607
Methylcyclohexane		0.000749325	0.00559815	0.00528587
2,5-Dimethylhexane		0.00417653	0.0200150	0.00860734
Toluene		0.00187483	0.0304305	0.177869
2-Methylheptane		0	0	0
Ethylcyclohexane		0	0	0
Ethylbenzene		0	0	0
m-Xylene		0	0	0
o-Xylene		0	0	0
MDEA		1.87304E-07	7.71779E-06	0.000332060
TEG		7.32371E-05	0.00236949	0.156261
Oxygen		0	0	0
NO		0	0	0
NO2		0	0	0
N2O		0	0	0
SO2		0	0	0

Molar Flow	lbmol/h	lbmol/h	lbmol/h
Nitrogen	354.950	0.0192472	0.000238921
Carbon Dioxide	11.0723	0.0163728	0.00537398
H2S	0.000384624	1.32976E-06	1.97815E-06
Methane	27977.9	5.29652	0.228185
Ethane	4103.92	2.05457	0.276470
Propane	1875.97	1.37251	0.336947
i-Butane	250.204	0.196907	0.0641048
n-Butane	529.235	0.553374	0.258718
i-Pentane	103.448	0.115939	0.0827185
n-Pentane	101.151	0.129496	0.108357
Hexane	4.32120	0.00582136	0.00998947
Heptane	1.06808	0.00172386	0.00445634
Octane	6.64003	0.0105245	0.0435640
Nonane	4.44791	0.00676631	0.0463426
Decane	5.35522	0.00735638	0.0839866
Water	2.94068	0.277862	53.4588
2,2-Dimethylbutane	0.979846	0.00111701	0.00126870
Cyclopentane	1.95587	0.00514284	0.0162892
2-Methylpentane	2.54817	0.00310365	0.00429055
3-Methylpentane	1.26231	0.00170727	0.00285250
2,3-Dimethylpentane	3.96911	0.00675389	0.0177009
Methylcyclopentane	2.14986	0.00550313	0.0208897
2,2,3-Trimethylbutane	0.597178	0.000929068	0.00195161
Benzene	3.59094	0.0172906	0.316351
Cyclohexane	0.896303	0.00211594	0.00925561
2-Methylhexane	0.284442	0.000414119	0.000817011
3-Methylhexane	0.558591	0.000910950	0.00219018
1,1-Dimethylcyclopentane	2.28761	0.00556761	0.0267326
Methylcyclohexane	0.264932	0.000566614	0.00294013
2,5-Dimethylhexane	1.47666	0.00202581	0.00478762
Toluene	0.662867	0.00308001	0.0989351
2-Methylheptane	0	0	0
Ethylcyclohexane	0	0	0
Ethylbenzene	0	0	0
m-Xylene	0	0	0
o-Xylene	0	0	0
MDEA	6.62235E-05	7.81153E-07	0.000184700
TEG	0.0258938	0.000239827	0.0869162
Oxygen	0	0	0
NO	0	0	0
NO2	0	0	0
N2O	0	0	0
SO2	0	0	0

Mass Fraction	%	%	%
Nitrogen	1.36175	0.190146	0.000606296
Carbon Dioxide	0.0667345	0.254110	0.0214244
H2S	1.79520E-06	1.59822E-05	6.10711E-06
Methane	61.4682	29.9650	0.331606
Ethane	16.8999	21.7867	0.753068
Propane	11.3289	21.3434	1.34593
i-Butane	1.99160	4.03604	0.337519
n-Butane	4.21265	11.3426	1.36218
i-Pentane	1.02215	2.94992	0.540626
n-Pentane	0.999458	3.29485	0.708195
Hexane	0.0509980	0.176913	0.0779814
Heptane	0.0146571	0.0609157	0.0404502
Octane	0.103875	0.423964	0.450783
Nonane	0.0781261	0.306040	0.538419
Decane	0.104350	0.369118	1.08249
Water	0.00725528	1.76532	87.2420
2,2-Dimethylbutane	0.0115640	0.0339462	0.00990390
Cyclopentane	0.0187857	0.127197	0.103487
2-Methylpentane	0.0300730	0.0943209	0.0334936
3-Methylpentane	0.0148976	0.0518844	0.0222676
2,3-Dimethylpentane	0.0544672	0.238662	0.160671
Methylcyclopentane	0.0247787	0.163330	0.159258
2,2,3-Trimethylbutane	0.00819493	0.0328304	0.0177147
Benzene	0.0384141	0.476299	2.23847
Cyclohexane	0.0103305	0.0627999	0.0705624
2-Methylhexane	0.00390332	0.0146337	0.00741600
3-Methylhexane	0.00766540	0.0321901	0.0198803
1,1-Dimethylcyclopentane	0.0307607	0.192784	0.237770
Methylcyclohexane	0.00356246	0.0196196	0.0261507
2,5-Dimethylhexane	0.0231004	0.0816065	0.0495404
Toluene	0.00836436	0.100079	0.825766
2-Methylheptane	0	0	0
Ethylcyclohexane	0	0	0
Ethylbenzene	0	0	0
m-Xylene	0	0	0
o-Xylene	0	0	0
MDEA	1.08073E-06	3.28267E-05	0.00199376
TEG	0.000532540	0.0127011	1.18238
Oxygen	0	0	0
NO	0	0	0
NO2	0	0	0
N2O	0	0	0
SO2	0	0	0

Mass Flow	lb/h	lb/h	lb/h
Nitrogen	9943.35	0.539180	0.00669298
Carbon Dioxide	487.287	0.720559	0.236506
H2S	0.0131083	4.53195E-05	6.74171E-05
Methane	448834	84.9692	3.66064
Ethane	123401	61.7788	8.31320
Propane	82721.9	60.5218	14.8579
i-Butane	14542.4	11.4447	3.72591
n-Butane	30760.3	32.1633	15.0372
i-Pentane	7463.65	8.36486	5.96804
n-Pentane	7297.92	9.34295	7.81785
Hexane	372.381	0.501658	0.860846
Heptane	107.024	0.172734	0.446534
Octane	758.480	1.20220	4.97625
Nonane	570.468	0.867813	5.94367
Decane	761.950	1.04668	11.9498
Water	52.9772	5.00576	963.075
2,2-Dimethylbutane	84.4386	0.0962586	0.109330
Cyclopentane	137.171	0.360682	1.14241
2-Methylpentane	219.590	0.267458	0.369740
3-Methylpentane	108.780	0.147124	0.245815
2,3-Dimethylpentane	397.713	0.676753	1.77367
Methylcyclopentane	180.931	0.463141	1.75807
2,2,3-Trimethylbutane	59.8384	0.0930945	0.195555
Benzene	280.495	1.35060	24.7108
Cyclohexane	75.4324	0.178077	0.778947
2-Methylhexane	28.5016	0.0414955	0.0818661
3-Methylhexane	55.9719	0.0912790	0.219460
1,1-Dimethylcyclopentane	224.611	0.546662	2.62477
Methylcyclohexane	26.0126	0.0556336	0.288680
2,5-Dimethylhexane	168.676	0.231405	0.546883
Toluene	61.0755	0.283787	9.11573
2-Methylheptane	0	0	0
Ethylcyclohexane	0	0	0
Ethylbenzene	0	0	0
m-Xylene	0	0	0
o-Xylene	0	0	0
MDEA	0.00789134	9.30840E-05	0.0220093
TEG	3.88855	0.0360156	13.0525
Oxygen	0	0	0
NO	0	0	0
NO2	0	0	0
N2O	0	0	0
SO2	0	0	0

Process Streams		Dry Gas	Flash Gas	Still Overheads
Properties	Status:	Solved	Solved	Solved
Phase: Total	From Block:	Glycol Contactor	Three Phase Separator	Glycol Still
	To Block:	--	--	BTEX Condenser
Property	Units			
Temperature	°F	112.163	175*	263.500
Pressure	psig	883	36*	0.1
Mole Fraction Vapor	%	100	100	100
Mole Fraction Light Liquid	%	0	0	0
Mole Fraction Heavy Liquid	%	0	0	0
Phase Mole Fraction	%	100	100	100
Molecular Weight	lb/lbmol	20.6524	28.0159	19.8465
Mass Density	lb/ft^3	3.58837	0.211411	0.0381054
Molar Flow	lbmol/h	35356.1	10.1215	55.6226
Mass Flow	lb/h	730188	283.562	1103.91
Vapor Volumetric Flow	ft^3/h	203488	1341.28	28969.9
Liquid Volumetric Flow	gpm	25369.9	167.225	3611.84
Std Vapor Volumetric Flow	MMSCFD	322.010	0.0921824	0.506589
Std Liquid Volumetric Flow	sgpm	4253.50	1.39527	2.35846
Compressibility		0.841919	0.986369	0.992968
Specific Gravity		0.713074	0.967317	0.685247
API Gravity				
Enthalpy	Btu/h	-1.20414E+09	-386954	-5.57007E+06
Mass Enthalpy	Btu/lb	-1649.08	-1364.62	-5045.76
Mass Cp	Btu/(lb*°F)	0.623303	0.496667	0.458681
Ideal Gas CpCv Ratio		1.24060	1.16851	1.28114
Dynamic Viscosity	cP	0.0129948	0.0114650	0.0136174
Kinematic Viscosity	cSt	0.226075	3.38554	22.3094
Thermal Conductivity	Btu/(h*ft*°F	0.0224849	0.0189611	0.0167272
Surface Tension	lbf/ft			
Net Ideal Gas Heating Value	Btu/ft^3	1124.76	1473.87	121.041
Net Liquid Heating Value	Btu/lb	20609.2	19838.8	1368.87
Gross Ideal Gas Heating Value	Btu/ft^3	1240.32	1614.75	178.423
Gross Liquid Heating Value	Btu/lb	22733.1	21747.6	2466.11


Condensate Flash
Condensate Working
Condensate Breathing
MIX-100
Condensate Emissions
Condensate Tanks (TK-702-G)
F
W
S
Stabilized Condensate
Stabilized Condensate
VLVE-100
Condensate
MIX-103
1
AP-42
L
R
Condensate Loading Losses
To ECD-1
MIX-102
Condensate to LOAD-1
Properties
Condensate to LOAD-1
Std Liquid Volumetric Flow (Total)
10713
bbl/day
PW Flash
PW Working
PW Breathing
MIX-101
PW Emissions
PW Tanks (TK-701-B & TK-701-C)
XFS3
3
MIX-105
4
VLVE-101
Produced Water
MIX-104
2
AP-42
PW Loading Losses
XFS2
5
PW To LOAD-2
Properties
PW To LOAD-2
Std Liquid Volumetric Flow (Total)
400
bbl/day

Process Streams		Condensate Breathing	Condensate Flash	Condensate Working	PW Breathing	PW Flash	PW Working	To ECD-1
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	Condensate Tanks (TK-702-G)	Condensate Tanks (TK-702-G)	Condensate Tanks (TK-702-G)	PW Tanks (TK-701-B & TK-701-C)	PW Tanks (TK-701-B & TK-701-C)	PW Tanks (TK-701-B & TK-701-C)	MIX-102
	To Block:	MIX-100	MIX-100	MIX-100	MIX-101	MIX-101	MIX-101	--
Mole Fraction		%	%	%	%	%	%	%
Nitrogen		1.64222E-10	1.38448E-10	1.64222E-10	0.00789063	0.185192	0.00789063	0.166638
Carbon Dioxide		0.000917815	0.000817338	0.000917815	7.78834	5.71713	7.78834	5.52420
H2S		0	0	0	0.00981438	0.00407490	0.00981438	0.00415197
Methane		0.000157446	0.000136101	0.000157446	3.78297	34.9055	3.78297	31.5240
Ethane		0.169728	0.152992	0.169728	6.70753	15.9812	6.70753	14.6923
Propane		1.78455	1.65608	1.78455	21.3569	16.5139	21.3569	15.9919
i-Butane		1.76484	1.67348	1.76484	8.65847	3.69725	8.65847	3.84653
n-Butane		6.84347	6.54237	6.84347	23.0320	9.90764	23.0320	10.4090
i-Pentane		4.47717	4.36789	4.47717	6.51500	2.86481	6.51500	3.13240
n-Pentane		4.94038	4.86023	4.94038	7.26248	3.21992	7.26248	3.51288
Hexane		16.0287	16.2815	16.0287	0.388655	0.177678	0.388655	1.01242
Heptane		1.55156	1.61753	1.55156	0.0865036	0.0406362	0.0865036	0.121500
Octane		0.257950	0.276425	0.257950	0.371171	0.179412	0.371171	0.193149
Nonane		0.0147218	0.0162163	0.0147218	0.174289	0.0865573	0.174289	0.0872391
Decane		0.385064	0.435446	0.385064	0.123782	0.0631241	0.123782	0.0829159
Water		0	0	0	6.13347	2.99148	6.13347	2.99412
2,2-Dimethylbutane		1.53467	1.52412	1.53467	0.0787022	0.0351788	0.0787022	0.115331
Cyclopentane		8.61626	8.51844	8.61626	0.338867	0.150771	0.338867	0.600374
2-Methylpentane		18.4765	18.5211	18.4765	0.218407	0.0985381	0.218407	1.06007
3-Methylpentane		8.69279	8.74153	8.69279	0.116262	0.0526164	0.116262	0.505037
2,3-Dimethylpentane		0.371557	0.382186	0.371557	0.387006	0.179355	0.387006	0.199802
Methylcyclopentane		7.55670	7.60374	7.55670	0.411116	0.186063	0.411116	0.580604
2,2,3-Trimethylbutane		0	0	0	0.0573703	0.0262263	0.0573703	0.0264306
Benzene		4.43067	4.45928	4.43067	4.38462	1.98776	4.38462	2.23544
Cyclohexane		6.73605	6.82466	6.73605	0.173074	0.0788691	0.173074	0.429729
2-Methylhexane		0.957980	0.986957	0.957980	0.0228483	0.0106068	0.0228483	0.0604785
3-Methylhexane		0	0	0	0.0489061	0.0228034	0.0489061	0.0229319
1,1-Dimethylcyclopentane		1.55895	1.59621	1.55895	0.419409	0.193408	0.419409	0.275783
Methylcyclohexane		1.93751	2.00903	1.93751	0.0392512	0.0183150	0.0392512	0.119151
2,5-Dimethylhexane		0.0179622	0.0189031	0.0179622	0.0896904	0.0425704	0.0896904	0.0436631
Toluene		0.718582	0.746767	0.718582	0.814476	0.381002	0.814476	0.420375
2-Methylheptane		0.103760	0.110143	0.103760	0	0	0	0.00539466
Ethylcyclohexane		0.0191536	0.0203802	0.0191536	0	0	0	0.000995827
Ethylbenzene		0.00820895	0.00880318	0.00820895	0	0	0	0.000426796
m-Xylene		0.0379666	0.0407494	0.0379666	0	0	0	0.00197394
o-Xylene		0.00551944	0.00594056	0.00551944	0	0	0	0.000286964
MDEA		0	0	0	0.000720019	0.000301113	0.000720019	0.000306546
TEG		0	0	0	7.61735E-09	5.85512E-09	7.61735E-09	5.63942E-09
Oxygen		0	0	0	0	0	0	0
NO		0	0	0	0	0	0	0
NO2		0	0	0	0	0	0	0
N2O		0	0	0	0	0	0	0
SO2		0	0	0	0	0	0	0

Molar Flow	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Nitrogen	3.25866E-15	0	1.93871E-13	2.76471E-06	0.00383817	6.40652E-06	0.00384734
Carbon Dioxide	1.82122E-08	0	1.08351E-06	0.00272887	0.118489	0.00632347	0.127543
H2S	0	0	0	3.43875E-06	8.44535E-05	7.96844E-06	9.58607E-05
Methane	3.12419E-09	0	1.85871E-07	0.00132547	0.723428	0.00307145	0.727825
Ethane	3.36791E-06	0	0.000200371	0.00235018	0.331216	0.00544594	0.339216
Propane	3.54108E-05	0	0.00210673	0.00748301	0.342257	0.0173400	0.369222
i-Butane	3.50197E-05	0	0.00208346	0.00303374	0.0766266	0.00702994	0.0888087
n-Butane	0.000135795	0	0.00807897	0.00806991	0.205339	0.0187000	0.240323
i-Pentane	8.88403E-05	0	0.00528546	0.00228272	0.0593741	0.00528963	0.0723207
n-Pentane	9.80319E-05	0	0.00583231	0.00254462	0.0667338	0.00589651	0.0811053
Hexane	0.000318057	0	0.0189225	0.000136176	0.00368242	0.000315555	0.0233747
Heptane	3.07875E-05	0	0.00183167	3.03090E-05	0.000842199	7.02336E-05	0.00280520
Octane	5.11850E-06	0	0.000304520	0.000130051	0.00371837	0.000301360	0.00445942
Nonane	2.92124E-07	0	1.73797E-05	6.10672E-05	0.00179393	0.000141508	0.00201417
Decane	7.64081E-06	0	0.000454582	4.33707E-05	0.00130827	0.000100501	0.00191436
Water	0	0	0	0.00214904	0.0619994	0.00497986	0.0691283
2,2-Dimethylbutane	3.04524E-05	0	0.00181174	2.75755E-05	0.000729092	6.38995E-05	0.00266276
Cyclopentane	0.000170972	0	0.0101718	0.000118732	0.00312477	0.000275131	0.0138614
2-Methylpentane	0.000366629	0	0.0218122	7.65253E-05	0.00204223	0.000177328	0.0244750
3-Methylpentane	0.000172491	0	0.0102622	4.07358E-05	0.00109049	9.43951E-05	0.0116603
2,3-Dimethylpentane	7.37280E-06	0	0.000438637	0.000135599	0.00371720	0.000314216	0.00461302
Methylcyclopentane	0.000149947	0	0.00892097	0.000144046	0.00385621	0.000333791	0.0134050
2,2,3-Trimethylbutane	0	0	0	2.01013E-05	0.000543547	4.65798E-05	0.000610228
Benzene	8.79177E-05	0	0.00523057	0.00153628	0.0411970	0.00355994	0.0516117
Cyclohexane	0.000133663	0	0.00795216	6.06414E-05	0.00163459	0.000140521	0.00992157
2-Methylhexane	1.90092E-05	0	0.00113093	8.00554E-06	0.000219830	1.85508E-05	0.00139633
3-Methylhexane	0	0	0	1.71357E-05	0.000472608	3.97076E-05	0.000529452
1,1-Dimethylcyclopentane	3.09342E-05	0	0.00184040	0.000146952	0.00400845	0.000340525	0.00636726
Methylcyclohexane	3.84460E-05	0	0.00228730	1.37528E-05	0.000379584	3.18686E-05	0.00275096
2,5-Dimethylhexane	3.56424E-07	0	2.12051E-05	3.14256E-05	0.000882284	7.28209E-05	0.00100809
Toluene	1.42588E-05	0	0.000848313	0.000285375	0.00789639	0.000661286	0.00970562
2-Methylheptane	2.05891E-06	0	0.000122493	0	0	0	0.00012455
Ethylcyclohexane	3.80065E-07	0	2.26116E-05	0	0	0	2.29916E-05
Ethylbenzene	1.62890E-07	0	9.69098E-06	0	0	0	9.85387E-06
m-Xylene	7.53370E-07	0	4.48210E-05	0	0	0	4.55744E-05
o-Xylene	1.09522E-07	0	6.51591E-06	0	0	0	6.62543E-06
MDEA	0	0	0	2.52279E-07	6.24066E-06	5.84594E-07	7.07753E-06
TEG	0	0	0	2.66896E-12	1.21349E-10	6.18464E-12	1.30203E-10
Oxygen	0	0	0	0	0	0	0
NO	0	0	0	0	0	0	0
NO2	0	0	0	0	0	0	0
N2O	0	0	0	0	0	0	0
SO2	0	0	0	0	0	0	0

Mass Fraction	%	%	%	%	%	%	%
Nitrogen	5.69527E-11	4.78495E-11	5.69527E-11	0.00420908	0.141816	0.00420908	0.117639
Carbon Dioxide	0.000500055	0.000443787	0.000500055	6.52682	6.87796	6.52682	6.12669
H2S	0	0	0	0.00636919	0.00379632	0.00636919	0.00356595
Methane	3.12694E-05	2.69377E-05	3.12694E-05	1.15562	15.3074	1.15562	12.7445
Ethane	0.0631816	0.0567563	0.0631816	3.84054	13.1361	3.84054	11.1332
Propane	0.974184	0.900958	0.974184	17.9327	19.9059	17.9327	17.7708
i-Butane	1.26988	1.20003	1.26988	9.58282	5.87429	9.58282	5.63407
n-Butane	4.92419	4.69142	4.92419	25.4908	15.7415	25.4908	15.2462
i-Pentane	3.99898	3.88801	3.99898	8.95063	5.65015	8.95063	5.69529
n-Pentane	4.41272	4.32626	4.41272	9.97755	6.35052	9.97755	6.38708
Hexane	17.1001	17.3103	17.1001	0.637760	0.418553	0.637760	2.19863
Heptane	1.92469	1.99965	1.92469	0.165052	0.111308	0.165052	0.306806
Octane	0.364777	0.389564	0.364777	0.807345	0.560223	0.807345	0.556003
Nonane	0.0233751	0.0256597	0.0233751	0.425653	0.303469	0.425653	0.281965
Decane	0.678263	0.764382	0.678263	0.335365	0.245516	0.335365	0.297301
Water	0	0	0	2.10406	1.47320	2.10406	1.35932
2,2-Dimethylbutane	1.63725	1.62043	1.63725	0.129146	0.0828705	0.129146	0.250460
Cyclopentane	7.48096	7.37070	7.48096	0.452545	0.289051	0.452545	1.06109
2-Methylpentane	19.7115	19.6914	19.7115	0.358394	0.232125	0.358394	2.30213
3-Methylpentane	9.27382	9.29389	9.27382	0.190780	0.123948	0.190780	1.09677
2,3-Dimethylpentane	0.460913	0.472474	0.460913	0.738421	0.491276	0.738421	0.504529
Methylcyclopentane	7.87321	7.89509	7.87321	0.658837	0.428053	0.658837	1.23138
2,2,3-Trimethylbutane	0	0	0	0.109465	0.0718369	0.109465	0.0667410
Benzene	4.28453	4.29743	4.28453	6.52167	4.24440	6.52167	4.40037
Cyclohexane	7.01819	7.08616	7.01819	0.277361	0.181445	0.277361	0.911397
2-Methylhexane	1.18836	1.22012	1.18836	0.0435953	0.0290534	0.0435953	0.152717
3-Methylhexane	0	0	0	0.0933146	0.0624614	0.0933146	0.0579064
1,1-Dimethylcyclopentane	1.89496	1.93361	1.89496	0.784148	0.519111	0.784148	0.682381
Methylcyclohexane	2.35511	2.43368	2.35511	0.0733859	0.0491578	0.0733859	0.294820
2,5-Dimethylhexane	0.0254010	0.0266399	0.0254010	0.195088	0.132928	0.195088	0.125689
Toluene	0.819660	0.848892	0.819660	1.42899	0.959629	1.42899	0.976086
2-Methylheptane	0.146731	0.155224	0.146731	0	0	0	0.0155292
Ethylcyclohexane	0.0266078	0.0282148	0.0266078	0	0	0	0.00281602
Ethylbenzene	0.0107891	0.0115305	0.0107891	0	0	0	0.00114186
m-Xylene	0.0498999	0.0533739	0.0498999	0	0	0	0.00528112
o-Xylene	0.00725426	0.00778100	0.00725426	0	0	0	0.000767750
MDEA	0	0	0	0.00163378	0.000980852	0.00163378	0.000920544
TEG	0	0	0	2.17824E-08	2.40360E-08	2.17824E-08	2.13420E-08
Oxygen	0	0	0	0	0	0	0
NO	0	0	0	0	0	0	0
NO2	0	0	0	0	0	0	0
N2O	0	0	0	0	0	0	0
SO2	0	0	0	0	0	0	0

Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Nitrogen	9.12861E-14	0	5.43097E-12	7.74488E-05	0.107520	0.000179468	0.107777
Carbon Dioxide	8.01509E-07	0	4.76849E-05	0.120096	5.21465	0.278293	5.61309
H2S	0	0	0	0.000117196	0.00287825	0.000271572	0.00326702
Methane	5.01198E-08	0	2.98182E-06	0.0212638	11.6056	0.0492736	11.6761
Ethane	0.000101270	0	0.00602495	0.0706675	9.95935	0.163754	10.1999
Propane	0.00156146	0	0.0928976	0.329968	15.0920	0.764619	16.2811
i-Butane	0.00203542	0	0.121095	0.176328	4.45370	0.408596	5.16176
n-Butane	0.00789269	0	0.469567	0.469041	11.9347	1.08689	13.9681
i-Pentane	0.00640972	0	0.381340	0.164695	4.28377	0.381640	5.21785
n-Pentane	0.00707288	0	0.420794	0.183591	4.81476	0.425426	5.85165
Hexane	0.0274086	0	1.63065	0.0117350	0.317334	0.0271930	2.01432
Heptane	0.00308497	0	0.183537	0.00303702	0.0843899	0.00703754	0.281087
Octane	0.000584679	0	0.0347849	0.0148555	0.424744	0.0344239	0.509393
Nonane	3.74665E-05	0	0.00222903	0.00783218	0.230080	0.0181491	0.258328
Decane	0.00108715	0	0.0646787	0.00617085	0.186142	0.0142994	0.272379
Water	0	0	0	0.0387155	1.11694	0.0897135	1.24537
2,2-Dimethylbutane	0.00262425	0	0.156127	0.00237633	0.0628298	0.00550656	0.229464
Cyclopentane	0.0119908	0	0.713379	0.00832701	0.219149	0.0192958	0.972142
2-Methylpentane	0.0315944	0	1.87968	0.00659459	0.175990	0.0152813	2.10914
3-Methylpentane	0.0148645	0	0.884346	0.00351043	0.0939734	0.00813453	1.00483
2,3-Dimethylpentane	0.000738769	0	0.0439523	0.0135872	0.372470	0.0314851	0.462234
Methylcyclopentane	0.0126195	0	0.750784	0.0121229	0.324536	0.0280917	1.12815
2,2,3-Trimethylbutane	0	0	0	0.00201419	0.0544645	0.00466739	0.0611461
Benzene	0.00686741	0	0.408570	0.120001	3.21797	0.278073	4.03148
Cyclohexane	0.0112490	0	0.669249	0.00510355	0.137566	0.0118262	0.834994
2-Methylhexane	0.00190476	0	0.113322	0.000802171	0.0220274	0.00185883	0.139915
3-Methylhexane	0	0	0	0.00171703	0.0473563	0.00397878	0.0530521
1,1-Dimethylcyclopentane	0.00303731	0	0.180702	0.0144286	0.393574	0.0334348	0.625176
Methylcyclohexane	0.00377486	0	0.224581	0.00135033	0.0372699	0.00312906	0.270106
2,5-Dimethylhexane	4.07138E-05	0	0.00242223	0.00358970	0.100782	0.00831823	0.115153
Toluene	0.00131378	0	0.0781622	0.0262940	0.727561	0.0609298	0.894260
2-Methylheptane	0.000235186	0	0.0139922	0	0	0	0.0142274
Ethylcyclohexane	4.26481E-05	0	0.00253730	0	0	0	0.00257995
Ethylbenzene	1.72932E-05	0	0.00102884	0	0	0	0.00104614
m-Xylene	7.99815E-05	0	0.00475842	0	0	0	0.00483840
o-Xylene	1.16274E-05	0	0.000691761	0	0	0	0.000703389
MDEA	0	0	0	3.00622E-05	0.000743651	6.96616E-05	0.000843375
TEG	0	0	0	4.00805E-10	1.82234E-08	9.28765E-10	1.95529E-08
Oxygen	0	0	0	0	0	0	0
NO	0	0	0	0	0	0	0
NO2	0	0	0	0	0	0	0
N2O	0	0	0	0	0	0	0
SO2	0	0	0	0	0	0	0

