NMED AIR QUALITY PERMIT
NSR SIGNIFICANT REVISION APPLICATION

HILCORP ENERGY COMPANY
San Juan Gas Plant

Prepared By:

Michael Celente – Managing Consultant

TRINITY CONSULTANTS
9400 Holly Ave NE
Bldg 3, Suite B
Albuquerque, NM 87122

(505) 266-6611

January 2024

Project 233201.0150

656951

TRINITY CONSULTANTS, INC.
12700 PARK CENTRAL DRIVE STE. 600
DALLAS, TX 75251-1546
(972) 661-8100

JPMorgan
JPMorgan Chase Bank, N.A.
Dallas, Texas
88-88/1113

Fraud Protected by Positive Pay

CHECK DATE December 15, 2023

PAY TO THE ORDER OF Five Hundred and 00/100 Dollars

New Mexico Environmental Department
Air Quality Bureau
525 Camino de los Marquez
Suite 1
Santa Fe, NM 87505-1816

AMOUNT 500.00

NOT VALID AFTER 90 DAYS

AUTHORIZED SIGNATURE

Details on back.

⑈656951⑈ ⑆111300880⑆ 931995472 4⑈

TRINITY CONSULTANTS, INC.

Check Date: 12/15/2023

656951

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
122332010150NSR	9/13/2023	0157213	500.00			500.00
New Mexico Environmental Department		TOTAL	500.00			500.00
CHASE BANK-	29	00006134				

656951

PRODUCT SSLT500 Deluxe Corporation 1-800-328-0304 or www.deluxe.com/shop

28644699001

Trinity Consultants
9400 Holly Ave NE, Bldg 3, Ste B, Albuquerque, NM 87122 / P 505.266.6611 / **trinityconsultants.com**

January 12, 2024

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

RE: NSR Significant Revision Application
Hilcorp Energy Company – San Juan Gas Plant

Permit Programs Manager:

On the behalf of Hilcorp Energy Company, we are submitting an NSR Significant Revision application for the San Juan Gas Plant. The facility is currently authorized under NSR 0613-M13 and is located approximately 0.9 miles northeast of Bloomfield, New Mexico. The proposed modification includes replacing two (2) natural gas-fired turbines (Unit 4 & 5).

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, including the original certification. Please feel free to contact either myself at (505) 266-6611 or by email at mcelente@trinityconsultants.com if you have any questions regarding this application. Alternatively, you may contact Clara Cardoza, Environmental Compliance for Hilcorp Energy Company, at (505) 564-0733 or by email at ccardoza@hilcorp.com.

Sincerely,

Michael Celente
Managing Consultant

CC: Clara Cardoza (Environmental Compliance, ccardoza@hilcorp.com)

Trinity Project File: 233201.0150

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.: **656951** 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(2) NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known: 1177	Updating Permit/NOI #: 0613-M13
1	Facility Name: San Juan Gas 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): 1001 Arizona, Bloomfield, NM 87413		
2	Plant Operator Company Name: Hilcorp Energy Company	Phone/Fax: (713) 209-2400/ N/A	
a	Plant Operator Address: 1111 Travis Street, Houston, TX 77002		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 81-3974956	
3	Plant Owner(s) name(s): Hilcorp Energy Company	Phone/Fax: (713) 209-2400/ N/A
a	Plant Owner(s) Mailing Address(s): 1111 Travis Street, Houston, TX 77002	
4	Bill To (Company): Hilcorp Energy Company	Phone/Fax: (713) 209-2400/ N/A
a	Mailing Address: 1111 Travis Street, Houston, TX 77002	E-mail: rbeard@hilcorp.com
5	☒ Preparer: Michael Celente ☒ 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: MCelente@trinityconsultants.com
6	Plant Operator Contact: Kevin Reese	Phone/Fax: 505-632-4907/N/A
a	Address: 1001 Arizona, Bloomfield NM 87413	E-mail: kreese@hilcorp.com
7	Air Permit Contact: Clara Cardoza	Title: Environmental Compliance L48W
a	E-mail: ccardoza@hilcorp.com	Phone/Fax: (505) 564-0733/ N/A
b	Mailing Address: 382 CR 3100, Aztec NM 87410	
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: P-124-R4
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: 0613-M13
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: 25 MMSCF	Daily: 600 MMSCF	Annually: 219 BSCF
b	Proposed	Hourly: 25 MMSCF	Daily: 600 MMSCF	Annually: 219 BSCF
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: 25 MMSCF	Daily: 600 MMSCF	Annually: 219 BSCF
b	Proposed	Hourly: 25 MMSCF	Daily: 600 MMSCF	Annually: 219 BSCF

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 36.73251°	Longitude (decimal degrees): -107.96701°	County: San Juan	Elevation (ft): 5,600
2	UTM Zone: ☐ 12 or ☒ 13	Datum: ☐ NAD 83 ☒ WGS 84		
a	UTM E (in meters, to nearest 10 meters): 235,114 m	UTM N (in meters, to nearest 10 meters): 4,069,292 m		
3	Name and zip code of nearest New Mexico town: Bloomfield, 87413			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From E. Broadway Ave (Hwy 64) and N. 1st Street (Hwy 550) in Bloomfield, travel north for approx. 1.4 miles and turn right (east) on Arizona. Travel east for approx. 0.5 miles. Facility is on right.			
5	The facility is 0.9 miles northeast of Bloomfield, NM 87413			
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: Municipalities – Bloomfield, Aztec, Farmington; Indian tribe – Navajo Nation; County – San Juan County;			
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/air-quality/modeling-publications/)? ☒ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: Colorado, 31 km.			
9	Name nearest Class I area: Mesa Verde National Park			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 63.3 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: 42.6 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 receipt of the modified permit.				
4	Month and year of anticipated construction completion: Upon receipt of the modified permit.				
5	Month and year of anticipated startup of new or modified facility: Upon receipt of the modified permit.				
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: N/A		
c	Document Title: N/A	Date: N/A	Requirement # (or page # and paragraph #): N/A
d	Provide the required text to be inserted in this permit: N/A		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☒ Yes ☐ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☒ **Minor** (☒ <10 tpy of any single HAP **AND** ☒ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☑ No		
a	If yes, include the name of company providing commercial electric power to the facility: N/A Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

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

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

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): Matt Henderson	Phone: 713-289-2970
a	R.O. Title: Environmental Manager - L48W	R.O. e-mail: mhenderson@hilcorp.com
b	R. O. Address: 1111 Travis Street, Houston, TX 77002	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): Kevin Reese	Phone: 505-632-4907
a	A. R.O. Title: Plant Manager	A. R.O. e-mail: kreese@hilcorp.com
b	A. R. O. Address: 1001 Arizona, Bloomfield NM 87413	
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.): Hilcorp Energy Company	
a	Address of Parent Company: 1111 Travis Street, Houston, TX 77002	
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: Kevin Reese, 505-632-4907 Clara Cardoza, 505-564-0733	

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: Colorado, 31 km; Southern Ute Indian Tribe, 31 km; Ute Mountain Indian Reservation, 32.2 km; Navajo Nation, 32.2 km; Jicarilla Apache Reservation, 48.3 km

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☒ Secure electronic transfer. Air Permit Contact Name: Michael Celente Email: MCelente@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.

Table of Contents

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Natural Gas Fired Turbine	Rolls Royce	Avon 1535	C-101*	23,800 hp	15,000 hp	1986 1986	1 1	20200201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
2	Natural Gas Fired Turbine	Rolls Royce	Avon 1535	C-201*	23,800 hp	15,000 hp	1986 1986	2 2	20200201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
3	Natural Gas Fired Turbine	Rolls Royce	Avon 1535	C-301*	23,800 hp	15,000 hp	1986 1986	3 3	20200201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
4	Natural Gas Fired Turbine	Solar Centaur	T4501	G-1300A	4,500 hp	3,735 hp	1986 1986	N/A 4	20200201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5	Natural Gas Fired Turbine	Solar Centaur	T4501	G-1300B	4,500 hp	3,735 hp	1986 1986	N/A 5	20200201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
6	Natural Gas Fired Turbine	Solar Centaur	T4501	G-1300C	4,500 hp	3,735 hp	1986 1986	N/A 6	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	N/A	N/A
7	Natural Gas Fired Turbine	Solar Centaur	T4501	G-1300D	4,500 hp	3,735 hp	1986 1986	N/A 7	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ To be Replaced	N/A	N/A
8	Regeneration Heater	WILLBROS Downstream	N/A	621-014	14.55 MMBtu/hr	14.55 MMBtu/hr	2011 2012	N/A 8	30600105	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9	Safety System Flare	John Zink	N/A	N/A	600 mmscfd	600 mmscfd	1986 1986	N/A 9	30600903	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10	Diesel Generator	Caterpillar	G3412	81Z05003	755 hp	469 hp	1986 1986	N/A 10	20200401	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
11	Firewater Pump	Caterpillar	G3406	6TB03248	343 hp	343 hp	1986 1986	N/A 11	20200401	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
12	Regeneration Heater	Broach	N/A	H-901	3.4 MMBtu/hr	3.4 MMBtu/hr	1986 1986	N/A 12	30600105	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
13	Regeneration Heater	WILLBROS Downstream	N/A	621-011	14.55 MMBtu/hr	14.55 MMBtu/hr	2011 2011	N/A 13	30600105	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
14	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	1986 1986	N/A 14	3688801	☑ 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 #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
15	Thermal Oxidizer	Callidus	N/A	N/A	12 MMBtu/hr	12 MMBtu/hr	1986 1986	N/A 15	30600903	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
16	Blowdown Flare	John Zink	N/A	N/A	6 mmscfd	6 mmscfd	2002 2002	N/A 16	30600903	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM/M1	SSM & Malfunction Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	30600903	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
MALF	Amine Unit Still Vent/Flash Tank	N/A	N/A	N/A	N/A	N/A	1986 1986	15 15	31000305	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CT	Cooling Tower	N/A	N/A	N/A	N/A	N/A	1986 1986	N/A CT	31000299	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
4	Natural Gas Fired Turbine	Solar Centaur	40-4700 S	TBD	4700 hp	4138 hp	2023 TBD	N/A 4	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	4
5	Natural Gas Fired Turbine	Solar Centaur	40-4700 S	TBD	4700 hp	4138 hp	2023 TBD	N/A 5	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	5

[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
Saddle Tank	Diesel Fuel Tank	N/A	N/A	500	20.2.72.202.B.2	1986	☑ Existing (unchanged) ☐ To be Removed
			N/A	gal	IA List Item #5	1986	☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK 1401	Methanol Tank	N/A	N/A	8400	20.2.72.202.B.5	1986	☑ Existing (unchanged) ☐ To be Removed
			N/A	gal	IA List Item #1a	1986	☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK 1402	Used Oil Tank	N/A	N/A	21,000	20.2.72.202.B.2	1986	☑ Existing (unchanged) ☐ To be Removed
			N/A	gal	IA List Item #5	1986	☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
	Misc. Small Vessels	N/A	N/A	N/A	20.2.72.202.B.5		☑ Existing (unchanged) ☐ To be Removed
			N/A	N/A	IA List Item #1a		☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1	Oxidation Catalyst	1986	CO / VOC	1	CO: 95% VOC: 85%	Previous App
2	Oxidation Catalyst	1986	CO / VOC	2	CO: 95% VOC: 85%	Previous App
3	Oxidation Catalyst	1986	CO / VOC	3	CO: 95% VOC: 85%	Previous App
9	Safety System Flare	1986	VOC / HAP	Facility Wide SSM	98%	Manufacturer
15	Thermal Oxidizer	1986	VOC / HAP / H2S	Amine Unit	98%	Manufacturer
16	Blowdown Flare	2002	VOC / HAP / H2S	Facility Wide SSM, Amine Unit	98%	Manufacturer

[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
1	56.30	246.40	90.00	394.20	10.00	43.80	0.060	0.26	0.81	3.60	0.81	3.60	0.81	3.60	--	--	0.00011	0.0005
2	56.30	246.40	90.00	394.20	10.00	43.80	0.060	0.26	0.81	3.60	0.81	3.60	0.81	3.60	--	--	0.00011	0.0005
3	56.30	246.40	90.00	394.20	10.00	43.80	0.060	0.26	0.81	3.60	0.81	3.60	0.81	3.60	--	--	0.00011	0.0005
4	3.74	16.38	4.56	19.99	1.309	5.73	0.080	0.351	0.25	1.08	0.25	1.08	0.25	1.08	--	--	0.00052	0.0023
5	3.74	16.38	4.56	19.99	1.309	5.73	0.080	0.351	0.25	1.08	0.25	1.08	0.25	1.08	--	--	0.00052	0.0023
6	15.90	69.80	2.30	10.00	0.05	0.24	0.010	0.05	0.22	0.95	0.22	0.95	0.22	0.95	--	--	#######	0.00010
7	15.90	69.80	2.30	10.00	0.05	0.24	0.010	0.05	0.22	0.95	0.22	0.95	0.22	0.95	--	--	#######	0.00010
8	0.75	3.30	0.35	1.47	0.030	0.14	0.010	0.040	0.11	0.48	0.11	0.48	0.11	0.48	--	--	--	--
9	0.17	0.72	0.44	1.94	0.17	0.73	--	--	--	--	--	--	--	--	--	--	--	--
12	0.34	1.49	0.10	0.30	0.020	0.080	0.010	0.010	0.030	0.11	0.03	0.11	0.030	0.11	--	--	--	--
13	0.75	3.30	0.34	1.47	0.030	0.14	0.010	0.040	0.11	0.48	0.11	0.48	0.11	0.48	--	--	--	--
14	--	--	--	--	8.68	38.01	--	--	--	--	--	--	--	--	--	--	--	--
15	1.62	7.08	1.36	5.95	0.43	1.86	2.71	11.92	0.11	0.47	0.11	0.47	0.11	0.47	0.030	0.13	--	--
16	1.33	5.84	3.57	15.64	1.60	7.02	1.21	5.33	--	--	--	--	--	--	0.010	0.06	--	--
CT	--	--	--	--	--	--	--	--	0.36	1.58	0.15	0.64	0.020	0.10	--	--	--	--
SSM & Malfunction	259.84	10.00	45.50	10.00	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Amine Unit	--	--	--	--	16.04	70.27	--	--	--	--	--	--	--	--	1.32	5.80	--	--
Totals	472.98	943.29	335.39	1279.34	59.72	271.60	4.31	18.92	4.08	17.98	3.87	17.04	3.74	16.50	1.36	5.99	-	-

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	56.30	246.40	9.60	42.00	0.30	1.30	0.060	0.26	0.81	3.56	0.81	3.56	0.81	3.56	--	--	0.00011	0.00050
2	56.30	246.40	9.60	42.00	0.30	1.30	0.060	0.26	0.81	3.56	0.81	3.56	0.81	3.56	--	--	0.00011	0.00050
3	56.30	246.40	9.60	42.00	0.30	1.30	0.060	0.26	0.81	3.56	0.81	3.56	0.81	3.56	--	--	0.00011	0.00050
4	3.74	16.38	4.56	19.99	1.309	5.73	0.080	0.35	0.25	1.08	0.25	1.08	0.25	1.08	--	--	0.00052	0.0023
5	3.74	16.38	4.56	19.99	1.309	5.73	0.080	0.35	0.25	1.08	0.25	1.08	0.25	1.08	--	--	0.00052	0.0023
6	15.90	69.80	2.30	10.00	0.05	0.24	0.010	0.05	0.22	0.95	0.22	0.95	0.22	0.95	--	--	0.000023	0.00010
7	15.90	69.80	2.30	10.00	0.05	0.24	0.010	0.05	0.22	0.95	0.22	0.95	0.22	0.95	--	--	0.000023	0.00010
8	0.75	3.30	0.35	1.47	0.030	0.14	0.010	0.04	0.11	0.48	0.11	0.48	0.11	0.48	--	--	--	--
9	0.17	0.72	0.44	1.94	0.17	0.73	--	--	--	--	--	--	--	--	--	--	--	--
12	0.34	1.49	0.10	0.30	0.020	0.080	0.010	0.010	0.030	0.11	0.030	0.11	0.030	0.11	--	--	--	--
13	0.75	3.30	0.34	1.47	0.030	0.14	0.010	0.040	0.11	0.48	0.11	0.48	0.11	0.48	--	--	--	--
14	--	--	--	--	8.68	38.01	--	--	--	--	--	--	--	--	--	--	--	--
15	1.62	7.08	1.36	5.95	0.43	1.86	2.71	11.92	0.11	0.47	0.11	0.47	0.11	0.47	0.03	0.13	--	--
16	1.33	5.84	3.57	15.64	1.60	7.02	1.21	5.33	--	--	--	--	--	--	0.01	0.06	--	--
CT	--	--	--	--	--	--	--	--	0.36	1.58	0.15	0.64	0.020	0.10	--	--	--	--
SSM & Malfunction	259.84	10.00	45.50	10.00	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Amine Unit	Emissions from the Amine Unit are routed to the thermal oxidizer (unit 15) or flare (unit 16). Controlled emissions are represented under unit 15 and unit 16.																	
Totals	472.98	943.29	94.19	222.74	14.58	73.83	4.31	18.92	4.08	17.86	3.87	16.92	3.74	16.38	0.040	0.19	0.0014	0.0063

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM & Malfunction	259.84	10.00	45.50	10.00	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Totals	259.84	10.00	45.50	10.00	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-

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

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

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	No	56	750	--	13102		46.7	18.9
2	2	V	No	45	370	--	10218		35.2	10.5
2 Bypass	2	V	No	45	750	--	348		133.9	6.5
3	3	V	No	45	370	--	10218		35.2	10.5
3 Bypass	3	V	No	45	750	--	348		133.9	6.5
4	4	V	No	30.8	820	--	1197.3		140.0	3.3
5	5	V	No	30.8	820	--	1197.3		140.0	3.3
6	6	V	No	30.8	827	--	855.3		100.0	3.3
7	7	V	No	30.8	827	--	855.3		100.0	3.3
8	8	V	No	78.3	664	--	124.7		48.7	3.1
9	9	V	No	200	1832	--	37.23		65.6	0.9
12	12	V	No	15.3	550	--	25.3		14.3	1.5
13	13	V	No	78.3	664	--	124.7		48.7	3.1
14	14	N/A	N/A	Fugitives	N/A	--	N/A		N/A	N/A
15	15	V	No	40	1200	--	201.5		28.5	3.0
16	16	V	No	60	1832	--	34.6		65.6	0.8

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		Acetaldehyde ☒ HAP		Formaldehyde ☒ HAP		n-Hexane ☒ HAP		Benzene ☒ HAP		Toluene ☒ HAP		Ethylbenzene ☒ 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
1	1	0.20	1.00	0.10	0.40	0.10	0.40	--	--	--	--	--	--	--	--	--	--	--	--
2	2	0.20	1.00	0.10	0.40	0.10	0.40	--	--	--	--	--	--	--	--	--	--	--	--
3	3	0.20	1.00	0.10	0.40	0.10	0.40	--	--	--	--	--	--	--	--	--	--	--	--
4	4	0.038	0.17	0.0015	0.0066	0.027	0.12	--	--	--	--	--	--	--	--	--	--	--	--
5	5	0.038	0.17	0.0015	0.0066	0.0266	0.12	--	--	--	--	--	--	--	--	--	--	--	--
6	6	0.30	1.50	0.10	0.60	0.10	0.60	--	0.10	--	--	--	--	--	--	--	--	--	--
7	7	0.30	1.50	0.10	0.60	0.10	0.60	--	0.10	--	--	--	--	--	--	--	--	--	--
8	8	--	0.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14	14	0.30	1.20	--	--	--	--	--	0.80	--	--	--	--	--	--	--	--	--	--
15	15	0.11	0.49	--	--	--	--	--	--	0.070	0.32	0.030	0.15	--	--	0.010	0.020	--	--
16	16	0.05	0.21	--	--	--	--	--	--	0.030	0.14	0.010	0.060	--	--	0.010	0.010	--	--
CT	CT	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SSM/M	SSM/M	--	1.35	--	--	--	--	--	1.21	--	--	--	--	--	--	--	--	--	--
Amine Unit	Amine Unit	Emissions from the Amine Unit are routed to the thermal oxidizer (unit 15) or flare (unit 16). Controlled emissions are represented under unit 15 and unit 16.																	
Totals:		1.74	9.69	0.50	2.41	0.55	2.63	--	2.21	0.10	0.46	0.040	0.21	--	--	0.020	0.030	--	--

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 (MSCF/hr)	Annual Usage (MMSCF/yr)	% Sulfur	% Ash
1	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	123.20	1079.20	5 gr/100 scf max	Negligible
2	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	123.20	1079.20	5 gr/100 scf max	Negligible
3	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	123.20	1079.20	5 gr/100 scf max	Negligible
4	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	32.90	327.62	0.75 gr/100 scf max	Negligible
5	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	32.90	327.62	0.75 gr/100 scf max	Negligible
6	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	37.40	288.20	5 gr/100 scf max	Negligible
7	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	37.40	288.20	5 gr/100 scf max	Negligible
8	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	16.20	141.90	5 gr/100 scf max	Negligible
9	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	1.10	10.00	5 gr/100 scf max	Negligible
12	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	3.40	29.80	5 gr/100 scf max	Negligible
13	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	16.20	141.90	5 gr/100 scf max	Negligible
15	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	12.00	105.10	5 gr/100 scf max	Negligible
16	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	1000	1.10	288.20	5 gr/100 scf max	Negligible

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)
Saddle Tank	31088811	Diesel Fuel	Diesel Fuel	Exempt Source					
TK 1401	31088811	Methanol	Methanol	Exempt Source					
TK 1402	31088811	Used Oil	Used Oil	Exempt Source					

Table 2-L: Tank Data

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

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
Saddle Tank	N/A	Diesel Fuel	N/A	FX	12	1.9	Exempt Source						
TK 1401	N/A	Methanol	N/A	FX	200	31.8	Exempt Source						
TK 1402	N/A	Used Oil	N/A	FX	500	79.5	Exempt Source						

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

Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	**Mechanical Shoe Seal**	**Liquid-mounted resilient seal**	**Vapor-mounted resilient seal**	**Seal Type**	**WH**: White	Good
IF: Internal Floating Roof	**A**: Primary only	**A**: Primary only	**A**: Primary only	**A**: Mechanical shoe, primary only	**AS**: Aluminum (specular)	Poor
EF: External Floating Roof	**B**: Shoe-mounted secondary	**B**: Weather shield	**B**: Weather shield	**B**: Shoe-mounted secondary	**AD**: Aluminum (diffuse)	
P: Pressure	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**LG**: Light Gray	
					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	Varies	Gas	600 MMSCFD	Residue Gas	Methane	Gas	600 MMSCFD
				Natural Gas Liquids	Mixed Hydrocarbons	Liquids	55,000 bbl/d

Table 2-N: CEM Equipment

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

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
N/A - This facilty will have no CEM Equipment.									

Table 2-O: Parametric Emissions Measurement Equipment

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A - The facility will have no Parametric Emissions Measurement Equipment								

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
1	**mass GHG**	62,990.45	0.12	1.19											62,991.76	
	CO_2e	62,990.45	35.46	29.75												63,055.66
2	**mass GHG**	62,990.45	0.12	1.19											62,991.76	
	CO_2e	62,990.45	35.46	29.75												63,055.66
3	**mass GHG**	62,990.45	0.12	1.19											62,991.76	
	CO_2e	62,990.45	35.46	29.75												63,055.66
4	**mass GHG**	19,162.28	0.036	0.36											19,162.68	
	CO_2e	19,162.28	10.728	9.00												19,182.01
5	**mass GHG**	19,162.28	0.036	0.36											19,162.68	
	CO_2e	19,162.28	10.728	9.00												19,182.01
6	**mass GHG**	16,821.31	0.030	0.32											16,821.66	
	CO_2e	16,821.31	9.45	7.93												16,838.69
7	**mass GHG**	16,821.31	0.030	0.32											16,821.66	
	CO_2e	16,821.31	9.45	7.93												16,838.69
8	**mass GHG**	7,439.21	0.01	0.14											7,439.36	
	CO_2e	7,439.21	4.17	3.50												7,446.88
9	**mass GHG**	692.43	0.00115	3.59											696.02	
	CO_2e	692.43	0.34	89.75												782.52
12	**mass GHG**	1,738.37	3.28E-03	0.03											1,738.40	
	CO_2e	1,738.37	0.98	0.82												1,740.17
13	**mass GHG**	7,439.21	0.01	0.14											7,439.36	
	CO_2e	7,439.21	4.17	3.50												7,446.88
14	**mass GHG**	8.87	--	166.37											175.24	
	CO_2e	8.87	--	4,159.25												4,168.12
15	**mass GHG**	6,135.43	0.01	0.12											6,135.56	
	CO_2e	6,135.43	3.46	2.90												6,141.79
16	**mass GHG**	5,686.55	8.17E-03	29.46											5,716.02	
	CO_2e	5,686.55	2.43	736.5												6,425.48
SSM/M	**mass GHG**	2.33	--	43.77											46.10	
	CO2e	2.33	--	1,094.25												1,096.58
Total	**mass GHG**	290080.93	0.53	248.55											**290,330.01**	
	CO_2e	290080.93	162.29	6213.58												**296,456.80**

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

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

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

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

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

Section 3

Application Summary

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

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

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

The San Juan Gas Plant is owned and operated by Hilcorp Energy Company (Hilcorp) and is located 0.9 miles northeast of Bloomfield, NM in San Juan County. This application seeks a significant revision to the NSR permit pursuant to NMAC 20.2.72.219.D(1). The facility is also an existing PSD major source. The current application does not trigger a PSD modification. Therefore, the application is submitted under 20.2.72.219.D(1).

The facility receives two field natural gas streams (high and low pressure) and hydrocarbon liquids are extracted via a cryogenic process. The resulting residue gas and hydrocarbon liquids are delivered, primarily via pipelines, to customers. The facility is currently authorized to operate under NSR Permit No. 0613-M13 and Title V Operating Permit No. P124-R4 to operate the following equipment/sources:

- Three Rolls Royce Avon 1535 natural gas fired turbines driving gas compressors (Units 1-3);
- Four Solar Centaur T4501 natural gas fired turbines driving generators (Units 4-7);
- Two WILLBROS Downstream natural gas fired regeneration heaters (Units 8 and 13);
- One Broach natural gas fired regeneration heater (Unit 12);
- One Caterpillar G3412 diesel fired emergency generator (Unit 10);
- One Caterpillar G3406 diesel fired fire water pump (Unit 11);
- One John Zink plant safety system flare (Unit 9);
- One John Zink staged flare to work in conjunction with the safety system flare (Unit 16);
- One Callidus thermal oxidizer (Unit 15);
- Facility fugitive emissions (Unit 14); and
- SSM and malfunction emissions (SSM/M1).

With this application, Hilcorp seeks to replace two Solar Centaur T4501 natural gas-fired turbines, which drive generators (Units 4 & 5) with two (2) Solar Centaur 40-4700S natural gas-fired turbines (Rated power 4138 hp). The function of these replacement units will be equivalent to the existing units. After this modification, there will be no changes to the facility's status with regards to Title V or PSD as this facility will remain a major source for both.

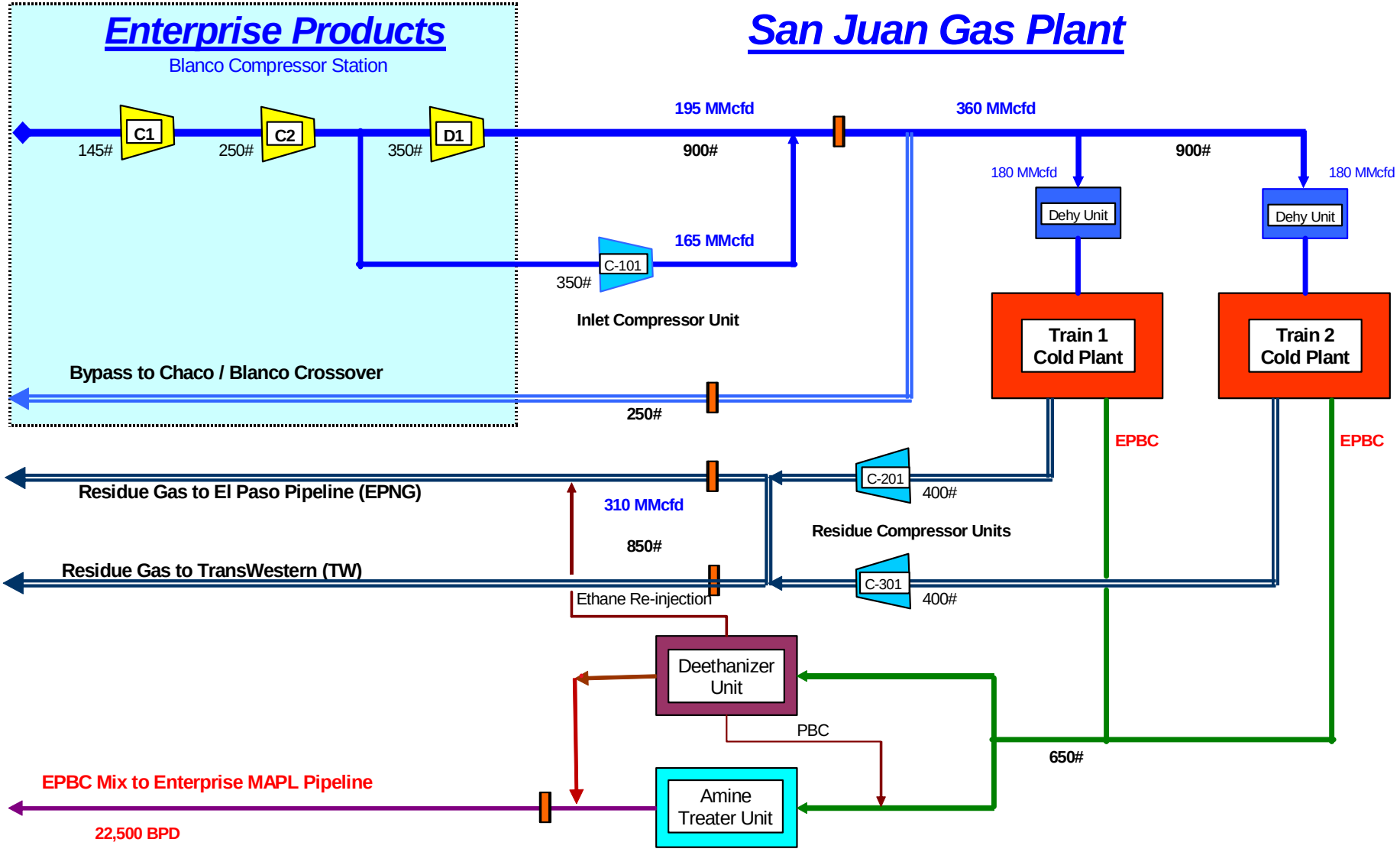
Some or all of the facility's piping will be blown down for safety purposes in the event of an emergency or during maintenance. In addition, the shutdown of turbines involves the purging of gas contained within the equipment. With the exception of the six PSVs, all blowdown and emergency shutdown emissions are routed to a system of two flares (Units 9 and 16) that are part of a staged flare system. Non-routine emissions from De-methanizers are released into the atmosphere. The characterization of SSM/M emissions is not proposed to change with this modification.

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.



Gas & Liquid 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 of this facility is attached to this application.

PL-SJGP-2800-001

ITEM	EQUIPMENT DESCRIPTION	EQUIPMENT #
1	HOT OIL HEATERS (2)	WH-1101 A, B
2	RESIDUE COMPRESSORS (2)	C-201/301
3	INLET COMPRESSOR	C-101
4	LUBRICATING OIL SKIDS (6)	
5	RESIDUE COMPRESSOR SUCTION SCRUBBERS (2)	V-201/301
6	LOW PRESSURE INLET GAS SEPARATOR	V-102
7	HOT OIL TRIM COOLER (OOS)	AC-1101
8	RESIDUE COMPRESSOR AFTERCOOLERS (3)	AC-100-201-301
9	INLET COMPRESSOR AFTERCOOLER	AC-101
10	HIGH PRESSURE INLET COOLER	E-101
11	HIGH PRESSURE INLET GAS SEPARATOR	V-101
12	INLET COMPRESSOR TRIM COOLER	E-102
13	INLET COMPRESSOR DISCHARGE SCRUBBER	V-103
14	RECYCLE COOLERS (2)	E-201/301
15	HIGH PRESSURE FUEL GAS SCRUBBER	V-1404
16	LOW PRESSURE FUEL GAS SCRUBBER	V-1405
17	HOT OIL EXPANSION VESSEL	V-1101
18	HOT OIL PUMPS (3)	P-1101 ABC
19	REGEN GAS HEATERS (2)	H-401/501
20A	INLET GAS DEHYD.-COOLERS	AC-401 (TRAIN #2 OF 2)
20B	INLET GAS DEHYD.- DEHYDRATORS (3)	V-401 (TRAIN #2 OF 2)
20C	INLET GAS DEHYD.- DUST FILTER	F-402 (TRAIN #2 OF 2)
20D	INLET GAS DEHYD.- FILTER SEPARATOR	F-401A (TRAIN #2 OF 2)
20E	INLET GAS DEHYD.- REGEN COMPR. & OIL COOLER	C-401 (TRAIN #2 OF 2)
20F	INLET GAS DEHYD.- REGEN SCRUBBER	V-402 (TRAIN #2 OF 2)
20G	INLET GAS COALESCER	F-401B (TRAIN #2 OF 2)
21	SULFA CHECK SYSTEM	TK-804
22	EPBC PRODUCT DEHY, SKID	F-903/V-906 A,B/V-607
23	EPBC PRODUCT DEHY REGEN HEATER	H-901
24		
25		
26	WASTEWATER & AMINE STORAGE TANK	TK-802
27	AMINE STORAGE TANK	TK-801
28	AMINE COOLER	AC-801
29	AMINE MAKEUP PUMP	P-803
30	AMINE SUMP PUMPS (2)	P-805 A,B
31	AMINE DRAIN TANK PUMP	P-804
32	AMINE STILL REFLUX FANS	AC-802
33		
34A	AMINE TREATING- CONTACTOR	T-801
34B	AMINE TREATING- AMINE COALESCER	V-803
34C	AMINE TREATING- FLASH VESSEL	V-802
34D	AMINE TREATING- COOL AMINE EXCHANGER	E-801
34E	AMINE TREATING- CIRCULATION PUMPS (3)	P-801 A,B,C
34F	AMINE TREATING- SURGE VESSEL	V-804
34G	AMINE TREATING- CHARCOAL FILTER	F-802
34H	AMINE TREATING- SOCK FILTER	F-801
34I	AMINE TREATING- HOT AMINE EXCHANGER	E-802
34J	AMINE TREATING- STILL PLUS REBOILER	T-802 & E-803
34K	AMINE TREATING- STILL REFLUX PUMPS (2)	P-802 A,B
35A	REFRIGERANT COMPR.- LOW STAGE SUCT. SCRUB	V-1002
35B	REFRIGERANT COMPR.- ECONOMIZER	V-1004
35C	REFRIGERANT COMPR.- COMPRESSORS (3)	C-1001 A,B,C
36	REFRIGERANT CONDENSER	E-1001
37	REFRIGERANT ACCUMULATOR	V-1001
38	REFRIGERANT SUBCOOLER	E-1002
39A	CRYO. TRAIN 1- GAS/GAS & COLD/ GAS EXCH.	E-601, E-602 (TRAIN 1 OF 2)
39B	CRYO. TRAIN 1- EXPANDER/COMPRESSOR	X-601 (TRAIN 1 OF 2)
39C	CRYO. TRAIN 1- DEMETHANIZER + COLD VENT	T-601 (TRAIN 1 OF 2)
39D	CRYO. TRAIN 1- DEMETH. UPPER SIDE REBOILER	E-605 (TRAIN 1 OF 2)
39E	CRYO TRAIN 1- COLD SEPARATOR	V-601 (TRAIN 1 OF 2)
39F	CRYO TRAIN 1- DEMETH. BOTTOMS PUMPS (3)	P-601 A,B,C (TRAIN 1 OF 2)
39G	CRYO TRAIN 1- DEMETH. & TRIM REBOILERS	E-603, E-606 (TRAIN 1 OF 2)
39H	CRYO TRAIN 1- LOWER SIDE REBOILER	E-607 (TRAIN 1 OF 2)
39I	CRYO TRAIN 1- LOW STAGE REFRIG. RECLAIMER	V-1008 (TRAIN 1 OF 2)
39J	CRYO TRAIN 1 - GAS CHILLER	E-604 (TRAIN 1 OF 2)
40	METHANOL INJECTION PUMP	P-1401
41	METHANOL STORAGE TANK	TK-1401
42	CLOSED DRAIN PUMP	P-1403
43	CLOSED DRAIN VESSEL	V-1402
44A	DEETHANIZER- REBOILER	E-904
44B	DEETHANIZER	T-901
44C	DEETHANIZER- SIDE REBOILER	E-905
44D	DEETHANIZER- REFLUX CONDENSER	E-901
44E	DEETHANIZER- REFLUX PUMPS (3)	P-901 A,B,C
44F	DEETHANIZER- REFLUX ACCUMULATOR	V-901
44G	DEETHANIZER- HIGH STAGE REFRIG. RECLAIMER	V-1006
45	EP PRODUCT CHILLER	E-903
45A	EP METER SKID	
45B	EP REINJECTION PUMP	P-970