Process Streams		Condensate Breathing	Condensate Flash	Condensate Working	PW Breathing	PW Flash	PW Working	To ECD-1
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	Condensate Tanks (TK-702-G)	Condensate Tanks (TK-702-G)	Condensate Tanks (TK-702-G)	PW Tanks (TK-701-B & TK-701-C)	PW Tanks (TK-701-B & TK-701-C)	PW Tanks (TK-701-B & TK-701-C)	MIX-102
	To Block:	MIX-100	MIX-100	MIX-100	MIX-101	MIX-101	MIX-101	--
Property	Units							
Temperature	°F	71.6806	71.6806	71.6806	71.6806	71.6806	71.6806	56.0740
Pressure	psig	-1.81595	-1.81595	-1.81595	-1.81595	-1.81595	-1.81595	-1.81595
Mole Fraction Vapor	%	0		0	94.0608	100	94.0608	97.1658
Mole Fraction Light Liquid	%	100		100	2.60707	0	2.60707	1.52306
Mole Fraction Heavy Liquid	%	0		0	3.33214	0	3.33214	1.31116
Phase Mole Fraction	%	100	100	100	100	100	100	100
Molecular Weight	lb/lbmol	80.7762	81.0538	80.7762	52.5158	36.5818	52.5158	39.6817
Mass Density	lb/ft^3	42.6093		42.6093	0.128530	0.0834080	0.128530	0.0961444
Molar Flow	lbmol/h	0.00198430	0	0.118054	0.0350379	2.07253	0.0811915	2.30880
Mass Flow	lb/h	0.160284	0	9.53593	1.84004	75.8168	4.26384	91.6169
Vapor Volumetric Flow	ft^3/h	0.00376171	0	0.223799	14.3161	908.987	33.1740	952.910
Liquid Volumetric Flow	gpm	0.000468993	0	0.0279023	1.78486	113.328	4.13597	118.804
Std Vapor Volumetric Flow	MMSCFD	1.80722E-05	0	0.00107519	0.000319111	0.0188758	0.000739461	0.0210277
Std Liquid Volumetric Flow	sgpm	0.000467721	0	0.0278266	0.00621543	0.311752	0.0144027	0.360665
Compressibility		0.00428204		0.00428204	0.922907	0.990668	0.922907	0.960471
Specific Gravity		0.683183		0.683183		1.26307		
API Gravity		73.7484		73.7484				
Enthalpy	Btu/h	-141.166?	0	-8398.55?	-2140.00?	-101736?	-4958.92?	-117374
Mass Enthalpy	Btu/lb	-880.726?		-880.726?	-1163.02?	-1341.86?	-1163.02?	-1281.14
Mass Cp	Btu/(lb*°F)	0.494952?		0.494952?	0.387857?	0.399343?	0.387857?	0.393594?
Ideal Gas CpCv Ratio		1.07334	1.07310	1.07334	1.11270	1.15831	1.11270	1.14999
Dynamic Viscosity	cP	0.331939		0.331939		0.00933872		
Kinematic Viscosity	cSt	0.486332		0.486332		6.98970		
Thermal Conductivity	Btu/(h*ft*°F	0.0671659		0.0671659		0.0125482?		
Surface Tension	lbf/ft	0.00128458?		0.00128458?				
Net Ideal Gas Heating Value	Btu/ft^3	4080.85	4094.14	4080.85	2464.58	1760.60	2464.58	1916.67
Net Liquid Heating Value	Btu/lb	19045.6	19042.5	19045.6	17639.3	18122.8	17639.3	18188.2
Gross Ideal Gas Heating Value	Btu/ft^3	4393.32	4407.45	4393.32	2667.19	1916.98	2667.19	2083.50
Gross Liquid Heating Value	Btu/lb	20513.4	20509.1	20513.4	19103.6	19745.4	19103.6	19783.9

	UOM	Gas	T-701 PRODUCED WATER TANK	T-702 CONDENSATE STORAGE TANKS
Daily Rate	MMSCFD	510		
Daily Throughput	bbl/d		150	6000
Annual Throughput	gal/yr		2301523	91980000
Per Tank Throughput	gal/yr		2301523	15330000
# of Tanks			1	6
Turnover Per Tank	per year		133	906
Total Flow	lb/hr		408.75	17.92
VOC [C3+] total	lb/hr		387.60	17.92
VOC [C3+] per tank	lb/hr		387.60	2.99
Bz total	lb/hr		6.40	0.14
Bz per tank	lb/hr		6.40	0.02
H2S total	lb/hr		0.00	0.00
H2S per tank	lb/hr		0.0003	0.0000
Temperature	°F		75.87	75.56
VOC [C3+] wt %	%		94.83	100.00
Bz wt %	%		1.57	0.81
H2S wt %	%		0.0000767	0.0000000
MW Vapors	lb/lbmol		56.01	72.44
SCF/hr	SCF/hr		2768.64	93.86
HV	btu/ft^3		3098.29	4015.82
C3 % (mass)	%		16.23	0.13
			17	3
RVP	psi		18.28	8.83
Vapor Pressure @ 100 °F	psia		21.67	8.96
Vapor Pressure @ 65 °F	psia		12.23	4.47

*Results for vapor streams are for flashing, working ,and breathing combined unless otherwise noted in cell comments

BURNER DATA SHEET

PROJECT TITLE	:
LOCATION	:
OWNER	: Matador Resources Co
OWNER REFERENCE	: H-801
PURCHASER	: Tulsa Heaters Midstream
PURCHASER REFERENCE	: MJ18-325
UNIT	:
HEATER SERVICE	: Hot Oil Heater
ITEM NUMBER	:
CALLIDUS REFERENCE	: BB-9024982
CALLIDUS DOCUMENT #	: BB-9024982-DS

APPROVED BY THM

Rev.	Date	Description	Prepared	Approved	Document Number:	Rev
0	3/22/2018	ISSUED FOR APPROVAL	SM	DW	BB-9024982-DS	0

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								REV
1	**GENERAL DATA**							
2	TYPE OF HEATER		Hot Oil Heater					
3	ALTITUDE ABOVE SEA LEVEL	ft.	3051					
4	AIR SUPPLY		Ambient					
5	TEMPERATURE (MIN/MAX/DESIGN)	°F	MINIMUM =	-20	MAXIMUM =	110	DESIGN = 60	
6	RELATIVE HUMIDITY	%	50					
7	DRAFT TYPE		Forced Draft, Ambient					
8	REQUIRED TURNDOWN		5:1					
9	DRAFT AVAILABLE							
10	ACROSS BURNER	in. W.C.	7.00					
11	ACROSS PLENUM	in. W.C.						
12	DISTANCE BURNER C_L:							
13	TO TUBE C_L (HORIZ./VERT.)	in.	51					
14	TO BURNER C_L (HORIZ.)	in.	n/a					
15	TO UNSHIELDED REFRACTORY	in.						
16	BURNER FLOOR LINING THICKNESS	in.	6					
17	HEATER CASING THICKNESS	in.	0.1875					
18	FURNACE HEIGHT	ft.	10.5					
19	FURNACE WIDTH	ft.	10.5					
20	FURNACE LENGTH	ft.	19					
21	TUBE CIRCLE DIAMETER	ft.	8.5					
22	BURNER CIRCLE DIAMETER	in.	n/a					
23	**BURNER DATA**							
24	TYPE OF BURNER		GAS ONLY					
25	DIRECTION OF FIRING		HORIZONTALLY FIRED					
26	LOCATION		WALL					
27	BURNER MODEL		CUBL-5W-HC-HZ					
28	NUMBER REQ'D / HEATER		1					
29	PILOTS :							
30	NUMBER REQUIRED		1					
31	TYPE		Standard					
32	IGNITION METHOD		Electric					
33	FLAME DETECTION		None					
34	FUEL		Natural Gas					
35	FUEL PRESSURE RANGE	psig	**Minimum =**	**10.0**	**to**	**Maximum =**	**15.0**	
36	FUEL CONNECTION SIZE		1/2" 150# RFSW					
37	CAPACITY	Btu/hr	100,000					
38	**BURNER OPERATING DATA**							
39	OPERATING CASE		Design					
40	HEAT RELEASE	(LHV)						
41	MAXIMUM	MMBtu/hr	21.09					
42	NORMAL	MMBtu/hr	19.17					
43	MINIMUM	MMBtu/hr	4.22					
44	EXCESS AIR	%	15%					
45	COMB. AIR TEMPERATURE	°F	Ambient					
46	AIR SIDE DP @ MAXIMUM	in. W.C.	7.00					
47	AIR SIDE DP @ NORMAL	in. W.C.						
48	AIR SIDE DP @ MINIMUM	in. W.C.						
49	VISIBLE FLAME LENGTH (EXPECTED)	ft.	16.00					
50	VISIBLE FLAME DIAMETER (EXPECTED)	ft.	3.00					
51	FLAME SHAPE		ROUND					
52								
53	NOTES :							
54								
55								
56								

OWNER:	Matador Resources Co	CALLIDUS REF:	BB-9024982
OWNER REF.:	H-801	DOCUMENT NUMBER:	BB-9024982-DS
PURCHASER:	Tulsa Heaters Midstream		
PURCHASER REF.:	MJ18-325		
HEATER SERVICE	Hot Oil Heater		
UNIT:			
ITEM NO.:			

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BURNER DATA SHEET

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: LC/JB

Unit		Plant Loc.	
Service	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner		Client No.	J-387
Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	HRC 15400
Date	8/6/2015		Page 1 of 5

Process Design Conditions

*	1 Total duty per heater, MM Btu/Hr	4.870				
*	2 Heater section	Rad+Conv				
*	3 Service	Regen. Gas				
*	4 Heat Absorption, MM Btu/Hr	4.87				
*	5 Fluid name	Natural Gas				
*	6 Flow rate, lb/hr	15,568				
	7 Flow rate, bpd					
*	8 Pressure drop (allowable, clean), psi	5				
	9 Pressure drop (calculated, clean), psi ..with 1/8" coke	4				
*	10 Average flux density (allowable), Btu/hr-ft²					
	11 Average flux density (calculated), Btu/hr-ft²	11,978				
	12 Maximum flux density, Btu/hr-ft²	20,519				
	13 Velocity Limitations					
	14 Maximum allowable inside film temperature, °F					
	15 Fouling Factor	0.001				
	16 Corrosion or Erosion Characteristics					
	Inlet Conditions:					
*	17 Temperature, °F	100				
*	18 Pressure, psig	1020				
*	19 Vapor flow, lb/hr	15,568				
	20 Vapor, molecular weight	21.48				
	21 Vapor Viscosity, Cp	0.014				
*	22 Vapor, Specific Heat, Btu/lb-F	0.65				
*	23 Vapor Thermal Conductivity, Btu/hr-ft-F	0.022				
	Outlet Conditions:					
*	23 Temperature, °F	550				
*	24 Pressure, psig	1016				
*	25 Vapor flow, lb/hr	15,568				
*	26 Vapor molecular weight	21.48				
*	27 Vapor Viscosity, Cp	0.02				
*	28 Vapor, Specific Heat, Btu/hr-F	0.74				
*	29 Vapor Thermal Conductivity, Btu/hr-ft-F	0.0425				
	Remarks and Special Requirements:					
*	30 Distillation Data or Composition Attached					

Combustion Design Conditions

*	1 Type of fuel	Natural Gas				
*	2 Excess air, percent	15%				
	3 Guaranteed Efficiency, Percent (LHV)	86.30				
	4 Calculated Efficiency, Percent (LHV)	87.30				
	5 Radiation loss, percent of heat release (LHV)	2.00				
	6 Flue gas temperature leaving radiant section, °F	1,734				
	7 Flue gas temperature leaving convection section, °F	493				
	8 Flue Gas Mass Velocity Thru Convection Section, lb/sq ft-s	0.22				
	9 Draft at Bridge Wall, In. H20	0.010				
	10 Draft at Burners, In. H20	0.040				
*	11 Ambient Air Temperature, °F comb/draft	60/80				
*	12 Altitude, Ft. Above Sea Level	2,000				
	13 Calculated Heat Release, MM BTU per Hr (LHV)	5.58				
	14 Volumetric Heat Release, Btu/hr-ft³ (LHV)					

Note: A fuel savings of _____ MM Btu/hr will offset a $1,000 increase in furnace cost (erected)

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: LC/JB

Service		Plant Loc.	
Unit	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner		Job No.	J-387
Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	HRC 15400
Date	8/6/2015		Page 2 of 5

Fuel Characteristics

			Composition	Composition	
*	1 Type of fuel	Natural Gas			
*	2 Heating value (HHV)				
*	3 Heating value (LHV)	901 Btu/SCF			
*	4 Specific gravity				
*	5 H/C ratio (by weight)				
*	6 Temperature at Burner, °F				
*	7 Viscosity, @ °F,				
*	8 Viscosity, @ °F,				
*	9 Fuel Pressure Available @ burner, psig				
*	10 Atomizing Steam Pressure, psig				
*	11 Vanadium Content, ppm for Liquid Fuels				
*	12 Sodium Content, ppm for Liquid Fuels				
*	13 Sulfur Content, Percent by Weight				
*	14 Gases: Molecular weight				
*	Composition, Mole Percent				

Mechanical Design Conditions

General

*	1 Plot limitations	*	Stack Limitations	
*	2 Tube limitations		Other Limitations	
	3 Required Drawings			
	4 Structural Design Data: Wind Load		Seismic Factor	
	5 List of Applicable Standards or Specifications: 1		3	
			2	4

Coil Design:

		Radiant	Shield	Conv.	
*	6 Heater Section				
*	7 Design Pressure, psig	1100	1100	1100	
*	8 Design Fluid Temperature, °F	600	600	600	
*	9 Corrosion Allowance: Tubes	0.063	0.063	0.063	
	Fittings	0.063	0.063	0.063	
	10 Hydrostatic Test Pressure, psig	1,750	1,750	1,750	
	11 Number of Passes	1	1	1	
	12 Overall Tube Length, Ft	14.230	14.230	14.230	
	13 Effective Tube length, ft	13.000	13.000	13.000	
	14 Bare Tubes, number	14	4		
	15 Bare tubes, total exposed surface, ft²	214	61		
	16 Extended surface tubes, number	--	--	6	
	17 Extended surface tubes, total expsoed surface, ft²	--	--	895	
	18 Tube spacing, center-to-center (staggered), in	8	8	8	
	19 Tube Center to furnace wall In. Min	6	4	4	
*	20 Stress Relieve	←	No	→	
*	21 Weld Inspection Requirements, X-Ray or Other	10% of buttwelds will be 100% X-rayed			

Tubes:

*	22 Vertical or Horizontal	Horizontal	Horizontal	Horizontal	
	23 Tube Material (ASTM Specifications & Grade)	←	SA 106 Gr B	→	
	24 Outside Diameter, in	4.5	4.5	4.5	
	25 Wall Thickness (minimum) (average), in	←	Sch 80	→	
	26 Maximum Tube Wall Temp., °F (Calculated)	716			
	27 Inside Film Coefficient (Calculated)	175			
	28 Maximum Tube Wall Temperature, °F (Design)	←	730	→	
	27 Design Basis for Tube Wall Thickness	←	ASME SECT VIII Div I	→	

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: LC/JB

Service		Plant Loc.	
Unit	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner		Client No.	J-387
Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	HRC 15400
Date	8/6/2015		Page 3 of 5

Mechanical Design Conditions (continued)

		Radiant	Shield	Conv.	
Description of Extended Surface:					
28	Type	None	None	Serrated	
29	Fin Material			C.S.	
30	Fin Dimensions ht/thck			3/4" x 0.05	
31	Fin Spacing #/in			5	
32	Maximum Fin Temperature °F			763	
33	Extension ratio				
Plug-Type Headers:					
34	Manufacturer and Type	←	None	→	
* 35	Material (ASTM specification and grade)				
36	Nominal Rating				
* 37	Location				
38	Welded or Rolled				
Return Bends:					
39	Manufacturer and Type	←	SR 180° WPB	→	
* 40	Material (ASTM specification and grade)	←	WPB	→	
41	Nominal Rating or Schedule	←	Same as Tubes	→	
* 42	Location	←	Header Box	→	
Terminals: NOTE:					
43	Manufacturer and Type	←	Flanged	→	
* 44	Material (ASTM specification and grade)	←	Same as Tubes	→	
45	Nominal Rating	←	Same as Tubes	→	
* 46	Location	heater outlets		heater inlets	
47	Welded or Rolled	welded		welded	
48	Flange: Size and Rating	4"-600# RFWN		4"-600# RFWN	
	Location	Radiant		Top Conv.	
Crossovers:					
* 49	Welded or Flanged	←	Welded	→	
* 50	Pipe material (ASTM specification and grade)	←	Same as Tubes	→	
51	Pipe Size and Wall Thicknes	←	Same as Tubes	→	
* 52	Location	←	Header Box	→	
53	Flange Rating				
Tube Supports:					
54	Ends, Top, Bottom:		← Ends →		
	Material		CS		
	Thickness		3/8 "		
	Type and Thickness of Insulation		4"-8# 2300 F	Ceramic Fiber	
	Insulation Reinforcement		310 SS anchors		
55	Intermediate:				
	Material	←	None	→	
	Spacing				
	Type and Thickness of Coating				
56	Guides: Location				
	Material				

Header Boxes

1 Location: Radiant and Convection Ends — Material: CS — Thickness: 3/16"
2 Insulation: Material: 2"-6# 2300°F Ceramic Fiber — Thickness: 2"
Anchoring Material: 304 SS
3 Are Header Box Doors Bolted or Hinged? Bolted

Burners

4 Manufacturer and Type: Universal Combustion TPS-4-4 — Number: 1
5 Location: One End
6 Size and Type of Pilots: Electric
7 Heat Release per Burner at Design Excess Air and Draft:
Normal 5.580 MM BTU per Hr; Maximum 6.98 MM Btu per Hr.
8 Minimum Distance Burner Centerline to Tube Centerline:
Horizontal 2'-2 5/8" Vertical 3.3'

FIRED HEATER DATA SHEET **CUSTOMARY UNITS**		Service		Plant Loc.	
		Unit	Regeneration Gas Heater	Equip.No.	H-101
		Type	Horizontal	No. Req.	1
		Owner		Client No.	J-387
		Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Revision: 0		Vendor	Heat Recovery Corporation	Ref. No.	HRC 15400
Approved: LC/JB		Date	8/6/2015	Page 4	of 5

Mechanical Design Conditions (continued)

Settings:

1 Exposed Vertical Walls: N/A

Thickness 4" Hot-Face Temp.: Design 2300°F Calculated 1690

Wall Construction 2"-8# 2300°F + 2"-6# 2300°F Ceramic Fiber

Outside Casing: Thickness 3/16" Material C.S. Outside Temperature

Tieback Material 310 SS

Support Material C.S.

Method of Fastening Tiebacks to Structure Welded

2 Shielded Vertical Walls:

Thickness 3" Hot-Face Temp.: Design 2300°F Calculated

Wall Construction 1"-8# 2300°F + 2"-6# 2300°F Ceramic Fiber

Outside Casing: Thickness 3/16" Material CS Outside Temperature

Tieback Material 304 SS

Support Material C.S.

Method of Fastening Tiebacks to Structure Welded

3 Arch: None

Thickness Hot-Face Temp.: Design Calculated

Arch Construction

Outside Casing: Thickness Material Outside Temperature

Tieback Material

Support Material

Method of Fastening Tiebacks to Structure

4 Floor:

Thickness 7.5" Hot-Face Temp.: Design 1900°F Calculated

Floor Construction 5" 1:2:4 LHV Castable plus 2.5" 1st. Quality FireBrick

Minimum Floor Elevation

Outside Casing: Thickness 1/4" Material CS Outside Temperature

5 Convection Section:

Thickness 3" Design Hot-Face Temperature 2300 F

Construction 1"-8# 2300°F + 2"-6# 2300°F Ceramic Fiber

Outside Casing: Thickness 3/16" Material CS Outside Temperature

Tieback Material 304 SS

Support Material C.S.

Method of Fastening Tiebacks to Structure Welded

6 Internal Wall: N/A

Type Dimensions Material

FIRED HEATER DATA SHEET CUSTOMARY UNITS	Service		Plant Loc.	
	Unit	Regeneration Gas Heater	Equip No	H-101
	Type	Horizontal	No Rqd	1
	Owner		Job No	J-387
	Purchaser	EPC, Inc.	Model No	4HE-14-4HE-4-6-E
Revision: 0	Vendor	Heat Recovery Corporation	Ref No	HRC 15400
Approved: LC/JB	Date	8/6/2015		Page 5 of 5

Mechanical Design Conditions (continued)

Stack:

1 Number: 1 | Self-Supporting or Guyed: Self-Supporting | Location: Top Convection

2 Material: C.S. | Thickness: | Min. Thickness: 3/16"

3 Inside Metal Diameter: 20" OD Pipe Sch10 | Height Above Grade: | Stack Length: 20'-0"

4 Lining: Material: None | Thickness: --

Type of Material or Reinforcement: --

Extent of Lining: --

Dampers:

1 Location: Stack or Bottom Air Plenum:

2 Material: | Multiple or Single Leaf:

3 Description of Provision for Operation from Grade:

Breeching, Flues None

1 Material: | ASTM Specification: | Size:

2 Insulation: | Thickness:

Type of Anchoring Material:

3 Size of Access Door into Breeching:

Air Ducts and Plenum

1 Material: N/A | ASTM Specification: | Size:

Miscellaneous

1 Overall Dimensions of Furnace: Refer to drawing 15400-001

2 Platforms: Location: None

Width:

Type of Floor:

3 Stairs: Location: None

4 Ladders: Location: None

5 Access Doors: Location and Size: One End 18" x 18"

6 Observation Doors: Location and Size: Each End 3" x 6"

7 Miscellaneous Connections (Number and Size): Couplings Only

Draft	(3) 3/4"-3000# Cplgs.	Flue Gas Sample	(2) 3/4"-3000# Cplgs
Temp.	(3) 3/4"-3000# Cplgs.	Smothering Steam	(1) 1"-3000# Cplgs.
Header Box Drain	(3) 3/4"-3000# Cplgs.	Stack Drain	--
Coil Drains		Other	TWO (2) Scanner Connections

8 Painting and Galvanizing Requirements: Heater and Stack commercial sandblasted cleaned, SP-6, and painted with one coat of Sherwin Williams KEM HI-Temp 8S0 No.1 Black 2-3 mils dft

9 Are Painter's Trolley and Rail Included? N/A

10 Extent of Tube-Handling Facilities: Removable Header Boxes

11 Explosion Doors: Location and Size: None

Special Equipment (Soot Blower, Air Preheaters, Noise Suppressors, Fans, Etc.)

HRC - HEAT RECOVERY CORP.

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Date: 12/17/2015
Revision: 0
Approved: LJC

Unit	Condensate Stablizer	Plant Loc.	
Service	Hot Oil	Equip.No.	H-801
Type	Horizontal	No. Req.	1
Owner	Matador	Job No.	387
Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corp.	Ref. No.	15405
Date	12/17/2015	Page 1	of 5

Process Design Conditions

*	1 Total duty per heater, MM Btu/Hr	4.19 x 1.1				
*	2 Heater section	Rad+Conv				
*	3 Service	Condensate Stablizer				
*	4 Heat Absorption, MM Btu/Hr	4.609				
*	5 Fluid name	Chemitherm 550				
*	6 Flow rate, lb/hr	74,938				
	7 Flow rate, bpd					
*	8 Pressure drop (allowable, clean), psi	10				
	9 Pressure drop (calculated, clean), psi ..with 1/8" coke	3				
*	10 Average flux density (allowable), Btu/hr-ft²					
	11 Average flux density (calculated), Btu/hr-ft²	11,366				
	12 Maximum flux density, Btu/hr-ft²	19,021				
	13 Velocity Limitations					
	14 Maximum allowable inside film temperature, °F	600 (564 Calc)				
	15 Fouling Factor	0.0015				
	16 Corrosion or Erosion Characteristics					
	Inlet Conditions:					
*	17 Temperature, °F	350				
*	18 Pressure, psig	40				
*	19 Liquid flow, lb/hr	74,938				
*	20 Thermal Conductivity Btu / hr ft oF	0.069				
	21 Specific Gravity	0.908				
	22 Specific Heat Btu / lbm oF	0.59				
*	23 Liquid Viscosity, Cp	1.27				
	Outlet Conditions:					
*	23 Temperature, °F	450				
*	24 Pressure, psig	37				
*	25 Liquid flow, lb/hr	74,938				
*	26 Thermal Conductivity Btu / hr ft oF	0.067				
*	27 Specific Gravity	0.908				
*	28 Specific Heat Btu / lbm oF	0.64				
*	29 Liquid Viscosity, Cp	0.727				
	Remarks and Special Requirements:					
*	30 Distillation Data or Composition Attached					

Combustion Design Conditions

*	1 Type of fuel	Natural Gas				
*	2 Excess air, percent	15				
	3 Guaranteed Efficiency, Percent (LHV)	83.38				
	4 Calculated Efficiency, Percent (LHV)	84.38				
	5 Radiation loss, percent of heat release (LHV)	1.50				
	6 Flue gas temperature leaving radiant section, °F	1,790				
	7 Flue gas temperature leaving convection section, °F	606				
	8 Flue Gas Mass Velocity Thru Convection Section, lb/sq ft-s	0.23				
	9 Draft at Bridge Wall, In. H20	-0.010				
	10 Draft at Burners, In. H20	-0.050				
*	11 Ambient Air Temperature, °F comb/draft	60/95				
*	12 Altitude, Ft. Above Sea Level	3,000				
	13 Calculated Heat Release, MM BTU per Hr (LHV)	5.46				
	14 Volumetric Heat Release, Btu/hr-ft³ (LHV)					

Note: A fuel savings of _____ MM Btu/hr will offset a $1,000 increase in furnace cost (erected)

HRC - HEAT RECOVERY CORP.