ITEM	EQUIPMENT DESCRIPTION	EQUIPMENT #
46	EP PRODUCT TRIM COOLER	E-902
47	EP COMPRESSOR SUCTION SCRUBBER	V-904
48	EP PRODUCT COMPRESSORS (2)	C-901 A,B
49	PBC COOLER	AC-901
50	EP COMPRESSOR AFTERCOOLER	AC-902
51	COOLING WATER CIRCULATING PUMPS (3)	P-1201 A,B,C
52	WATER TREATING OX 1201 SODIUM HYPERCHLORIDE	P-1208 A,B
53	ACID STORAGE TANK	V-1201
54	WATER TREATMENT CHEMICAL TANKS (2)	M-1201
55	DEMINERALIZED WATER PUMP	P-1407
56	DEMINERALIZED WATER STORAGE TANK (3)	TK-802
57	POWER GENERATORS (4)	G-1300 A,B,C,D
58	BACK UP GENERATOR	G-1301
59	HSW-700 STORAGE TANK	TK-804A
60	WASTE LUBE OIL PUMP	P-1414
61	INSTRUMENT AIR RECEIVER	V-1408
62	UTILITY AIR RECEIVER	V-1407
63	INSTRUMENT AIR DRIER	M-1409
64	INSTRUMENT/UTILITY AIR COMPRESSOR (3)	M-1401 A,B,C
65	FLARE KNOCKOUT DRUM PUMP	P-1406
66	FLARE KNOCKOUT DRUM	V-1406
67	EPBC PRODUCT SURGE TANKS (3)	V-902 A,B,C
68	PROPANE STORAGE TANK	V-1007
69	PBC PRODUCT SURGE TANKS (4)	V-903 A,B,C,D
70	WASTEWATER STORAGE TANK	TK-1403
71	SLOP OIL STORAGE TANK	TK-1402
72	EPBC PRODUCT PIPELINE PUMPS (4) (DECOMMISSIONED)	P-903 A,B,C,D
73	EPBC PRODUCT BOOSTER PUMPS (3)	P-902 A,B,C
74	EPBC PRODUCT PIPELINE PUMPS (3)	P-903 A,B,C
75		
76		
77	CLOSED DRAIN PUMP	P-906
78	GENERATOR LUBE OIL TANK	TK-1300
79	HSW-700 PUMP	P-808
80	SKIM PIT SLOP OIL PUMP	P-1404
81	COOLING TOWER	CT-1201
82	PRODUCT METERING AREA & MAPCO MTR. AREA	
83	TRUCK LOADING CONNECTIONS (HVL)	
84	TRUCK LOADING CONNECTIONS (FLAMMABLE LIQ.)	
85	GAS ANALYZER BUILDING (5)	
86		
87	TURBINE MAKE-UP LUBE OIL TANK	TK-101
88	COLD DRAIN VESSEL	V-1403
89	PROCESS WATER TANK	TK-1203
90A	INLET GAS DEHYD.- COOLERS	AC-501 (TRAIN #1 OF 2)
90B	INLET GAS DEHYD.- DEHYDRATORS (3)	V-501 A,B,C (TRAIN #1 OF 2)
90C	INLET GAS DEHYD.- DUST FILTER	F-502 (TRAIN #1 OF 2)
90D	INLET GAS DEHYD.- FILTER SEPARATOR	F-501A (TRAIN #1 OF 2)
90E	INLET GAS DEHYD.- REGEN COMPR. & OIL COOLER	C-501 (TRAIN #1 OF 2)
90F	INLET GAS DEHYD.- REGEN SCRUBBER	V-502 (TRAIN #1 OF 2)
90G	INLET GAS COALESCER	F-501B (TRAIN #1 OF 2)
91A	CRYO. TRAIN-GAS/GAS & COLD GAS/GAS EXCH.	E-701, E-702 (TRAIN #2 OF 2)
91B	CRYO. TRAIN-EXPANDER/COMPRESSOR	X-701 (TRAIN #2 OF 2)
91C	CRYO. TRAIN- DEMETHANIZER + COLD VENT	T-701 (TRAIN #2 OF 2)
91D	CRYO. TRAIN- DEMETH. UPPER SIDE REBOILER	E-705 (TRAIN #2 OF 2)
91E	CRYO. TRAIN- COLD SEPARATOR	V-701 (TRAIN #2 OF 2)
91F	CRYO. TRAIN- DEMETH. BOTTOMS PUMPS (3)	P-701 A,B,C (TRAIN #2 OF 2)
91G	CRYO. TRAIN- DEMETH. & TRIM REBOILERS	E-703, E-706 (TRAIN #2 OF 2)
91H	CRYO. TRAIN- LOWER SIDE REBOILER	E-707 (TRAIN #2 OF 2)
91I	CRYO. TRAIN- LOW STAGE REFRIG. RECLAIMER	V-1009 (TRAIN #2 OF 2)
91J	CRYO. TRAIN-GAS CHILLER	E-704 (TRAIN #2 OF 2)
92	BACK UP GENERATOR DIESEL TANK	TK-1301
93	WATER TANK (UNUSED)	TK-1202
94	FIRE WATER PUMP DIESEL TANK	TK-01
95	THERMAL OXIDIZER	TO-860
96	WASTE LUBE OIL TANK	TK-1402A
97	AMINE STILL REFLUX ACCUMULATOR	V-805
98	VAPOR RECOVERY COMPRESSOR	C-1411/C-1412
99	SKIMMER PIT- PROCESS WASTE PUMPS	P-1405 A,B
100	36 INCH FLARE	M-1404
101	8 INCH FLARE	M-1412
102	EVAP COOLERS	M-101/M-201/M-301
103	DIESEL TANK	EQUIPMENT FUEL
104	FIRE WATER TANK	TK-100
105	FIRE WATER PUMP	P-100
106	INLET GAS FILTER	F-101
107	WASTE WATER PIPELINE PUMP	P-H2O
108	SPECIAL WASTE CONTAINMENT PAD	(NO EQUIPMENT NUMBER)
109	WASTE LUBE TANK	TK-1414
110		

REV	DATE	REVISIONS	BY	CHK	ORIG ENGR	PROJ ENGR	CUST APP
4	08/17	HARVEST PIPELINE PURCHASE	PEH	PEH	PEH		
3	03/15	GENERAL REVISION	KLT	PEH	JTR		
2	10/14	TK-1414 UPDATE PER MOC# SJ-1-2013-1104	DRJ	JTR	JTR		
1	03/10	2010 MAJOR REVISION & UPDATE	LAR	JTR	JTR		

ORIGINATOR: JWU
ORIGINATOR DWG NO: NG&GP-SJ-29008
SCALE: AS SHOWN
DATE: 03/10

HARVEST PIPELINE

San Juan Gas Plant

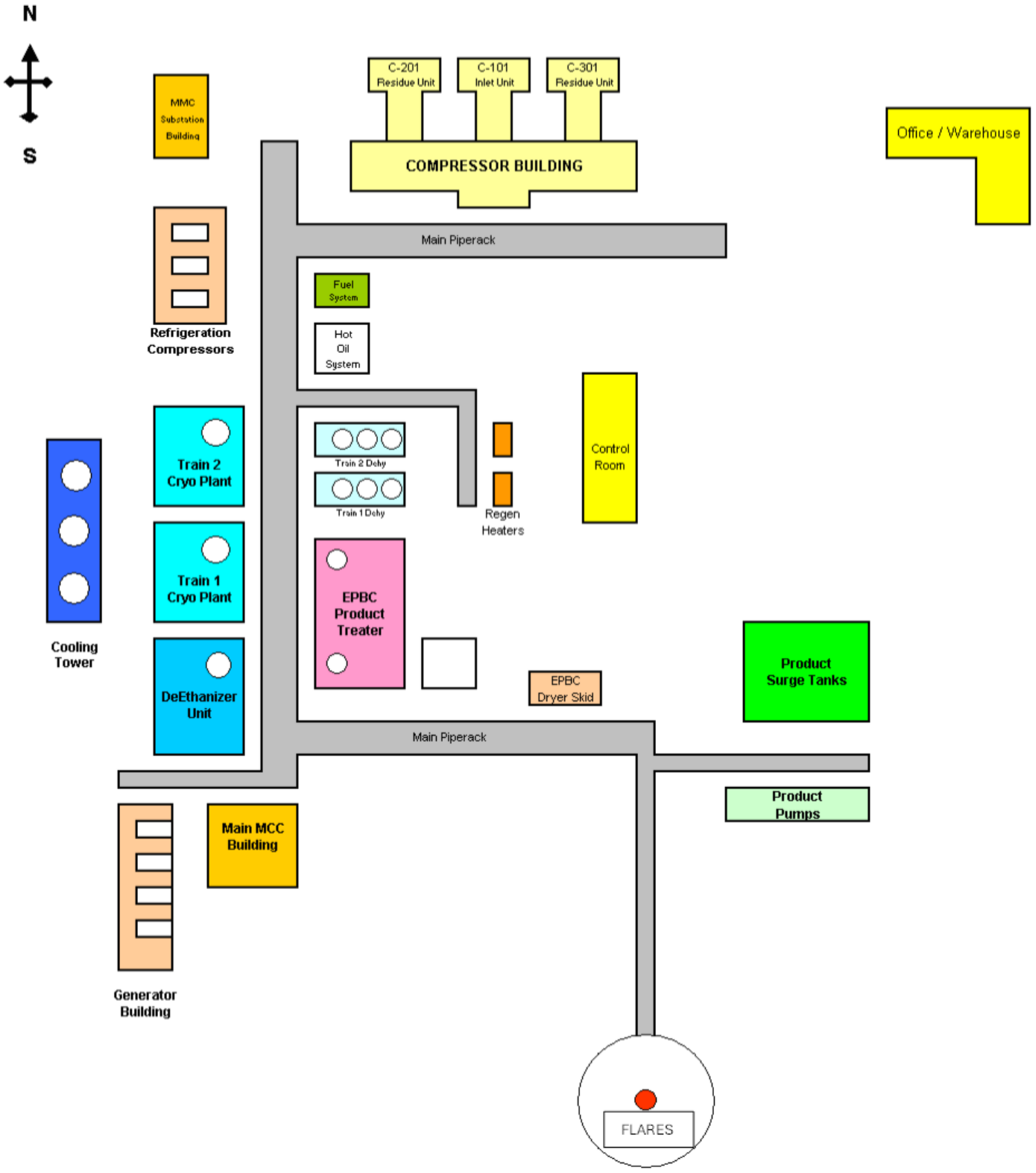
DRAWN: LAR | DESIGN: LAR | CHECKED: TAK | APPROVAL: JTR

SAN JUAN BASIN GAS PLANT
EQUIPMENT DESCRIPTION
–
PLOT PLAN

DRAWING NO. PL-SJGP-2800 | SHEET 001 OF 001 | REV: 4

San Juan Gas Plant

Major Equipment Layout



Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.

B. At least 5 significant figures shall be retained in all intermediate calculations.

C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

(1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;

(2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**

(3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.

(4) The final result of the calculation shall be expressed in the units of the standard.

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

Calculations Carried forward from Previous Application (No Requested Changes)

Amine Vent (Unit: Amine Unit)
All emissions from this unit are calculated using ProMax.
Emissions from the Amine Unit are controlled by the Thermal Oxidizer in ethane recovery mode and by the Flare in ethane rejection mode. Controlled emissions are represented under Unit 15 (Thermal Oxidizer) and Unit 16 (Flare).

Thermal Oxidizer (Unit: 15)
When the facility is in ethane recovery mode, the amine unit vents to the thermal oxidizer (Unit: 15). NO_X, CO, VOC, PM, and SO_2 emissions are calculated using AP-42 factors for external natural gas combustion sources in Tables 1.4-1 and 1.4-2. As a conservative measure, it is assumed that TSP = PM_{10} = $PM_{2.5}$. HAPs, VOC, and H_2S emissions are calculated using streams from ProMax. The ProMax gas analysis for the facility is attached in Section 7. Greenhouse gas emissions are estimated using 40 CFR Part 98 and emission factors from Tables C-1 and C-2 of Part 98.

Flare (Unit: 9 and 16)
Flare Pilot, Purge and Process Gas Streams
Emissions from the plant safety system flare (Unit 9) and from the blowdown flare (Unit 16) are calculated based on estimated design throughput rates. Pilot, purge and process gas emission rates for NO_X are based on emission factor taken from Texas Commission on Environmental Quality (TCEQ) January 2010 document "Technical Supplement 4: Flares" for air assisted or unassisted units combusting high-Btu waste streams (>1000 Btu/scf). CO & VOC emission factors are taken from AP-42, Table 13.5-1, 09-91.

There are no excess SSM emissions associated with operation of the flares. The flares do not require warm-up periods. Equipment is not turned on unless the flares are in operation and the flares are not shut down while equipment is in operation. No maintenance is conducted on the flare while they are in operation.

Flare Waste Gas
When the facility is in ethane rejection mode, the amine unit vents to the flare (Unit: 16). NO_X and CO emissions are calculated using AP-42 Table 13.5-1 emission factors. HAPs, VOC, and H_2S emissions are calculated using streams from ProMax. The ProMax gas analysis for the facility is attached in Section 7. The SO_2 composition is based on a 99% molar conversion of H_2S to SO_2. Emissions of greenhouse gases are calculated using methodology from 40 CFR Subpart 98.233(n).

Cooling Tower (Unit: CT)
The cooling tower water flow rate and drift loss data are provided by the manufacturer. The calculations were performed using a total dissolved solids (TDS) concentration of 1,995 ppm. Particle size distribution (PM, PM_{10}, $PM_{2.5}$) of the drift mass is based on information from the “Frisbie” paper equation.

Due to the nature of the source, it is estimated there are no startup or shutdown emissions associated with the cooling towers. No maintenance is conducted while the cooling towers are in operation.

NOTE: All the remaining calculations described below are unchanged from the previous application. Also, for simplicity of review, the Amine Unit, 9, 15, and CT emissions calculations worksheet in Section 6 and the supporting documentation in Section 7 have been moved to the front of these respective sections.

Turbines (Units: 1-3, 6 & 7)
Emissions from the turbines are carried forward from the last construction permit application. No modifications are being made to the turbines or their operation.

The NO_X, CO, VOC and SO_2 emissions from the turbines are based on manufacturer's data as identified in the previous NSR application. Particulate emissions are calculated using the AP-42 emission factor from Table 3.1-2a. HAP emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming each turbine operates at full site capacity for 8,760 hours per year.

The turbines at the plant start up with no load and a rich fuel mixture. As a result, emissions are minimized. Because the turbines take only minutes to reach operating temperature, emissions during startup are not expected to exceed the steady-state allowable limits. Similarly, emissions during shutdown do not exceed the steady-state allowable limits, because fuel and air flow cease at or within milliseconds of shutdown. Emissions due to scheduled maintenance are negligible as the turbines are not in operation during maintenance.

Regeneration Heaters (Units: 8, 12, and 13)
Emissions from the regeneration heaters are carried forward from the last construction permit application. No modifications are being made to the regeneration heaters or their operation.

The NO_X, CO, VOC and SO_2 emissions from the large regeneration heaters (Units 8 and 13) are based on manufacturer's data as identified in the previous NSR application and include a safety factor. Emissions of these same pollutants from the small heater (Unit 12), as well as particulate emissions from all three heaters, are calculated using AP-42 emission factors from Tables 1.4-1 and 1.4-2. HAP emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming each heater operates at full site capacity for 8,760 hours per year.

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

Calculations Associated with the Proposed Revision

Turbines (Units: 4 & 5)
The NO_X, CO, and VOC emissions from the turbines are based on manufacturer's (Solar) data. Particulate (PM, PM_{10}, $PM_{2.5}$), lead (Pb), HAPs, are calculated using the AP-42 emission factors from Chapter 3.1. SO_2 emissions are based on an assumed fuel sulfur content of 0.75 gr S/100 scf, which is a conservative estimate. Emissions are calculated assuming each turbine operates at full site capacity for 8,760 hours per year.

The turbines at the plant start up with no load and a rich fuel mixture. As a result, emissions are minimized. Because the turbines take only minutes to reach operating temperature, emissions during startup are not expected to exceed the steady-state allowable limits. Similarly, emissions during shutdown do not exceed the steady-state allowable limits, because fuel and air flow cease at or within milliseconds of shutdown. Emissions due to scheduled maintenance are negligible as the turbines are not in operation during maintenance.

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

Hilcorp Energy Co. - San Juan Gas Plant

Solar Turbines

Emission Unit: 4-5
Source Description: Natural Gas-Fired Turbine
Manufacturer: Solar Turbines
Model: Centaur 40-4700 S, GSC Standard

MFG Rated Power:	3500 kW	Per MFG Specifications
	4700 hp	Per MFG Specifications
Site Rated Power:	3086 kW	Site Rating
	4138 hp	Site Rating

Horsepower Calculations

	Units	Unit 4	Unit 5	Notes
Elevation	ft above MSL	5,600	5,600	Per Solar Specifications Provided on 8/15/2023
Rated Power:	hp	4,138	4,138	Per Solar Specifications Provided on 8/15/2023

Fuel Consumption

	Units	Unit 4	Unit 5	Notes
Annual Operating Time	hr/yr	8,760	8,760	Conservative Assumption
Average Hours per Day	hrs/day	24.0	24.0	Conservative Assumption
Fuel Heat Value	Btu/scf	1,026	1,026	Lower Heating Value as Permitted for the Site
Heat Rate	MMBtu/hr	37.40	37.40	Manufacturer Specification
Hourly Fuel Comsumption	MMscf/hr	0.036	0.036	Calculated Hourly Fuel Consumption (MMscf/hr) = hourly fuel flow (MMBtu/hr) / Fuel Lower Heating Value (Btu/scf)
Annual Fuel Consumption	MMscf/yr	319.32	319.32	Calculated Annual Fuel Consumption (MMscf/yr) = hourly fuel flow (MMBtu/hr) * annual operating hours (hr/yr) / Fuel Lower Heating Value (Btu/scf)

Emission Factors

	Units	Unit 4	Unit 5	Notes
Criteria Pollutants				
NO_X [1]	lb/MMBtu	0.100	0.100	Per Solar Specifications Provided on 8/15/2023
CO[1]	lb/MMBtu	0.122	0.122	Per Solar Specifications Provided on 8/15/2023
VOC[1]	lb/MMBtu	0.035	0.035	Per Solar Specifications Provided on 8/15/2023
SO_2 [2]	lb/MMBtu	0.0021	0.0021	Based on assumption of 0.75 gr S/100 scf
PM[3]	lb/MMBtu	0.0066	0.0066	AP-42, Table 3.1-2a for PM (Total)
Pb[4]	lb/MMBtu	1.40E-05	1.40E-05	AP-42 Table 3.1-2a
Hazardous Air Pollutants (HAPs)[5]				
Formaldehyde	lb/MMBtu	7.1E-04	7.10E-04	AP-42, Table 3.1-3
Acetaldehyde	lb/MMBtu	4.0E-05	4.00E-05	AP-42, Table 3.1-3
Acrolein	lb/MMBtu	6.4E-06	6.40E-06	AP-42, Table 3.1-3
Benzene	lb/MMBtu	1.2E-05	1.20E-05	AP-42, Table 3.1-3
Toluene	lb/MMBtu	1.3E-04	1.30E-04	AP-42, Table 3.1-3
Ethylbenzene	lb/MMBtu	3.2E-05	3.20E-05	AP-42, Table 3.1-3
Xylenes	lb/MMBtu	6.4E-05	6.40E-05	AP-42, Table 3.1-3
1,3-Butadiene	lb/MMBtu	4.3E-07	4.30E-07	AP-42, Table 3.1-3
Naphthalene	lb/MMBtu	1.3E-06	1.30E-06	AP-42, Table 3.1-3
PAH	lb/MMBtu	2.2E-06	2.20E-06	AP-42, Table 3.1-3
Propylene Oxide	lb/MMBtu	2.9E-05	2.90E-05	AP-42, Table 3.1-3
Greenhouse Gases (GHGs)[6]				
CO_2	kg/MMBtu	53.06	53.06	40 CFR 98 Subpart C Tables C-1 and C-2
	GWP	1	1	40 CFR 98 Table A-1
N_2O	kg/MMBtu	0.0001	0.0001	40 CFR 98 Subpart C Tables C-1 and C-2
	GWP	298	298	40 CFR 98 Table A-1
CH_4	kg/MMBtu	0.001	0.001	40 CFR 98 Subpart C Tables C-1 and C-2
	GWP	25	25	40 CFR 98 Table A-1