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Date: 12/17/2015
Revision: 0
Approved: LJC

Service	Condensate Stablizer	Plant Loc.	
Unit	Hot Oil	Equip No.	H-801
Type	Horizontal	No. Req.	1
Owner	Matador	Job No.	387
Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corp.	Ref. No.	15405
Date	12/17/2015		

Fuel Characteristics

		Composition	Volume %	
* 1	Type of fuel	Natural Gas		
* 2	Heating value (HHV)			
* 3	Heating value (LHV)	901 btu/scf		
* 4	Specific gravity			
* 5	H/C ratio (by weight)			
* 6	Temperature at Burner, °F			
* 7	Viscosity, @ _____ °F,			
* 8	Viscosity, @ _____ °F,			
* 9	Fuel Pressure Available @ burner, psig			
* 10	Atomizing Steam Pressure, psig			
* 11	Vanadium Content, ppm for Liquid Fuels			
* 12	Sodium Content, ppm for Liquid Fuels			
* 13	Sulfur Content, Percent by Weight			
* 14	Gases: Molecular weight			
*	Composition, Mole Percent			

Mechanical Design Conditions

General

* 1	Plot limitations	*	Stack Limitations	
* 2	Tube limitations		Other Limitations	
* 3	Required Drawings			
* 4	Structural Design Data: Wind Load		Seismic Factor	
5	List of Applicable Standards or Specifications:	1	3	
		2	4	

Coil Design:

		Radiant	Shield	Conv.	
* 6	Heater Section				
* 7	Design Pressure, psig	150	150	1S0	
* 8	Design Fluid Temperature, °F	500	500	500	
* 9	Corrosion Allowance: Tubes	0.063	0.063	0.063	
	Fittings	0.063	0.063	0.063	
10	Hydrostatic Test Pressure, psig	215	215	215	
11	Number of Passes	1	1	1	
12	Overall Tube Length, Ft.	14.230	14.230	14.230	
13	Effective Tube length, ft.	13.000	13.000	13.000	
14	Bare Tubes, number	14	4		
15	Bare tubes, total exposed surface, ft²	214	61		
16	Extended surface tubes, number	- -	--	6	
17	Extended surface tubes, total expsoed surface, ft²	--	--	1,167	
18	Tube spacing, center-to-center (staggered), in	8	8	8	
19	Tube Center to furnace wall In. Min.	6	4	4	
* 20	Stress Relieve	←	No	→	
* 21	Weld Inspection Requirements, X-Ray or Other	100% of 10%			

Tubes:

* 22	Vertical or Horizontal	Horizontal	Horizontal	Horizontal	
23	Tube Material (ASTM Specifications & Grade)	←	SA 106 Gr B	→	
24	Outside Diameter, in	4.5	4.5	4.5	
25	Wall Thickness (minimum) (average), in	←	Sch 40	→	
26	Maximum Tube Wall Temp., °F (Calculated)	611			
27	Inside Film Coefficient (Calculated)	173			
28	Maximum Tube Wall Temperature, °F (Design)	←	636	→	
27	Design Basis for Tube Wall Thickness	←	ASME SEC. VIII DIV.1	→	

HRC - HEAT RECOVERY CORP.

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Date: ########
Revision: 0
Approved: LJC

Service	Condensate Stablizer	Plant Loc.	
Unit	Hot Oil	Equip.No.	H-801
Type	Horizontal	No. Req.	1
Owner	Matador	Job No.	387
Purchaser	EPC, Inc.	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corp.	Ref. No.	15405
Date	12/17/2015		Page 3 of 5

Mechanical Design Conditions (continued)

	Description of Extended Surface:	Radiant	Shield	Conv.	
28	Type	None	None	Serrated	
29	Fin Material			C.S.	
30	Fin Dimensions ..... ht/thck			1@ 1/2" + 2@ 1" x 0.05	
31	Fin Spacing ..... #/in			6/inch	
32	Maximum Fin Temperature ..... °F			745	
33	Extension ratio				
	Plug-Type Headers:				
34	Manufacturer and Type	← None →			
* 35	Material (ASTM specification and grade)				
36	Nominal Rating				
* 37	Location				
38	Welded or Rolled				
	Return Bends:				
39	Manufacturer and Type	SR 180°	SR 180º	SR 180º	▶
* 40	Material (ASTM specification and grade)	← A234-WPB →			
41	Nominal Rating or Schedule	← Same as Tubes	→		
* 42	Location		← Header Box →		
	Terminals: NOTE:				
43	Manufacturer and Type	←	Flanged	→	
* 44	Material (ASTM specification and grade)	← Same as Tubes	→		
45	Nominal Rating	← Same as Tubes	→		
* 46	Location	heater outlet		heater inlet	
* 47	Welded or Rolled	welded		welded	
48	Flange: Size and Rating	4"-300# RFWN		4"-300# RFWN	
	Location	Radiant		Top Conv.	
	Crossovers:				
* 49	Welded or Flanged	← WELDED →			
* 50	Pipe material (ASTM specification and grade)	← SA-106-B →			
51	Pipe Size and Wall Thicknes	← 4" SCH 40 →			
* 52	Location	← HEADER BOX →			
53	Flange Rating		--		
	Tube Supports:				
54	Ends, Top, Bottom:		← Ends →		
	Material		CS		
	Thickness		3/8 "		
	Type and Thickness of Insulation		4" Ceramic Fiber		
	Insulation Reinforcement		310 SS		
55	Intermediate:				
	Material		← None →		
	Spacing				
	Type and Thickness of Coating				
56	Guides: Location				
	Material				

Header Boxes

1 Location: Radaint & Convection Ends — Material: CS — Thickness: 3/16"
2 Insulation: Material: 6 # 1800 F Ceramic Fiber — Thickness: 2"
Anchoring Material: 304 SS
3 Are Header Box Doors Bolted or Hinged? Bolted

Burners

4 Manufacturer and Type: UNIVERSAL COMBUSTION TPS-4-4 — Number: 1
5 Location: Radiant Ends
6 Size and Type of Pilots: Electric ignition
7 Heat Release per Burner at Design Excess Air and Draft:
Normal 5.380 MM BTU per Hr; Maximum 6.2 MM Btu per Hr.
8 Minimum Distance Burner Centerline to Tube Centerline:
Horizontal 2.22' Vertical

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: LC

Unit	Black River Plant 2	Plant Loc.	Eddy County, NM
Service	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	J412
Purchaser	Veritas Gas Processing	Model No.	6HE-10-4H-6-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	HRC 17417
Date	9/26/2017		Page 1 of 5

Process Design Conditions

*	1	Total duty per heater, MM Btu/Hr	6.544			
*	2	Heater section	Rad+Conv			
*	3	Service	Regen. Gas			
*	4	Heat Absorption, MM Btu/Hr	6.544			
*	5	Fluid name	Natural Gas			
*	6	Flow rate, lb/hr	23,279			
	7	Flow rate, bpd				
*	8	Pressure drop (allowable, clean), psi	10			
	9	Pressure drop (calculated, clean), psi ..with 1/8" coke	6			
*	10	Average flux density (allowable), Btu/hr-ft²				
	11	Average flux density (calculated), Btu/hr-ft²	12,000			
	12	Maximum flux density, Btu/hr-ft²	17,832			
	13	Velocity Limitations				
	14	Maximum allowable inside film temperature, °F				
	15	Fouling Factor	0.001			
	16	Corrosion or Erosion Characteristics				
Inlet Conditions:						
*	17	Temperature, °F	120			
*	18	Pressure, psig	975			
*	19	Vapor flow, lb/hr	23,279			
*	20	Vapor, molecular weight	19.28			
*	21	Vapor Viscosity, Cp	0.0142			
*	22	Vapor, Specific Heat, Btu/lb-F	0.64			
*	23	Vapor Thermal Conductivity, Btu/hr-ft-F	0.024			
Outlet Conditions:						
*	23	Temperature, °F	550			
*	24	Pressure, psig	969			
*	25	Vapor flow, lb/hr	23,279			
*	26	Vapor molecular weight	19.28			
*	27	Vapor Viscosity, Cp	0.0186			
*	28	Vapor, Specific Heat, Btu/hr-F	0.71			
*	29	Vapor Thermal Conductivity, Btu/hr-ft-F	0.042			
Remarks and Special Requirements:						
*	30	Distillation Data or Composition Attached				

Combustion Design Conditions

*	1	Type of fuel	Natural Gas			
*	2	Excess air, percent	15%			
	3	Guaranteed Efficiency, Percent (LHV)	83.00			
	4	Calculated Efficiency, Percent (LHV)	84.00			
	5	Radiation loss, percent of heat release (LHV)	2.00			
	6	Flue gas temperature leaving radiant section, °F	1,683			
	7	Flue gas temperature leaving convection section, °F	620			
	8	Flue Gas Mass Velocity Thru Convection Section, lb/sq ft-s	0.30			
	9	Draft at Bridge Wall, In. H20	0.010			
	10	Draft at Burners, In. H20	0.060			
*	11	Ambient Air Temperature, °F comb/draft	60/95			
*	12	Altitude, Ft. Above Sea Level	3200			
	13	Calculated Heat Release, MM BTU per Hr (LHV)	7.79			
	14	Volumetric Heat Release, Btu/hr-ft³ (LHV)				

Note: A fuel savings of _____ MM Btu/hr will offset a $1,000 increase in furnace cost (erected)

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: LC

Service	Black River Plant 2	Plant Loc.	Eddy County, NM
Unit	Regeneration Gas Heater	Equip No.	H-101
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	J412
Purchaser	Veritas Gas Processing	Model No.	6HE-10-4H-6-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	HRC 17417
Date	9/26/2017		Page 2 of 5

Fuel Characteristics

			Composition	Volume %	
*	1 Type of fuel	Natural Gas			
*	2 Heating value (HHV)				
*	3 Heating value (LHV)	901 btu/scf			
*	4 Specific gravity				
*	5 H/C ratio (by weight)				
*	6 Temperature at Burner, °F				
*	7 Viscosity, @ ____ °F,				
*	8 Viscosity, @ ____ °F,				
*	9 Fuel Pressure Available @ burner, psig				
*	10 Atomizing Steam Pressure, psig				
*	11 Vanadium Content, ppm for Liquid Fuels				
*	12 Sodium Content, ppm for Liquid Fuels				
*	13 Sulfur Content, Percent by Weight				
*	14 Gases: Molecular weight				
*	Composition, Mole Percent				

Mechanical Design Conditions

General

* 1 Plot limitations
* 2 Tube limitations
* 3 Required Drawings
* 4 Structural Design Data: Wind Load
* 5 List of Applicable Standards or Specifications: 1 2

* Stack Limitations
Other Limitations
Seismic Factor
3
4

Coil Design:

		Radiant	Shield	Conv.	
*	6 Heater Section				
*	7 Design Pressure, psig	1100	1100	1100	
*	8 Design Fluid Temperature, °F	600	600	600	
*	9 Corrosion Allowance: Tubes	0.063	0.063	0.063	
	Fittings	0.063	0.063	0.063	
	10 Hydrostatic Test Pressure, psig	2,200	2,200	2,200	
	11 Number of Passes	1	1	1	
	12 Overall Tube Length, Ft	14.230	14.230	14.230	
	13 Effective Tube length, ft	13.000	13.000	13.000	
	14 Bare Tubes, number	10 / 6	4		
	15 Bare tubes, total exposed surface, ft²	317	61		
	16 Extended surface tubes, number	--	--	6	
	17 Extended surface tubes, total expsoed surface, ft²	--	--	735	
	18 Tube spacing, center-to-center (staggered), in	12	8	8	
	19 Tube Center to furnace wall In. Min	9	4	4	
*	20 Stress Relieve	←	No	→	
*	21 Weld Inspection Requirements, X-Ray or Other	100% of buttwelds will be 10% X-rayed			

Tubes:

*	22 Vertical or Horizontal	Horizontal	Horizontal	Horizontal	
	23 Tube Material (ASTM Specifications & Grade)	←	SA 106 Gr B	→	
	24 Outside Diameter, in	6.625 / 4.S	4.5	4.5	
	25 Wall Thickness (minimum) (average), in	←	Sch 80	→	
	26 Maximum Tube Wall Temp., °F (Calculated)	745			
	27 Inside Film Coefficient (Calculated)	117			
	28 Maximum Tube Wall Temperature, °F (Design)	←	770	→	
	27 Design Basis for Tube Wall Thickness	←	ASME SECT VIII Div I	→	

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: LC

Service	Black River Plant 2	Plant Loc.	Eddy County, NM
Unit	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	J412
Purchaser	Veritas Gas Processing	Model No.	6HE-10-4H-6-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	HRC 17417
Date	9/26/2017		Page 3 of 5

Mechanical Design Conditions (continued)

		Radiant	Shield	Conv.	
Description of Extended Surface:					
28	Type	None	None	Serrated	
29	Fin Material			C.S.	
30	Fin Dimensions ..... ht/thck			3/4" x 0.05	
31	Fin Spacing ..... #/in			4	
32	Maximum Fin Temperature ..... °F			766	
33	Extension ratio				
Plug-Type Headers:					
34	Manufacturer and Type	← None →			
* 35	Material (ASTM specification and grade)				
36	Nominal Rating				
* 37	Location				
38	Welded or Rolled				
Return Bends:					
39	Manufacturer and Type	SR / LR	SR 180° WPB →		
* 40	Material (ASTM specification and grade)	← WPB →			
41	Nominal Rating or Schedule	← Same as Tubes →			
* 42	Location	← Header Box →			
Terminals: NOTE:					
43	Manufacturer and Type	← Flanged →			
* 44	Material (ASTM specification and grade)	← Same as Tubes →			
45	Nominal Rating	← Same as Tubes →			
* 46	Location	heater outlets		heater inlets	
* 47	Welded or Rolled	welded		welded	
48	Flange: Size and Rating	6"-600# RFWN		4"-600# RFWN	
	Location	Radiant		Top Conv.	
Crossovers:					
* 49	Welded or Flanged	← Welded →			
* 50	Pipe material (ASTM specification and grade)	← SA-106-B →			
51	Pipe Size and Wall Thicknes	← 6" Sch 80 →			
* 52	Location	← Header Box →			
53	Flange Rating		--		
Tube Supports:					
54	Ends, Top, Bottom:	← Ends →			
	Material		CS		
	Thickness		3/8 "		
	Type and Thickness of Insulation	2"- 8# 2300°F +	2" -6# 2300°F Ceramic Fiber Blanket		
	Insulation Reinforcement	- -	310 SS Studs And Clips		
55	Intermediate:				
	Material	← None →			
	Spacing				
	Type and Thickness of Coating				
56	Guides: Location				
	Material				

Header Boxes

1 Location: Radiant and Convection Ends — Material: CS — Thickness: 3/16"
2 Insulation: Material: 6# 2300°F Ceramic Fiber Blanket — Thickness: 2"
Anchoring Material: 304 SS Studs and Clips
3 Are Header Box Doors Bolted or Hinged? Bolted

Burners

4 Manufacturer and Type: Universal Combustion LoNOx TPS 4-3 — Number: Two
5 Location: Each End
6 Size and Type of Pilots: Electric Ignition
7 Heat Release per Burner at Design Excess Air and Draft:
Normal 3.900 MM BTU per Hr; Maximum 4.8 MM Btu per Hr.
8 Minimum Distance Burner Centerline to Tube Centerline:
Horizontal 2.45' Vertical 5'

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: JB

Unit	Black River Plant- 3	Plant Loc.	Loving, NM
Service	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	J423
Purchaser	Veritas Gas Processing	Model No.	6HE-10-4H-6-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	19439
Date	9/27/2019		Page 1 of 5

Process Design Conditions

*	1	Total duty per heater, MM Btu/Hr	6.544			
*	2	Heater section	Rad+Conv			
*	3	Service	Regen. Gas			
*	4	Heat Absorption, MM Btu/Hr	6.544			
*	5	Fluid name	Natural Gas			
*	6	Flow rate, lb/hr	23,279			
	7	Flow rate, bpd				
*	8	Pressure drop (allowable, clean), psi	10			
	9	Pressure drop (calculated, clean), psi ..with 1/8" coke	6			
*	10	Average flux density (allowable), Btu/hr-ft²				
	11	Average flux density (calculated), Btu/hr-ft²	12,000			
	12	Maximum flux density, Btu/hr-ft²	17,832			
	13	Velocity Limitations				
	14	Maximum allowable inside film temperature, °F				
	15	Fouling Factor	0.001			
	16	Corrosion or Erosion Characteristics				
Inlet Conditions:						
*	17	Temperature, °F	120			
*	18	Pressure, psig	975			
*	19	Vapor flow, lb/hr	23,279			
*	20	Vapor, molecular weight	19.28			
*	21	Vapor Viscosity, Cp	0.0142			
*	22	Vapor, Specific Heat, Btu/lb-F	0.64			
*	23	Vapor Thermal Conductivity, Btu/hr-ft-F	0.024			
Outlet Conditions:						
*	23	Temperature, °F	550			
*	24	Pressure, psig	969			
*	25	Vapor flow, lb/hr	23,279			
*	26	Vapor molecular weight	19.28			
*	27	Vapor Viscosity, Cp	0.0186			
*	28	Vapor, Specific Heat, Btu/hr-F	0.71			
*	29	Vapor Thermal Conductivity, Btu/hr-ft-F	0.042			
Remarks and Special Requirements:						
*	30	Distillation Data or Composition Attached				

Combustion Design Conditions

*	1	Type of fuel	Natural Gas			
*	2	Excess air, percent	15%			
	3	Guaranteed Efficiency, Percent (LHV)	83.00			
	4	Calculated Efficiency, Percent (LHV)	84.00			
	5	Radiation loss, percent of heat release (LHV)	2.00			
	6	Flue gas temperature leaving radiant section, °F	1,683			
	7	Flue gas temperature leaving convection section, °F	620			
	8	Flue Gas Mass Velocity Thru Convection Section, lb/sq ft-s	0.30			
	9	Draft at Bridge Wall, In. H20	0.010			
	10	Draft at Burners, In. H20	0.060			
*	11	Ambient Air Temperature, °F comb/draft	60/95			
*	12	Altitude, Ft. Above Sea Level	3200			
	13	Calculated Heat Release, MM BTU per Hr (LHV)	7.79			
	14	Volumetric Heat Release, Btu/hr-ft³ (LHV)				

Note: A fuel savings of _____ MM Btu/hr will offset a $1,000 increase in furnace cost (erected)
Note: At 3200 ASL & 620 degF Stack exit temperature, density is approxiatly 0.03123 PCF. ACFM ~4037

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: JB

Service	Black River Plant- 3	Plant Loc.	Loving, NM
Unit	Regeneration Gas Heater	Equip No.	H-101
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	J423
Purchaser	Veritas Gas Processing	Model No.	6HE-10-4H-6-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	19439
Date	9/27/2019		Page 2 of 5

Fuel Characteristics

			Composition	Volume %	
*	1 Type of fuel	Natural Gas			
*	2 Heating value (HHV)				
*	3 Heating value (LHV)	901 btu/scf			
*	4 Specific gravity				
*	5 H/C ratio (by weight)				
*	6 Temperature at Burner, °F				
*	7 Viscosity, @ ____ °F,				
*	8 Viscosity, @ ____ °F,				
*	9 Fuel Pressure Available @ burner, psig				
*	10 Atomizing Steam Pressure, psig				
*	11 Vanadium Content, ppm for Liquid Fuels				
*	12 Sodium Content, ppm for Liquid Fuels				
*	13 Sulfur Content, Percent by Weight				
*	14 Gases: Molecular weight				
*	Composition, Mole Percent				

Mechanical Design Conditions

General

*	1 Plot limitations	*	Stack Limitations	
*	2 Tube limitations		Other Limitations	
*	3 Required Drawings			
*	4 Structural Design Data: Wind Load		Seismic Factor	
*	5 List of Applicable Standards or Specifications:	1	3	
		2	4	

Coil Design:

		Radiant	Shield	Conv.	
*	6 Heater Section				
*	7 Design Pressure, psig	1100	1100	1100	
*	8 Design Fluid Temperature, °F	600	600	600	
*	9 Corrosion Allowance: Tubes	0.063	0.063	0.063	
	Fittings	0.063	0.063	0.063	
	10 Hydrostatic Test Pressure, psig	2,200	2,200	2,200	
	11 Number of Passes	1	1	1	
	12 Overall Tube Length, Ft	14.230	14.230	14.230	
	13 Effective Tube length, ft	13.000	13.000	13.000	
	14 Bare Tubes, number	10 / 6	4		
	15 Bare tubes, total exposed surface, ft²	317	61		
	16 Extended surface tubes, number	- -	--	6	
	17 Extended surface tubes, total expsoed surface, ft²	--	--	735	
	18 Tube spacing, center-to-center (staggered), in	12	8	8	
	19 Tube Center to furnace wall In. Min	9	4	4	
*	20 Stress Relieve	←	No	→	
*	21 Weld Inspection Requirements, X-Ray or Other	100% of buttwelds will be 10% X-rayed			

Tubes:

*	22 Vertical or Horizontal	Horizontal	Horizontal	Horizontal	
	23 Tube Material (ASTM Specifications & Grade)	←	SA 106 Gr B	→	
	24 Outside Diameter, in	6.625 / 4.5	4.5	4.5	
	25 Wall Thickness (minimum) (average), in	←	Sch 80	→	
	26 Maximum Tube Wall Temp., °F (Calculated)	745			
	27 Inside Film Coefficient (Calculated)	117			
	28 Maximum Tube Wall Temperature, °F (Design)	←	770	→	
	27 Design Basis for Tube Wall Thickness	←	ASME SECT VIII Div I	→	

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Revision: 0
Approved: JB

Service	Black River Plant- 3	Plant Loc.	Loving, NM
Unit	Regeneration Gas Heater	Equip.No.	H-101
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	J423
Purchaser	Veritas Gas Processing	Model No.	6HE-10-4H-6-4HE-4-6-E
Vendor	Heat Recovery Corporation	Ref. No.	19439
Date	9/27/2019		Page 3 of 5

Mechanical Design Conditions (continued)

		Radiant	Shield	Conv.	
	Description of Extended Surface:				
28	Type	None	None	Serrated	
29	Fin Material			C.S.	
30	Fin Dimensions, ht/thck			3/4" x 0.05	
31	Fin Spacing, #/in			4	
32	Maximum Fin Temperature, °F			766	
33	Extension ratio				
	Plug-Type Headers:				
34	Manufacturer and Type	←	None	→	
* 35	Material (ASTM specification and grade)				
36	Nominal Rating				
* 37	Location				
38	Welded or Rolled				
	Return Bends:				
39	Manufacturer and Type	SR / LR	SR 180° WPB	→	
* 40	Material (ASTM specification and grade)	←	WPB	→	
41	Nominal Rating or Schedule	←	Same as Tubes	→	
* 42	Location	←	Header Box	→	
	Terminals: NOTE:				
43	Manufacturer and Type	←	Flanged	→	
* 44	Material (ASTM specification and grade)	←	Same as Tubes	→	
45	Nominal Rating	←	Same as Tubes	→	
* 46	Location	heater outlets		heater inlets	
* 47	Welded or Rolled	welded		welded	
48	Flange: Size and Rating	6"-600# RFWN		4"-600# RFWN	
	Location	Radiant		Top Conv.	
	Crossovers:				
* 49	Welded or Flanged	←	Welded	→	
* 50	Pipe material (ASTM specification and grade)	←	SA-106-B	→	
51	Pipe Size and Wall Thickness	←	6" Sch 80	→	
* 52	Location	←	Header Box	→	
53	Flange Rating		--		
	Tube Supports:				
54	Ends, Top, Bottom:	←	Ends	→	
	Material		CS		
	Thickness		3/8 "		
	Type and Thickness of Insulation	2"- 8# 2300°F +	2" -6# 2300°F Ceramic Fiber Blanket		
	Insulation Reinforcement	- -	310 SS Studs And Clips		
55	Intermediate:				
	Material	←	None	→	
	Spacing				
	Type and Thickness of Coating				
56	Guides: Location				
	Material				

Header Boxes

1 Location: Radiant and Convection Ends — Material: CS — Thickness: 3/16"
2 Insulation: Material: 6# 2300°F Ceramic Fiber Blanket — Thickness: 2"
Anchoring Material: 304 SS Studs and Clips
3 Are Header Box Doors Bolted or Hinged? Bolted

Burners

4 Manufacturer and Type: Universal Combustion LoNOx TPS 4-3 — Number: Two
5 Location: Each End
6 Size and Type of Pilots: Electric Ignition
7 Heat Release per Burner at Design Excess Air and Draft:
Normal 3.900 MM BTU per Hr; Maximum 4.8 MM Btu per Hr.
8 Minimum Distance Burner Centerline to Tube Centerline:
Horizontal 2.45' Vertical 5'

Owner:	San Mateo Midstream		Owner Ref.:	H-801	Ftnt
Purchaser:	Veritas		Purchaser Ref.:	J-423	&
Manufacturer:	Tulsa Heaters Midstream, LLC		THM Ref.:	MJ19-409 /	Rev
Service:	Hot Oil Heater		Project:	290 GPM Amine Treating Unit	
Quantity:	1		Location:	Loving, Eddy County, NM	
SHO Duty:	18.61	MMBTU/ hr	SHO Model:	SHO1750	
CMS Release:	23.92	MMBTU/ hr	CMS Model:	CMS2500	

PROCESS DESIGN CONDITIONS

		Radiant / Convection	Radiant / Convection	Radiant / Convection	Radiant / Convection
Heater Section	- - -				
Operating Case	- - -	Design Case			
Service	- - -	Hot Oil Heater			
Heat Absorption (R/C)	MMBTU/ hr	12.36 / 6.25			
Process Fluid	- - -	Chemtherm 550			
Process Mass Flow Rate, Total	Lb/ hr	321,260			
Process Bulk Velocity (calc. R/C)	ft/ s	7 / 10			
Process Mass Velocity (calc. R/C)	Lb/ s ft2	321 / 505			
Coking Allowance (dP calcs)	in				
Pressure Drop, Clean (allow. / calc.)	psi	15 / 17			
Pressure Drop, Fouled (allow. / calc.)	psi				
Average Heat Flux (allowable)	BTU/ hr ft2	13,000			
Average Heat Flux (calculated)	BTU/ hr ft2	12,730			
Maximum Heat Flux (allowable)	BTU/ hr ft2				
Maximum Heat Flux (calc. R/C)	BTU/ hr ft2	22,600 / 28,620			
Fouling Factor, Internal	hr ft2 °F/ BTU	0.002			
Corrosion or Erosion Characteristics	- - -				
Max. Film Temperature (allow. / calc.)	°F	635 / 516			
Inlet Conditions:					
Temperature	°F	275			
Pressure	psig	55			
Mass Flow Rate, Liquid	Lb/ hr	321,260			
Mass Flow Rate, Vapor	Lb/ hr	0			
Weight Percent, Liquid / Vapor	wt%	100% / 0%			
Density, Liquid / Vapor	Lb/ ft3	51.46 / 0.00			
Molecular Weight, Liquid / Vapor	Lb/ Lbmole	- - - / 0.0			
Viscosity, Liquid / Vapor	cp	2.1651 / 0.000			
Specific Heat, Liquid / Vapor	BTU/ Lb °F	0.5556 / 0.000			
Thermal Conductivity, Liq./Vap.	BTU/hr ft °F	0.0675 / 0.000			
Outlet Conditions:					
Temperature	°F	375			
Pressure	psig	38			
Mass Flow Rate, Liquid	Lb/ hr	321,260			
Mass Flow Rate, Vapor	Lb/ hr	0			
Weight Percent, Liquid / Vapor	wt%	100% / 0%			
Density, Liquid / Vapor	Lb/ ft3	49.24 / 0.00			
Molecular Weight, Liquid / Vapor	Lb/ Lbmole	- - - / 0.0			
Viscosity, Liquid / Vapor	cp	0.977 / 0.000			
Specific Heat, Liquid / Vapor	BTU/ Lb °F	0.603 / 0.000			
Thermal Conductivity, Liq./Vap.	BTU/hr ft °F	0.066 / 0.000			

revision	date	description	by	chk'd	appv'd
0	1-Aug-19	Flow and duty changed	JF		
A		Issued with Proposal			

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HRC - HEAT RECOVERY CORP.

FIRED HEATER DATA SHEET
CUSTOMARY UNITS

Date: 10/27/2019
Revision: 0
Approved: JB

Unit	Black River 3 Gas Plant	Plant Loc.	Loving, NM
Service	Hot Oil Heater	Equip.No.	H-851
Type	Horizontal	No. Req.	1
Owner	Matador Resources	Job No.	19438 / J-423
Purchaser	Veritas Gas Processing	Model No.	4HE-14-4HE-4-6-E
Vendor	Heat Recovery Corp.	Proposal No.	HRC 19-03
Date	10/27/2019		Page 1 of 5

Process Design Conditions

*	1	Total duty per heater, MM Btu/Hr	4.600			
*	2	Heater section	Rad+Conv			
*	3	Service	Hot Oil Heater			
*	4	Heat Absorption, MM Btu/Hr	4.6			
*	5	Fluid name	Chemitherm 550			
*	6	Flow rate, lb/hr	74,938			
	7	Flow rate, bpd				
*	8	Pressure drop (allowable, clean), psi	10			
	9	Pressure drop (calculated, clean), psi ..with 1/8" coke	3			
*	10	Average flux density (allowable), Btu/hr-ft²				
	11	Average flux density (calculated), Btu/hr-ft²	11,366			
	12	Maximum flux density, Btu/hr-ft²	19,021			
	13	Velocity Limitations				
	14	Maximum allowable inside film temperature, °F	600 (564 Calc)			
	15	Fouling Factor	0.0015			
	16	Corrosion or Erosion Characteristics				
		Inlet Conditions:				
*	17	Temperature, °F	350			
*	18	Pressure, psig	40			
*	19	Liquid flow, lb/hr	74,938			
*	20	Thermal Conductivity Btu / hr ft oF	0.069			
*	21	Specific Gravity	0.908			
*	22	Specific Heat Btu / lbm oF	0.59			
*	23	Liquid Viscosity, Cp	1.27			
		Outlet Conditions:				
*	23	Temperature, °F	450			
*	24	Pressure, psig	37			
*	25	Liquid flow, lb/hr	74,938			
*	26	Thermal Conductivity Btu / hr ft oF	0.067			
*	27	Specific Gravity	0.908			
*	28	Specific Heat Btu / lbm oF	0.64			
*	29	Liquid Viscosity, Cp	0.727			
		Remarks and Special Requirements:				
*	30	Distillation Data or Composition Attached				

Combustion Design Conditions

*	1	Type of fuel	Natural Gas
*	2	Excess air, percent	15
	3	Guaranteed Efficiency, Percent (LHV)	83.38
	4	Calculated Efficiency, Percent (LHV)	84.38
	5	Radiation loss, percent of heat release (LHV)	1.50
	6	Flue gas temperature leaving radiant section, °F	1,790
	7	Flue gas temperature leaving convection section, °F	606
	8	Flue Gas Mass Velocity Thru Convection Section, lb/sq ft-s	0.23
	9	Draft at Bridge Wall, In. H20	-0.010
	10	Draft at Burners, In. H20	-0.050
*	11	Ambient Air Temperature, °F comb/draft	60/95
*	12	Altitude, Ft. Above Sea Level	3,000
	13	Calculated Heat Release, MM BTU per Hr (LHV)	5.46
	14	Volumetric Heat Release, Btu/hr-ft³ (LHV)	

Note: A fuel savings of _____ MM Btu/hr will offset a $1,000 increase in furnace cost (erected)

Zeeco S.O. No. **35563**

Customer **Veritas Gas Processing, LP**

Customer PO No. **4122000238**

This manual covers the component description, installation, operation and maintenance of the below description.

- (1) 7' Dia. x 40' OAH Self-Supported Enclosed Flare Stack w/ Damper
- (1) Utility Flare Tip w/ flame tabs
- (2) EGF-Z-HEI Electric Ignition Pilot w/ Flame Scanner
- (1) Nema 4, Skid Mounted Pilot Ignition and Monitoring Panel
- (1) Shutdown Monitoring Logic and Controls
  a. Stack Mounted Thermocouple for Monitoring and High Temperature Shutdown
  b. Pilot Gas Solenoid
  c. 6" Butterfly Valve for Flare Shutdown

PLANT #1 TO FOR AMINE

Utility Requirements

Client:	Vertias Gas Pro	Zeeco Ref.:	35563	Date:	12-Jun-18
Location:	0.00	Client Ref.:	Flare	Rev.	AS SOLD

Pilot Gas

# Pilots:	2
Total Fuel Gas:	130 Scfh @ 15 psig or 58 Scfh Propane @ 7 psig

Electricity

Control Panel:	120V / 60 Hz / 1 Phase

Recommended Flare Purge Rate

Flare Tip Size:	14
Seal Type:	Velocity Seal
Purge Rate:	145 Scfh of a gas that will not go to dew point at operating temperatures

Assist Media

None	Flow: TBD (Field adjusted based on smoke production)

From: Gauri Gajewar
To: Kuhn, Julia, NMENV
Subject: FW: [EXTERNAL] FW: Plant 3 Data Request
Date: Wednesday, August 19, 2020 9:41:00 AM
Attachments: image001.png

Good Morning Julia,

Please see below for the thermal oxidizer specs. Please let me know if you have any questions.

Gauri Gajewar, P.E.
Senior Consultant, Air Quality

Contek Solutions LLC, an ERM Group Company
*****Until further notice, ERM employees are working from home.*****
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D +1 469 294 5945 | M +1 214 315 5749
E Gauri.Gajewar@erm.com | **W** www.contekllc.com

ERM *The business of sustainability*

From: Sydney Levine <Sydney_Levine@zeeco.com>
Sent: Friday, March 13, 2020 10:42 AM
To: Duane Nash <dnash@veritasgas.com>
Cc: Darrell Petty <dpetty@veritasgas.com>; Sean O'Grady <sogrady@sanmateomidstream.com>; Shaun Napier <Shaun_Napier@zeeco.com>
Subject: RE: [EXTERNAL] FW: Plant 3 Data Request

EXTERNAL EMAIL
Hi Duane,

Please see the requested information below and let us know if you have additional questions.

- Maximum Acid Gas Flowrate (composition is detailed in the attached email) : 267.8 lbmol/hr
- Maximum Vent Flowrate (composition is detailed in the attached pdf): 7.3 lbmol/hr
- The flue gas information is shown below for the three cases when operating at 1500°F:

Components	Acid and Glycol Gas Case Mol %	Acid Gas Only Case Mol %	Glycol Gas Only Case Mol %
Carbon Dioxide	39.78	39.11	4.16
Water	15.41	15.98	14.86
Nitrogen	41.80	41.91	69.72
Oxygen	3.0	3.00	11.26
Sulfur Dioxide	0.01	0.01	0.00
Total, lbmol/hr	698.76	705.40	447.13
Mol. Wt.	32.96	32.80	27.64

- Emissions:

Stack Parameter	Values for Acid Gas and Glycol Gas Case	Values for Acid Gas Only Case	Values for Glycol Gas Only Case
VOC Destruction Efficiency	**>99%**	**>99%**	**>99%**
CO, ppmvd@3%O2 (lb/MMBtu)	**85 (0.14)**	**85 (0.14)**	**85 (0.08)**
NOx, ppmvd@3%O2 (lb/MMBtu)	**50 (0.13)**	**50 (0.13)**	**85 (0.13)**

  - These values are understood to apply only when the system is operated in accordance with the operating conditions stipulated in the design summary and for the waste(s) stipulated in the design basis of Zeeco's proposal & change order.
  - VOC is defined as non-methane and non-ethane hydrocarbons.
  - Emissions factors given in lb/MMBtu are based on LHV heat release of the total heat release in the system, including heat release from waste and fuel gasses. The total maximum heat release (combined fuel and

waste) for the three cases are shown below:

- Acid Gas and Glycol Gas: 9.8 MMBtu/hr
- Acid Gas Only: 9.9 MMBtu/hr
- Glycol Gas Only: 5.6 MMBtu/hr

Best Regards,

Sydney Levine
Midstream and End User Business Manager

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Table 13.5-1 (English Units). THC, NOx AND SOOT EMISSIONS FACTORS FOR FLARE OPERATIONS FOR CERTAIN CHEMICAL MANUFACTURING PROCESSES[a]

Pollutant	SCC[e]	Emissions Factor Value	Emissions Factor Units	Grade or Representativeness
THC, elevated flares[c]	30190099; 30119701; 30119705; 30119709; 30119741	0.14[b,f]	lb/10^6 Btu	B
THC, enclosed ground flares[g,h] Low Percent Load[i]		8.37[j] or 3.88e-3[f]	lb/10^6 scf gas burned lb/10^6 Btu heat input	Moderately
THC, enclosed ground flares[g,h] Normal to High Percent Load[i]		2.56[j] or 1.20e-3[f]	lb/10^6 scf gas burned lb/10^6 Btu heat input	Moderately
Nitrogen oxides, elevated flares[d]		0.068[b,k]	lb/10^6 Btu	B
Soot, elevated flares[d]		0 – 274[b]	µg/L	B

[a] All of the emissions factors in this table represent the emissions exiting the flare. Since the flare is not the originating source of the THC emissions, but rather the device controlling these pollutants routed from a process at the facility, the emissions factors are representative of controlled emissions rates for THC. These values are not representative of the uncontrolled THC routed to the flare from the associated process, and as such, they may not be appropriate for estimating the uncontrolled THC emissions or potential to emit from the associated process.

[b] Reference 1. Based on tests using crude propylene containing 80% propylene and 20% propane.

[c] Measured as methane equivalent. The THC emissions factor may not be appropriate for reporting volatile organic compounds (VOC) emissions when a VOC emissions factor exists.

[d] Soot in concentration values: nonsmoking flares, 0 micrograms per liter (µg/L); lightly smoking flares, 40 µg/L; average smoking flares, 177 µg/L; and heavily smoking flares, 274 µg/L.

[e] See Table 13.5-4 for a description of these SCCs.

[f] Factor developed using the lower (net) heating value of the vent gas.

[g] THC measured as propane by US EPA Method 25A.

[h] These factors apply to well operated ground flares achieving at least 98% destruction efficiency and operating in compliance with the current General Provisions requirements of 40 CFR Part 60, i.e. >200 btu/scf net heating value in the vent gas and less than the specified maximum exit velocity. The emissions factor data set had an average destruction efficiency of 99.99%. Based on tests using pure propylene fuel. References 12 through 33 and 39 through 45.

[i] The dataset for these tests were broken into four different test conditions: ramping back and forth between 0 and 30% of load; ramping back and forth between 30% and 70% of load; ramping back and forth between 70% and 100% of load; and a fixed rate maximum load condition. Analyses determined that only the first condition was statistically different. Low percent load is represented by a unit operating at approximately less than 30% of maximum load.

[j] Heat input is an appropriate basis for combustion emissions factor. However, based on available data, heat input data is not always known, but gas flowrate is generally available. Therefore, the emissions factor is presented in two different forms.

[k] Factor developed using the higher (gross) heating value of the vent gas.

CLIENT:	Veritas Gas Processing	ZEECO DOC NO:	42050-7050
JOBSITE:	Loving, NM	CLIENT DOC NO:	
CLIENT PO:	4232000188	TOTAL PAGES:	2

UTILITY CONSUMPTION

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at 9:44:41 AM, 01/20/2020
VERITAS GAS PROCESSING

REV	DATE	BY	APP	DESCRIPTION
0	15NOV19	CMM	GAC	ISSUED FOR APPROVAL

Predicted Utility Requirements (Process)

Client:	Veritas Gas Processing	Zeeco Ref.:	42050	Date:	7-Nov-19
Location:	Loving, NM	Client Ref.:	4232000188	Rev.	0
		Doc. No.	42050-7050		

Equipment	Normal Operations Utility Requirements
AFDS-14/42 J-423, D-701	**Pilot Gas Consumption (Fuel Gas):** 76 SCFH @ 15 PSIG per pilot (2.04 Nm³/hr @ 1.05 kg/cm²g) /B\ ***(2 pilots total = 152 SCFH @ 15 PSIG / 4.07 Nm³/hr @ 1.05 kg/cm²g)*** ***Continuous Purge Gas Requirement:*** ***300*** SCFH (8.037 Nm³/hr) Fuel Gas
GENERAL	**Power Consumption:** Control Rack Assembly: 425.2 Watts (Maximum & Continuous)

NOTES:

(1) Fuel gas requirements are based upon a fuel gas with a LHV of 913 BTU/SCF (8591.3 kcal/Nm^3) and a specific gravity of 0.57.
(2) Pressure requirement is defined at the inlet to Zeeco supplied piping.
(3) Control Rack Tag #: J-423

AIR-ASSISTED FLARE
AF Series

BURNERS | FLARES | THERMAL OXIDIZERS | VAPOR CONTROL | RENTALS | AFTERMARKET



Air-Assisted AF Flare

AF series description.

Zeeco's AF flare series uses advanced technology proven to achieve smokeless flaring when neither steam nor assist gas is available or economical.

Our AF flares utilize a low-pressure blower to inject assist air via Zeeco's proprietary design, which splits the waste gas stream into several smaller streams at the exit of the flare tip. This increases the contact surface area between the waste gas and the assist air, maximizing mixing and turbulence while minimizing the amount of blower horsepower required to achieve smokeless flaring.

Better design means safer operation.

The waste gases from the flare header as well as the assist air from the blower are isolated from the base of the flare stack to the top of the flare tip. As a result, the two streams never come in contact with each other prior to exiting the flare tip. This ensures the safe operation of your flare system. Zeeco's AF flare systems can operate without the blower, providing safe disposal of the waste gas in the event of a power outage.

Our proprietary design and the blower's velocity virtually eliminate "flame lick" on the exterior of the flare tip and "burnback" inside the flare tip. The forced air from the blower also shortens the flame length and reduces the radiation at grade due to the highly aerated mixture of waste gases.

Why choose Zeeco?

For over 40 years, Zeeco has engineered air-assisted flare systems for some of the most complex projects in the world. Providing our customers with superior quality, on-time shipments, and competitive pricing is the cornerstone of our success. Let us put our experience to work for you. Call or email us today for more information on Zeeco's full line of flare products and replacement components for your new or existing flare system(s).

Applications

- ZEECO® AF series flares are ideal for refining, LNG, production, steel industries, petrochemical, offshore platforms, pulp and paper plants, pharmaceuticals, and food processing plants.
- Our AF series flares are the preferred choice for industries that require smokeless flaring when neither steam nor assist gas is desired, available, or cost-effective.
- AF series flares are the best option for harsh conditions, such as arctic environments where steam could freeze or desert environments where water is scarce.
- ZEECO AF series flare tips make sense as a replacement for other manufacturers' flare tips.



Air-Assisted AF Flare Blowers

Advantages

- Very low operating cost for smokeless operation
- High stability, low fuel consumption pilots are standard with AF flare tips
- 98.5% or higher hydrocarbon destruction efficiency
- Superior materials and construction
- Lower blower horsepower requirements compared to competing designs

Features

- Sizes ranging from 2 inch (50 mm) to 120 inch (3050 mm)
- Longer flare tip life due to continual cooling by forced air flow
- Lower radiation level at grade due to a highly aerated flame
- Lower noise than similar size steam-assisted flares
- High stability pilots (tested to 170 mph [274 km/h] wind speed)
- Critical parts supplied as investment castings
- 310 stainless steel in high heat areas



Air-Assisted AF Flare



Air-Assisted AF Flare

The Zeeco Difference

Our only business is the combustion business. By concentrating on what we do best, Zeeco has grown into a worldwide leader in combustion solutions. We are a privately held company whose ownership stays highly involved in daily operations, with upper management comprised of the world's leading combustion experts.

When you call Zeeco, we answer. When you make a request, you get a quick, efficient response. We are lean and efficient, able to make decisions quickly, without bureaucracy and red tape. Our sales, engineering, and purchasing groups work hand-in-hand to deliver highly competitive quotes and heroic turnaround times. We stand ready and willing to travel anywhere in the world to discuss upcoming projects firsthand, and to ensure that every existing project runs seamlessly.

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Choose to work with our dedicated, flexible, and innovative team, and you won't be disappointed. Call or email us today to request a quote or to learn more about our proprietary combustion systems.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES[a]
(SCC 2-02-002-53)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	2.21 E+00	A
NO_x[c] <90% Load	2.27 E+00	C
CO[c] 90 - 105% Load	3.72 E+00	A
CO[c] <90% Load	3.51 E+00	C
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	3.58 E-01	C
Methane[g]	2.30 E-01	C
VOC[h]	2.96 E-02	C
PM10 (filterable)[i,j]	9.50 E-03	E
PM2.5 (filterable)[j]	9.50 E-03	E
PM Condensable[k]	9.91 E-03	E
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[l]	2.53 E-05	C
1,1,2-Trichloroethane[l]	<1.53 E-05	E
1,1-Dichloroethane	<1.13 E-05	E
1,2-Dichloroethane	<1.13 E-05	E
1,2-Dichloropropane	<1.30 E-05	E
1,3-Butadiene[l]	6.63 E-04	D
1,3-Dichloropropene[l]	<1.27 E-05	E
Acetaldehyde[l,m]	2.79 E-03	C
Acrolein[l,m]	2.63 E-03	C
Benzene[l]	1.58 E-03	B
Butyr/isobutyraldehyde	4.86 E-05	D
Carbon Tetrachloride[l]	<1.77 E-05	E

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES (Concluded)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Chlorobenzene[l]	<1.29 E-05	E
Chloroform[l]	<1.37 E-05	E
Ethane[n]	7.04 E-02	C
Ethylbenzene[l]	<2.48 E-05	E
Ethylene Dibromide[l]	<2.13 E-05	E
Formaldehyde[l,m]	2.05 E-02	A
Methanol[l]	3.06 E-03	D
Methylene Chloride[l]	4.12 E-05	C
Naphthalene[l]	<9.71 E-05	E
PAH[l]	1.41 E-04	D
Styrene[l]	<1.19 E-05	E
Toluene[l]	5.58 E-04	A
Vinyl Chloride[l]	<7.18 E-06	E
Xylene[l]	1.95 E-04	A

[a] Reference 7. Factors represent uncontrolled levels. For NO_x, CO, and PM-10, "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 ≤ 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:

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

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

[d] Based on 99.5% conversion of the fuel carbon to CO_2. CO_2 [lb/MMBtu] = (3.67)(%CON)(C)(D)(1/h), where %CON = percent conversion of fuel carbon to CO_2,

C = carbon content of fuel by weight (0.75), D = density of fuel, 4.1 E+04 lb/10^6 scf, and h = heating value of natural gas (assume 1020 Btu/scf at 60°F).

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

[f] Emission factor for TOC is based on measured emission levels from 6 source tests.

[g] Emission factor for methane is determined by subtracting the VOC and ethane emission factors from the TOC emission factor.

[h] VOC emission factor is based on the sum of the emission factors for all speciated organic compounds. Methane and ethane emissions were not measured for this engine category.

[i] No data were available for uncontrolled engines. PM10 emissions are for engines equipped with a PCC.

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

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

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

[m] For rich-burn engines, no interference is suspected in quantifying aldehyde emissions. The presented emission factors are based on FTIR and CARB 430 emissions data measurements.

[n] Ethane emission factor is determined by subtracting the VOC emission factor from the NMHC emission factor.

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

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

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

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

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

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

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

where:

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

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

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

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

$$E = k\,(s/12)^a (W/3)^b \qquad (1a)$$

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

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

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

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

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

[a] See discussion in text.

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

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

average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls[18-22]

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

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

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of August 23, 2017

Title 40: Protection of Environment
PART 98—MANDATORY GREENHOUSE GAS REPORTING
Subpart C—General Stationary Fuel Combustion Sources

Table C-1 to Subpart C of Part 98—Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

Link to an amendment published at 81 FR 89252, Dec. 9, 2016.

Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	mmBtu/short ton	kg CO_2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO_2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77
Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Municipal Solid Waste	9.95[3]	90.7
Tires	28.00	85.97
Plastics	38.00	75.00

Petroleum Coke	30.00	102.41
Other fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Blast Furnace Gas	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Propane Gas	2.516×10^{-3}	61.46
Fuel Gas[4]	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Wood and Wood Residuals (dry basis)[5]	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Landfill Gas	0.485×10^{-3}	52.07
Other Biomass Gases	0.655×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO_2/mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

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

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

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

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

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

[78 FR 71950, Nov. 29, 2013]

Need assistance?

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of August 23, 2017

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

Link to an amendment published at 81 FR 89252, Dec. 9, 2016.

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Coal and Coke (All fuel types in Table C-1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C-1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C-1, except wood and wood residuals)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C-1)	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the “Energy Industry” or “Manufacturing Industries and Construction”. In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC “Energy Industry” category may employ a value of 1g of CH_4/mmBtu.

[78 FR 71952, Nov. 29, 2013]

Need assistance?

For flares subject to Chapter 115, Subchapter H, relating to highly reactive volatile organic compounds, valid flow rate and composition data required by 30 TAC 115.725–115.726 must be used to determine emissions for any portions of the current reporting year during which HRVOC monitors were installed and operational.

In the absence of monitoring data, selection of the most accurate method may sometimes require exercising scientific judgment. For example, when using the results of a one-time performance test, the test conditions must be compared to the flare's actual operating conditions during the inventory year to determine whether the test accurately represents the flare's performance. If test conditions do not accurately model flare operation, then engineering determinations based on detailed process evaluation may provide the best data.

NO_x and CO Emissions

To calculate NO_x and CO emissions, the net heating value of the flared gas must be known. Using the actual short-term flared gas composition and flow rate data for the inventory year, calculate the net heating value of the flared gas and the total heat release for each short time period. Use these total heat release data, in conjunction with the appropriate emission factors listed below, to determine NO_x and CO emissions for each time segment. Since the calculated net heating value of the gas and the assist gas type will determine the appropriate emission factors, carefully select the correct factors for each flare from Table A-7.

Calculate emissions using the most accurate data for the gas flow rate and composition available. (See "Flared Gas Flow Rate and Composition" earlier in this supplement for more information on preferred data.)

Regardless of the source of the data on gas flow and composition, the determination methodology for NO_x and CO emissions must be coded "A" for 'TCEQ-approved factor' when using the factors below.

Please note: at the time of publication, the EPA was proposing to update several of the emissions factors for flares in AP-42, Chapter 13.5. Once it has finalized the updates, the TCEQ will comment on the appropriateness of any revised factors for the EI. However, the current proposed EPA factors should not be used for determining flare emissions at this time and will not be accepted for the EI.

For flares subject to the HRVOC regulations in Chapter 115, Subchapter H, use the net heating value data required by 30 TAC 115.725 and 115.726 to determine NO_x and CO emissions for any portions of the current reporting year during which HRVOC monitors were installed and operational.

Table A-7. Flare Emission Factors

Contaminant	Assist Type	Waste Gas Stream Net Heating Value[a,b]	Emission Factor
NO_x	Steam	High Btu	0.0485 lb/MMBtu
		Low Btu	0.068 lb/MMBtu
	Air or Unassisted	High Btu	0.138 lb/MMBtu
		Low Btu	0.0641 lb/MMBtu
CO	Steam	High Btu	0.3503 lb/MMBtu
		Low Btu	0.3465 lb/MMBtu
	Air or Unassisted	High Btu	0.2755 lb/MMBtu
		Low Btu	0.5496 lb/MMBtu

[a] High Btu: > 1000 Btu/scf

[b] Low Btu: 192–1000 Btu/scf

Uncombusted Flared Gas Emissions

Uncombusted flared gas emissions usually include VOCs, H_2S, or both. Emissions calculations for these contaminants are based on the flared gas flow rate and composition, and the appropriate destruction efficiency, which depends upon the actual flare operation.

Destruction Efficiencies

Flare destruction efficiency varies with assist gas flow rate, flame stability, operating conditions, flare tip size and design, the specific compounds being combusted, and gas composition. HRVOC regulations in 30 TAC 115 address flare operational requirements. If flare operations are consistent with Chapter 115, the destruction efficiencies specified in 30 TAC 115.725 may be used to determine VOC emissions.

Otherwise, if the flare met all applicable regulations, the appropriate destruction efficiencies from either an applicable permit or the destruction efficiencies in Table A-8—the maximum destruction efficiencies for EI purposes—may be used to determine flare emissions. For assisted flares, there is the potential for over-assisting the waste gas stream, and the destruction efficiency may be lower than either the permitted efficiency or the appropriate efficiencies contained in the Chapter 115 HRVOC regulations or Table A-8. Emissions determinations must be adjusted accordingly.

Of course, if the flare flame (not the flare pilot) is ever extinguished, the destruction efficiency for the period when the flame was out will be zero. The pilot combustion zone is separate from the flame combustion zone. Therefore, the flare flame can be extinguished while the flare pilots are still lit.

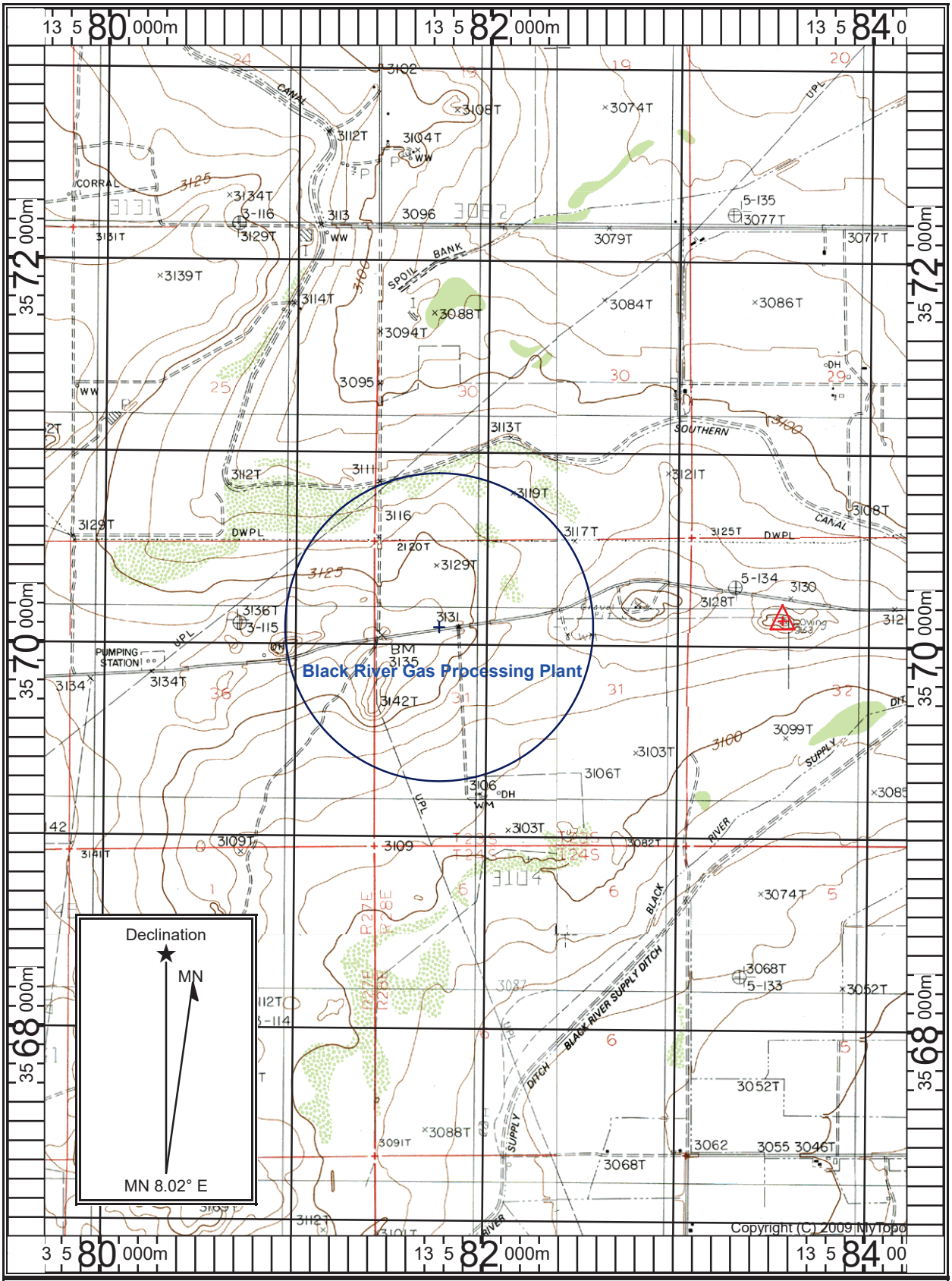
Section 8

Map(s)

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

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

A topographic map is attached to this application.