Emission Calculations

	Pollutants	Uncontrolled/Controlled Emission Rates*		
		lb/hr[7]	tpy[8]	CO_2e (ton/yr)[9]
	Criteria Pollutants			
Unit 4	NO_X	3.74	16.38	-
	CO	4.56	19.99	-
	VOC	1.31	5.73	-
	SO_2	0.078	0.34	-
	PM	0.25	1.08	-
	Pb	5.24E-04	2.29E-03	
	Hazardous Air Pollutants (HAPs)			
	Formaldehyde	2.66E-02	1.16E-01	-
	Acetaldehyde	1.50E-03	6.55E-03	-
	Acrolein	2.39E-04	1.05E-03	-
	Benzene	4.49E-04	1.97E-03	-
	Toluene	4.86E-03	2.13E-02	-
	Ethylbenzene	1.20E-03	5.24E-03	-
	Xylenes	2.39E-03	1.05E-02	-
	1,3-Butadiene	1.61E-05	7.04E-05	-
	Naphthalene	4.86E-05	2.13E-04	-
	PAH	8.23E-05	3.60E-04	-
	Propylene Oxide	1.08E-03	4.75E-03	-
	Total HAP	**0.038**	**0.17**	
	Greenhouse Gases (GHGs)			
	CO_2 - Combustion	4374.95	19,162.28	19,162.28
	N_2O - Combustion	0.0082	0.036	10.76
	CH_4 - Combustion	0.082	0.36	9.03
	Criteria Pollutants			
Unit 5	NO_X	3.74	16.38	-
	CO	4.56	19.99	-
	VOC	1.31	5.73	-
	SO_2	0.078	0.34	-
	PM	0.25	1.08	-
	Pb	5.24E-04	2.29E-03	
	Hazardous Air Pollutants (HAPs)			
	Formaldehyde	2.66E-02	1.16E-01	-
	Acetaldehyde	1.50E-03	6.55E-03	-
	Acrolein	2.39E-04	1.05E-03	-
	Benzene	4.49E-04	1.97E-03	-
	Toluene	4.86E-03	2.13E-02	-
	Ethylbenzene	1.20E-03	5.24E-03	-
	Xylenes	2.39E-03	1.05E-02	-
	1,3-Butadiene	1.61E-05	7.04E-05	-
	Naphthalene	4.86E-05	2.13E-04	-
	PAH	8.23E-05	3.60E-04	-
	Propylene Oxide	1.08E-03	4.75E-03	-
	Total HAP	**0.038**	**0.17**	
	Greenhouse Gases (GHGs)			
	CO_2 - Combustion	4374.95	19,162.28	19,162.28
	N_2O - Combustion	0.0082	0.036	10.76
	CH_4 - Combustion	0.082	0.36	9.03

Notes:

[1] NO_X, CO, and VOC emission factors are based on Solar specifications provided on 8/15/2023.

[2] SO_2 emissions based on assumption of 0.75 gr S/100 scf.

[3] Assumed TSP = PM (Total) = PM_{10} = $PM_{2.5}$

[4] Pb emissions based on AP-42 Table 3.1-2a for Distillate Oil-Fired Turbines. No emission factor is listed for natural gas-fired turbines, so this factor is used as a conservative estimate.

[5] HAP emissions based on AP-42 Table 3.1-3.

[6] CO_2, CH_4 and N_2O emission factors and global warming potentials (GWPs) from 40 CFR Part 98 Subpart A and Subpart C.

[7] lb/hr emissions calculated as follows: lb/hr = Emission Factor (lb/MMBtu) * Fuel Heat Rate (MMBtu/hr)

N_2O, CH_4, and CO_2 lb/hr Emission Rate= EF (kg/MMBtu)* Fuel Usage (MMBtu/hr) * 2.20462 lb/1 kg

[8] tpy emissions calculated as follows: ton/yr = lb/hr * Annual Hours of Operation (hr/yr) * 1 ton / 2000 lb

[9] CO_2e Emission Rate = Emission Rate (ton/yr) * GWP Factor

*Because no control devices or operating hour limitations are in place on the turbines, uncontrolled and controlled emissions for the units are identical.

Exhaust Parameters		
Temperature	820	°F
Exhaust Flow	128,421	lbm/hr
Density of Flue Gas at Exhaust Temperature	0.0298	lb/ft^3
Exhaust Flow	71,836	cfm
Exhaust Velocity	139.98	ft/s
Diameter	3.30	ft
Height	30.80	ft

All the remaining calculations described below are unchanged from the previous application

Harvest Four Corners, LLC - San Juan Gas Plant
Amine Unit Emissions Calculations

Unit Number: Amine Unit
Description: Amine Unit Still Vent / Flash Tank

Ethane Recovery Mode (High Flow)

	VOC		Total HAP		Benzene		Toluene		Ethylbenzene		Hexane		Xylene		H_2S		CO_2	CH_4
Emissions	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**tpy**	**tpy**
Uncontrolled	16.04	70.27	5.10	22.33	3.30	14.46	1.56	6.84	0.02	0.08	0.02	0.10	0.19	0.84	1.32	5.80	70,070.70	4.78

Ethane Rejection Mode (Low Flow)

	VOC		Total HAP		Benzene		Toluene		Ethylbenzene		Hexane		Xylene		H_2S		CO_2	CH_4
Emissions	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**pph**	**tpy**	**tpy**	**tpy**
Uncontrolled	14.83	64.94	2.42	10.58	1.59	6.98	0.73	3.21	0.01	0.02	0.02	0.10	0.06	0.27	0.65	2.86	727.18	0.02

Notes:
1. All emissions calculated using ProMax
2. Emissions from the Amine Unit are controlled by the Thermal Oxidizer (Unit 15) in ethane recovery mode and by the Flare (Unit 9) in ethane rejection mode.

Harvest Four Corners, LLC - San Juan Gas Plant
Thermal Oxidizer Emissions Calculations

Unit Number: 15
Description: Thermal oxidizer

Fuel Consumption

12.0	MMBtu/hr	Capacity	2011 NSR application (manufacturer's data plus 10% safety factor)
1,000	Btu/scf	Field gas heating value	Nominal heat content
12,000	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
3,125	scfm	Maximum waste gas fuel flow capacity	2011 NSR application (design maximum)
0.5	Mole %	Methane/Ethane waste gas concentration	ProMax
938	scf/hr	Hourly waste gas consumption	scfm x (mole % / 100) x 60 min/hr
8,760	hr/yr	Annual operating time	Harvest Four Corners

Fuel Gas Emission Rates

Pollutants[2,3]	Emission Factors[1,4]	Controlled Emission Rates	
	lb/MMscf	pph[5]	tpy[6]
NO_X	100	1.50	6.57
CO	84	1.26	5.52
VOC	5.5	0.07	0.32
SO_2	0.6	0.01	0.03
PM	7.6	0.10	0.44
PM_{10}	7.6	0.10	0.44
$PM_{2.5}$	7.6	0.10	0.44

Notes:
[1] NO_X, CO, VOC, SO_2 and PM emission factors taken from AP-42, Tables 1.4-1, 1.4-2.
[2] A safety factor of 25% is added to the NOx & CO emission rates.
[3] A safety factor of 10% is added to the VOC, PM, and SO_2 emission rates.
[4] The sulfur content of the natural gas is 5 S gr/100 dscf.
[5] Hourly Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000) x 1.25.
[6] Annual Emission Rates (tpy) = Hourly Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb).

Amine Unit Waste Gas Stream (Ethane Recovery Mode)

Pollutants[1,3]	Emission Factors[1]	Uncontrolled Emission Rates from Amine Unit[2]		Control Efficiencies[6]	Controlled Emission Rates	
	lb/MMscf	pph	tpy	%	pph[7,9,11]	tpy[8,10,12]
NO_X	100				0.12	0.51
CO	84				0.10	0.43
PM	7.6				0.01	0.03
PM_{10}	7.6				0.01	0.03
$PM_{2.5}$	7.6				0.01	0.03
SO_2[4,5]					2.71	11.89
H_2S[4]		1.32	5.80	98	0.03	0.13
VOC[4]		16.04	70.27	98	0.35	1.55
Benzene[4]		3.30	14.46	98	0.07	0.32
Toluene[4]		1.56	6.84	98	0.03	0.15
Ethylbenzene[4]		0.02	0.08	98	4.40E-04	1.76E-03
Hexane[4]		0.02	0.10	98	4.40E-04	2.20E-03
Xylene[4]		0.19	0.84	98	4.18E-03	0.02
Total HAPs[4]		5.10	22.33	98	0.11	0.49

Notes:
[1] NO_X, CO and PM emission factors taken from AP-42, Tables 1.4-1, 1.4-2.
[2] VOC, HAPs, and H_2S uncontrolled emissions from the amine unit (in Ethane Recovery Mode) calculated using ProMax.
[3] A safety factor of 25% is added to the NOx & CO emission rates.
[4] A safety factor of 10% is added to the VOC, PM, SO_2, and H_2S emission rates.
[5] It is assumed 99% of the H_2S is converted to SO_2.
[6] The thermal oxidizer has a 98% control efficiency.
[7] Hourly NO_X & CO Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000) x 1.25.
[8] Annual NO_X & CO Emission Rates (tpy) = Hourly Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb).
[9] Controlled VOC & H_2S Emission Rate (pph) = Uncontrolled Emission Rate (pph) x (1 - (% / 100)).
[10] Controlled VOC & H_2S Emission Rate (tpy) = Uncontrolled Emission Rate (tpy) x (1 - (% / 100)).
[11] Controlled SO_2 Emission Rate (pph) = Uncontrolled H_2S Emission Rate (pph) x (% / 100) x (32 lb S / 34 lb H_2S) x (64 lb SO_2 / 3
[12] Controlled SO_2 Emission Rate (tpy) = Controlled SO_2 Emission Rate (pph) x hr/yr x (1 ton / 2,000 lb).

Harvest Four Corners, LLC - San Juan Gas Plant
Thermal Oxidizer Emissions Calculations

Combined Emission Rates

Pollutants	Controlled Emission Rates	
	pph	tpy
NO_X	1.62	7.08
CO	1.36	5.95
PM	0.11	0.47
PM_{10}	0.11	0.47
$PM_{2.5}$	0.11	0.47
SO_2	2.71	11.92
H_2S	0.03	0.13
VOC	0.43	1.86
Benzene	0.07	0.32
Toluene	0.03	0.15
Ethylbenzene	4.40E-04	1.76E-03
Hexane	4.40E-04	2.20E-03
Xylene	4.18E-03	0.02
Total HAPs	0.11	0.49

Exhaust Parameters

1,200	°F	Exhaust temperature	2011 NSR application
28.50	fps	Stack exit velocity	2011 NSR application
3.0	ft	Stack exit diameter	2011 NSR application
12,087	acfm	Stack flowrate	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
40.0	ft	Stack height	2011 NSR application

Harvest Four Corners, LLC - San Juan Gas Plant
Plant Flare Emissions Calculations

Emission Unit: 16
Description: Low Pressure Flare

Pilot Gas Stream

100	scf/hr	Pilot gas hour flowrate	Harvest Four Corners
1,050	Btu/scf	Heat content	Nominal heat content

Process Gas Stream

7970	scf/hr	Purge gas hour flowrate	Harvest Four Corners
1,050	Btu/scf	Heat content	Nominal heat content

Relief Valve Gas Stream

100	#	Valve count	Harvest Four Corners
0.0088	kg/hr/source	EPA emission factor (gas service)	1995 Protocol for Equipment Leak Emission Estimates, Table 2-4
1.94	pph	Uncontrolled mass hourly emission rate	kg/hr/source x 2.2 lb/kg x valve count
8.60	cf/lb	Volume	Nominal (propane)
16.65	cf/hr	Purge gas hourly flow rate	pph x cf/lb
2,517	Btu/scf	Heat content	Nominal heat content

Seal Leakage Gas Stream

950	scf/hr	Purge gas hour flowrate	Harvest Four Corners
1,050	Btu/scf	Heat content	Nominal heat content
23.6	cf/lb	Volume	Nominal (methane)
10	%	VOC content of gas stream	Harvest Four Corners
4.03	pph	Uncontrolled mass hourly emission rate	scf/hr x (% 100) / cf/lb

Combined Gas Stream (Pilot & Process)

8,070	scf/hr	Hourly flowrate	Sum of individual streams
1,050	Btu/scf	Heat content	Flow weighted average
8.47	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf x (1 MMBtu / 1,000,000 Btu)
8,760	hr/yr	Annual operating time	Harvest Four Corners
70.69	MMscf/yr	Annual flowrate	scf/hr x hr/yr x (1 MMscf / 1,000,000 scf)
74,228	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Combined Gas Stream (pilot, process, relief valves & seal leaks)

9,037	scf/hr	Hourly flowrate	Sum of individual streams
1,053	Btu/scf	Heat content	Flow weighted average
9.51	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf x (1 MMBtu / 1,000,000 Btu)
8,760	hr/yr	Annual operating time	Harvest Four Corners
79.16	MMscf/yr	Annual flowrate	scf/hr x hr/yr x (1 MMscf / 1,000,000 scf)
83,333	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Steady-State Emission Rates

Pollutants	Emission Factors[2,3]	Uncontrolled Emission Rates[1]	
	lb/MMBtu	pph[4]	tpy[5]
NO_X	0.138	1.31	5.75
CO	0.370	3.52	15.42

Notes:

[1] NO_X and CO emissions are calculated using data from the combined gas stream (pilot, process, relief valves & seal leaks).

[2] NO_X emission factor taken from Texas Commission on Environmental Quality (TCEQ) February 2012 document "Technical Supplement 4: Flares" for air assisted or unassisted units combusting high-Btu waste streams (>1000 Btu/scf).

[3] CO emission factors taken from AP-42, Table 13.5-1, 09-91

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

[5] Uncontrolled Emission Rates (tpy) = lb/MMBtu x MMBtu/yr x (1 ton/2,000 lb)

Harvest Four Corners, LLC - San Juan Gas Plant
Plant Flare Emissions Calculations

Steady-State Emission Rates (Continued)

Pollutants	Emission Factors[2]	Uncontrolled Emission Rates[1,5]		Control Efficiencies[7]	Controlled Emission Rates[1,5]	
	lb/MMBtu	pph	tpy[6]	%	pph[3,8]	tpy[4,9]
VOC (pilot & process)	0.140	--	--	--	1.19	5.20
VOC (relief valves)	--	1.94	8.48	98	0.04	0.17
VOC (seal leaks)	--	4.03	17.63	98	0.08	0.35
Total		5.96	26.11		1.31	5.72

Notes:

[1] VOC (pilot & process) emission rates are calculated using the heat rates from only the pilot and process gas streams.

[2] VOC (pilot & process) emission factor taken from AP-42, Table 13.5-1, 09-91.

[3] Controlled VOC (pilot & process) Emission Rates (pph) = lb/MMBtu x MMBtu/hr

[4] Controlled VOC (pilot & process) Emission Rates (tpy) = lb/MMBtu x MMBtu/yr x (1 ton/2,000 lb)

[5] VOC (relief valves & seal leaks) emission rates are calculated using the pph emission rates (calculated above) from the relief valve and seal leaks gas streams, respectively.

[6] Uncontrolled VOC (relief valves & seal leaks) Emission Rates (tpy) = pph x hr/yr x (1 ton/2,000 lb)

[7] Control efficiencies taken from Texas Commission on Environmental Quality (TCEQ) February 2012 document "Technical Supplement 4: Flares."

[8] Controlled VOC (relief valves & seal leaks) Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1-(% /100)

[9] Controlled VOC (relief valves & seal leaks) Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1-(% /100)

Amine Unit Waste Gas Stream (Ethane Rejection Mode)

35	scfm	Maximum waste gas fuel flow capacity	ProMax
15.5	Mole %	Methane/Ethane waste gas concentration	ProMax
326	scf/hr	Waste gas flowrate	scfm x (mole % / 100) x 60 min/hr
433	Btu/scf	Waste gas heat content	ProMax
0.14	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf x (1 MMBtu / 1,000,000 Btu)
8,760	hr/yr	Annual operating time	Harvest Four Corners
2.85	MMscf/yr	Annual flowrate	scf/hr x hr/yr x (1 MMscf / 1,000,000 scf)
1,235	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Waste Gas Stream Emission Rates

Pollutants	Emission Factors[1]	Uncontrolled Emission Rates from Amine Unit[2]		Control Efficiencies[4]	Controlled Emission Rates	
	lb/MMBtu	pph	tpy	%	pph[5,7,9]	tpy[6,8,10]
NO_X	0.138	0.02	0.09		0.02	0.09
CO	0.370	0.05	0.23		0.05	0.23
SO_2[3]					1.21	5.33
H_2S		0.65	2.86	98	0.01	0.06
VOC		14.83	64.94	98	0.30	1.30
Benzene		1.59	6.98	98	0.03	0.14
Toluene		0.73	3.21	98	0.01	0.06
Ethylbenzene		0.01	0.02	98	2.00E-04	4.00E-04
Hexane		0.02	0.10	98	4.00E-04	2.00E-03
Xylene		0.06	0.27	98	1.20E-03	0.01
Total HAPs		2.42	10.58	98	0.05	0.21

Notes:

[1] NO_X & CO emission factor taken from Texas Commission on Environmental Quality (TCEQ) February 2012 document "Technical Supplement 4: Flares" for air assisted or unassisted units combusting high-Btu waste streams (>1000 Btu/scf).

[2] VOC, HAPs, and H_2S uncontrolled emissions from the amine unit (in Ethane Rejection Mode) calculated using ProMax.

[3] It is assumed 99% of the H_2S is converted to SO_2.

[4] The flare has a 98% control efficiency.

[5] Hourly NO_X & CO Emission Rates (pph) = lb/MMBtu x (MMBtu/hr / 1,000,000).

[6] Annual NO_X & CO Emission Rates (tpy) = Hourly Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb).

[7] Controlled VOC & H_2S Emission Rate (pph) = Uncontrolled Emission Rate (pph) x (1 - (% / 100)).

[8] Controlled VOC & H_2S Emission Rate (tpy) = Uncontrolled Emission Rate (tpy) x (1 - (% / 100)).