Map Name: OTIS (NM)
Print Date: 12/17/24

Scale: 1 inch = 2,500 ft.
Map Center: 13 0581941 E 35700

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")

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

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

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

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

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

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

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

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Total Postage & Fees	$

$0.00
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000034445

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Total Postage & Fees	$

$0.00
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6/5/2025 IMI
063S12395454
B7113
000034440

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City, State, ZIP+4: Dallas, TX, 75240

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063S12395454
B7113
000034441

7014 2870 0001 4718 7388

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City, State, ZIP+4: Loving, NM, 88256-0597

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

$0.00
US POSTAGE
6/5/2025 IMI
063S12395454
B7113
000034442

7014 2870 0001 4718 7340

Sent To: Bryan, Billy B, & Cynthia M (JT)
Street & Apt. No., or PO Box No.: 301 E Rose
City, State, ZIP+4: Carlsbad, NM, 88220

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Sent To: San Mateo Midstream, LLC
Street & Apt. No., or PO Box No.: 5400 LBJ Freeway Ste 1500
City, State, ZIP+4: Dallas, TX, 75240

PS Form 3800, July 2014 — See Reverse for Instructions

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Sent To: Bureau of Land Management
Street & Apt. No., or PO Box No.: 301 Dinosaur Trail
City, State, ZIP+4: Santa Fe, NM, 87508

PS Form 3800, July 2014 — See Reverse for Instructions

7014 2870 0001 4718 7234

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Total Postage & Fees	$

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US POSTAGE
6/5/2025 IMI
063S12395454
87113
000034432

Sent To: Mayor, City of Loving.
Street & Apt. No., or PO Box No.: Po Box 56
City, State, ZIP+4: Loving, NM, 88256

PS Form 3800, July 2014 — See Reverse for Instructions

CERTIFIED MAIL 7014 2870 0001 4718 7289
RETURN RECEIPT REQUESTED *(certified mail is required, **return receipt is optional**)*

Dear **2B Hacienda Orchard, LLC**

San Mateo DLK Black River Midstream, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas processing** facility. The expected date of application submittal to the Air Quality Bureau is **June 30, 2025.**

The exact location for the proposed facility known as, **Black River Gas Processing Plant,** is at **978 Bounds Road, Loving, NM**. The approximate location of this facility is **2.6** miles **southwest** of **Loving, NM** in **Eddy** county.

The proposed **modification** consists of the addition of new equipment associated with the installation of Train 4, This will include the following units: one (1) amine sweetening unit (AM-3), one (1) dehydration unit (DEHY-3), one (1) stabilizer heater (HT-804), one (1) amine HMO heater (HT-201), one (1) mole sieve heater (HT-104), one (1) cryo HMO heater (HT-301), one (1) thermal oxidizer (TO-3), one (1) condensate tank (TK-702 G), two (2) produced water tanks (TK-701 B and TK-701 C),and one (1) dual-tip flare (FL-4 A and FL-4B). Additional emissions will come from condensate and produced water truck loading (L-3 and L-4), as well as fugitive (FUG-4) and startup, shutdown, and maintenance emissions (SSM).

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}	5	20
$PM_{2.5}$	5	18
Sulfur Dioxide (SO_2)	68	146
Nitrogen Oxides (NO_x)	1351	229
Carbon Monoxide (CO)	2655	249
Volatile Organic Compounds (VOC) with fugitives	2084	317
Volatile Organic Compounds (VOC) without fugitives	2071	249
Total sum of all Hazardous Air Pollutants (HAPs)	46	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO2e	N/A	<131,000

The facility will operate 24 hours a day, 7 days a week, and 52 weeks per year.

The owner and/or operator of the Facility is:
San Mateo DLK Black River Midstream, LLC
5400 LBJ Freeway, Suite 1500
Dallas, TX 76240

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

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

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

Sincerely,
San Mateo DLK Black River Midstream, LLC
5400 LBJ Freeway, Suite 1500
Dallas, TX 76240

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

CERTIFIED MAIL 7014 2870 0001 4718 7371
RETURN RECEIPT REQUESTED *(certified mail is required, **return receipt is optional**)*

Dear **Eddy County Manager,**

San Mateo DLK Black River Midstream, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas processing** facility. The expected date of application submittal to the Air Quality Bureau is **June 30, 2025.**

The exact location for the proposed facility known as, **Black River Gas Processing Plant,** is at **978 Bounds Road, Loving, NM**. The approximate location of this facility is **2.6** miles **southwest** of **Loving, NM** in **Eddy** county.

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Volatile Organic Compounds (VOC) without fugitives	2071	249
Total sum of all Hazardous Air Pollutants (HAPs)	46	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO2e	N/A	<131,000

The facility will operate 24 hours a day, 7 days a week, and 52 weeks per year.

The owner and/or operator of the Facility is:
San Mateo DLK Black River Midstream, LLC
5400 LBJ Freeway, Suite 1500
Dallas, TX 76240

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

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Sincerely,
San Mateo DLK Black River Midstream, LLC
5400 LBJ Freeway, Suite 1500
Dallas, TX 76240

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General Posting of Notices – Certification

I, Jarod A. Florez, the undersigned, certify that on **{DATE},** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **Carlsbad and Loving** of **Eddy** County, State of New Mexico on the following dates

1. Facility entrance {DATE} 06/03/2025
2. Eddy County District Court, Carlsbad, New Mexico {DATE} 06/03/2025
3. Carlsbad Public Library, Carlsbad, New Mexico {DATE} 06/03/2025
4. United States Post Office, Loving, New Mexico {DATE} 06/03/2025

Signed this 3rd day of June, 2025.

Jarod A. Florez
Signature

06/03/2025
Date

Jarod A. Florez
Printed Name

EHS Representative
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Account: R062510 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R062510
Situs Address 319 S ROBERSON ROAD
Tax Area 10O_R - LOVING-OUT (Residential)
Parcel Number 4-162-137-411-376
Legal Summary Quarter: SE S: 25 T: 23S R: 27E BEG 2667.48' S OF NE COR, N89°45'W 692.50', S00°36'E 440' TO POB, S00°36'E 1135.50', S87°03'W 1341.56', N19°21'E 1072.41', N88°55'E 325.82', N73°55'E 673.15' TO POB
Map Number 403-7, CAB 2 118-1
Parcel Size ODD SHAPE, 27.33 AC

Owner Information

Owner Name 2B HACIENDA ORCHARD LLC
Owner Address 319 S ROBERSON RD
LOVING, NM 88256

Assessment History

Actual Value (2024 - Residential Cap applied) $191,504
Primary Taxable $63,835
Tax Area: 10O_NR **Mill Levy:** 14.532000

Type	Actual	Assessed	Acres
Agriculture Land	$9,149	$3,050	20.330

Tax Area: 10O_R **Mill Levy:** 12.618000

Type	Actual	Assessed	Acres	SQFT
Residential Land	$31,206	$10,402	7.000	
Residential Improvement	$151,149	$50,383		1600.000

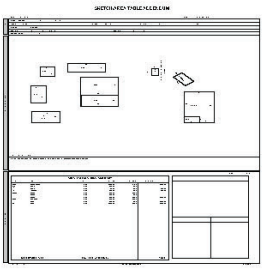
Tax History

Tax Year	Taxes
*2026	$856.00
2025	No Tax Values

* Estimated

Images

Sketch | GIS



Account: R200427 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R200427
Situs Address 978 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-109-115
Legal Summary Subd: FRITSCHY BOUNDARY LINE ADJ Tract: 1 Quarter: NW S: 31 T: 23S R: 28E
Map Number 420B-FBLA-1, CAB 6-710-1
Parcel Size 792' X 1110.31' AVG, 20 AC

Owner Information

Owner Name LONGWOOD MIDSTREAM DELAWARE LLC
Owner Address ONE LINCOLN CENTER
5400 LBJ FREEWAY STE 1500
DALLAS, TX 75240

Assessment History

Actual Value (2024) $732,756
Primary Taxable $244,252
Tax Area: CO_NR **Mill Levy:** 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$110,374	$36,791	20.000
Non-Residential Improvement	$622,382	$207,461	

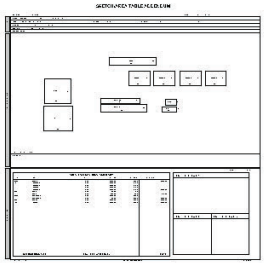
Tax History

Tax Year	Taxes
*2026	$5,681.78
2025	No Tax Values

* Estimated

Images

Sketch | GIS



Account: R063005 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R063005
Situs Address 323 S ROBERSON ROAD
Tax Area 10O_NR - LOVING-OUT (Nonresidential)
Parcel Number 4-162-137-500-376
Legal Summary Quarter: SE S: 25 T: 23S R: 27E BEG 2667.48' S OF NE COR, N 89 DEG 45' W 692.50', S 00 DEG 36' E 1575.50', N 87 DEG 03' E 676.83', N 1537.70' TO POB (LESS 2-5 AC TR)
Map Number 403-6
Parcel Size 14.47 AC

Owner Information

Owner Name BRYAN, BILLY B & CYNTHIA M (JT)
Owner Address 301 E ROSE
CARLSBAD , NM 88220

Assessment History

Actual Value (2024) $6,512
Primary Taxable $2,171
Tax Area: 10O_NR **Mill Levy:** 14.532000

Type	Actual	Assessed	Acres
Non-Residential Land	$2,012	$671	4.470
Agriculture Land	$4,500	$1,500	10.000

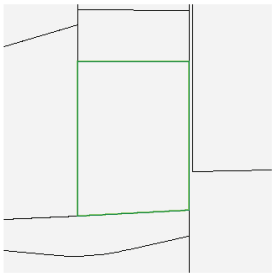
Tax History

Tax Year	Taxes
*2026	$33.08
2025	No Tax Values

* Estimated

Images

GIS



Account: R201028 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location	Owner Information	Assessment History
Account Number R201028 **Situs Address** 1025 BOUNDS ROAD **Tax Area** CO_NR - CARLSBAD-OUT (Nonresidential) **Parcel Number** 4-163-138-416-332 **Legal Summary** Subd: SENDERO/CONNALLY BOUNDARY LINE ADJ Tract: C Quarter: SE S: 31 T: 23S R: 28E Quarter: NE S: 31 T: 23S R: 28E **Map Number** 420B-SCBLA-C, CAB 7-145 **Parcel Size** 121.72 AC	**Owner Name** COUNTY OF EDDY **Owner Address** 101 W GREENE ST CARLSBAD, NM 88220	**Actual Value** (2024) $304,299 **Primary Taxable** $101,433 Exempt ($101,433) **Adjusted Taxable Total** $0 **Tax Area:** CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Exempt Land	$304,299	$101,433	121.720

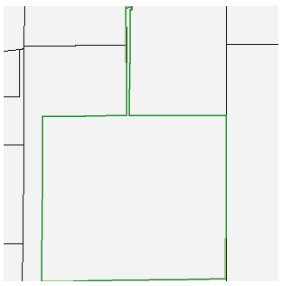
Tax History

Tax Year	Taxes
*2026	$0.00
2025	No Tax Values

* Estimated

Images

GIS



Account: R097084 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location	Owner Information	Assessment History
Account Number R097084 **Situs Address** 48 PARDUE ROAD 50 PARDUE ROAD 56 PARDUE ROAD 151 W JAYDERS ROAD **Tax Area** 10O_R - LOVING-OUT (Residential) **Parcel Number** 4-163-137-268-265 **Legal Summary** Quarter: NE S: 30 T: 23S R: 28E ALL (LESS E 10 AC IN NE4 & LESS MCDONALD LAND DIV #13) Quarter: NW S: 30 T: 23S R: 28E ALL Quarter: SW S: 30 T: 23S R: 28E ALL (LESS MCDONALD LAND DIVISION #13) Quarter: SE S: 30 T: 23S R: 28E ALL **Map Number** 319-2 **Parcel Size** 523.7 AC, ODD SHAPE	**Owner Name** MCDONALD, HENRY **Owner Address** PO BOX 597 LOVING, NM 88256-0597	**Actual Value** (2024- Residential Cap applied) $231,312 **Primary Taxable** $77,104 **Tax Area:** 10O_NR **Mill Levy**: 14.532000

Type	Actual	Assessed	Acres
Non-Residential Land	$19,215	$6,405	42.700
Agriculture Land	$79,290	$26,430	475.000
Non-Residential Improvement	$50,601	$16,867	

Tax Area: 10O_R **Mill Levy**: 12.618000

Type	Actual	Assessed	Acres	SQFT
Residential Land	$12,163	$4,054	6.000	
Residential Improvement	$70,043	$23,348		1542.000

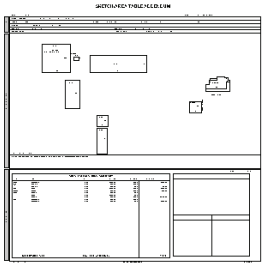
Tax History

Tax Year	Taxes
*2026	$1,122.02
2025	No Tax Values

* Estimated

Images

Sketch GIS



Account: R062514 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R062514
Situs Address S OF 211 ROBERSON ROAD
Tax Area 10O_NR - LOVING-OUT (Nonresidential)
Parcel Number 4-162-137-445-435
Legal Summary Quarter: SE S: 25 T: 23S R: 27E COM NE COR S 4205.18'TO POB S87 DEG 03'W 2018.39', S 19 DEG 21'W 118.45 EASTERLY 2057', N 160.14' TO POB AKA TRACT D
Map Number 403-9
Parcel Size 8.39 AC

Owner Information

Owner Name MCDONALD, HENRY E
Owner Address PO BOX 597
LOVING, NM 88256

Assessment History

Actual Value (2024) $839
Primary Taxable $280
Tax Area: 10O_NR **Mill Levy**: 14.532000

Type	Actual	Assessed	Acres
Non-Residential Land	$839	$280	8.390

Tax History

Tax Year	Taxes
*2026	$4.28
2025	No Tax Values

* Estimated

Images

GIS



Account: R201555 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R201555
Situs Address 993 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-249-172
Legal Summary Subd: FRITSCHY TR 3 MORTGAGE LAND DIVISION Tract: A Quarter: NW S: 31 T: 23S R: 28E
Map Number 420B-FT3M-A, CAB 7-332
Parcel Size ODD SHAPE, 4.708 AC

Owner Information

Owner Name JUNIPER TANKS LLC
Owner Address PO BOX 3192
CARLSBAD, NM 88221

Assessment History

Actual Value (2024) $221,964
Primary Taxable $73,988
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$143,556	$47,852	4.708
Non-Residential Improvement	$78,408	$26,136	

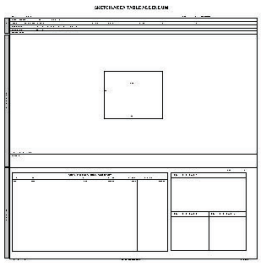
Tax History

Tax Year	Taxes
*2026	$1,721.12
2025	No Tax Values

* Estimated

Images

Sketch GIS



Account: R067541 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R067541
Situs Address 1008 BOUNDS ROAD
1011 BOUNDS ROAD
Tax Area CO_R - CARLSBAD-OUT (Residential)
Parcel Number 4-163-138-336-058
Legal Summary Quarter: NE S: 31 T: 23S R: 28E NENW
Map Number 420B-2
Parcel Size 40.00 ACRES

Owner Information

Owner Name LONGWOOD MIDSTREAM DELAWARE LLC
Owner Address 5400 LBJ FREEWAY SUITE 1500
DALLAS, TX 75240

Assessment History

Actual Value (2024 - Residential Cap applied) $655,867
Primary Taxable $218,622
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$65,728	$21,909	38.000
Non-Residential Improvement	$583,185	$194,395	

Tax Area: CO_R **Mill Levy**: 19.455000

Type	Actual	Assessed	Acres
Residential Land	$6,954	$2,318	2.000

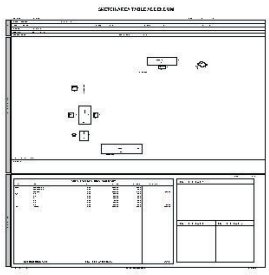
Tax History

Tax Year	Taxes
*2026	$5,078.36
2025	No Tax Values

* Estimated

Images

Sketch | GIS



Account: R200428 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R200428
Situs Address 977 BOUNDS ROAD
959 BOUNDS ROAD
945 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-206-074
Legal Summary Subd: FRITSCHY BOUNDARY LINE ADJ Tract: 2 Quarter: NW S: 31 T: 23S R: 28E
Map Number 420B-FBLA-2 CAB 6-710-1
Parcel Size 113.52AC

Owner Information

Owner Name LONGWOOD MIDSTREAM DELAWARE LLC
Owner Address ONE LINCOLN CENTER
5400 LBJ FREEWAY STE 1500
DALLAS, TX 75240

Assessment History

Actual Value (2024) $1,196,869
Primary Taxable $398,956
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$398,401	$132,800	113.520
Non-Residential Improvement	$798,468	$266,156	

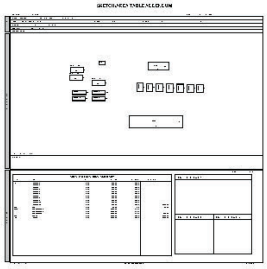
Tax History

Tax Year	Taxes
*2026	$9,280.52
2025	No Tax Values

* Estimated

Images

Sketch | GIS



Account: R099236 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R099236
Situs Address E OF 323 S ROBERSON ROAD
Tax Area 10O_NR - LOVING-OUT (Nonresidential)
Parcel Number 4-163-137-186-311
Legal Summary Subd: MCDONALD LAND DIVISION #13 Tract: 1
Map Number 319-MD13-1, CAB 5-492-1
Parcel Size ODD SHAPE, 106.50 AC

Owner Information

Owner Name LM TOUCHDOWN GAS LLC
Owner Address 2651 N HARWOOD ST STE 450
DALLAS, TX 75201

Assessment History

Actual Value (2024) $10,649
Primary Taxable $3,550
Tax Area: 10O_NR **Mill Levy**: 14.532000

Type	Actual	Assessed	Acres
Non-Residential Land	$10,649	$3,550	106.500

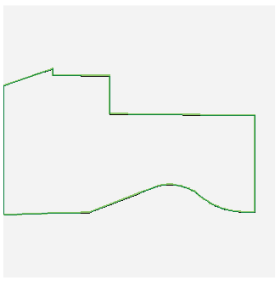
Tax History

Tax Year	Taxes
*2026	$54.10
2025	No Tax Values

* Estimated

Images

GIS



Account: R200784 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R200784
Situs Address S OF 945 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-067-330
Legal Summary Subd: CONNALLY EXEMPTION #1 PLAT Tract: 3 Quarter: SW S: 31 T: 23S R: 28E
Map Number 420B-CE1P-3, CAB# 7-65-1
Parcel Size 40.70AC, 1333.03' X1330.12'

Owner Information

Owner Name SAN MATEO MIDSTREAM LLC
In Care Of Name ONE LINCOLN CENTER
Owner Address 5400 LBJ FREEWAY SUITE 1500
DALLAS, TX 75240

Assessment History

Actual Value (2024) $255,513
Primary Taxable $85,171
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$96,435	$32,145	40.700
Non-Residential Improvement	$159,078	$53,026	

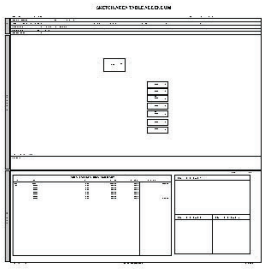
Tax History

Tax Year	Taxes
*2026	$1,981.26
2025	No Tax Values

* Estimated

Images

Sketch | GIS



Account: R200749 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R200749
Situs Address SE of 1011 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-116-475
Legal Summary Subd: CONNALLY EXEMPTION PLAT Tract: 1 Quarter: SW S: 31 T: 23S R: 28E
Map Number 420B-CEP-1 CAB 7-57
Parcel Size 59.26AC

Owner Information

Owner Name SAN MATEO MIDSTREAM LLC
In Care Of Name ONE LINCOLN CENTER
Owner Address 5400 LBJ FREEWAY SUITE 1500
DALLAS, TX 75240

Assessment History

Actual Value (2024) $5,925
Primary Taxable $1,975
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$5,925	$1,975	59.260

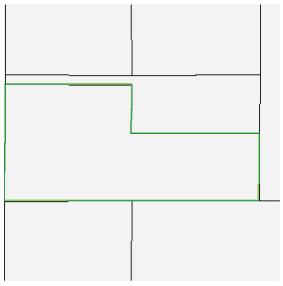
Tax History

Tax Year	Taxes
*2026	$45.94
2025	No Tax Values

* Estimated

Images

GIS



Account: R052286 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R052286
Situs Address S OF 991 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-202-320
Legal Summary Quarter: SW S: 31 T: 23S R: 28E NESW
Map Number 420B-3
Parcel Size 40 AC, AVG

Owner Information

Owner Name STATE OF NEW MEXICO
Owner Address 310 OLD SANTA FE TRAIL
SANTA FE, NM 87504

Assessment History

Actual Value (2024) $72
Primary Taxable $24
Exempt ($24)
Adjusted Taxable Total $0
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Exempt Land	$72	$24	40.000

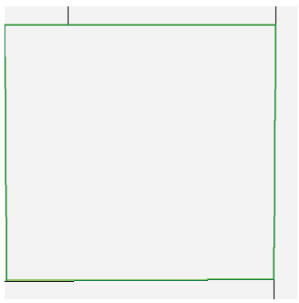
Tax History

Tax Year	Taxes
*2026	$0.00
2025	No Tax Values

* Estimated

Images

GIS



Account: R066807 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R066807
Situs Address 846 BOUNDS ROAD
850 BOUNDS ROAD
851 BOUNDS ROAD
862 BOUNDS ROAD
888 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-162-138-264-264
Legal Summary Quarter: NE S: 36 T: 23S R: 27E Quarter: NW S: 36 T: 23S R: 27E Quarter: SW S: 36 T: 23S R: 27E Quarter: SE S: 36 T: 23S R: 27E
Map Number 291-36-1
Parcel Size 640 AC, AVG

Owner Information

Owner Name STATE OF NEW MEXICO
Owner Address 310 OLD SANTA FE TRAIL
SANTA FE, NM 87504

Assessment History

Actual Value (2024) $1,440
Primary Taxable $480
Exempt ($480)
Adjusted Taxable Total $0
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Exempt Land	$1,440	$480	640.000

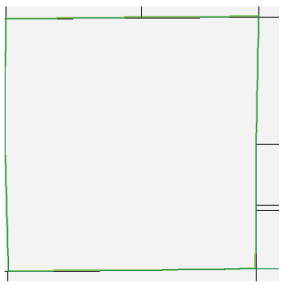
Tax History

Tax Year	Taxes
*2026	$0.00
2025	No Tax Values

* Estimated

Images

GIS



Account: R201556 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R201556
Situs Address W OF 993 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-214-212
Legal Summary Subd: FRITSCHY TR 3 MORTGAGE LAND DIVISION Tract: B Quarter: NW S: 31 T: 23S R: 28E
Map Number 420B-FT3M-B, CAB 7-332,
Parcel Size ODD SHAPE, 24.315 AC

Owner Information

Owner Name SUMMIT PERMIAN TRANSMISSION LLC
In Care Of Name SUMMIT MIDSTREAM
Owner Address 910 LOUISIANA ST
HOUSTON, TX 77002

Assessment History

Actual Value (2024) $10,942
Primary Taxable $3,647
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$10,942	$3,647	24.315

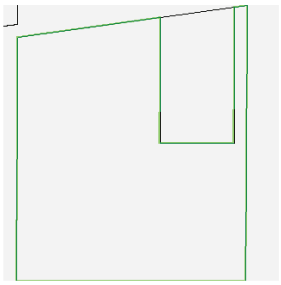
Tax History

Tax Year	Taxes
*2026	$84.84
2025	No Tax Values

* Estimated

Images

GIS



Account: R200263 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location

Account Number R200263
Situs Address NE OF 1011 BOUNDS ROAD
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)
Parcel Number 4-163-138-471-039
Legal Summary Subd: CONNALLY LINE ADJUSTMENT Tract: A THIS TRACT IS IN TWO DIFFERENT SEC'S AND HAS TO BE SOLD TOGETHER SEE 4-164-138-202-066 Quarter: NE S: 32 T: 23S R: 28E Quarter: NW S: 32 T: 23S R: 28E
Map Number 420B-CLA-A , CAB 6-623-1
Parcel Size 22.81 AC, 1320' X 3990' AVG

Owner Information

Owner Name TARGA NORTHERN DELAWARE LLC
Owner Address 3100 MCKINNON ST STE 800
DALLAS, TX 75201

Assessment History

Actual Value (2024) $2,281
Primary Taxable $760
Tax Area: CO_NR **Mill Levy**: 22.562000

Type	Actual	Assessed	Acres
Non-Residential Land	$2,281	$760	22.810

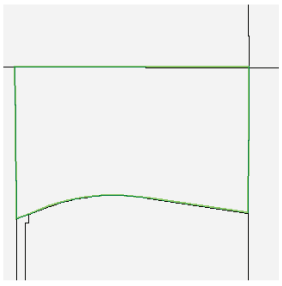
Tax History

Tax Year	Taxes
*2026	$17.70
2025	No Tax Values

* Estimated

Images

GIS



Account: R200750 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location	Owner Information	Assessment History
Account Number R200750	**Owner Name** CONNALLY, VICKIE	**Actual Value** (2024) $40
Situs Address S OF 977 BOUNDS ROAD	**Owner Address** 125 BRINKLEY LN	**Primary Taxable** $13
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)	ELGIN, TX 78621-5046	**Tax Area:** CO_NR **Mill Levy**: 22.562000
Parcel Number 4-163-138-182-422		
Legal Summary Subd: CONNALLY EXEMPTION PLAT Tract: 2 Quarter: SW S: 31 T: 23S R: 28E		
Map Number 420B-CEP-2, CAB 7-57		
Parcel Size 21.95 AC, ODD SHAPE		

Type	Actual	Assessed	Acres
Agriculture Land	$40	$13	21.950

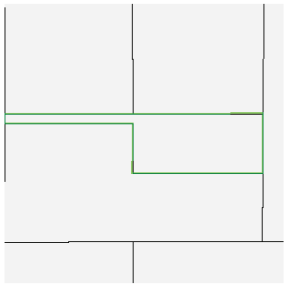
Tax History

Tax Year	Taxes
*2026	$0.30
2025	No Tax Values

* Estimated

Images

GIS



Account: R201026 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location	Owner Information	Assessment History
Account Number R201026	**Owner Name** CONNALLY, VICKIE	**Actual Value** (2024) $169
Situs Address 999 BOUNDS ROAD	**Owner Address** 125 BRINKLEY LN	**Primary Taxable** $56
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)	ELGIN, TX 78621-5046	**Tax Area:** CO_NR **Mill Levy**: 22.562000
Parcel Number 4-163-138-336-485		
Legal Summary Subd: SENDERO/CONNALLY BOUNDARY LINE ADJ Tract: E Quarter: NE S: 31 T: 23S R: 28E Quarter: SE S: 31 T: 23S R: 28E		
Map Number 420B-SCBLA-E, CAB 7-145		
Parcel Size 94 AC, ODD SHAPE		

Type	Actual	Assessed	Acres
Agriculture Land	$169	$56	94.000

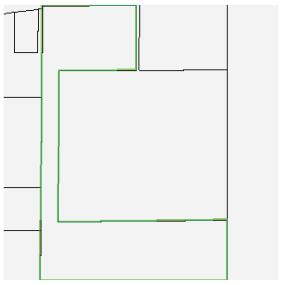
Tax History

Tax Year	Taxes
*2026	$1.32
2025	No Tax Values

* Estimated

Images

GIS



Account: R201027 *Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry

Location	Owner Information	Assessment History
Account Number R201027	**Owner Name** CONNALLY, VICKIE	**Actual Value** (2024) $79
Situs Address 1025 BOUNDS ROAD	**Owner Address** 125 BRINKLEY LN	**Primary Taxable** $26
Tax Area CO_NR - CARLSBAD-OUT (Nonresidential)	ELGIN, TX 78621-5046	**Tax Area:** CO_NR **Mill Levy**: 22.562000
Parcel Number 4-163-138-473-152		
Legal Summary Subd: SENDERO/CONNALLY BOUNDARY LINE ADJ Tract: D Quarter: NE S: 31 T: 23S R: 28E		
Map Number 420B-SCBLA-D, CAB 7-145		
Parcel Size 43.93 AC, ODD SHAPE		

Type	Actual	Assessed	Acres
Agriculture Land	$79	$26	43.930

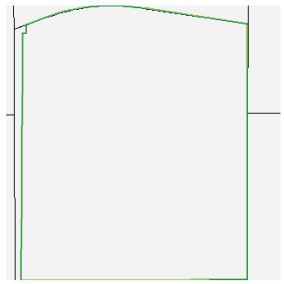
Tax History

Tax Year	Taxes
*2026	$0.62
2025	No Tax Values

* Estimated

Images

GIS



NOTICE

DLK Black River Midstream, LLC announces its application to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas processing** facility. The expected date of application submittal to the Air Quality Bureau is **June 30, 2025.**

The exact location for the facility known as, **Black River Gas Processing Plant,** is at **978 Bounds Road, Loving, NM**. The approximate location of this facility is **2.6** miles **southwest** of **Loving, NM** in **Eddy** county.

The proposed **modification** consists of the addition of new equipment associated with the installation of Train 4, This will include the following units: one (1) amine sweetening unit (AM-3), one (1) dehydration unit (DEHY-3), one (1) stabilizer heater (HT-804), one (1) amine HMO heater (HT-201), one (1) mole sieve heater (HT-104), one (1) cryo HMO heater (HT-301), one (1) thermal oxidizer (TO-3), one (1) condensate tank (TK-702 G), two (2) produced water tanks (TK-701 B and TK-701 C),and one (1) dual-tip flare (FL-4 A and FL-4B). Additional emissions will come from condensate and produced water truck loading (L-3 and L-4), as well as fugitive (FUG-4) and startup, shutdown, and maintenance emissions (SSM).

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	5	20
PM 2.5	5	18
Sulfur Dioxide (SO_2)	68	146
Nitrogen Oxides (NO_x)	1351	229
Carbon Monoxide (CO)	2655	249
Volatile Organic Compounds (VOC) with fugitives	2084	317
Volatile Organic Compounds (VOC) without fugitives	2071	249
Total sum of all Hazardous Air Pollutants (HAPs)	46	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO2e	N/A	<131,000

The facility will operate 24 hours a day, 7 days a week, and 52 weeks per year.

The owner and/or operator of the Facility is:
DLK Black River Midstream, LLC
5400 LBJ Freeway, Suite 1500
Dallas, TX 76240

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

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

Attención

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

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education

Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

DIRECTION
80 deg(T)
32.42141°N
104.22846°W
ACCURACY 32 m
DATUM WGS84

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2025-06-03
13:16:00-06:00

DIRECTION
186 deg(T)
32.41995°N
104.23076°W
ACCURACY 21 m
DATUM WGS84

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2025-06-03
13:38:58-06:00

DIRECTION 87 deg(T)
32.28502°N 104.09602°W
ACCURACY 4 m DATUM WGS84

NOTICE

DLK Black River Midstream, LLC announces its application to the New Mexico Environment Department for an air quality permit for the **modification** of its **natural gas processing** facility. The expected date of application submittal to the Air Quality Bureau is **June 30, 2025.**

The exact location for the facility known as, **Black River Gas Processing Plant,** is at **978 Bounds Road, Loving, NM**. The approximate location of this facility is **2.6** miles **southwest** of **Loving, NM** in **Eddy** county.

The proposed **modification** consists of the addition of new equipment associated with the installation of Train 4, This will include the following units: one (1) amine sweetening unit (AM-3), one (1) dehydration unit (DEHY-3), one (1) stabilizer heater (HT-804), one (1) amine HMO heater (HT-201), one (1) mole sieve heater (HT-104), one (1) cryo HMO heater (HT-301), one (1) thermal oxidizer (TO-3), one (1) condensate tank (TK-702 G), two (2) produced water tanks (TK-701 B and TK-701 C),and one (1) dual-tip flare (FL-4 A and FL-4B). Additional emissions will come from condensate and produced water truck loading (L-3 and L-4), as well as fugitive (FUG-4) and startup, shutdown, and maintenance emissions (SSM).

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Carbon Monoxide (CO)	2655	249
Volatile Organic Compounds (VOC) with fugitives	2084	317
Volatile Organic Compounds (VOC) without fugitives	2071	249
Total sum of all Hazardous Air Pollutants (HAPs)	46	24.9
Toxic Air Pollutant (TAP)	N/A	N/A
Green House Gas Emissions as Total CO2e	N/A	<131,000

The facility will operate 24 hours a day, 7 days a week, and 52 weeks per year.

The owner and/or operator of the Facility is:
DLK Black River Midstream, LLC
5400 LBJ Freeway, Suite 1500
Dallas, TX 76240

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

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

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2025-06-03
14:35:13-06:00

DIRECTION
298 deg(T)
32.26440°N
104.13354°W
ACCURACY 5 m
DATUM WGS84

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2025-06-03
14:51:24-06:00

Matador Black River Gas Plant
Property Owners

Notified Landowners (within 0.5 miles of facility)				
Owner Name	**Owner Address**	**City**	**State**	**ZIP**
2B Hacienda Orchard, LLC	319 S Roberson Rd	Loving	NM	88256
Longwood Midstream Delaware, LLC	5400 LBJ Freeway Ste 1500	Dallas	TX	75240
Bryan, Billy B, & Cynthia M (JT)	301 E Rose	Carlsbad	NM	88220
County of Eddy	101 W Greene St	Carlsbad	NM	88220
Henry McDonald	PO Box 597	Loving	NM	88256-0597
Juniper Tanks, LLC	PO Box 3192	Carlsbad	NM	88221
LM Touchdown Gas, LLC	2651 N Harwood St Ste 450	Dallas	TX	75201
State of New Mexico	310 Old Santa Fe Trail	Santa Fe	NM	87504
Summit Permian Transmission, LLC	910 Louisiana St	Houston	TX	77002
Targa Northern Delaware, LLC	3100 McKinnon St Ste 800	Dallas	TX	75201
San Mateo Midstream, LLC	5400 LBJ Freeway Ste 1500	Dallas	TX	75240
Vickie Connally	125 Brinkley Ln	Elgin	TX	78621-5046

Counties, Municpalities, & Indian Tribes (within 10 miles of facility)				
Owner Name	**Owner Address**	**City**	**State**	**ZIP**
Bureau of Land Management	301 Dinosaur Trail	Santa Fe	NM	87508
Eddy County Manager	101 W Greene St	Carlsbad	NM	88220
State of New Mexico	310 Old Santa Fe Trail	Santa Fe	NM	87504
Mayor, City of Loving	P.O. Box 56	Loving	NM	88256

Submittal of Public Service Announcement – Certification

I, Johnny Nguyen, the undersigned, certify that on **6/5/2025**, submitted a public service announcement to **Radio 92.1 KATK-FM** that serves the City\Town\Village of **Loving**, **Eddy** County, New Mexico, in which the source is or is proposed to be located and that **Radio 92.1 KATK-FM DID NOT RESPOND.**

Signed this 5 day of June, 2025,

Johnny Nguyen
Signature

6/5/2025
Date

Johnny Nguyen
Printed Name

Associate Consultant
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

From: Johnny Nguyen
To: Don Hughes
Subject: Black River Gas Processing Plant Public Service Announcement
Date: Thursday, June 5, 2025 12:17:04 PM
Attachments: image001.png

Dear Radio 92.1 KATK-FM,

Per New Mexico Administrative Code 20.2.72.203.B NMAC and according to the Guidance for Public Notice for Air Quality Permit Applications – **(5) Notifications: Submittal of Public Service Announcement (PSA):** A public service announcement required for permits and significant permit revisions must be submitted to at least one radio or television station, which services the municipality, or county which the facility is or will be located. **Therefore, based on the above, we respectfully ask you to air the information shown below as a Public Service Announcement.**

The public service announcement request must contain the following information about the facility or proposed facility (20.2.72.203.D NMAC).

a. The name: **Black River Gas Processing Plant**, location: **978 Bounds Road, Loving, New Mexico 88256** and type of business: **Gas Processing**.
b. The name and principle owner or operator: **San Mateo DLK Black River Midstream, LLC** – owner and operator.
c. The type of process or change for which the permit is sought: **Initial NSR – the addition of Train 4, which will include the following units: one (1) amine sweetening unit (AM-3), one (1) dehydration unit (DEHY-3), one (1) stabilizer heater (HT-804), one (1) amine HMO heater (HT-201), one (1) mole sieve heater (HT-104), one (1) cryo HMO heater (HT-301), one (1) thermal oxidizer (TO-3), one (1) condensate tank (TK-702 G), two (2) produced water tanks (TK-701 B and TK-701 C), and one (1) dual-tip flare (FL-4A and FL-4B). Additional emissions will come from condensate and produced water truck loading (L-3 and L-4), as well as fugitive (FUG-4) and startup, shutdown, and maintenance emissions (SSM).**
d. Locations where the notices have been posted in Loving, NM 88256:
   (1) San Mateo DLK Black River Midstream, LLC Facility Entrance
   (4) United States Post Office
   Locations where the notices have been posted in Carlsbad, NM 88220
   (1) Eddy County District Court
   (2) Carlsbad Public Library
e. The Department's address or telephone number to which comments may be directed**: Permits Program manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez; Suite 1, Santa Fe, New Mexico, 87505-1816; (505) 476-4300; 1(800) 224-7009.**

Regards,

Johnny Nguyen
Associate Consultant

P 505.266.6611
Email: Johnny.Nguyen@trinityconsultants.com
9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122

Trinity Consultants

Connect with us: LinkedIn / YouTube / trinityconsultants.com
View our capabilities in the Environmental Consulting, Built Environment, Life Sciences, and Water & Ecology markets.

Affidavit of Publication

No.

State of New Mexico Publisher

County of Eddy:

Adrian Hedden

being duly sworn, sayes that he is the **Publisher**

of the Artesia Daily Press, a weekly 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 weekly 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 June 5, 2025

Second Publication

Third Publication

Fourth Publication

Fifth Publication

Sixth Publication

Seventh Publication

Eighth Publication

Subscribed ans sworn before me this

5th day of June 2025

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

Copy of Publication:

NOTICE OF AIR QUALITY PERMIT APPLICATION

San Mateo DLK Black River Midstream, LLC announces its applicati submittal to the New Mexico Environment Department for an air quality p mit for the **modification** of its **natural gas processing** facility. The expect date of application submittal to the Air Quality Bureau is **June 30, 2025.**

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Affidavit of Publication

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Adrian Hedden

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Legal Ad

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1 Consecutive weeks/day on the same day as follows:

First Publication June 5, 2025

Second Publication

Third Publication

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Fifth Publication

Sixth Publication

Seventh Publication

Eighth Publication

Subscribed ans sworn before me this

5th day of June 2025

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

Copy of Publication:

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Section 10

Written Description of the Routine Operations of the Facility

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

The Black River Gas Processing Plant is an existing natural gas processing plant located in Eddy County. The primary function of the plant is to remove CO_2, water, and natural gas liquids from sweet field gas so that the gas can meet pipeline specifications. The plant has been designated a primary Standard Industrial Classification (SIC) Code of 1321.

Stabilizer
The stabilizer system is a distillation process to lower the Reid Vapor Pressure (RVP) of field condensate/ pipeline hydrocarbon liquids that are swept into the plant slug catchers from the gas pipeline. This process uses heat from a hot oil system to drive off volatile components in the condensate and reduce the RVP to less than 9. The liquid in the tank is then stable and thus does not give off significant vapors. The tank is equipped with a fuel gas blanket for further protection.

Amine Treating
The amine unit is designed to remove CO_2 and H_2S from the natural gas stream to meet pipeline specifications. In addition, carbon dioxide can freeze in the cryogenic unit, forming dry ice and forcing the shutdown of the facility. Amine treating is an exothermic chemical reaction process. This aqueous mixture is regenerated and reused. Lean MDEA solution is pumped to the top of the contactor and allowed to flow downward. Wet gas is fed into the bottom of the contactor and flows upward. As the lean MDEA solution flows down through the contactor, it comes into contact with the wet gas. The CO_2 and H_2S react with the amine to form an amine carbonate. The reacted amine, known as “sour” or “rich” amine is returned to a regeneration unit, and the processed (“sweet”) gas continues to the dehydration system. Emissions from amine units AM-1, AM-2, and AM-3 are controlled by the thermal oxidizers unit TO-1, TO-2, and TO-3 respectively. The amine reboiler is heated by a natural gas-fired hot oil heater.

Glycol Dehydration
Triethylene glycol (TEG) dehydration is used to remove water from the natural gas stream and is accomplished by reducing the inlet water dew point (temperature at which vapor begins to condense into a liquid) to the outlet dew point temperature which will contain a specified amount of water. The wet gas is brought into contact with dry “lean” glycol in a countercurrent contactor tower. Water vapor is absorbed in the TEG solution and consequently, its dew point reduces. Wet gas passing through the contactor tower is dehydrated, and then passed to the mole sieve beds. The wet (or “rich”) glycol then flows from the absorber to a regeneration system in which it is partially decompressed, and then heated to remove water vapor, resulting in “lean” glycol that is reintroduced to the contactor tower. Emissions from glycol dehydrator units, DEHY-1, DEHY-2, and DEHY-3, are controlled by flare, FL-2a, thermal oxidizer, TO-2, and thermal oxidizer, TO-3, respectively.

Molecular Sieve Dehydration
Molecular sieve dehydration is used upstream of the cryogenic units to achieve a gas stream dew point of -150°F. The process uses three molecular sieve vessels with one vessel in service absorbing moisture from the gas stream, one vessel in regeneration mode, and one vessel in standby. 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 direct fired 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 is routed back to the inlet of the plant.

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 by 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 lower) and condensing components such as ethane, propane, butanes

and heavier. The gas is cooled by a series of heat exchangers and by rapidly lowering the pressure of the gas from around 1000 PSIG to approximately 300 PSIG. Once the gas has passed through the system of heat exchangers and expansion, it is recompressed using the energy obtained from expanding the gas. The gas is sent to residue compressors and pipelined out of the facility.

Storage and Loading Operations

The natural gas liquids are transferred to a third-party pipeline. In the event that the pipeline is not available, bullet storage tanks are used to store NGL and load pressurized tanker trucks. Plant 1-3 stabilized condensate is stored in condensate tanks TK-702-A-F, and produced water tank, TK-701. Both the condensate and produced water tanks at Plant 1-3 are controlled by the vapor combustion unit, VCU-1 for at least 80% of the year accounting for VRU downtime. There is a VRU installed upstream of TK-701. Condensate and produced water at Plant 4 are stored in condensate tank TK-702 G and produced water tanks TK-701 B and TK-701 C respectively. Both the condensate and produced water tanks are controlled by FL-4a.

Flares

The plant flares are used as control equipment and during startup, shutdown, maintenance and upset conditions. Flares, FL-1, FL-2b, FL-3 and FL-4b operate during startup, shutdown, maintenance and upset conditions. The only steady state operations associated with these flares are from the pilot and purge gas streams and flare, FL-2a which controls the DEHY-1 condenser overhead off gases and FL-4a which controls the TK-702 G, TK-701 B, and TK-701 C overhead gases. SSM emissions from the plant flare result from maintenance activities per manufacturer-recommended or other preventative maintenance schedules. These maintenance activities include, but are not limited to compressor catalyst changes, blowdowns for associated maintenance throughout the facility, instrument calibrations, and process safety device maintenance.

Engines

Compressor engines ENG-1 through ENG-3 provide power to and compress gas for Plant 4. The engines are controlled by oxidation catalysts.

Section 11

Source Determination

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

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

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

A. Identify the emission sources evaluated in this section (list and describe)**: Please refer Table 2-A**

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

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

☐ **Yes** ☑ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

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

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

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

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

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

Table for State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. This facility is an affected facility.
20.2.7 NMAC	Excess Emissions	Yes	Facility	The entire facility is subject to emissions limits both federal and state regulation. Thus, the facility is subject to this regulation.
20.2.23 NMAC	Fugitive Dust Control	No	N/A	This regulation does not apply as the facility has no need for fugitive dust control measures. This facility does not fall under applicability facility listed mentioned in this regulation.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This regulation applies to facilities that have gas-burning external combustion sources with more than 1,000,000 MMBtu/hr capacity. None of the external combustion equipment of this facility has a capacity greater than 1,000,000 MMBtu/hr. Therefore, this regulation does not apply to this facility.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This regulation applies to facilities that have oil-burning external combustion sources with more than 1,000,000 MMBtu/hr capacity. This facility does not have any oil-burning external combustion equipment.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	Yes	Facility	This regulation establishes sulfur emission standards for natural gas processing plants. The proposed facility meets the definition of a new natural gas processing plant under this regulation and is subject to the requirements of this regulation [20.2.35.7 (B) NMAC]. The facility will comply with all requirements under 20.2.35 NMAC as applicable.
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. The oil storage tanks meets the applicable threshold for the capacity of each tank. But all tanks are equipped with control devices that minimizes hydrocarbons and hydrogen sulfide loss to the atmosphere. Therefore, this regulation does not apply to this facility.
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 a natural gas processing plant. Thus, the facility is not subject to this regulation.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	No	ENG-1-3, FUG, FUG-4, AR-1, AR-2, HT-201, HT-104, HT-301	This regulation establishes emission standards for volatile organic compounds (VOC) and oxides of nitrogen (NOx) for oil and gas production, processing, compression, and transmission sources. 20.2.50 NMAC subparts below: Include the construction status of applicable units as “New”, “Existing”, “Relocation of Existing”, or “Reconstructed” as defined by this Part in your justification: Check the box for the subparts that are applicable: ☒113 – Engines and Turbines: This facility has a natural gas-fired spark ignition engines (ENG-1-3) subject to the emission standards in 20.2.50.113.B Table 2. The facility will comply with this regulation. **(ENG-1-3) [New]** ☒114 – Compressor Seals: Engines and Turbines: This facility has a reciprocating compressor (Unit ENG-1). Thus, this facility is subject to this subpart. The facility will comply with this subpart as stated in the 20.2.50.114.B(4). **(ENG-1-3) [New]**

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
				☐115 – Control Devices and Closed Vent Systems: The control devices and closed vent systems at this facility are not used to comply with the requirements of this rule; therefore, the facility is not subject to the requirements of this rule. ☒116 – Equipment Leaks and Fugitive Emissions: This facility has equipment leaks and fugitive emissions (FUG, FUG-4) subject to 20.2.50.116.B. Thus, the facility will comply with this regulation. **(FUG) [Existing], (FUG-4) [New]** ☐ 117 – Natural Gas Well Liquid Unloading: This facility is a natural gas processing plant and liquid unloading operations do not result in the venting of natural gas. Thus, the facility is not subject to this rule. ☐ 118 – Glycol Dehydrators: Dehydrators (Units DEHY-1, DEHY-2, and DEHY-3) have federally enforceable control with VOC PTE less than 2 tpy. Thus, this facility is not subject to this regulation. ☒ 119 – Heaters: Each amine reboiler (AR-1, AR-2, and HT-301) and select heaters (HT-301 and HT-104) at this facility have a capacity greater than 20 MMBtu/hr. Thus, this facility is subject to this subpart and the emissions standards in 20.2.50.119.B Table 1. **(AR-1 & AR-2) [Existing], (HT-201, HT-104, & HT-301) [New]** ☐ 120 – Hydrocarbon Liquid Transfers: This facility transfers liquids through a pipeline. Therefore, this facility is not subject to this subpart. ☐121 – Pig Launching and Receiving: This facility does not have pig launching and receiving VOC emissions. Therefore, this facility is not subject to this subpart. ☐122 – Pneumatic Controllers and Pumps: This facility does not have any drive gas emissions and all pneumatic controllers are compressed air-driven. Thus, this regulation does not apply to this facility. ☐ 123 – Storage Vessels: The storage vessels of this facility have federally enforceable control with VOC PTE less than 3 tpy. Thus, the facility is not subject to this subpart. ☐124 – Well Workovers: No applicable activities for this facility. Thus, the facility is not subject to this regulation. ☐ 125 – Small Business Facilities: This facility is not defined as a small business facility. Thus, this regulation does not apply to this facility. ☐126 – Produced Water Management Unit: No applicable activities for this facility. Thus, the facility is not subject to this regulation. ☐127 – Flowback Vessels and Preproduction Operations: No applicable activities for this facility. Thus, the facility is not subject to this regulation.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	ENG-1-3, HT-101 through HT-103, HT-801 through HT-804, HT-201,	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). The facility will comply with this regulation.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
			HT-1-4, HT-301, AR-1, AR-2, DR-1, DR-2, DR-3, TO-1, TO-2, TO-3, VCU-1, FL-1, FL-2, FL-3, FL-4	
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation establishes requirements for obtaining a major source operating permit. The facility is a Title V major source and has submitted an initial Title V permit application within one (1) year of commencing operations per 20.2.70.300.B(1) NMAC.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This facility is subject to 20.2.70 NMAC and will therefore comply with the fee requirements of this regulation.
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation establishes the requirement for obtaining a construction permit. This facility is currently permitted under NSR #6567-M8 and complies with all the requirements of this regulation.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet all applicable reporting requirements under 20.2.73.300.B.1 NMAC.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	This regulation establishes requirements for obtaining a prevention of significant deterioration permit. This facility is not a major source with respect to PSD and is therefore not subject to 20.2.74 NMAC.
20.2.75 NMAC	Construction Permit Fees	No	Facility	This regulation establishes a schedule of operating permit emission fees. This facility is subject to 20.2.72 NMAC and in turn subject to 20.2.75 NMAC. The facility is exempt from annual fees under this part (20.2.75.11.E NMAC) as it is subject to fees pursuant to 20.2.71 NMAC.
20.2.77 NMAC	New Source Performance	Yes	ENG-1-3, AM-1, AM-2, FUG, FUG-4, CRYO-1 through CRYO-3	The following equipment of this facility are subject under the subparts of 40 CFR Part 60: • 40 CFR 60, Subpart JJJJ: Compressor engine at this facility (ENG-1-3) • 40 CFR 60, Subpart OOOOa: Fugitives (FUG), Amine Units (AM-1 & AM-2), Cryogenic units (CRYO-1 through CRYO-3), Compressors associated with ENG-1 through ENG-3, Six (6) condensate tanks (TK-702 A-F) and produced water tank (TK 701). • 40 CFR 60, Subpart OOOOb: Fugitives (FUG-4) and Amine Unit (AM-3)
20.2.78 NMAC	Emission Standards for HAPS	No	Units Subject to 40 CFR 61	This regulation establishes state authority to implement emission standards for hazardous air pollutants subject to 40 CFR Part 61. This facility does not emit hazardous air pollutants which are subject to the requirements of 40 CFR Part 61 and is therefore not subject to this regulation.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This regulation establishes the requirements for obtaining a nonattainment area permit. The facility is not located in a non-attainment area and therefore is not subject to this regulation.
20.2.80 NMAC	Stack Heights	No	N/A	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. This regulation does not apply as all stacks at the facility follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	ENG-1-3, DEHY-1, DEHY-2, DEHY-3	The following equipment are subject to the requirements of 40 CFR 63: • 40 CFR 63, Subpart HH: Dehydrator units (DEHY-1 through DEHY-3) • 40 CFR 63, Subpart ZZZZ: ENG-1 through ENG-3

Table for 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. The facility meets all applicable national ambient air quality standards for NOx, 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-3, AM-1, AM-2, AM-3, FUG, FUG-4, CRYO-1 through CRYO-3, TK-702 A-G, TK-701, TK-701 B-C	The following equipment of this facility is subject to the subparts of 40 CFR Part 60: • 40 CFR 60, Subpart JJJJ: Compressor engines at this facility (ENG-1-3) • 40 CFR 60, Subpart OOOOa: Fugitives (FUG), Amine Units (AM-1 & AM-2), Cryogenic units (CRYO-1 through CRYO-3), , Six (6) condensate tanks (TK-702 A-F) and produced water tank (TK 701). • 40 CFR 60, Subpart OOOOb: Fugitives (FUG-4), Amine Unit (AM-3), one (1) condensate tank (TK-702 G), two (2) produced water tanks (TK-701 B-C) and compressors associated with ENG-1 through ENG-3.
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No	N/A	This regulation establishes standards of performance for fossil-fuel-fired steam generators. This regulation does not apply as the facility does not have any fossil fuel-fired steam-generating units with a heat input rate of 250 MMBtu/hr [60.40(a)(1)].