[9] Controlled SO_2 Emission Rate (pph) = Uncontrolled H_2S Emission Rate (pph) x (% / 100) x (32 lb S / 34 lb H_2S) x (64 lb SO_2 / 32 lb S).

[10] Controlled SO_2 Emission Rate (tpy) = Controlled SO_2 Emission Rate (pph) x hr/yr x (1 ton / 2,000 lb).

Harvest Four Corners, LLC - San Juan Gas Plant
Plant Flare Emissions Calculations

Combined Emission Rates

Pollutants	Controlled Emission Rates	
	pph	tpy
NO_X	1.33	5.84
CO	3.57	15.64
SO_2	1.21	5.33
H_2S	0.01	0.06
VOC	1.60	7.02
Benzene	0.03	0.14
Toluene	0.01	0.06
Ethylbenzene	2.00E-04	4.00E-04
Hexane	4.00E-04	2.00E-03
Xylene	1.20E-03	5.40E-03
Total HAPs	0.05	0.21

Exhaust Parameters

1,832	°F	Exhaust temperature	NMAQB
2.40	ft	Effective stack diameter	Calculated per NMAQB guidelines
65.62	fps	Stack velocity	NMAQB
60	ft	Stack height	Harvest Four Corners

Flare Effective Diameter

16.04	lb/lb-mol	Molecular weight	Molecular weight of CH4
154.70	scfm	Flowrate	scf/hr / 60 min/hr
683,981	cal/sec	Gross heat release	scfm x Btu/scf x 252 cal/Btu / 60 sec/min
552,493	cal/sec	Effective heat release (qn)	cal/sec x (1-(0.048 x (MW^0.5)))
0.743	meters	Effective stack diameter	(0.000001 x cal/sec[qn])^0.5

Harvest Four Corners, LLC - San Juan Gas Plant
Cooling Tower Emissions Calculations

Emission Unit: CT
Description: Cooling Tower

COOLING TOWER SPECIFICATIONS:

Enter specifications into blue cells

Drift loss	0.0100%		Low Efficiency
Circulating water flow rate	11,520	gpm	
Total dissolved solids	1,995	ppm	
Density of TDS constituents	2.5	g/cc	*Average density of common salts (CaCO3, CaSO4, CaCl2, NaCl, Na2SO4, Na2CO3)*

Volume of a sphere $V = 4/3*\pi*r^3$

Annual drift 576 lb H_2O/hr

PARTICULATE EMISSIONS:

Total Particulate Emissions	**0.360**	**lbs/hr**	**1.575**	**ton/yr**
PM_{10} Emissions	**0.145**	**lbs/hr**	**0.635**	**ton/yr**
$PM_{2.5}$ Emissions	**0.022**	**lbs/hr**	**0.097**	**ton/yr**

Water Drop Size Distribution for Low Efficiency Drift Eliminators*

Based on a drift rate of 0.001%

Droplet Dia. (micron)	% mass	% mass smaller	H_2O Drople Mass (g)	Solids Vol. (cc)	Solids Dia. (micron)	Emissions PM (lb/hr)	Emissions PM_{10} (lb/hr)	Emissions $PM_{2.5}$ (lb/hr)
22	0.43	0.43	5.6E-09	4.4E-12	2.0			
29	1.49	1.92	1.3E-08	1.0E-11	2.7			1.9%
44	3.76	5.68	4.5E-08	3.6E-11	4.1			
58	2.09	7.77	1.0E-07	8.2E-11	5.4			
65	1.86	9.63	1.4E-07	1.1E-10	6.0			
87	1.56	11.19	3.4E-07	2.8E-10	8.1			
108	1.43	12.62	6.6E-07	5.3E-10	10.0		12.6%	
120	1.26	13.88	9.0E-07	7.2E-10	11.1			
132	1.09	14.97	1.2E-06	9.6E-10	12.2			
144	1.32	16.29	1.6E-06	1.2E-09	13.4			
174	5.81	22.1	2.8E-06	2.2E-09	16.1			
300	5.04	27.14	1.4E-05	1.1E-08	27.8			
450**	4.17	31.31	4.8E-05	3.8E-08	41.7	31.3%		
600	4.01	35.32	1.1E-04	9.0E-08	55.7			
750	4.00	39.32	2.2E-04	1.8E-07	69.6			
900	4.03	43.35	3.8E-04	3.0E-07	83.5			
1,050	4.57	47.92	6.1E-04	4.8E-07	97.4			
1,200	5.46	53.38	9.0E-04	7.2E-07	111.3			
1,350	6.80	60.18	1.3E-03	1.0E-06	125.2			
2,250	17.99	78.17	6.0E-03	4.8E-06	208.7			
2,400	21.83	100	7.2E-03	5.8E-06	222.6			

** EPA. 1979. Effects of Pathogenic and Toxic Material Transport Via Cooling Device Drift - Vol. 1 Technical Report. EPA-600/7-79-251a. November 1979.*

*** Maximum droplet size governed by atmospheric dispersion. Larger droplets fall to the ground before evaporating into a particle (EPA 1979).*

Harvest Four Corners, LLC - San Juan Gas Plant
Cooling Tower Emissions Calculations

Emission Unit: CT
Description: Cooling Tower

Water Drop Size Distribution for High Efficiency Drift Eliminators*
Based on a drift rate of 0.0003%

Droplet Dia. (micron)	% mass smaller	H_2O Drople Mass (g)	Solids Vol. (cc)	Solids Dia. (micron)	Emissions PM (lb/hr)	Emissions PM_{10} (lb/hr)	Emissions $PM_{2.5}$ (lb/hr)
10	0	5.2E-10	4.2E-13	0.9			
20	0.196	4.2E-09	3.3E-12	1.9			
30	0.226	1.4E-08	1.1E-11	2.8			0.2%
40	0.514	3.4E-08	2.7E-11	3.7			
50	1.816	6.5E-08	5.2E-11	4.6			
60	5.702	1.1E-07	9.0E-11	5.6			
70	21.348	1.8E-07	1.4E-10	6.5			
90	49.812	3.8E-07	3.0E-10	8.3			
110	70.509	7.0E-07	5.6E-10	10.2		70.5%	
130	82.023	1.2E-06	9.2E-10	12.1			
150	88.012	1.8E-06	1.4E-09	13.9			
180	91.032	3.1E-06	2.4E-09	16.7			
210	92.468	4.8E-06	3.9E-09	19.5			
240	94.091	7.2E-06	5.8E-09	22.3			
270	94.689	1.0E-05	8.2E-09	25.0			
300	96.288	1.4E-05	1.1E-08	27.8			
350	97.011	2.2E-05	1.8E-08	32.5			
400	98.34	3.4E-05	2.7E-08	37.1			
450**	99.071	4.8E-05	3.8E-08	41.7	99.1%		
500	99.071	6.5E-05	5.2E-08	46.4			
600	100	1.1E-04	9.0E-08	55.7			

** Reisman, J. and G. Frisbie. 2002. "Calculating Realistic PM10 Emissions from Cooling Towers." Environmental Progress & Sustainable Energy. American Institute of Chemical Engineers. Volume 21, Issue 2, pp. 127-130. July 2002.*

*** Maximum droplet size governed by atmospheric dispersion. Larger droplets fall to the ground before evaporating into a particle (EPA 1979).*

EXAMPLE CALCULATIONS: *Low Efficiency*

Annual drift:

$$\frac{11{,}520 \text{ gal water}}{1 \text{ min}} \times \frac{8.33 \text{ lb}}{1 \text{ gal water}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times 0.010\% \text{ (drift)} = \frac{576 \text{ lb water drift}}{\text{hr}}$$

Total Particulate Emissions

$$\frac{576 \text{ lb water}}{\text{hr}} \times \frac{1{,}995 \text{ lb PM}}{1\text{E+6 lb water}} \times 31.3\% \text{ PM} = \frac{0.360 \text{ lb PM}}{\text{hr}} = \frac{\mathbf{1.575 \text{ ton PM}}}{\mathbf{yr}}$$

PM_{10} Emissions

$$\frac{576 \text{ lb water}}{\text{hr}} \times \frac{1{,}995 \text{ lb PM}}{1\text{E+6 lb water}} \times 12.6\% \text{ } PM_{10} = \frac{0.145 \text{ lb PM10}}{\text{hr}} = \frac{\mathbf{0.635 \text{ ton PM10}}}{\mathbf{yr}}$$

$PM_{2.5}$ Emissions

$$\frac{576 \text{ lb water}}{\text{hr}} \times \frac{1{,}995 \text{ lb PM}}{1\text{E+6 lb water}} \times 1.9\% \text{ } PM_{2.5} = \frac{0.022 \text{ lb PM2.5}}{\text{hr}} = \frac{\mathbf{0.097 \text{ ton PM2.5}}}{\mathbf{yr}}$$

Harvest Four Corners, LLC - San Juan Gas Plant
Turbine Exhaust Emissions Calculations

Unit Number: 1-3
Description: Rolls Royce Avon 1535 Gas Turbines

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

Horsepower

5,600	ft above MSL	Elevation	
23,800	hp	Nameplate hp	Mfg. data
15,000	hp	Site-rated hp	2011 NSR application

Fuel Consumption

123.2	MMBtu/hr	Hourly fuel consumption	2011 NSR application
1,000	Btu/scf	Field gas heating value	Nominal heat content
123,200	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners
1,079,232	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
1,079.23	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants[1,2]	Uncontrolled Emission Rates		Control Efficiencies[4]	Controlled Emission Rates	
	pph[3]	tpy[3]	%	pph[5]	tpy[5]
NO_X	56.30	246.59	--	--	--
CO	90.00	394.20	95	9.60	42.00
VOC	10.00	43.80	85	3.00E-01	1.30
SO_2	6.00E-02	2.60E-01	--	--	--

Notes:
[1] Uncontrolled NO_X & SO_2 emission rates (pph & tpy) are taken from the 2011 NSR application, as permitted.
[2] Uncontrolled CO & VOC emission rates (pph & tpy) are taken from the manufacturer's data as identified in the 2011 NSR application.
[3] Uncontrolled CO & VOC Emission Rates (tpy) = Uncontrolled CO & VOC Emission Rates (pph) x hr/yr (1 ton / 2,000 lb)
[4] CO & VOC catalyst control efficiencies are taken from the 2011 NSR application.
[5] Controlled CO & VOC emission rates (pph & tpy) are taken from the 2011 NSR application, as permitted.

Pollutants	Emission Factors[1]	Uncontrolled Emission Rates	
	lb/MMBtu	pph[2]	tpy[3]
TSP	6.60E-03	0.81	3.56
PM_{10}	6.60E-03	0.81	3.56
$PM_{2.5}$	6.60E-03	0.81	3.56

Notes:
[1] Emission factors taken from AP-42, Table 3.1-2a.
[2] Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
[3] Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb)

Exhaust Parameters

370	°F	Exhaust temperature (Unit 2 & 3)	2011 NSR application
750	°F	Exhaust temperature (Units 1, 2 Bypass & 3 Bypass)	2011 NSR application
46.70	fps	Stack exit velocity (Unit 1)	2011 NSR application
35.20	fps	Stack exit velocity (Unit 2 & 3)	2011 NSR application
133.90	fps	Stack exit velocity (Unit 2 Bypass & 3 Bypass)	2011 NSR application
18.90	ft	Stack exit diameter (Unit 1)	2011 NSR application
10.50	ft	Stack exit diameter (Unit 2 & 3)	2011 NSR application
6.50	ft	Stack exit diameter (Unit 2 Bypass & 3 Bypass)	2011 NSR application
786,109	cfm	Stack flowrate (Unit 1)	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
182,879	cfm	Stack flowrate (Unit 2 & 3)	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
266,593	cfm	Stack flowrate (Unit 2 Bypass & 3 Bypass)	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
56	ft	Stack height (Unit 1)	2011 NSR application
45	ft	Stack height (Unit 2 & 3)	2011 NSR application

Harvest Four Corners, LLC - San Juan Gas Plant
Turbine Exhaust Emissions Calculations

Unit Number: 6-7
Description: Solar Centaur T-4501 Gas Turbines

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

Horsepower

5,600	ft above MSL	Elevation	
4,500	hp	Nameplate hp	Mfg. data
3,735	hp	Site-rated hp	2011 NSR application

Fuel Consumption

32.9	MMBtu/hr	Hourly fuel consumption	2011 NSR application
1,000	Btu/scf	Field gas heating value	Nominal heat content
32,900	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners
288,204	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
288.20	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates	
	pph[1]	tpy[1]
NO_X	15.90	69.80
CO	2.30	10.00
VOC	0.05	0.24
SO_2	0.01	0.05

Notes:
[1] Uncontrolled emission rates (pph & tpy) are taken from the 2011 NSR application, as permitted.

Pollutants	Emission Factors[1]	Uncontrolled Emission Rates	
	lb/MMBtu	pph[2]	tpy[3]
TSP	6.60E-03	0.22	0.95
PM_{10}	6.60E-03	0.22	0.95
$PM_{2.5}$	6.60E-03	0.22	0.95

Notes:
[1] Emission factors taken from AP-42, Table 3.1-2a.
[2] Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
[3] Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb)

Exhaust Parameters

827	°F	Exhaust temperature	2011 NSR application
100.00	fps	Stack exit velocity	2011 NSR application
3.30	ft	Stack exit diameter	2011 NSR application
51,318	cfm	Stack flowrate	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
30.8	ft	Stack height	2011 NSR application

Harvest Four Corners, LLC - San Juan Gas Plant
Heater Exhaust Emissions Calculations

Unit Number: 8 & 13
Description: WILLBROS/INSERV Mole Seive Regeneration Heaters

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

Fuel Consumption

14.55	MMBtu/hr	Capacity	2011 NSR application
1,000	Btu/scf	Field gas heating value	Nominal heat content
14,550	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners
127,458	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
127.46	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors[1]	Uncontrolled Emission Rates[2]	
	lb/MMBtu	pph[3]	tpy[4]
NO_X	0.045	0.75	3.30
CO	0.020	0.33	1.47

Notes:
[1] Emission factors taken from the 2011 NSR application
[2] A safety factor of 15% is added to the emission rates
[3] Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr x 1.15
[4] Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb)

Pollutants	Uncontrolled Emission Rates[2]	
	pph[1]	tpy[2]
VOC	0.03	0.14
SO_2	0.01	0.04

Notes:
[1] VOC & SO_2 emission rates (pph) are taken from the 2011 NSR application, as permitted.
[2] Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb)

Pollutants	Emission Factors[1]	Uncontrolled Emission Rates	
	lb/MMscf	pph[2]	tpy[3]
TSP	7.6	0.11	0.48
PM_{10}	7.6	0.11	0.48
$PM_{2.5}$	7.6	0.11	0.48

Notes:
[1] Emission factors taken from AP-42, Table 1.4-2, 07/98.
[2] Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
[3] Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb)

Exhaust Parameters

664	°F	Exhaust temperature	2011 NSR application
48.70	fps	Stack exit velocity	2011 NSR application
3.08	ft	Stack exit diameter	2011 NSR application
21,771	acfm	Stack flowrate	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
78.3	ft	Stack height	2011 NSR application

Harvest Four Corners, LLC - San Juan Gas Plant
Plant Flare Emissions Calculations

Emission Unit: 9
Description: High Pressure Flare

Pilot Gas Stream

150	scf/hr	Pilot gas hour flowrate	Harvest Four Corners
1,050	Btu/scf	Heat content	Nominal heat content

Purge Gas Stream

990	scf/hr	Purge gas hour flowrate	Harvest Four Corners
1,050	Btu/scf	Heat content	Nominal heat content

Combined Gas Stream

1,140	scf/hr	Hourly flowrate	Sum of pilot gas & purge gas streams
1,050	Btu/scf	Heat content	Flow weighted average
1.20	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf x (1 MMBtu / 1,000,000 Btu)
8,760	hr/yr	Annual operating time	Harvest Four Corners
9.99	MMscf/yr	Annual flowrate	scf/hr x hr/yr x (1 MMscf / 1,000,000 scf)
10,486	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Steady-State Emission Rates

Pollutants	Emission Factors[1,2]	Controlled Emission Rates	
	lb/MMBtu	pph[3]	tpy[4]
NO_X	0.138	0.17	0.72
CO	0.370	0.44	1.94
VOC	0.140	0.17	0.73

Notes:
[1] NO_X emission factor taken from Texas Commission on Environmental Quality (TCEQ) February 2012 document "Technical Supplement 4: Flares" for air assisted or unassisted units combusting high-Btu waste streams (>1000 Btu/scf).
[2] CO & VOC emission factors taken from AP-42, Table 13.5-1, 09-91
[3] Hourly Emission Rates (pph) = lb/MMBtu x MMBtu/hr
[4] Annual Emission Rates (tpy) = lb/MMBtu x MMBtu/yr x (1 ton/2,000 lb)

Exhaust Parameters

1,832	°F	Exhaust temperature	NMAQB
0.85	ft	Effective stack diameter	Calculated per NMAQB guidelines
65.62	fps	Stack velocity	NMAQB
200	ft	Stack height	Harvest Four Corners

Flare Effective Diameter

16.04	lb/lb-mol	Molecular weight	Molecular weight of CH4
19.00	scfm	Flowrate	scf/hr / 60 min/hr
83,790	cal/sec	Gross heat release	scfm x Btu/scf x 252 cal/Btu / 60 sec/min
67,682	cal/sec	Effective heat release (qn)	cal/sec x (1-(0.048 x (MW^0.5)))
0.26	meters	Effective stack diameter	(0.000001 x cal/sec[qn])^0.5

Harvest Four Corners, LLC - San Juan Gas Plant
Heater Exhaust Emissions Calculations

Unit Number: 12
Description: Broach Mole Seive Regeneration Heater

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

Fuel Consumption

3.40	MMBtu/hr	Capacity	2011 NSR application
1,000	Btu/scf	Field gas heating value	Nominal heat content
3,400	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners
29,784	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
29.78	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors[1]	Uncontrolled Emission Rates	
	lb/MMscf	pph[2]	tpy[3]
NO_X	100	0.34	1.49
VOC	5.5	0.02	0.08
TSP	7.6	0.03	0.11
PM_{10}	7.6	0.03	0.11
$PM_{2.5}$	7.6	0.03	0.11

Notes:
[1] Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2, 07/98.
[2] Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
[3] Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr x (1 ton / 2,000 lb)

Pollutants	Uncontrolled Emission Rates[1]	
	pph	tpy
CO	0.10	0.30
SO_2	0.01	0.01

Notes:
[1] Emission rates (pph & tpy) are taken from the 2011 NSR application, as permitted.

Exhaust Parameters

550	°F	Exhaust temperature	2011 NSR application
14.30	fps	Stack exit velocity	2011 NSR application
1.50	ft	Stack exit diameter	2011 NSR application
1,516	acfm	Stack flowrate	fps x 3.1416 x ((ft / 2) ^2) * 60 sec/min
15.3	ft	Stack height	2011 NSR application

Harvest Four Corners, LLC - San Juan Gas Plant
Equipment Leaks Emissions Calculations

Unit Number: 14
Description: Equipment Leaks

Steady-State Emission Rates

Equipment[3,4]	Number of Components[1]	Emission Factors[5]	VOC Content[6]	Uncontrolled VOC Emission Rates		Control Efficiency[9]	Controlled VOC Emission Rates	
	# of sources	kg/hr/source	%	pph[7]	tpy[8]	%	pph[10]	tpy[11]
Valves (inlet gas)	2135	4.50E-03	5	1.06	4.63	67	0.35	1.53
Valves (natural gas liquids)	2135	2.50E-03	100	11.74	51.43	61	4.58	20.06
Valves (residue gas)	0	4.50E-03	1	0.00	0.00	67	0.00	0.00
Connectors (inlet gas)	0	2.00E-04	5	0.00	0.00	0	0.00	0.00
Connectors (natural gas liquids)	0	2.10E-04	100	0.00	0.00	0	0.00	0.00
Connectors (residue gas)	0	2.00E-04	1	0.00	0.00	0	0.00	0.00
Pump Seals (inlet gas)	22	2.40E-03	5	0.01	0.03	0	0.01	0.03
Pump Seals (natural gas liquids)	22	1.30E-02	100	0.63	2.76	45	0.35	1.52
Pump Seals (residue gas)	0	2.40E-03	1	0.00	0.00	0	0.00	0.00
Flanges (inlet gas)[2]	2135	3.90E-04	5	0.09	0.40	0	0.09	0.40
Flanges (natural gas liquids)[2]	4269	1.10E-04	100	1.03	4.52	0	1.03	4.52
Flanges (residue gas)[2]	2135	3.90E-04	1	0.02	0.08	0	0.02	0.08
Open Lines (inlet gas)	0	2.00E-03	5	0.00	0.00	0	0.00	0.00
Open Lines (natural gas liquids)	0	1.40E-03	100	0.00	0.00	0	0.00	0.00
Open Lines (residue gas)	0	2.00E-03	1	0.00	0.00	0	0.00	0.00
Other (inlet gas)	66	8.80E-03	5	0.06	0.28	0	0.06	0.28
Other (natural gas liquids)	132	7.50E-03	100	2.18	9.54	0	2.18	9.54
Other (residue gas)	66	8.80E-03	1	0.01	0.06	0	0.01	0.06
Total				**16.83**	**73.72**		**8.68**	**38.01**

Notes:
[1] Number of fittings provided by Harvest Four Corners.
[2] Number of flanges assumed to be two times the valve count.
[3] Fittings assumed to be 50% gas and 50% light liquids.
[4] Gas fittings assumed to be 50% inlet gas and 50% residue gas.
[5] Emission factors taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates", Table 2-4, Oil and Gas Production Operations Average Emission Factors (kg/hr/source).
[6] The VOC content is estimated.
[7] Uncontrolled VOC Emission Rates (pph) = Uncontrolled Emission Rates (tpy) x 2,000 lb/ton / 8,760 hr/yr
[8] Uncontrolled VOC Emission Rates (tpy) = kg/hr/source x 2.2 lb/kg x # of sources x (% / 100) x 8,760 hr/yr x (1 ton / 2,000 lb).
[9] Control efficiencies taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates", Table 5-2, Control Effectiveness For An LDAR Program At A SOCMI Process Unit. Quarterly monitoring 10,000 ppmv leak definition is assumed.
[10] Controlled VOC Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1-(% / 100)).
[11] Controlled VOC Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1-(% / 100)).

Pollutants	Weight Percent[1]	Controlled HAP Emission Rates	
	%	pph[2]	tpy[3]
Benzene	0.0756	6.56E-03	0.03
Ethylbenzene	0.0000	0.00	0.00
n-Hexane	0.4143	0.04	0.16
Toluene	0.1196	0.01	0.05
Xylenes	0.0306	2.66E-03	0.01

Notes:
[1] Weight percents calculated from San Juan Gas Plant gas analysis sampled 09/01/2016.
[2] Controlled HAP Emission Rates (pph) = Controlled VOC Emission Rate (pph) x (% / 100).
[3] Controlled HAP Emission Rates (tpy) = Controlled VOC Emission Rate (tpy) x (% / 100).

Harvest Four Corners, LLC - San Juan Gas Plant
Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2 tpy	CH4 tpy	N2O tpy	GHG tpy	CO2e tpy
Turbine Exhaust	256,256.62	4.83	4.83E-01	256,261.94	256,521.28
Centrifugal Compressor Venting	1.96	36.71	--	38.67	919.76
Heater & Oxidizer Exhaust	22,752.23	4.29E-01	4.29E-02	22,752.71	22,775.73
Flares	5,594.23	28.98	9.32E-03	5,623.22	6,321.54
Equipment Leaks	8.87	166.37	--	175.24	4,168.03
SSM and Malfunctions	2.33	43.77			
Total	284,613.92	237.32	5.35E-01	284,851.77	290,706.35

Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors[1]			Emission Rates[2]		
		CO2 kg/MMBtu	CH4 kg/MMBtu	N2O kg/MMBtu	CO2 tpy	CH4 tpy	N2O tpy
1	1535 Turbine	53.06	1.00E-03	1.00E-04	62,990.45	1.19	1.19E-01
2	1535 Turbine	53.06	1.00E-03	1.00E-04	62,990.45	1.19	1.19E-01
3	1535 Turbine	53.06	1.00E-03	1.00E-04	62,990.45	1.19	1.19E-01
4	Centaur T-4501 Turbine	53.06	1.00E-03	1.00E-04	16,821.31	3.17E-01	3.17E-02
5	Centaur T-4501 Turbine	53.06	1.00E-03	1.00E-04	16,821.31	3.17E-01	3.17E-02
6	Centaur T-4501 Turbine	53.06	1.00E-03	1.00E-04	16,821.31	3.17E-01	3.17E-02
7	Centaur T-4501 Turbine	53.06	1.00E-03	1.00E-04	16,821.31	3.17E-01	3.17E-02
	Total				256,256.62	4.83	4.83E-01

Notes:
[1] The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2.
[2] Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton.

Unit Numbers	Description	Fuel Types[1]	Operating Times[1] hr/yr	Design Heat Rates[2] MMBtu/hr	Fuel Usages[3] MMBtu/yr
1	1535 Turbine	Nat. Gas	8,760	123.20	1,079,232
2	1535 Turbine	Nat. Gas	8,760	123.20	1,079,232
3	1535 Turbine	Nat. Gas	8,760	123.20	1,079,232
4	Centaur T-4501 Turbine	Nat. Gas	8,760	32.90	288,204
5	Centaur T-4501 Turbine	Nat. Gas	8,760	32.90	288,204
6	Centaur T-4501 Turbine	Nat. Gas	8,760	32.90	288,204
7	Centaur T-4501 Turbine	Nat. Gas	8,760	32.90	288,204

Notes:
[1] The fuel types and operating times are provided by Harvest Four Corners
[2] The design heat rates are taken from 2011 NSR application.
[3] Fuel Usages (MMBtu/yr) = Design Heat Rates (MMBtu/hr) x hr/yr.

Harvest Four Corners, LLC - San Juan Gas Plant
Green House Gas Emissions Data and Calculations

Centrifugal Compressor Venting Emissions

Unit Numbers	Description	Emission Rates[1,2]	
		CO2 tpy[3]	CH4 tpy[4]
1	Wet Seal	5.95E-01	11.16
1	Blowdown Valve	--	--
1	Isolation Valve	--	--
2	Wet Seal	5.95E-01	11.16
2	Blowdown Valve	--	--
2	Isolation Valve	--	--
3	Wet Seal	5.95E-01	11.16
3	Blowdown Valve	--	--
3	Isolation Valve	--	--
4	Wet Seal	--	--
4	Blowdown Valve	0.00E+00	0.00
4	Isolation Valve	8.57E-02	1.61
5	Wet Seal	--	--
5	Blowdown Valve	0.00E+00	0.00
5	Isolation Valve	8.57E-02	1.61
	Total	1.96	36.71

Notes:
[1] A combination of equations W-22 & W-36 (Subpart W) is used to calculate cintrifugal compressor emissions.
[2] As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36.
[3] CO2 Emission Rates (tpy) = scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
[4] CH4 Emission Rates (tpy) = scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers[4,5]	Description[1,2]	Gas Emissions[3] scf/hr	Operating Times[6] hr/yr	CO2 Mole Percents[7] %	CH4 Mole Percents[7] %	CO2 Density[8] kg/scf	CH4 Density[8] kg/scf
1	Wet Seal	70.81	8760	1.65	85.04	0.0526	0.0192
1	Blowdown Valve	0.64	0	1.65	85.04	0.0526	0.0192
1	Isolation Valve	10.21	0	1.65	85.04	0.0526	0.0192
2	Wet Seal	70.81	8760	1.65	85.04	0.0526	0.0192
2	Blowdown Valve	0.64	0	1.65	85.04	0.0526	0.0192
2	Isolation Valve	10.21	0	1.65	85.04	0.0526	0.0192
3	Wet Seal	70.81	8760	1.65	85.04	0.0526	0.0192
3	Blowdown Valve	0.64	0	1.65	85.04	0.0526	0.0192
3	Isolation Valve	10.21	0	1.65	85.04	0.0526	0.0192
4	Wet Seal	70.81	0	1.65	85.04	0.0526	0.0192
4	Blowdown Valve	0.64	0	1.65	85.04	0.0526	0.0192
4	Isolation Valve	10.21	8760	1.65	85.04	0.0526	0.0192
5	Wet Seal	70.81	0	1.65	85.04	0.0526	0.0192
5	Blowdown Valve	0.64	0	1.65	85.04	0.0526	0.0192
5	Isolation Valve	10.21	8760	1.65	85.04	0.0526	0.0192

Notes:
[1] Operating mode - includes blowdown valve leakage (wet and dry seal) and the oil degassing vents (wet seal).
[2] Non-operating depressurized mode - includes isolation valve leakage (wet & dry seal) through open blowdown vents (without blind flanges).
[3] Emission factors are the three year rolling average of measurements taken by Harvest Four Corners.
[4] Units 1-3 blowdown valve and isolation valve leakage are sent to the flare.
[5] Units 4 & 5 do not have wet seals.
[6] The operating times are estimated so as to identify the highest GHG emission rates.
[7] The facility CO2 and CH4 contents are taken from the facility inlet gas composition.
[8] The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v).

Harvest Four Corners, LLC - San Juan Gas Plant
Green House Gas Emissions Data and Calculations

Heater & Oxidizer Exhaust Emissions

Unit Numbers	Description	Emission Factors[1]			Emission Rates[2]		
		CO2 kg/MMBtu	CH4 kg/MMBtu	N2O kg/MMBtu	CO2 tpy	CH4 tpy	N2O tpy
8	Regeneration Heater	53.06	1.00E-03	1.00E-04	7,439.21	1.40E-01	1.40E-02
12	Regeneration Heater	53.06	1.00E-03	1.00E-04	1,738.37	3.28E-02	3.28E-03
13	Regeneration Heater	53.06	1.00E-03	1.00E-04	7,439.21	1.40E-01	1.40E-02
15	Thermal Oxidizer	53.06	1.00E-03	1.00E-04	6,135.43	1.16E-01	1.16E-02
	Total				22,752.23	4.29E-01	4.29E-02

Notes:
[1] The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2.
[2] Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton.

Unit Numbers	Description	Fuel Types[1]	Operating Times[1] hr/yr	Design Heat Rates[2] MMBtu/hr	Fuel Usages[3] MMBtu/yr
8	Regeneration Heater	Nat. Gas	8,760	123.20	127,458
12	Regeneration Heater	Nat. Gas	8,760	123.20	29,784
13	Regeneration Heater	Nat. Gas	8,760	32.90	127,458
15	Thermal Oxidizer	Nat. Gas	8,760	32.90	105,120

Notes:
[1] The fuel types and operating times are provided by Harvest Four Corners
[2] The design heat rates are taken from 2011 NSR application.
[3] Fuel Usages (MMBtu/yr) = Design Heat Rates (MMBtu/hr) x hr/yr.

Harvest Four Corners, LLC - San Juan Gas Plant
Green House Gas Emissions Data and Calculations

Facility Flare Emissions

Unit Numbers	Description	N2O Emission Factor kg/MMBtu	Emission Rates[2]		
			CO2 tpy	CH4 tpy	N2O tpy
9	High Pressure Flare	1.00E-04	692.43	3.59	1.15E-03
16	Low Pressure Flare	1.00E-04	5,686.55	29.46	8.17E-03
	Total		6,378.99	33.05	9.32E-03

Notes:
[1] The N2O emission factor is obtained from Subpart W (Paragraph 98.233(z)(2)(vi)).
[2] CO2 Emission Rates (tpy) = (Noncombustion CO2 Emissions (MMscf/yr) + Combustion CO2 Emissions (MMscf/yr)) x 1,000,000 scf/MMscf x 0.0526 kg/cu ft x 2.2 lb/kg / 2,000 lb/ton.
[3] CH4 Emission Rates (tpy) = Noncombustion CH4 Emissions (MMscf/yr) x 1,000,000 scf/MMscf x 0.0192 kg/cu ft x 2.2 lb/kg / 2,000 lb/ton.
[4] N2O Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton.

Unit Numbers	Description	Facility Flare Through-put[1] MMscf/yr	HHV Heat Content Btu/scf	Flare Through-put[2] MMBtu/hr	Control Efficiency[3] %	Non-combustion CO2 Emissions[4] MMscf/yr	Combustion CO2 Emissions[5,6] MMscf/yr	Non-combustion CH4 Emissions[7] MMscf/yr
9	High Pressure Flare	9.99	1050	10,486	98	0.16	11.80	0.17
16	Low Pressure Flare	82.01	1050	74,228	98	1.35	96.93	1.39

Notes:
[1] The facility flare throughput and heat content is calculated (see individual flare calculation sheets).
[2] Flare Throughput (MMBtu/yr) = MMscf/yr x 1,000,000 scf/MMscf x Btu/scf / 1,000,000 Btu/MMBtu
[3] The control efficiency is the default value identified by Subpart W (Paragraph 98.233(n)(4)).
[4] Noncombustion CO2 Emissions (MMscf/yr) = MMscf/yr x (CO2 Content (mole %) / 100).
[5] Combustion CO2 Emissions (MMscf/yr) = [(Control Efficiency (%) / 100) x MMscf/yr x (CH4 Content (mole %) / 100) x 1]
+ [(Control Efficiency (%) / 100) x MMscf/yr x (Ethane Content (mole %) / 100) x 2]
+ [(Control Efficiency (%) / 100) x MMscf/yr x (Propane Content (mole %) / 100) x 3]
+ [(Control Efficiency (%) / 100) x MMscf/yr x (Butane Content (mole %) / 100) x 4]
+ [(Control Efficiency (%) / 100) x MMscf/yr x (Pentane+ Content (mole %) / 100) x 5]
[6] The numbers 1-5 in the above equation represent the number of carbon atoms found in methane through pentane, respectively.
[7] Noncombustion CH4 Emissions (MMscf/yr) = MMscf/yr x (1 - (Control Efficiency (%) / 100)) x (CH4 Content (mole %) / 100)

Unit Numbers	Description	CO2 Content[1] mole %	CH4 Content[1] mole %	Ethane Content[1] mole %	Propane Content[1] mole %	Butane Content[1] mole %	Pentane+ Content[1] mole %
9	High Pressure Flare	1.65	85.04	7.37	3.16	1.44	1.11
16	Low Pressure Flare	1.65	85.04	7.37	3.16	1.44	1.11

Notes:
[1] The facility flare mole % is obtained from the facility inlet gas analysis.

Harvest Four Corners, LLC - San Juan Gas Plant
Green House Gas Emissions Data and Calculations

Equipment Leaks Emissions

Description	Emission Rates[4]		
	VOC[1] tpy	CO2[2] tpy	CH4[3] tpy
Valves, connectors, seals, flanges, etc.	38.01	8.87	166.37

Notes:
[1] The VOC emission rate is taken from the equipment leaks emissions calculations worksheet.
[2] CO2 Emission Rates (tpy) = VOC Emission Rate (tpy) x CO2 Weight Percent of Total (%) / VOC Weight Percent of Total (%).
[3] CH4 Emission Rates (tpy) = VOC Emission Rate (tpy) x CH4 Weight Percent of Total (%) / VOC Weight Percent of Total (%).
[4] CO2, CH4 & VOC weight percent of totals obtained from gas stream composition calculations.

SSM and Malfunction Emissions

Description	Emission Rates[4]		
	VOC[1] tpy	CO2[2] tpy	CH4[3] tpy
Valves, connectors, seals, flanges, etc.	10.00	2.33	43.77

Notes:
[1] The VOC emission rate is taken from the current Title V permit.
[2] CO2 Emission Rates (tpy) = VOC Emission Rate (tpy) x CO2 Weight Percent of Total (%) / VOC Weight Percent of Total (%).
[3] CH4 Emission Rates (tpy) = VOC Emission Rate (tpy) x CH4 Weight Percent of Total (%) / VOC Weight Percent of Total (%).
[4] CO2, CH4 & VOC weight percent of totals obtained from gas stream composition calculations.