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No	N/A	This regulation establishes standards of performance for industrial-commercial-institutional steam generating units. This regulation does not apply because the facility does not operate any industrial-commercial-institutional steam generating units with a heat capacity greater than 100 MMBtu/hr.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No	N/A	This regulation does not apply as the facility does not have any steam generating units which meet the applicability criteria of a heat input greater than or equal to 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 regulation establishes performance standards for storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 18, 1978, and prior to July 23, 1984. The facility was not constructed prior to July 23, 1984. Thus, this rule does not apply to this facility.
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 regulation establishes the standard performance for volatile organic liquid storage vessels with a capacity greater than 75 m^3 (~471 bbl). The condensate tanks of this facility have a design capacity of less than or equal to 1,589.874 m^3. These tanks are exempt from this regulation per 40 CFR 60.110b(d)(4). Therefore, this regulation does not apply to the facility.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No	N/A	The facility does not have any applicable units. Therefore, the facility is not subject to this regulation.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	No	N/A	This regulation defines standards of performance for equipment leaks of VOC emissions from onshore natural gas processing plants for which construction, reconstruction, or modification commenced after January 20, 1984, and on or before August 23, 2011. The was constructed after August 23, 2011. Therefore, this regulation does not apply to this facility.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural**	No	N/A	This regulation establishes standards of performance for SO_2 emissions from onshore natural gas processing for which construction, reconstruction, or modification of the amine sweetening unit commenced after January 20, 1984,

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Gas Processing: SO_2 Emissions			and on or before August 23, 2011. The facility is not subject to this regulation as the amine sweetening unit was constructed after August 23, 2011.
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	The rule applies to "affected" facilities that are constructed, modified, or reconstructed after Aug 23, 2011 (40 CFR 60.5365): gas wells, including fractured and hydraulically refractured wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, certain equipment at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. The facility is not subject to this regulation as the facility was constructed after September 18, 2015.
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	Yes	CRYO-1 through CRYO-3, AM-1, AM-2, FUG, TK-702 A-F, TK-701	The amine recovery units (AM-1 and AM-2) are constructed within the applicable period and have more than 2 long tons/yr H_2S. Therefore, AM-1 and AM-2 are subject to this regulation per 40 CFR 60.5365a(g). This facility will comply with the emission standards per 40. CFR 60.5405a. The cryogenic units (CRYO-1 through CRYO-3) are associated with the liquefaction of natural gas. These units are subject to this regulation per 40 CFR 60.5365a(f). The storage vessels (TK-702 A-F and TK-701) at this facility each has PTE greater than 6 tpy. Therefore, storage vessels are subject to this regulation per 40 CFR 60.5365a(e)(3)(iv). This facility will comply with the emission standards per 40. CFR 60.5395a. The fugitive components (FUG) are subject to this regulation per 40 CFR 60.5365a(j). This facility will comply with the emission standards per 40. CFR 60.5400a.
NSPS 40 CFR Part 60 Subpart OOOOb	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced **After** November 15, 2021	Yes	Compressors (ENG-1-3), FUG-4, AM-3, TK-702 G, TK-701 B, TK-701 C	The amine recovery unit (AM-3) will be constructed within the applicable period and have more than 2 long tons/yr H2S. Therefore, AM-3 is subject to this regulation. per 40 CFR 60.5365b(g). This facility will comply with the emission standards per 40 CFR 60.5405b. The compressors associated with (ENG-1-3) were constructed within the applicable period and is subject to this regulation per 40 CFR 60.5365b(c). This facility will comply with the emission standards per 40 CFR 60.5385b. The storage vessels (TK-702 G, TK-701 B, and TK-701 C) at this facility each have a PTE greater than 6 tpy. Therefore, storage vessels are subject to this regulation per 40 CFR 60.5365b(e)(1)(i). This facility will comply with the emission standards per 40. CFR 60.5395b. The fugitive components (FUG-4) are subject to this regulation. per 40 CFR 60.5365b(j). This facility will comply with the emission standards per 40. CFR 60.5400b.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation establishes standards of performance for stationary compression ignition combustion engines. The engine at this facility is not a compression ignition combustion engine. 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-3	This regulation establishes standards of performance for stationary spark ignition internal combustion engines. The internal combustion engine (ENG-1) at this facility commenced operation after June 12, 2006 and was manufactured on or after July 1, 2007. Therefore, ENG-1 through ENG-3 are subject to this regulation and will comply with the emission standards laid out in Table 1 to Subpart JJJJ of Part 60.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	N/A	This regulation establishes standards of performance for greenhouse gas emissions for electric generating units. This facility does not have electric generating units. 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	This regulation establishes emissions guidelines for greenhouse gas emissions and compliance times for electric generating units. This facility does not have electric generating units. 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. This regulation does not apply.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	Units Subject to 40 CFR 61	NSPS 40 CFR 61 does not apply to the facility because the facility does not emit or have the triggering substances on site and/or the facility is not involved in the triggering activity. The facility is not subject to this regulation. None of the subparts of Part 61 apply to the facility.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No	N/A	The provisions of this subpart are applicable to those stationary sources that process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No	N/A	This regulation establishes national emission standards for equipment leaks (fugitive emission sources). The facility does not have equipment that operates in volatile hazardous air pollutant (VHAP) service [40 CFR Part 61.240]. The regulated activities subject to this regulation do not take place at this facility. The facility is not subject to this regulation.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	DEHY-1, DEHY-2, DEHY-3	This regulation defines general provisions for relevant standards that have been set under this part. This regulation applies because 40 CFR Part 63, Subpart HH applies to dehydrator units (DEHY-1, DEHY-2, and DEHY-3).
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	**Yes**	DEHY-1, DEHY-2, DEHY-3	This regulation establishes national emission standards for hazardous air pollutants from oil and natural gas production facilities. The facility is a minor source of HAPs with TEG dehydrators and meets the definition of a natural gas processing plant. The dehydrator will have a natural gas flow rate equal to or greater than 85 thousand standard cubic feet. The dehydrator vents less than 0.90 megagrams of benzene per year to the atmosphere and is therefore exempt from the emissions control requirements of MACT HH per 63.764(e)(1)(ii). The facility will comply with this regulation.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This regulation establishes national emission standards for hazardous air pollutants from natural gas transmission and storage facilities. This regulation does not apply because this facility is not a natural gas transmission or storage facility as defined in this regulation [40 CFR Part 63.1270(a)].
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This regulation establishes national emission standards for a major source of HAPs for industrial, commercial, and institutional boilers and process heaters. This facility is not a major source of HAPs. Therefore, this regulation does not apply to this facility.
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 regulation establishes national emission standards for hazardous air pollutants from coal and oil-fired electric utility steam generating units. The facility does not contain the affected units. 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-3	This regulation defines national emissions standards for HAPs from stationary reciprocating Internal Combustion Engines. The internal spark ignition compressor engines (ENG-1-3) are subject to MACT ZZZZ and complies by following the requirements of NSPS JJJJ.
40 CFR 64	**Compliance Assurance Monitoring**	Yes	DEHY-1, DEHY-2, DEHY-3, AM-1, AM-2, AM-3, TK-701, TK-701 B, TK-701 C	The compressor engine (ENG-1-3) has an uncontrolled PTE greater than 100 tpy of NO_X and CO but is subject to NSPS JJJJ and per 40 CFR 64.2(b)(1)(i) can take credit for an emissions reduction. TK-701, TK-701 B, and TK-701 C have an uncontrolled PTE greater than 100 tpy of VOC. TK-701 is subject to NSPS-OOOOa and TK-701 B and TK-701 C are subject to NSPS OOOOb. Per 40 CFR 62.2(b)(1)(i), they can take credit for an emissions reduction. These units are therefore not subject to 40 CFR 64. Dehydrators have uncontrolled VOC emissions greater than 100 tpy. DEHY-1, DEHY-2, and DEHY-3 emissions are controlled by FL-2a, TO-2, and TO-3, respectively. Thus, DEHY-1, DEHY-2, and DEHY-3 are subject to this regulation. Amine Units have uncontrolled VOC emissions greater than 100 tpy. AM-1, AM-2, and AM-3 emissions are controlled by TO-1, TO-2, and TO-3, respectively. Thus, AM-1, AM-2, and AM-3 are subject to this regulation.
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**	Yes	Facility	The facility does not operate an affected source under this subpart.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No	N/A	This regulation establishes sulfur dioxide allowance emissions for certain types of facilities. This facility is not an acid rain source. This regulation does not apply.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No	N/A	The facility is not an acid rain source and is therefore not subject to this regulation.
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No	N/A	This regulation establishes an acid rain nitrogen oxide emission reduction program. This regulation applies to each coal-fired utility unit that is subject to an acid rain emissions limitation or reduction requirement for SO_2. This part does not apply because the facility does not operate any coal-fired units [40 CFR Part 76.1].
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	No	N/A	This regulation establishes a regulation for the protection of the stratospheric ozone. The regulation is not applicable because the facility does not "service", "maintain" or "repair" class I or class II appliances nor "dispose" of the appliances [40 CFR Part 82.1(a)].

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☐ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☒ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

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

- The Black River Gas Processing Plant has multiple residue gas and NGL outlets planned to ensure offloading of the process streams. In the event that the 3rd party pipeline offloads have issues or outages, and they cannot take the residue gas or NGL, the inlet gas will be appropriately curtailed to ensure that gas is not flared.
- The Amine and Glycol flash gases are routed back to the process instead of routing to the flare, thus reducing the amount of gas burned in the flare. These streams can be routed to the flare if needed, to ensure control.
- Emissions from the condensate tanks and produced water tanks at Plants 1-3 are controlled by the vapor combustor to reduce VOC emissions. Emissions from the condensate tank and produced water tanks at Plant 4 are controlled by the low-pressure flare to reduce VOC emissions. Compressor blowdowns are routed to flare to reduce emissions during maintenance and malfunction.
- The thermal oxidizers installed at the Black River Gas Processing Plant have 99% destruction efficiency.
- Glycol still vapors (BTEX) in Plant 3 are routed to the thermal oxidizer (TO-2), instead of the flare. This increases the destruction efficiency of the BTEX vapors and reduces the fuel consumption in the thermal oxidizer.
- The facility has an LDAR program in place to ensure leaks are found and the components are repaired in a timely manner. DLK also utilizes enviro seal valve for components and nitrile rubber for seals, for efficiency and longevity.
- The Black River Gas Processing Plant has modern process and safety systems in place that monitor fire and hazardous gases continuously. The Black River Gas Processing Plant has fulltime monitors to observe and locate any safety and/or process issues that could result in an incident. This safeguards health and safety of not only the employees working at the facility but the surrounding area and environment.
- All required documentation is kept on site and will be made available to the department upon request.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

There are no alternative operating scenarios at Black River Gas Processing Plant.

Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

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

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

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

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

☐ No modeling is required.

Modeling is being submitted with this application.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit	Test Description	Test Date
ENG-1	Annual Test	8/13/2020

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.

N/A – the facility does not have any other relevant information.

Section 22: Certification

Company Name: San Mateo DLK Black River Midstream, LLC

I, Casey Snow, 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 17th day of June, 2025 upon my oath or affirmation, before a notary of the State of TX.

*Signature

6/17/2025
Date

CASEY SNOW
Printed Name

SVP of EHS
Title

Scribed and sworn before me on this 17 day of June, 2025

My authorization as a notary of the State of Texas expires on the 27 day of September 2025.

Notary's Signature

6.17.2025
Date

Susan Pepin
Notary's Printed Name

SUSAN PEPIN
Notary Public, State of Texas
Comm. Expires 09-27-2025
Notary ID 133355037

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

Universal Application 4

Air Dispersion Modeling Report

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

16-A: Identification

1	Name of facility:	Black River Gas Processing Plant
2	Name of company:	San Mateo DLK Black River Midstream, LLC
3	Current Permit number:	6567-M8
4	Name of applicant's modeler:	Jaimy Karacaoglu
5	Phone number of modeler:	(505) 266-6611
6	E-mail of modeler:	Jaimy.Karacaoglu@trinityconsultants.com

16-B: Brief

1	Was a modeling protocol submitted and approved? Protocol was submitted on December 9, 2024. No response was received from the NMED. See Protocol and submittal email attached.	Yes☐	No☒
2	Why is the modeling being done?	Adding New Equipment	
3	Describe the permit changes relevant to the modeling.		
	Adding one (1) condensate tank (TK-702 G), two (2) produced water tanks (TK-701 B and TK-701 C), one (1) Stabilizer Heater (HT-804), one (1) Amine HMO Heater (HT-201), one (1) Mole Sieve Heater (HT-104), one (1) Cryo HMO Heater (HT-301), one (1) Dehydrator Reboiler (DR-3), one (1) Thermal Oxidizer (TO-3), one (1) Process and SSM Flare (FL-4a & FL-4b); Plant 4 produced water truck loading (TL-4), three (3) engines (ENG-1 through ENG-3), and plant 4 Fugitives (FUG-4). Modifying three (3) mole sieve heaters (HT-102 to HT-103), two (2) stabilizer heaters (HT-801 & HT-802), one (1) amine reboiler (AR-2), two (2) thermal oxidizers (TO-1 & TO-2), three (3) flares (FL-1, FL-2a, FL-2b, FL-3), one (1) VCU (VCU-1), Plant 2 dehy overhead SSM (DEHY-1 SSM), and produced water truck loading (TL-2).		

4	What geodetic datum was used in the modeling?	WGS84	
5	How long will the facility be at this location?	Longer than 1 year	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒
7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	3/16/1988	
	SO2	7/28/1978	
	PM10	2/20/1979	
	PM2.5	11/13/2013	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	Carlsbad Caverns National Park – 24.2 km		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
	N/A		
11	Describe any special modeling requirements, such as streamline permit requirements.		
	N/A		

16-C: Modeling History of Facility

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	6567-M8	8/24/2020	
	NO_2	6567-M8	8/24/2020	
	SO_2	6567-M8	8/24/2020	
	H_2S	6567-M8	8/24/2020	
	PM2.5	6567-M8	8/24/2020	
	PM10	6567-M8	8/24/2020	
	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

For each pollutant, indicate the modeling performed and submitted with this application.

1	Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.					
	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
	CO	☒	☐	☐	☐	☐
	NO_2	☐	☒	☐	☐	☐
	SO_2	☐	☒	☐	☐	☐
	H_2S	☐	☒	☐	☐	☐
	PM2.5	☐	☒	☐	☐	☐
	PM10	☒	☐	☐	☐	☐
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☒
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

16-E: New Mexico toxic air pollutants modeling

1	List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application. N/A- No TAPs were modeled at this facility.

2	List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.					
	Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor

16-F: Modeling options

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

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	01/22/2025

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
	1119E2	Incorrect coordinates: 379310.968 m E, 3926388.442 m N [411 km away] Corrective action: 569262.46 m E, 3580896.22 m N [15.89 km away] (facility's coordinates)
	1119E3	Incorrect coordinates: 379310.968 m E, 3926388.442 m N [411 km away]

		Corrective action: 569262.46 m E, 3580896.22 m N [15.89 km away] (facility's coordinates)
	41150E1	Incorrect coordinates: 641321.692 m E, 3629758.005 m N [84 km away] Corrective action: 581015.81 m E, 3575806.16 m N [4.79 km away] (facility's coordinates)
	3589E2	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E3	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E4	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E5	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E6	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E7	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E8	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E9	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	3589E10	Incorrect coordinates: 598991.878 m E, 3600197.969 m N [33 km away and 2.5 lb/hr] Corrective action: 590799.99 m E, 3575390.04 m N [10.03 km away] (facility's coordinates)
	38339E17	Incorrect coordinates: 568241.173 m E, 3595198.763 m N [27 km away and 0.07 lb/hr] Corrective action: 581826.30 m E, 3572259.40 m N [1.2 km away] (facility's coordinates)
	38339E18	Incorrect coordinates: 568241.173 m E, 3595198.763 m N [27 km away and 0.07 lb/hr] Corrective action: 581826.30 m E, 3572259.40 m N [1.2 km away] (facility's coordinates)
	1767E1	Incorrect coordinates: 460004.659 m E, 3917189.141 m N [366 km away] Corrective action: 564943.27 m E, 3575074.41 m N [17.43 km away] (facility's coordinates)
	37724E23	Flare source should be smokeless and have no PM emissions. Source had over 26 lb/hr of PM2.5 emissions. Publicly available permit application does not list any flare sources with an emission rate of 26 lb/hr for PM2.5
	40574E12 40574E13 40574E14 40574E15 40574E22 40574E23	Units are listed as volume sources. Heaters have been converted to point sources per parameters indicated in application for AI#40574.
	40574A2	Haul road emissions are below the exemption threshold of 20.2.72.202.B(5) NMAC and would not be included in modeling as a surrounding source if it had been listed as an exempt unit on its application. Therefore, it was removed.

16-H: Building and structure downwash

1	How many buildings are present at the facility?	6		
2	How many above ground storage tanks are present at the facility?	17		
	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes☒	No☐

3	N/A	
4	Building comments	There are six (6) rectangular buildings.

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area		
	The property is enclosed by three (3) fences- one for Plant 1&2, a second for Plant 3, and a third fence for Plant 4. Receptors are placed starting along the fenceline.		
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?	Yes☐	No☒
3	Are restricted area boundary coordinates included in the modeling files?	Yes☒	No☐

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

Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
Variable Density	Square	50	0	1,775	The center point of Black River Plants 1-4 was identified. A distance of 800 meters was measured from the northwest corner of Plant 1-2 and from the southwest corner of Plant 4. The measured distance from the center point to the longer edge of the rectangle was 1775 meters. The difference of 1775 meters and 800 meters (975 meters) was added to the start and end distances from the center of facility to adjust the start and end points of the receptor grid.
Variable Density	Square	100	1,775	3,975	
Variable Density	Square	250	3,975	6,975	
Variable Density	Square	500	6,975	10,975	
Variable Density	Square	1000	10,975	50,975	

5	Describe receptor spacing along the fence line. 50 m spacing.
6	Describe the PSD Class I area receptors. Grid spacing of 1000 m is used for receptors over the Class I area. Receptors were obtained through NMED MergeMaster.

16-J: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).		
	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: N/A		

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.

N/A

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

16-K: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion

	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	The ARM2 Methodology was used with the default maximum and minimum ambient ratios.	
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	Yes☒ No☐
	N/A	
4	Describe the design value used for each averaging period modeled.	
	1-hour: High eighth high Annual One Year Annual Average:	

16-L: Ozone Analysis

1	NMED has performed a generic analysis that demonstrates sources that are minor with respect to PSD do not cause or contribute to any violations of ozone NAAQS. The analysis follows. The basis of the ozone SIL is documented in *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, EPA, April 17, 2018 and associated documents. NMED accepts this SIL basis and incorporates it into this permit record by reference. Complete documentation of the ozone concentration analysis using MERPS is included in the New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines.				
2	The MERP values presented in Table 10 and Table 11 of the NM AQB Modeling Guidelines that produce the highest concentrations indicate that facilities emitting no more than 250 tons/year of NO_X and no more than 250 tons/year of VOCs will cause less formation of O_3 than the O_3 significance level. $$[O_3]_{8-hour} = \left(\frac{250 \frac{ton}{yr}}{340_{MERP_{NOX}}} + \frac{250 \frac{ton}{yr}}{4679_{MERP_{VOC}}} \right) \times 1.96\ \mu g/m^3$$ =1.546 µg/m³, which is below the significance level of 1.96 µg/m³. Sources that produce ozone concentrations below the ozone SIL do not cause or contribute to air contaminant levels exceeding the ozone NAAQS.				
3	Does the facility emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs? Sources that emit at least 250 tons per year of NO_X or at least 250 tons per year of VOCs are covered by the analysis above and require an individual analysis.	Yes☐	No☒		
5	For new PSD Major Sources or PSD major modifications, if MERPs were used to account for ozone fill out the information below. If another method was used describe below.				

NO_X (ton/yr)	$MERP_{NOX}$	VOCs (ton/yr)	$MERP_{VOC}$	$[O_3]_{8\text{-hour}}$
N/A	N/A	N/A	N/A	N/A

N/A

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☐	PM10

	☒	None
2	Describe the particle size distributions used. Include the source of information.	
	N/A	
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☒ / No☐
4	Was secondary PM modeled for PM2.5?	Yes☐ / No☒

5 — If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.

Pollutant	NO_X	SO_2		$[PM2.5]_{24\text{-hour}}$
$MERP_{annual}$	26780	14978		0.109
$MERP_{24\text{-hour}}$	7331	1981		$[PM2.5]_{annual}$
Emission rate (ton/yr)	199.13	126.87		0.0032

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
N/A	N/A

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☒
	For the ROI analyses, the project emissions increases were used instead of the permitted emissions rates. The previously modeled emission rates and the associated project emissions increases used for the ROIs are included as attachments. For the CIA analyses, emission rates match 2-E and 2-F.		
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? All units at this facility consume increment for all pollutants identified below.				
	Unit ID	NO_2	SO_2	PM10	PM2.5
5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).				
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.			Yes☒	No☐

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following			
	Flare ID (and scenario)	Average Molecular Weight (g/mol)	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	FL-1	20.97	140,587,181	10.5
	FL-2a	21.60	176,303,053	11.7
	FL-2b	49.52	836,187	0.7
	FL-3	21.57	160,998,118	11.2
	FL-4a	21.25	95,739,366	8.6
	FL-4b	39.18	125,874	0.33

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☒
	N/A		
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	N/A		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	N/A		
4	Describe any open pits.		
	N/A		
	Describe emission units included in each open pit.		

5	
	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: Hobbs-Jefferson (350250008)		
	PM2.5: Hobbs-Jefferson (350450019)		
	PM10: Hobbs-Jefferson (350250008)		
	SO_2: N/A		
	Other: N/A		
	Comments: For PM2.5, background concentrations were determined for the most recent three years, 2021 to 2023. The weighted annual mean concentration, averaged over the 3-year period was used, based on the methodology identified in 40 CFR 50, Appendix N.		
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	No☒
	N/A		

16-S: Meteorological Data

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

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
	N/A		
2	What was the source of the terrain data?		
	Terrain was incorporated into the modeling analysis through the use of AERMAP with the most recent 1/3 degree NED data currently available from https://apps.nationalmap.gov/downloader/#/		

16-U: Modeling Files

1	Describe the modeling files: Significant Impact Models • File name format "BRGP_Poll AvgPer_SIL.ami" • "Poll" = NO2… nitrogen oxides; CO…carbon monoxide; PM10…particulate matter, PM10; PM2.5…particulate matter, PM2.5; SO2… sulfur dioxide

- "AvgPer" = averaging period. 1hr = 1 hour, etc. annual = annual
- "SIL" SIL designator
- Files may contain SIL for short-term, annual, and increment averaging periods.

NM/NAAQS and Increment Models

- File name format "BRGP_Poll AvgPer_Standard.ami"
- "Poll" = NO2… nitrogen oxides; CO…carbon monoxide; PM10…particulate matter, PM10; PM25…particulate matter, PM2.5; SO2… sulfur dioxide
- "AvgPer" = averaging period. 1hr = 1 hour, etc. annual = annual
- "Standard"= air quality standard. PSD = PSD Increment Class II, NAAQS = NAAQS

PSD Class II Models

- File name format "BRGP_Poll AvgPer_Standard_SIL.ami" or "BRGP_Poll AvgPer_Standard.ami"
- "Poll" = NO2… nitrogen oxides; CO…carbon monoxide; PM10…particulate matter, PM10; PM2.5…particulate matter, PM2.5; SO2… sulfur dioxide
- "AvgPer" = averaging period. 1hr = 1 hour, etc. annual = annual
- "SIL" SIL designator
- "Standard"= air quality standard. Class I = PSD Increment Class I

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
BRGP_CO_SIL	CO	ROI/SIA
BRGP_H2S_SIL	H2S	ROI/SIA
BRGP_NO2 1hr_SIL	NO2	ROI/SIA
BRGP_NO2 24hr_SIL	NO2	ROI/SIA
BRGP_NO2 Ann_SIL	NO2	ROI/SIA
BRGP_PM25 24hr_SIL	PM2.5	ROI/SIA
BRGP_PM25 Ann_SIL	PM2.5	ROI/SIA
BRGP_PM10 24hr_SIL	PM10	ROI/SIA
BRGP_PM10 Ann_SIL	PM10	ROI/SIA
BRGP_SO2 1hr_SIL	SO2	ROI/SIA
BRGP_SO2 3 hr 24hr_SIL	SO2	ROI/SIA
BRGP_SO2 Ann_SIL	SO2	ROI/SIA
BRGP_H2S_CIA	H2S	Cumulative – ½ NMAAQs
BRGP_NO2 1hr_CIA	NO2	Cumulative – 1hr NAAQs
BRGP_NO2 Ann_PSD	NO2	Cumulative – Annual PSD Inc. Class II
BRGP_PM2.5 24hr_CIA	PM2.5	Cumulative – 24hr NAAQs
BRGP_PM2.5 24hr_PSD	PM2.5	Cumulative – 24hr PSD Inc. Class II
BRGP_PM2.5 Ann_CIA	PM2.5	Cumulative – Annual NAAQs
BRGP_PM2.5 Ann_PSD	PM2.5	Cumulative – Annual PSD Inc. Class II
BRGP_SO2 3hr_PSD	SO2	Cumulative – 3hr PSD Inc. Class II
BRGP_SO2 24hr_PSD	SO2	Cumulative – 24hr PSD Inc. Class II
BRGP_SO2 1hr_CIA	SO2	Cumulative – 24hr NAAQs
BRGP_NO2 Class I Ann_SIL	NO2	ROI/SIA
BRGP_PM25 24hr_Class I_SIL	PM2.5	ROI/SIA
BRGP_PM25 Ann_Class I_SIL	PM2.5	ROI/SIA
BRGP_PM10 24hr_Class I_SIL	PM10	ROI/SIA
BRGP_PM10 Ann_Class I_SIL	PM10	ROI/SIA
BRGP_NO2 Ann_Class I	NO2	Cumulative – Annual PSD Inc. Class I

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☒
	N/A		

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 – no culpability analysis was performed.		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
CO 8-hr SIL	55.88	-	-	-	55.88	500	11.2%	582522	3568756	3104.07
CO 1-hr SIL	107.32	-	-	-	107.32	2000	5.4%	582065	3568644	3098.03
H_2S 1/2-hr SIL	25.71	-	-	-	25.71	5	Significant	581585	3570344	3128.48
NO_2 Annual SIL	5.91	-	-	-	5.91	1	Significant	581919	3570295	3128.08
NO_2 24-hr SIL	31.63	-	-	-	31.63	5	Significant	582215	3568544	3096.65
NO_2 1-hr SIL	84.69	-	-	-	84.69	7.52	Significant	582228	3568549	3096.92
$PM_{2.5}$ Annual SIL	0.55	-	-	-	0.55	0.13	Significant	582122	3568750	3099.67
$PM_{2.5}$ 24-hr SIL	2.88	-	-	-	2.88	1.2	Significant	582572	3568756	3104.43
PM_{10} Annual SIL	0.57	-	-	-	0.57	1	57.4%	582122	3568750	3099.67
PM_{10} 24-hr SIL	3.95	-	-	-	3.95	5	79.0%	582648	3568683	3100.72
SO_2 Annual SIL	1.39	-	-	-	1.39	1	Significant	582222	3568752	3099.70
SO_2 24-hr SIL	13.25	-	-	-	13.25	5	Significant	582648	3568683	3100.72

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
SO_2 3-hr SIL	25.43	-	-	-	25.43	25	Significant	582415	3568494	3096.13
SO_2 1-hr SIL	25.68	-	-	-	25.68	7.8	Significant	582465	3568494	3096.23
CO 8-hr SIL	55.88	-	-	-	55.88	500	11.2%	582522	3568756	3104.07
CO 1-hr SIL	107.32	-	-	-	107.32	2000	5.4%	582065	3568644	3098.03
H_2S 1/2-hr SIL	25.71	-	-	-	25.71	5	Significant	581585	3570344	3128.48
NO_2 Annual SIL	5.91	-	-	-	5.91	1	Significant	581919	3570295	3128.08
NO_2 24-hr SIL	31.63	-	-	-	31.63	5	Significant	582215	3568544	3096.65
NO_2 1-hr SIL	84.69	-	-	-	84.69	7.52	Significant	582228	3568549	3096.92
$PM_{2.5}$ Annual SIL	0.55	-	-	-	0.55	0.13	Significant	582122	3568750	3099.67
$PM_{2.5}$ 24-hr SIL	2.88	-	-	-	2.88	1.2	Significant	582572	3568756	3104.43
H_2S 1/2-hr NMAAQS	-	49.72	-	-	49.72	139.3	35.7%	581555	3570498	3128.05
NO_2 Annual PSD Class II Increment	6.14	-	-	9.3	15.44	25	61.8%	581919	3570295	3128.08
NO_2 Annual NMAAQS	6.14	-	-	9.3	15.44	94.02	16.4%	581919	3570295	3128.08
NO_2 1-hr NAAQS	63.56	-	-	54.5	118.06	188.03	62.8%	582265	3568544	3097.77
$PM_{2.5}$ Annual PSD Class II Increment	-	3.46	0.00318	-	3.46	4	86.6%	581965	3568744	3100.43
$PM_{2.5}$ Annual NAAQS	-	1.68	0.00318	6.6	8.28	9	92.0%	581965	3568744	3100.43

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
$PM_{2.5}$ 24-hr PSD Class II Increment	-	5.35	0.109	-	5.46	9	60.6%	581965	3568744	3100.43
$PM_{2.5}$ 24-hr NAAQS	-	8.22	0.109	16.5	24.83	35	70.9%	581965	3568744	3100.43
SO_2 Annual PSD Class II Increment	-	2.83	-	-	2.83	20	14.1	582272	3568752	945.06
SO_2 24-hr PSD Class II Increment	-	10.56	-	-	10.56	91	11.6%	582665	3568644	3101.12
SO_2 3-hr PSD Class II Increment	-	30.07	-	-	30.07	512	5.9%	582415	3568494	3096.13
SO_2 1-hr NAAQS	-	58.74	-	-	58.74	196	30.0%	582415	3569344	3107.55
NO_2 Annual PSD Class I SIL	0.11	-	-	-	0.11	0.1	Significant	558956	3561600	4028.58
$PM_{2.5}$ Annual PSD Class I SIL	0.0004	-	-	-	0.0004	0.05	0.8%	559359	3560480	3621.06
$PM_{2.5}$ 24-hr PSD Class I SIL	0.008	-	-	-	0.008	0.27	2.9%	558179	3558860	3597.64
PM_{10} Annual PSD Class I SIL	0.0005	-	-	-	0.0005	0.2	0.2%	558179	3558860	3597.64
PM_{10} 24-hr PSD Class I SIL	0.010	-	-	-	0.010	0.3	3.5%	559359	3560480	3621.06
SO_2 Annual PSD Class I SIL	0.004	-	-	-	0.004	0.1	3.9%	558334	3562096	4080.35

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
SO_2 24-hr PSD Class I SIL	0.10	-	-	-	0.10	0.2	48.4%	540127	3550720	4240.88
SO_2 3-hr PSD Class I SIL	0.46	-	-	-	0.46	1	46.1%	540627	3550720	4181.07
NO2 Annual PSD Class I Increment	-	2.08	-	-	2.08	2.5	83.0%	559359	3560480	1103.70

16-X: Summary/conclusions

1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	San Mateo DLK Black River Midstream, LLC has demonstrated that the proposed changes to NSR Permit 6567-M8 would neither cause nor contribute to an exceedance of the standards for H_2S, CO, NO_2, $PM_{2.5}$, PM_{10}, and SO_2.