Gas Stream Composition

Components	Mole Percents[1] %	Molecular Weights lb/lb-mole	Component Weights[2] lb/lb-mole	Weight Percent of Total[3] %	Emission Factors[4] lb/scf
Carbon Dioxide	1.6534	44.01	0.73	3.6819	0.0019
Nitrogen	0.2179	28.01	0.06	0.3088	0.0002
Methane	85.0411	16.04	13.64	69.0202	0.0360
Ethane	7.3744	30.07	2.22	11.2203	0.0058
Propane	3.1599	44.09	1.39	7.0495	0.0037
IsoButane	0.5963	58.12	0.35	1.7536	0.0009
Normal Butane	0.8422	58.12	0.49	2.4768	0.0013
IsoPentane	0.3098	72.15	0.22	1.1310	0.0006
Normal Pentane	0.2226	72.15	0.16	0.8127	0.0004
C6+	0.4369	86.18	0.38	1.9052	0.0010
Benzene	0.0191	78.11	0.01	0.0755	0.0000
Ethylbenzene	0.0000	106.17	0.00	0.0000	0.0000
n-Hexane	0.0950	86.17	0.08	0.4142	0.0002
Toluene	0.0257	92.14	0.02	0.1198	0.0001
Xylenes	0.0057	106.17	0.01	0.0306	0.0000
Total	100.0000		19.76	100.0000	0.0521
VOC			3.12	15.7688	0.0082

Notes:
[1] Gas stream composition obtained from San Juan Gas Plant gas analysis dated 08/01/2016.
[2] Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)
[3] Weight Percent of Total (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
[4] Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.4 scf/lb-mole

Section 7

Information Used to Determine Emissions

Information Used to Determine Emissions shall include the following:

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

Amine Vent (Unit: Amine Unit)

- ProMax

Thermal Oxidizer (Unit: 15)

- AP-42 Tables 1.4-1 and 1.4-2
- ProMax streams for HAP, VOC, and H_2S
- 40 CFR Part 98 methodology

Flares (Units: 9 & 16)

- Emission factors from TCEQ document “Technical Supplement 4: Flares” for air assisted or unassisted
- units combusting high-Btu waste streams (>1000 Btu/scf), February 2012.
- ProMax streams for HAP, VOC, and H_2S
- 40 CFR Part 98 methodology

Cooling Tower (Unit: CT)

- Manufacturer data

Turbines (Units: 1-3, 6, & 7)

- AP-42 Tables 3.1-2a
- GRI-HAPCalc 3.01
- 40 CFR Part 98 methodology

Turbines (Units: 4 & 5)

- AP-42 Tables 3.1-2a and Table 3.1-3.
- Manufacturer Specifications
- 40 CFR Part 98 methodology

Heaters (Units: 8, 12, & 13)

- AP-42 Tables 1.4-1 and 1.4-2
- GRI-HAPCalc 3.01
- 40 CFR Part 98 methodology

Fugitives (Unit: 14)

- Tables 2-4 and 5-2 of the EPA Protocol for Equipment Leak Emission Estimates, November 1995
- Inlet gas and liquid analysis for San Juan Gas Plant dated 09/01/2016

Information related to requested modification

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Hilcorp San Juan**	Engine Model: **CENTAUR 40-4700S GSC STANDARD**
Job ID: **4701S Upgrade**	
Inquiry Number:	Fuel Type: **SD NATURAL GAS** / Water Injection: **NO**
Run By: **Jose Guillen** / Date Run: **15-Aug-23**	Engine Emissions Data: **REV. 0.1**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
1 — 3086 kW, 100.0% Load, Elev. 5600 ft, Rel. Humidity 60.0%, Temperature 32.0 Deg. F			
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	16.55	20.16	5.77
lbm/MMBtu (Fuel LHV)	0.100	0.122	0.035
lbm/(MW-hr)	1.16	1.41	0.40
(gas turbine shaft pwr) lbm/hr	3.78	4.60	1.32
2 — 2790 kW, 100.0% Load, Elev. 5600 ft, Rel. Humidity 60.0%, Temperature 59.0 Deg. F			
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	15.26	18.58	5.32
lbm/MMBtu (Fuel LHV)	0.100	0.121	0.035
lbm/(MW-hr)	1.18	1.44	0.41
(gas turbine shaft pwr) lbm/hr	3.48	4.24	1.21
3 — 2554 kW, 100.0% Load, Elev. 5600 ft, Rel. Humidity 60.0%, Temperature 80.0 Deg. F			
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	14.27	17.38	4.98
lbm/MMBtu (Fuel LHV)	0.099	0.120	0.034
lbm/(MW-hr)	1.21	1.47	0.42
(gas turbine shaft pwr) lbm/hr	3.26	3.97	1.14

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F or -20 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F or -20 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Hilcorp San Juan**	Engine Model: **CENTAUR 40-4700S GSC STANDARD**
Job ID: **4701S Upgrade**	
Inquiry Number:	Fuel Type: **SD NATURAL GAS** / Water Injection: **NO**
Run By: **Jose Guillen** / Date Run: **15-Aug-23**	Engine Emissions Data: **REV. 0.1**

4	2085 kW 100.0% Load	Elev. 5600 ft	Rel. Humidity 60.0%	Temperature 122.0 Deg. F

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	12.11	14.74	4.22
lbm/MMBtu (Fuel LHV)	0.095	0.115	0.033
lbm/(MW-hr)	1.25	1.53	0.44
(gas turbine shaft pwr) lbm/hr	2.76	3.37	0.96

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F or -20 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F or -20 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Solar Turbines
A Caterpillar Company

PREDICTED ENGINE PERFORMANCE

Customer: *Hilcorp San Juan*	Model: **CENTAUR 40-4700S**
Job ID: **4701S Upgrade**	Package Type: **GSC**
Run By: **Jose Guillen** / Date Run: **15-Aug-23**	Match: **STANDARD**
Engine Performance Code: **REV. 4.20.2.28.14** / Engine Performance Data: **REV. 0.4**	Fuel System: **GAS**
	Fuel Type: **SD NATURAL GAS**

DATA FOR NOMINAL PERFORMANCE

Elevation	feet	5600
Inlet Loss	in H2O	3.0
Exhaust Loss	in H2O	3.0

		1	2	3	4
Engine Inlet Temperature	deg F	32.0	59.0	80.0	122.0
Relative Humidity	%	60.0	60.0	60.0	60.0
Gearbox Efficiency		0.9750	0.9750	0.9750	0.9750
Generator Efficiency		0.9700	0.9700	0.9700	0.9700
Based On 1.0 Power Factor					
Specified Load*	kW	FULL	FULL	FULL	FULL
Net Output Power*	kW	3086	2790	2554	2085
Fuel Flow	mmBtu/hr	37.40	34.66	32.69	28.96
Heat Rate*	Btu/kW-hr	12118	12423	12799	13887
Therm Eff*	%	28.158	27.466	26.659	24.570
Engine Exhaust Flow	lbm/hr	128421	121404	116248	102056
PT Exit Temperature	deg F	820	834	845	884
Exhaust Temperature	deg F	820	834	845	884

Fuel Gas Composition (Volume Percent)

Methane (CH4)	92.79
Ethane (C2H6)	4.16
Propane (C3H8)	0.84
N-Butane (C4H10)	0.18
N-Pentane (C5H12)	0.04
Hexane (C6H14)	0.04
Carbon Dioxide (CO2)	0.44
Hydrogen Sulfide (H2S)	0.0001
Nitrogen (N2)	1.51

Fuel Gas Properties

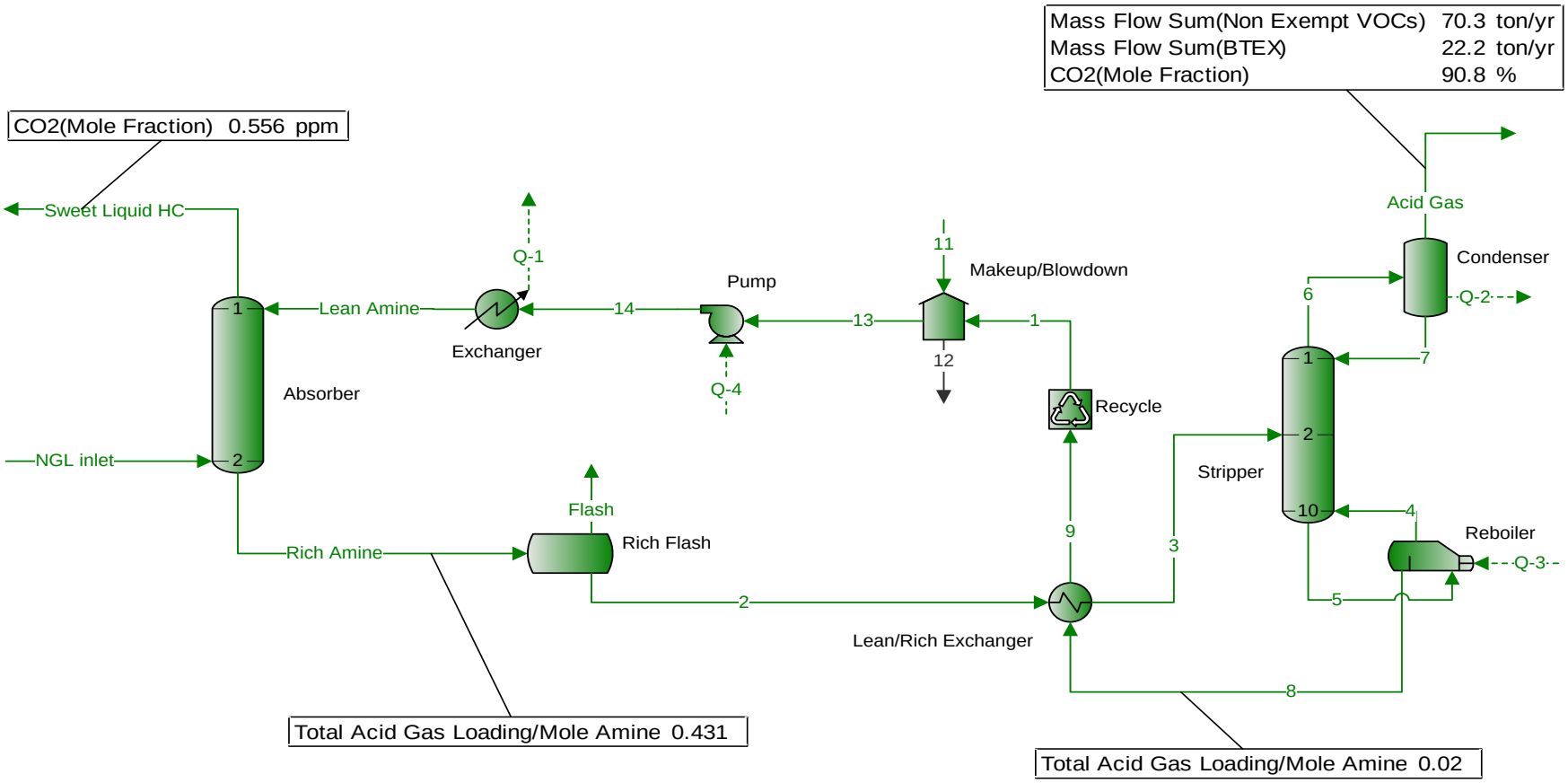
LHV (Btu/Scf)	939.2	Specific Gravity	0.5970	Wobbe Index at 60F	1215.6

**Electric power measured at the generator terminals.*

This performance was calculated with a basic inlet and exhaust system. Special equipment such as low noise silencers, special filters, heat recovery systems or cooling devices will affect engine performance. Performance shown is "Expected" performance at the pressure drops stated, not guaranteed.

Information carried over from previous application

San Juan – Product Treater - Recovery

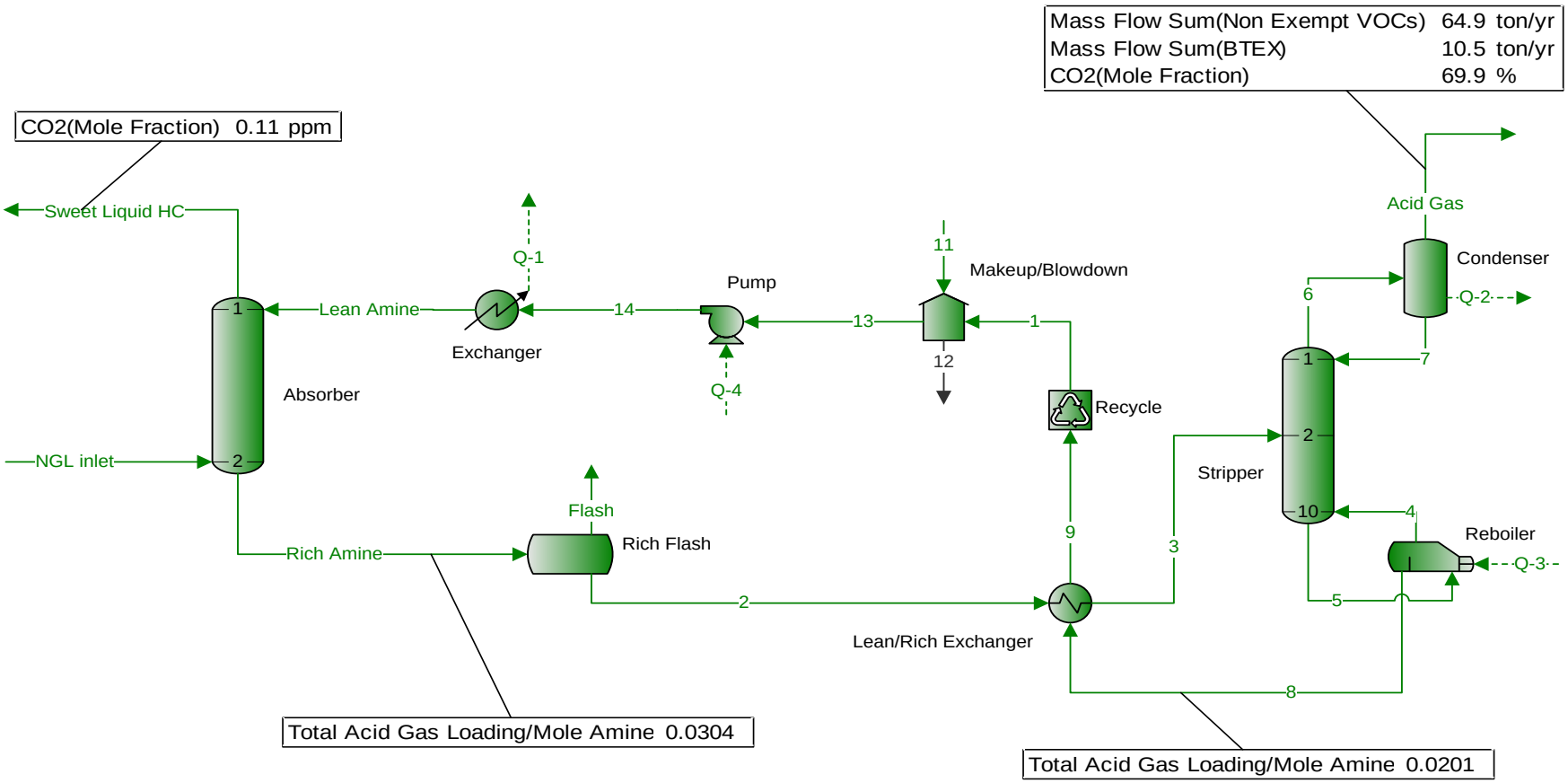


Process Streams		Acid Gas	Flash	Lean Amine	NGL inlet	Rich Amine	Sweet Liquid HC
Composition	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	Condenser	Rich Flash	Exchanger	--	Absorber	Absorber
	To Block:	--	--	Absorber	Absorber	Rich Flash	--
Mole Fraction		%	%	%	%	%	%
N2		0	0				
C1		0.0169863	4.26775				
CO2		90.7959	2.27810				
C2		0.412436	76.9138				
C3		0.0512365	11.9292				
iC4		0.00198932	0.708914				
nC4		0.00507263	1.20580				
iC5		0.000282121	0.121588				
nC5		0.000268767	0.0933047				
iC6		0	0				
nC6		6.47433E-05	0.0275003				
Benzene		0.0105597	0.0264395				
Cyclohexane		0.000282225	0.0194101				
iC7		0	0				
nC7		5.39547E-06	0.00390490				
Toluene		0.00423637	0.0103260				
iC8		0	0				
nC8		1.16583E-06	0.000841236				
Ethylbenzene		4.53322E-05	0.000131900				
o-Xylene		0.000449416	0.000894147				
2-Methyloctane		0	0				
Nonane		0	7.48949E-06				
2-Methylnonane		0	0				
Water		8.69046	2.39149				
DEA		1.45057E-17	4.95547E-06				
C10+		0	0				
Hydrogen Sulfide		0.00970111	0.000656970				
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
N2		0	0				
C1		0.0680062	0.372694				
CO2		363.510	0.198942				
C2		1.65122	6.71672				
C3		0.205130	1.04175				
iC4		0.00796441	0.0619080				
nC4		0.0203087	0.105300				
iC5		0.00112950	0.0106180				
nC5		0.00107603	0.00814811				
iC6		0	0				
nC6		0.000259206	0.00240154				
Benzene		0.0422766	0.00230891				
Cyclohexane		0.00112991	0.00169505				
iC7		0	0				
nC7		2.16012E-05	0.000341006				
Toluene		0.0169607	0.000901747				
iC8		0	0				
nC8		4.66750E-06	7.34634E-05				
Ethylbenzene		0.000181492	1.15185E-05				
o-Xylene		0.00179928	7.80840E-05				
2-Methyloctane		0	0				
Nonane		0	6.54042E-07				
2-Methylnonane		0	0				
Water		34.7930	0.208844				
DEA		5.80748E-17	4.32751E-07				
C10+		0	0				
Hydrogen Sulfide		0.0388392	5.73718E-05				

Mass Fraction	%	%	%	%	%	%
N2	0	0				
C1	0.00653567	2.14962				
CO2	95.8370	3.14784				
C2	0.297438	72.6133				
C3	0.0541870	16.5157				
iC4	0.00277311	1.29368				
nC4	0.00707124	2.20044				
iC5	0.000488186	0.275430				
nC5	0.000465077	0.211361				
iC6	0	0				
nC6	0.000133813	0.0744068				
Benzene	0.0197828	0.0648430				
Cyclohexane	0.000569664	0.0512890				
iC7	0	0				
nC7	1.29666E-05	0.0122851				
Toluene	0.00936172	0.0298720				
iC8	0	0				
nC8	3.19396E-06	0.00301707				
Ethylbenzene	0.000115427	0.000439661				
o-Xylene	0.00114433	0.00298046				
2-Methyloctane	0	0				
Nonane	0	3.01592E-05				
2-Methylnonane	0	0				
Water	3.75495	1.35270				
DEA	3.65771E-17	1.63579E-05				
C10+	0	0				
Hydrogen Sulfide	0.00792963	0.000702989				
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
N2	0	0				
C1	1.09099	5.97892				
CO2	15997.9	8.75534				
C2	49.6507	201.965				
C3	9.04533	45.9365				
iC4	0.462909	3.59823				
nC4	1.18039	6.12026				
iC5	0.0814918	0.766075				
nC5	0.0776344	0.587876				
iC6	0	0				
nC6	0.0223371	0.206954				
Benzene	3.30231	0.180353				
Cyclohexane	0.0950929	0.142654				
iC7	0	0				
nC7	0.00216448	0.0341695				
Toluene	1.56273	0.0830856				
iC8	0	0				
nC8	0.000533161	0.00839161				
Ethylbenzene	0.0192681	0.00122287				
o-Xylene	0.191020	0.00828979				
2-Methyloctane	0	0				
Nonane	0	8.38842E-05				
2-Methylnonane	0	0				
Water	626.806	3.76239				
DEA	6.10574E-15	4.54976E-05				
C10+	0	0				
Hydrogen Sulfide	1.32368	0.00195528				

Process Streams		Acid Gas	Flash	Lean Amine	NGL inlet	Rich Amine	Sweet Liquid HC
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	Condenser	Rich Flash	Exchanger	--	Absorber	Absorber
	To Block:	--	--	Absorber	Absorber	Rich Flash	--
Property	**Units**						
Temperature	°F	120	127.398				
Pressure	psia	19.6959	81				
Mole Fraction Vapor	%	100	100				
Mole Fraction Light Liquid	%	0	0				
Mole Fraction Heavy Liquid	%	0	0				
Molecular Weight	lb/lbmol	41.6946	31.8499				
Mass Density	lb/ft^3	0.132760	0.424107				
Molar Flow	lbmol/h	400.359	8.73279				
Mass Flow	lb/h	16692.8	278.138				
Vapor Volumetric Flow	ft^3/h	125736	655.821				
Liquid Volumetric Flow	gpm	15676.2	81.7647				
Std Vapor Volumetric Flow	MMSCFD	3.64632	0.0795349				
Std Liquid Volumetric Flow	sgpm	40.7321	1.42284				
Compressibility		0.994360	0.965530				
Specific Gravity		1.43961	1.09969				
API Gravity							
Enthalpy	Btu/h	-6.50413E+07	-362645				
Mass Enthalpy	Btu/lb	-3896.37	-1303.83				
Mass Cp	Btu/(lb*°F)	0.219099	0.448880				
Ideal Gas CpCv Ratio		1.28059	1.16669				
Dynamic Viscosity	cP	0.0160712	0.0104067				
Kinematic Viscosity	cSt	7.55717	1.53185				
Thermal Conductivity	Btu/(h*ft*°F)	0.0106933	0.0143119				
Surface Tension	lbf/ft						
Net Ideal Gas Heating Value	Btu/ft^3	8.90742	1629.45				
Net Liquid Heating Value	Btu/lb	-31.0410	19254.3				
Gross Ideal Gas Heating Value	Btu/ft^3	14.0724	1780.55				
Gross Liquid Heating Value	Btu/lb	15.9743	21056.2				