	NOx hourly	NOx Annual	**NOX**	CO	**CO**	PM10 Hourly	PM10 Annual	**PM10**	PM2.5 Hourly	PM2.5 Annual	**PM2.5**	SO2 Hourly	SO2 Annual	**SO2**	H2S Hourly	**H2S**
ID	g/s	g/s	**lb/hr**	g/s	**lb/hr**	g/s	g/s	**lb/hr**	g/s	g/s	**lb/hr**	g/s	g/s	**lb/hr**	g/s	**lb/hr**
ENG_1	3.91E-01	3.91E-01	3.10E+00	3.91E-01	3.10E+00	2.02E-02	2.02E-02	1.60E-01	2.02E-02	2.02E-02	1.60E-01	2.65E-02	2.65E-02	2.10E-01	1.26E-03	1.00E-02
ENG_2	3.91E-01	3.91E-01	3.10E+00	3.91E-01	3.10E+00	2.02E-02	2.02E-02	1.60E-01	2.02E-02	2.02E-02	1.60E-01	2.65E-02	2.65E-02	2.10E-01	1.26E-03	1.00E-02
ENG_3	3.91E-01	3.91E-01	3.10E+00	3.91E-01	3.10E+00	2.02E-02	2.02E-02	1.60E-01	2.02E-02	2.02E-02	1.60E-01	2.65E-02	2.65E-02	2.10E-01	1.26E-03	1.00E-02
ENG_4	3.91E-01	3.91E-01	3.10E+00	3.91E-01	3.10E+00	2.02E-02	2.02E-02	1.60E-01	2.02E-02	2.02E-02	1.60E-01	2.65E-02	2.65E-02	2.10E-01	1.26E-03	1.00E-02
HT_101	8.13E-02	8.13E-02	6.45E-01	6.83E-02	5.42E-01	6.18E-03	6.18E-03	4.90E-02	4.63E-03	4.63E-03	3.67E-02	5.04E-04	5.75E-04	4.56E-03	---	---
HT_801	8.12E-02	8.12E-02	6.44E-01	6.82E-02	5.41E-01	6.17E-03	6.17E-03	4.90E-02	4.63E-03	4.63E-03	3.67E-02	5.04E-04	5.75E-04	4.56E-03	---	---
HT_102	1.13E-01	1.13E-01	8.97E-01	9.53E-02	7.56E-01	8.62E-03	8.62E-03	6.84E-02	6.47E-03	6.47E-03	5.14E-02	6.30E-04	5.75E-04	5.00E-03	---	---
AR_1	2.46E-01	2.46E-01	1.95E+00	2.06E-01	1.63E+00	1.87E-02	1.87E-02	1.48E-01	1.40E-02	1.40E-02	1.11E-01	1.26E-03	1.44E-03	1.14E-02	---	---
DR_1	3.38E-02	3.38E-02	2.68E-01	2.84E-02	2.25E-01	2.57E-03	2.57E-03	2.04E-02	1.93E-03	1.93E-03	1.53E-02	2.52E-04	2.88E-04	2.29E-03	---	---
HT_103	1.13E-01	1.13E-01	8.97E-01	9.53E-02	7.56E-01	8.62E-03	8.62E-03	6.84E-02	6.47E-03	6.47E-03	5.14E-02	1.26E-03	5.75E-04	1.00E-02	---	---
HT_802	7.22E-02	7.22E-02	5.73E-01	6.07E-02	4.82E-01	5.49E-03	5.49E-03	4.36E-02	4.12E-03	4.12E-03	3.27E-02	3.78E-04	5.75E-04	4.56E-03	---	---
HT_803	2.79E-01	2.79E-01	2.21E+00	2.34E-01	1.86E+00	2.12E-02	2.12E-02	1.68E-01	1.59E-02	1.59E-02	1.26E-01	3.78E-04	5.75E-04	4.56E-03	---	---
AR_2	2.91E-02	2.91E-02	2.31E-01	2.45E-02	1.94E-01	2.21E-03	2.21E-03	1.75E-02	1.66E-03	1.66E-03	1.32E-02	1.26E-03	1.73E-03	1.37E-02	---	---
DR_2	7.22E-02	7.22E-02	5.73E-01	6.07E-02	4.82E-01	5.49E-03	5.49E-03	4.36E-02	4.12E-03	4.12E-03	3.27E-02	1.26E-04	2.88E-04	2.29E-03	---	---
TO_1	1.75E-01	1.81E-01	1.44E+00	1.62E-01	1.29E+00	6.22E-02	6.22E-02	4.94E-01	4.67E-02	4.67E-02	3.71E-01	1.55E+00	1.55E+00	1.23E+01	1.64E-02	1.30E-01
TO_2	2.73E-01	2.79E-01	2.21E+00	2.54E-01	2.02E+00	5.22E-02	5.22E-02	4.14E-01	3.92E-02	3.92E-02	3.11E-01	1.18E+00	1.18E+00	9.37E+00	1.26E-02	1.00E-01
TO1_SSM	---	---	0.00E+00	---	#VALUE!	---	---	0.00E+00	---	---	0.00E+00	---	---	0.00E+00	8.24E-01	6.54E+00
TO2_SSM	---	---	0.00E+00	---	#VALUE!	---	---	0.00E+00	---	---	0.00E+00	---	---	0.00E+00	6.30E-03	5.00E-02
DEHY1_SSI	---	---	0.00E+00	---	#VALUE!	---	---	0.00E+00	---	---	0.00E+00	---	---	0.00E+00	6.30E-03	5.00E-02
FL_1	3.48E+01	2.07E-01	2.76E+02	6.95E+01	5.52E+02	---	---	0.00E+00	---	---	0.00E+00	7.56E-02	8.63E-04	6.00E-01	7.56E-04	6.00E-03
FL_2A	2.14E-01	2.14E-01	1.70E+00	4.20E-01	3.33E+00	---	---	0.00E+00	---	---	0.00E+00	1.26E-02	1.24E-02	1.00E-01	1.51E-04	1.20E-03
FL_2B	4.36E+01	3.28E-01	3.46E+02	8.71E+01	6.91E+02	---	---	0.00E+00	---	---	0.00E+00	1.30E-01	2.01E-03	1.03E+00	1.26E-03	1.00E-02
FL_3	3.99E+01	2.93E-01	3.17E+02	7.96E+01	6.32E+02	---	---	0.00E+00	---	---	0.00E+00	1.27E+00	2.56E-02	1.01E+01	1.39E-02	1.10E-01
VCU_1	1.84E-01	1.84E-01	1.46E+00	3.66E-01	2.90E+00	3.39E-03	3.39E-03	2.69E-02	2.54E-03	2.54E-03	2.02E-02	7.56E-05	7.19E-05	6.00E-04	1.26E-06	1.00E-05

ID	**NOX**	**CO**	**SO2**	**PM10**	**PM2.5**	**H2S**
ENG_1	3.10E+00	3.10E+00	2.10E-01	1.60E-01	1.60E-01	1.00E-02
ENG_2	3.10E+00	3.10E+00	2.10E-01	1.60E-01	1.60E-01	1.00E-02
ENG_3	3.10E+00	3.10E+00	2.10E-01	1.60E-01	1.60E-01	1.00E-02
ENG_4	3.10E+00	3.10E+00	2.10E-01	1.60E-01	1.60E-01	1.00E-02
HT_101	6.45E-01	5.42E-01	4.56E-03	4.90E-02	3.67E-02	---
HT_801	6.44E-01	5.41E-01	4.56E-03	4.90E-02	3.67E-02	---
HT_102	8.97E-01	7.56E-01	5.00E-03	6.84E-02	5.14E-02	---
AR_1	1.95E+00	1.63E+00	1.14E-02	1.48E-01	1.11E-01	---
DR_1	2.68E-01	2.25E-01	2.29E-03	2.04E-02	1.53E-02	---
HT_103	8.97E-01	7.56E-01	1.00E-02	6.84E-02	5.14E-02	---
HT_802	5.73E-01	4.82E-01	4.56E-03	4.36E-02	3.27E-02	---
HT_803	2.21E+00	1.86E+00	4.56E-03	1.68E-01	1.26E-01	---
AR_2	2.31E-01	1.94E-01	1.37E-02	1.75E-02	1.32E-02	---
DR_2	5.73E-01	4.82E-01	2.29E-03	4.36E-02	3.27E-02	---
TO_1	1.44E+00	1.29E+00	1.23E+01	4.94E-01	3.71E-01	1.30E-01
TO_2	2.21E+00	2.02E+00	9.37E+00	4.14E-01	3.11E-01	1.00E-01
TO1_SSM	0.00E+00	#VALUE!	0.00E+00	0.00E+00	0.00E+00	6.54E+00
TO2_SSM	0.00E+00	#VALUE!	0.00E+00	0.00E+00	0.00E+00	5.00E-02
DEHY1_SSI	0.00E+00	#VALUE!	0.00E+00	0.00E+00	0.00E+00	5.00E-02
FL_1	2.76E+02	5.52E+02	6.00E-01	0.00E+00	0.00E+00	6.00E-03
FL_2A	1.70E+00	3.33E+00	1.00E-01	0.00E+00	0.00E+00	1.20E-03
FL_2B	3.46E+02	6.91E+02	1.03E+00	0.00E+00	0.00E+00	1.00E-02
FL_3	3.17E+02	6.32E+02	1.01E+01	0.00E+00	0.00E+00	1.10E-01
VCU_1	1.46E+00	2.90E+00	6.00E-04	2.69E-02	2.02E-02	1.00E-05

Jaimy Karacaoglu

From: Beth Morley
Sent: Monday, December 9, 2024 11:14 AM
To: Mustafa, Sufi A., ENV
Cc: Jaimy Karacaoglu; Daniel Dolce; Kha Mach
Subject: Modeling Protocol for DLK Black River's Black River Gas Processing Plant: NSR 6567-M8
Attachments: Black River_Modeling Protocol_v1.0_2024 1209.pdf

Hi Sufi,

Please find attached the modeling protocol for DLK Black River's Black River Gas Processing Plant (**NSR 6567-M8**). Modeling is being completed as a part of a significant revision to the permit.

Regards,

Beth Morley
Consultant

P 505.266.6611
Email: Beth.Morley@Trinityconsultants.com
9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122



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AIR DISPERSION MODELING PROTOCOL

NSR Significant Revision Modeling Protocol

DLK BLACK RIVER MIDSTREAM, LLC
Black River Gas Processing Plant

Prepared By:

Jaimy Karacaoglu – Senior Consultant

TRINITY CONSULTANTS
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(505) 266-6611

December 2024

Project 243201.0082

Trinity Consultants

1. INTRODUCTION

1.1 Purpose of Modeling

Black River Gas Processing Plant (Black River) is a gas processing plant owned by and operated by DLK Black River Midstream, LLC (DLK Black River). Black River consists of Plants 1, 2, 3, and the new Plant 4. The facility utilizes amine sweetening units to remove hydrogen sulfide (H_2S) and carbon dioxide (CO_2) from raw natural gas, followed by dehydration the eliminate moisture. The sweetened gas then enters cryogenic units, where it is cooled to separate valuable natural gas liquids (NGLs) from the gas stream and transported in a sales line. Produced water and condensate are primarily transported off site via pipeline. During pipeline downtime condensate and produced water will be transported via truck loadout. Black River is located 2.6 miles southwest of Loving, NM in Eddy County.

DLK Black River is submitting an application pursuant to 20.2.72.219.D(1)(a) NMAC for significant revision of NSR Permit No. 6567-M8. The purpose of this revision is to add new equipment associated with the installation of Train 4. This includes one (1) stabilizer heater (Unit HT-804), one (1) amine HMO heater (Unit HT-201), one (1) mole sieve heater (HT-104), one (1) cryo HMO heater, one (1) dehydration unit (DEHY-3), one (1) amine sweetening unit (AM-3), one (1) thermal oxidizer (TO-3), and one (1) dual-tip flare (FL-4A and FL-4B). Volume sources from Train 4 produced water loading (TL-4) and fugitives (FUG-4) are also included. Additionally, minor modifications to existing equipment will be incorporated. The following existing units will also be modified: three (3) flares from Trains 1-3 (FL-1, FL-2A, and FL-3). Additionally, various changes may be made to existing equipment and will be incorporated into models as appropriate.

DLK Black River seeks to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS), New Mexico Ambient Air Quality Standards (NMAAQS), and PSD Increment standards as applicable for the following pollutants and averaging periods: NO_2 (1-hour and annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), $PM_{2.5}$ (24-hour and annual), and PM_{10} (24-hour and annual).

1.2 Facility Description and Location

The approximate UTM coordinates of the facility are 581,750 meters East and 3,570,090 meters North with WGS84 datum at an elevation of approximately 3,139 feet above mean sea level.

2. PROPOSED MODELING

2.1 Model Input Options

The latest version of the AERMOD dispersion model (version 23132) will be used for this analysis. The model will be run in regulatory mode with all default options. The ARM2 method will be used to convert NO_X to NO_2. Default minimum and maximum ambient ratios will be utilized.

Table 1 shows the emission sources and stack parameters for the new facility. Please note that emissions and stack parameters may vary throughout the development of this application.

Table 1- Project emission sources and stack parameters to be included in the air dispersion modeling.

Stack Number	Serving Unit Number(s)	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	H_2S	Height	Temp	Velocity	Diam.
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	ft	F	ft/s	ft
HT-804	HT-804	0.86	0.72	0.040	0.065	0.065	-	22.2	495	38.4	1.83
HT-201	HT-201	1.70	4.23	0.24	0.38	0.38	-	27.9	509	42.8	2.67
HT-201	HT-201	1.35	3.36	0.19	0.30	0.30	-	32.6	495	36.1	4.0
HT-104	HT-104	0.75	1.98	0.11	0.18	0.18	-	32.6	555	44.7	3.5
DR-3	DR-3	0.39	0.33	0.018	0.030	0.030	-	24.0	750	15.0	2.0
TO-3	TO-3	3.37	1.30	13.64	0.22	0.22	0.15	58	1500	9.75	7.0
FL-1	FL-1, MAL(FL-1)	173.54	346.46	17.96	-	-	0.18	76.83	1832	65.62	5.19
FL-2A	FL-2 SSM, MAL (FL-2)	0.26	0.53	0.0068	-	-	0.000065	90.75	1832	65.62	5.22
FL-3	FL-3, MAL (FL-3)	174.37	348.07	1.01	-	-	0.011	55.00	1832	65.62	5.36
FL-4A	FL-4 SSM, MAL (FL-4)	176.98	353.25	1.05	-	-	0.011	154	1832	65.62	5.88
FL-4B	FL-4 LP	174.37	348.07	1.01	-	-	0.011	20	1832	65.62	0.15

Volume Source	H_2S	Release Height	Initial Lateral Dimension	Initial Vertical Dimension
	lb/hr	ft	ft	ft
FUG-4	0.0088	3.28	6.98	0.76
TL-4	0.000065	12	2.79	5.58

Table 2- All other facility emission sources and stack parameters to be included in the air dispersion modeling.

Stack Number	Serving Unit Number(s)	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	H_2S	Height	Temp	Velocity	Diam.
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	ft	F	ft/s	ft
HT-101	HT-101	0.65	0.54	0.0040	0.049	0.037	-	33.0	624	26.30	1.63
HT-801	HT-801	0.64	0.54	0.0040	0.049	0.037	-	33.0	624	28.04	1.63
HT-102	HT-102	0.90	0.76	0.0050	0.068	0.051	-	50.7	624	17.71	2.44
AR-1	AR-1	1.95	1.64	0.010	0.148	0.11	-	33.8	624	40.42	2.14
DR-1	DR-1	0.27	0.23	0.0020	0.020	0.015	-	25.0	624	6.36	2.00
HT-103	HT-103	0.90	0.76	0.010	0.068	0.051	-	49.9	624	17.71	2.44
HT-802	HT-802	0.57	0.48	0.0030	0.044	0.033	-	42.4	624	14.16	1.96
HT-803	HT-803	2.21	1.86	0.0030	0.17	0.13	-	42.4	624	19.39	1.96
AR-2	AR-2	0.23	0.19	0.010	0.018	0.013	-	32.3	624	37.06	2.38

Stack Number	Serving Unit Number(s)	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	H_2S	Height	Temp	Velocity	Diam.
		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	ft	F	ft/s	ft
DR-2	DR-2	0.57	0.48	0.0010	0.044	0.033	-	25.8	624	12.98	1.30
TO-1	TO-1	1.39	1.29	12.29	0.49	0.37	0.13	42.5	1600	7.21	6.96
TO-2	TO-2	2.17	2.02	9.36	0.41	0.31	0.10	61.2	1600	53.19	2.46
TO-1 SSM	TO-1 SSM	-	-	-	-	-	6.54	40.0	120	467.36	0.25
TO-2 SSM	TO-2 SSM	-	-	-	-	-	0.050	16.0	120	7.02	0.33
DEHY-1 SSM	Dehy-1 SSM	-	-	-	-	-	0.050	11.0	120	19.34	0.33
FL-2B	FL-2	1.65	3.29	0.098	-	-	0.010	90.8	1832	65.62	2.53
VCU-1	VCU-1	1.46	2.91	0.00060	0.027	0.020	0.000010	33.2	1400	0.14	5.33

Volume Source	H_2S	Release Height	Initial Lateral Dimension	Initial Vertical Dimension
	lb/hr	ft	ft	ft
TL-2	0.00010	12	0.058	5.58
FUG1	0.012	3.28	6.98	0.76
FUG2	0.012	3.28	6.98	0.76
FUG3	0.012	3.28	6.98	0.76

A downwash analysis using the latest version of BPIP will be conducted and incorporated into the modeling analysis to account for potential effluent downwash due to structures at the facility. All building heights and dimensions will be confirmed before any modeling is done.

Table 3- Circular Building Downwash Structures

Building ID	X Coordinate m	Y Coordinate m	Elevation m	Height ft	Radius ft	Corners ft
TK-1	581890.97	3570169.93	954.14	25.0	6.0	24
TK-2	581886.29	3570179.42	954.12	25.0	6.0	24
TK-3	581890.97	3570184.08	954.11	25.0	6.0	24
TK-4	581886.19	3570184.08	954.12	25.0	6.0	24
TK-5	581890.97	3570179.42	954.12	25.0	6.0	24
TK-6	581890.97	3570175.05	954.13	25.0	6.0	24
TK-7	581886.29	3570175.05	954.13	25.0	6.0	24
TK-702 G	582147.59	3568579.27	943.78	16.0	10.7	24
TK-701 B	582147.59	3568579.27	943.91	16.0	10.7	24
TK-701 C	582147.59	3568579.27	943.86	16.0	10.7	24
TKLB	582181.69	3568631.04	944.3	15.0	5.0	24
TKULB	582177.78	3568631.04	944.29	15.0	5.0	24
TKAM	582147.59	3568595.1	943.96	15.0	5.0	24
TKRO	582161.40	3568602.33	944.12	16.0	10.7	24
TKRAW	582161.40	3568594.81	944.06	16.0	21.5	24
TKTEG	582147.59	3568602.63	944.02	15.0	5.0	24

Table 4- Rectangular Building Downwash Structures

Building ID	X Coordinate m	Y Coordinate m	Elevation m	Height ft	X Length ft	Y Length ft	Angle
CONTROL	582297.39	3568740.95	945.02	15	30.74	49.08	0
OFF2	581535.3	3569770.7	955.16	12	43.96	35.63	176.2
BLD2	581626.575	3570174.996	954.22	15	63.06	56.30	0
BLD1	581627.28	3570200.19	954.04	20	61.52	52.62	0
WARE1	581571.5	3569734.4	954.12	12	43.31	39.60	88.1
WARE2	581722.17	3570475.13	953.38	12	61.09	40.22	0

2.2 Receptor Grid Description and Elevation Data

The center point of the facility will be designated at 582,040 meters East and 3,569,519 meters North. This center point will serve as the center point for a variable density square receptor grid. The facility fence line will be modeled using 50-meter grid spacing. A 50-meter grid spacing will extend out from the fence line to 800 meters in each direction based on the fence line point furthest from the facility center point for a very fine grid resolution. A 100-meter grid spacing will extend from 800 meters to 3,000 meters in each direction for a fine grid resolution. A 250-meter grid spacing will extend from 3,000 meters to 6,000 meters in each direction for a medium grid resolution. A 500-meter grid spacing will extend from 6,000 meters to 10,000 meters in each direction for a coarse grid resolution. A 1,000-meter grid spacing will extend from 10,000 meters to 50,000 meters in each direction for a very coarse grid resolution. It is expected that the highest impacts from the proposed source will be at or near the facility property.

For the Class I area analysis, a grid spacing of 1000 m is used for receptors over the Class I area. Class I receptors will be obtained through NMED MergeMaster.

The elevations of receptors and facility sources will be determined using the most recent NED data currently available (1/3 arc-second DEM) from the USGS website.

2.3 Meteorological Data

The Carlsbad NWS dataset will be used for five meteorological years (2017-2021) as available on the NMED website.

2.4 Significance Analysis (SIL) and Cumulative Impact Analysis (CIA)

The modeled ground-level concentrations will be compared to the corresponding significant impact levels (SILs) to determine whether any modeled ground-level concentrations at any receptor locations are greater than the SIL (i.e., "significant" receptors). If the significance analysis reveals that modeled ground-level concentrations for a particular pollutant and averaging period are greater than the applicable SIL, a Cumulative Impact Analysis (CIA) will be performed at the significant receptors. The CIA will include impacts from the facility sources and background concentrations and/or surrounding sources as applicable.

If necessary, the following monitors will be used for background concentrations:

- Outside Carlsbad Monitor (5ZR, 350151005) for NO_2;
- Del Norte High School Monitor (350010023) for CO;
- Hobbs-Jefferson Monitor (5ZS, 350250008) dataset will be used for $PM_{2.5}$; and
- Hobbs-Jefferson Monitor (5ZS, 350250008) dataset will be used for PM_{10}.

The inclusion of background concentrations will follow the guidance shown in Table 20: "Modeling the Design Value Summary (Default Modeling)" from the Modeling Guidelines[1]. Based on the NMED Modeling Guidelines, background concentrations will be added to the model results and compared to the NAAQS and NMAAQS standards for NO_2, CO, PM_{10} and $PM_{2.5}$ for all applicable averaging periods.

Based on the NMED Modeling Guidelines for SO_2 modeling, if the facility is in the Pecos-Permian Basin Intrastate AQCR (AQCR 155), it will be modeled with surrounding sources, as representative monitoring is not available for background data.

For PM_{10} and $PM_{2.5}$, the facility will be modeled with surrounding sources within 10 km of the facility and background concentration will be added to the modeling results and compared to the NAAQS standards for all applicable averaging periods. An inventory of the surrounding sources will be obtained from the NMED MergeMaster.

Based on EPA's Guidance for $PM_{2.5}$ Permit Modeling and NMED's Modeling Guidelines, sources that emit at least 40 tpy of NO_x or 40 tpy of SO_2 are considered to emit significant amounts of precursors. Sources with significant increases of $PM_{2.5}$ precursors must qualitatively and/or quantitatively account for the secondary formation of $PM_{2.5}$. The secondary formation of $PM_{2.5}$ will be calculated in this model following the NMED Modeling guidelines.

Based on the NMED Modeling Guidelines for H_2S modeling, if the facility is in the Pecos-Permian Basin Intrastate AQCR, H_2S will be modeling using the 1-hour averaging time and compared to the ½ hour averaging period.

2.5 PSD Increment Analysis

If the results of the ROI analysis for NO_2, SO_2, $PM_{2.5}$, or PM_{10} indicate concentrations greater than significance levels, PSD increment analysis will be conducted for the appropriate averaging periods. If required, the PSD increment analysis will be conducted including all PSD increment consuming and expanding sources within 25 km of the facility, plus sources emitting over 1000 pounds per hour within 50 km of the facility. The surrounding source information will be obtained from NMED MergeMaster. The predicted maximum concentrations will be compared to the appropriate Class II PSD Standard.

2.6 Class I Areas Analysis

The nearest Class I area is Carlsbad Caverns National Park, which is 24.4 km southeast of the facility. Pollutants will be modeled for significance using the Carlsbad Caverns Receptor Grid obtained from NMED MergeMaster. A Class I area analysis will be performed if concentrations are greater than significance levels as the national park is within the 50 km inclusion zone for PSD minor sources.

[1] New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines Revised June 2024