San Juan – Product Treater - Rejection



Process Streams		Acid Gas	Flash	Lean Amine	NGL inlet	Rich Amine	Sweet Liquid HC
Composition	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	Condenser	Rich Flash	Exchanger	--	Absorber	Absorber
	To Block:	--	--	Absorber	Absorber	Rich Flash	--
Mole Fraction		%	%	%	%	%	%
N2		0.0119168	0.212709				
C1		0.00492252	0.0339410				
CO2		69.9459	0.000517861				
C2		15.4727	69.7107				
C3		4.34068	24.4938				
iC4		0.186026	1.55683				
nC4		0.394613	2.22824				
iC5		0.0295579	0.266725				
nC5		0.0236755	0.176782				
iC6		0	0				
nC6		0.00477207	0.0417144				
Benzene		0.378208	0.0185278				
Cyclohexane		0.0127578	0.0191615				
iC7		0	0				
nC7		0.000450812	0.00603792				
Toluene		0.147390	0.00621890				
iC8		0	0				
nC8		6.61380E-05	0.000975743				
Ethylbenzene		0.000986344	4.95304E-05				
o-Xylene		0.0108394	0.000346393				
2-Methyloctane		0	0				
Nonane		1.88372E-07	6.73223E-06				
2-Methylnonane		0	0				
Water		8.67871	1.22672				
DEA		4.99650E-16	6.32503E-06				
C10+		0	0				
Hydrogen Sulfide		0.355833	3.56046E-05				
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
N2		0.000642718	0.00515813				
C1		0.000265490	0.000823056				
CO2		3.77245	1.25579E-05				
C2		0.834501	1.69046				
C3		0.234109	0.593965				
iC4		0.0100331	0.0377526				
nC4		0.0212830	0.0540339				
iC5		0.00159417	0.00646799				
nC5		0.00127691	0.00428690				
iC6		0	0				
nC6		0.000257376	0.00101156				
Benzene		0.0203982	0.000449292				
Cyclohexane		0.000688078	0.000464659				
iC7		0	0				
nC7		2.43140E-05	0.000146417				
Toluene		0.00794929	0.000150806				
iC8		0	0				
nC8		3.56707E-06	2.36614E-05				
Ethylbenzene		5.31973E-05	1.20109E-06				
o-Xylene		0.000584612	8.39990E-06				
2-Methyloctane		0	0				
Nonane		1.01596E-08	1.63254E-07				
2-Methylnonane		0	0				
Water		0.468076	0.0297476				
DEA		2.69480E-17	1.53380E-07				
C10+		0	0				
Hydrogen Sulfide		0.0191914	8.63398E-07				

Mass Fraction	%	%	%	%	%	%
N2	0.00837226	0.171978				
C1	0.00198051	0.0157150				
CO2	77.2016	0.000657779				
C2	11.6682	60.4978	11.6701489857469			
C3	4.80033	31.1725				
iC4	0.271164	2.61158				
nC4	0.575217	3.73786				
iC5	0.0534835	0.555409				
nC5	0.0428397	0.368118				
iC6	0	0				
nC6	0.0103135	0.103750				
Benzene	0.740910	0.0417696				
Cyclohexane	0.0269276	0.0465428				
iC7	0	0				
nC7	0.00113289	0.0174616				
Toluene	0.340585	0.0165377				
iC8	0	0				
nC8	0.000189471	0.00321685				
Ethylbenzene	0.00262620	0.000151766				
o-Xylene	0.0288606	0.00106138				
2-Methyloctane	0	0				
Nonane	6.05912E-07	2.49203E-05				
2-Methylnonane	0	0				
Water	3.92115	0.637835				
DEA	1.31745E-15	1.91926E-05				
C10+	0	0				
Hydrogen Sulfide	0.304141	3.50217E-05				
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
N2	0.0180047	0.144497				
C1	0.00425912	0.0132038				
CO2	166.024	0.000552669				
C2	25.0926	50.8305				
C3	10.3232	26.1913				
iC4	0.583144	2.19426				
nC4	1.23702	3.14057				
iC5	0.115017	0.466657				
nC5	0.0921277	0.309294				
iC6	0	0				
nC6	0.0221795	0.0871715				
Benzene	1.59334	0.0350950				
Cyclohexane	0.0579083	0.0391054				
iC7	0	0				
nC7	0.00243631	0.0146713				
Toluene	0.732435	0.0138950				
iC8	0	0				
nC8	0.000407462	0.00270281				
Ethylbenzene	0.00564769	0.000127514				
o-Xylene	0.0620653	0.000891775				
2-Methyloctane	0	0				
Nonane	1.30303E-06	2.09382E-05				
2-Methylnonane	0	0				
Water	8.43252	0.535912				
DEA	2.83320E-15	1.61257E-05				
C10+	0	0				
Hydrogen Sulfide	0.654061	2.94254E-05				

Process Streams		Acid Gas	Flash	Lean Amine	NGL inlet	Rich Amine	Sweet Liquid HC
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	Condenser	Rich Flash	Exchanger	--	Absorber	Absorber
	To Block:	--	--	Absorber	Absorber	Rich Flash	--
Property	**Units**						
Temperature	°F	120	103.932				
Pressure	psia	19.6959	81				
Mole Fraction Vapor	%	100	100				
Mole Fraction Light Liquid	%	0	0				
Mole Fraction Heavy Liquid	%	0	0				
Molecular Weight	lb/lbmol	39.8733	34.6481				
Mass Density	lb/ft^3	0.127017	0.487479				
Molar Flow	lbmol/h	5.39338	2.42496				
Mass Flow	lb/h	215.052	84.0204				
Vapor Volumetric Flow	ft^3/h	1693.09	172.357				
Liquid Volumetric Flow	gpm	211.087	21.4887				
Std Vapor Volumetric Flow	MMSCFD	0.0491208	0.0220856				
Std Liquid Volumetric Flow	sgpm	0.618819	0.411496				
Compressibility		0.993921	0.951859				
Specific Gravity		1.37672	1.19631				
API Gravity							
Enthalpy	Btu/h	-726590	-96257.2				
Mass Enthalpy	Btu/lb	-3378.67	-1145.64				
Mass Cp	Btu/(lb*°F)	0.259506	0.440323				
Ideal Gas CpCv Ratio		1.23963	1.15583				
Dynamic Viscosity	cP	0.0145233	0.00962679				
Kinematic Viscosity	cSt	7.13807	1.23283				
Thermal Conductivity	Btu/(h*ft*°F)	0.0112737	0.0128000				
Surface Tension	lbf/ft						
Net Ideal Gas Heating Value	Btu/ft^3	393.792	1830.13				
Net Liquid Heating Value	Btu/lb	3618.78	19883.5				
Gross Ideal Gas Heating Value	Btu/ft^3	432.964	1996.22				
Gross Liquid Heating Value	Btu/lb	3991.85	21704.1				

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. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, 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.

CONOCO

San Juan Basin Gas Plant Engineering Specifications

Farmington, New Mexico

Cooling Towers

PAN WEST CONSTRUCTORS, INC.

CT-1201
SPECIFICATION SHEET
PROJECT NO. 8510
A.F.E. NO.
REQ. NO. 8510-3240-023
DATE 9/10/85 APP'D BY
MADE BY NSF / JDH
1 10/24/85 NSF

PLANT PROJECT

GENERAL	1	SELECTION	Lilie - Hoffman			
	2	TOWER MODEL	SITM-3232-3			
	3	TYPE	Counterflow			
	4					
DESIGN AND OPERATING CONDITIONS	5	*CIRCULATING WATER FLOW, U.S. GPM	9,960	DESIGN	11,520	Max.
	6	*HOT (INLET) WATER TEMP., F	89	DESIGN		OPER.
	7	*COLD (OUTLET) WATER TEMP., F	71	DESIGN		OPER.
	8	*WET BULB TEMP. F., INLET AMBIENT	64°F W.B. 91°F D.B.	DESIGN		OPER.
	9	TOWER PUMP HEAD, FT.	20.5	DESIGN		OPER.
	10	TOTAL FAN BHP (DRIVER OUTPUT)	168	DESIGN	294	OPER.
	11	DRIFT LOSS, % OF CIRCULATING FLOW	0.01%	DESIGN		OPER.
	12	EVAPORATION LOSS (AT DESIGN)	1.85%			
	13	*DESIGN WIND LOAD, [redacted] -MI./HR.	70			
	14	*DESIGN SEISMIC CODE, % G		ZONE	0	
	15	*TOWER SITE (GROUND LEVEL, ROOF, ETC.)	Ground			
	16	*ELEVATION ABOVE SEA LEVEL, FT.	5,600 ft.			
	17	*TOWER ORIENTATION	Straight Line			
	18	*PREVAILING WIND DIRECTION	See General Project Conditions			
	19	*AVERAGE WIND VELOCITY	— mi/hr			
	20					
STRUCTURAL DETAILS	21	NUMBER OF CELLS	3			
	22	FANS PER CELL	1			
	23	TOTAL NUMBER OF FANS	3			
	24	NOMINAL CELL DIMENSION, L X W, FT.	32 X 32			
	25	OVERALL TOWER DIMENSION, L X W, FT.	96 X 32			
	26	HEIGHT BASIN CURB TO FAN DECK, FT.	25			
	27	FAN STACK HEIGHT, FT.	14			
	28	OVERALL TOWER HEIGHT, FT.	39			
	29	INSIDE BASIN DIMENSIONS, FT.	97'-8" x 33'-8"			
	30	*COLUMN EXTENSIONS, PERIMETER, BELOW				
	31	BASIN CURB, FT.	4 ft			
	32	INTERNAL, BELOW				
	33	CURB, FT (MAX).	4 ft.			
	34	ANCHORAGE	Galvanized Bolts by PWC			
	35	HOT WATER INLET NUMBER	3			
	36	NOMINAL DIAMETER, IN.	14			
	37	DESCRIPTION	150# F.F. PVC			
	38	HEIGHT INLET ABOVE BASIN CURB, FT.	17			
	39	*ACCESS TO TOP OF TOWER	Stair and Ladder			
	40	OPERATING WEIGHT, LBS	230,000			
	41					
NOTES	42					
	43					
	44					
	45					
	46					
	47					
	48					
	49					
	50					
	51					

* MINIMUM INFORMATION TO BE FILLED IN BY CONOCO.

QUOTATION WILL NOT BE CONSIDERED IF MANUFACTURER DOES NOT COMPLETE FORM BY FURNISHING INFORMATION FOR BLANK SPACES.

SPEC NO. CT-1201 REV. 1
SHEET 1 OF 3

4-515-S1

4-81

For flares subject to Chapter 115, Subchapter H, relating to highly reactive volatile organic compounds, flow rate and composition data required by 30 TAC 115.725–26 should be used to determine emissions for any portions of 2009 that 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 should 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 from TCEQ Air Permits guidance, 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-6.

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.)

Table A-6. TCEQ Air Permits 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

Since flares do not lend themselves to conventional emission testing techniques, only a few attempts have been made to characterize flare emissions. Recent EPA tests using propylene as flare gas indicated that efficiencies of 98 percent can be achieved when burning an offgas with at least 11,200 kJ/m^3 (300 Btu/ft^3). The tests conducted on steam-assisted flares at velocities as low as 39.6 meters per minute (m/min) (130 ft/min) to 1140 m/min (3750 ft/min), and on air-assisted flares at velocities of 180 m/min (617 ft/min) to 3960 m/min (13,087 ft/min) indicated that variations in incoming gas flow rates have no effect on the combustion efficiency. Flare gases with less than 16,770 kJ/m^3 (450 Btu/ft^3) do not smoke.

Table 13.5-1 presents flare emission factors, and Table 13.5-2 presents emission composition data obtained from the EPA tests.[1] Crude propylene was used as flare gas during the tests. Methane was a major fraction of hydrocarbons in the flare emissions, and acetylene was the dominant intermediate hydrocarbon species. Many other reports on flares indicate that acetylene is always formed as a stable intermediate product. The acetylene formed in the combustion reactions may react further with hydrocarbon radicals to form polyacetylenes followed by polycyclic hydrocarbons.[2]

In flaring waste gases containing no nitrogen compounds, NO is formed either by the fixation of atmospheric nitrogen (N) with oxygen (O) or by the reaction between the hydrocarbon radicals present in the combustion products and atmospheric nitrogen, by way of the intermediate stages, HCN, CN, and OCN.[2] Sulfur compounds contained in a flare gas stream are converted to SO_2 when burned. The amount of SO_2 emitted depends directly on the quantity of sulfur in the flared gases.

Table 13.5-1 (English Units). EMISSION FACTORS FOR FLARE OPERATIONS[a]

EMISSION FACTOR RATING: B

Component	Emission Factor (lb/10^6 Btu)
Total hydrocarbons[b]	0.14
Carbon monoxide	0.37
Nitrogen oxides	0.068
Soot[c]	0 - 274

[a] Reference 1. Based on tests using crude propylene containing 80% propylene and 20% propane.
[b] Measured as methane equivalent.
[c] 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.

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

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

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

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

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

TABLE 5-2. CONTROL EFFECTIVENESS FOR AN LDAR PROGRAM AT A SOCMI PROCESS UNIT

Equipment type and service	Control effectiveness (%)		
	Monthly monitoring 10,000 ppmv leak definition	Quarterly monitoring 10,000 ppmv leak definition	HON reg neg[a]
Valves - gas	87	67	92
Valves - light liquid	84	61	88
Pumps - light liquid	69	45	75
Connectors - all	b	b	93

[a] Control effectiveness attributable to the requirements of the proposed hazardous organic NESHAP equipment leak negotiated regulation are estimated based on equipment-specific leak definitions and performance levels.

[b] Data are not available to estimate control effectiveness.

San Juan Gas Plant

Gas Stream Compositions

Components	Gas Analysis Mole Percents, %	C6+ Extended Gas Analysis Mole Percents, %	Combined Analysis Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %
Carbon Dioxide	1.6534		1.6534	44.01	0.73	3.6819
Nitrogen	0.2179		0.2179	28.01	0.06	0.3088
Methane	85.0411		85.0411	16.04	13.64	69.0199
Ethane	7.3744		7.3744	30.07	2.22	11.2203
Propane	3.1599		3.1599	44.09	1.39	7.0495
IsoButane	0.5963		0.5963	58.12	0.35	1.7537
Normal Butane	0.8422		0.8422	58.12	0.49	2.4768
IsoPentane	0.3098		0.3098	72.15	0.22	1.1310
Normal Pentane	0.2226		0.2226	72.15	0.16	0.8128
C6+	0.5824	75.0210	0.4369	86.18	0.38	1.9053
Benzene		3.2830	0.0191	78.11	0.01	0.0756
Ethylbenzene		0.0000	0.0000	106.17	0.00	0.0000
n-Hexane		16.3140	0.0950	86.17	0.08	0.4143
Toluene		4.4050	0.0257	92.14	0.02	0.1196
Xylenes		0.9770	0.0057	106.17	0.01	0.0306
Total	100.0002	100.0000	100.0002		19.76	100.0000

Gas stream composition obtained from San Juan Gas Plant high-pressure gas analysis dated 09/01/2016

C6+ gas stream composition obtained from San Juan Gas Plant high-pressure C6+ extended gas analysis dated 09/01/2016

Combined carbon dioxide - normal pentane compositions obtained from the high pressure gas analysis

Combined C6+ - xylenes compositions calculated as fractions of the C6+ composition from the gas analysis (using the C6+ -xylene compositions from the C6+ extended gas analysis)

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

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

high pressure inlet

hp inlet.txt

Monthly Averages from 9/1/2016 9:06:18 AM Analyzer: AT-101
Company: Daniel Industries

15 Heating Value Gross BTU Dry S: 2 St2 HP INLET
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	1174.07568	1153.75647	1194.51965	5573
2 8/1/2016 6:00:00 AM	1181.46008	1164.83789	1201.63367	5575
3 7/1/2016 6:00:00 AM	1176.96997	1159.90295	1195.20178	5398

16 Mole Percent S: 2 St2 HP INLET C6+ 47/35/17
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.58243	0.36005	0.99600	5573
2 8/1/2016 6:00:00 AM	0.69868	0.41300	1.04966	5575
3 7/1/2016 6:00:00 AM	0.66511	0.34724	1.06955	5398

17 Mole Percent S: 2 St2 HP INLET PROPANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	3.15993	2.95493	3.43628	5573
2 8/1/2016 6:00:00 AM	3.18414	2.85943	3.44514	5575
3 7/1/2016 6:00:00 AM	3.13857	2.92294	3.33777	5398

18 Mole Percent S: 2 St2 HP INLET i-BUTANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.59634	0.53343	0.65316	5573
2 8/1/2016 6:00:00 AM	0.60181	0.55194	0.66427	5575
3 7/1/2016 6:00:00 AM	0.59344	0.55728	0.66494	5398

19 Mole Percent S: 2 St2 HP INLET n-BUTANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.84222	0.72417	0.95068	5573
2 8/1/2016 6:00:00 AM	0.85331	0.79281	0.96238	5575
3 7/1/2016 6:00:00 AM	0.83973	0.77067	0.97607	5398

20 Mole Percent S: 2 St2 HP INLET NEOPENTANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.00000	0.00000	0.00000	5573
2 8/1/2016 6:00:00 AM	0.00000	0.00000	0.00000	5575
3 7/1/2016 6:00:00 AM	0.00000	0.00000	0.00000	5398

21 Mole Percent S: 2 St2 HP INLET i-PENTANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.30980	0.24259	0.37047	5573
2 8/1/2016 6:00:00 AM	0.32486	0.27884	0.38134	5575
3 7/1/2016 6:00:00 AM	0.31030	0.27443	0.38084	5398

22 Mole Percent S: 2 St2 HP INLET n-PENTANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.22263	0.16947	0.26560	5573
2 8/1/2016 6:00:00 AM	0.22773	0.19113	0.27629	5575
3 7/1/2016 6:00:00 AM	0.22504	0.18953	0.28085	5398

23 Mole Percent S: 2 St2 HP INLET NITROGEN
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	0.21786	0.18450	0.32201	5573
2 8/1/2016 6:00:00 AM	0.20657	0.17288	0.43284	5575
3 7/1/2016 6:00:00 AM	0.21669	0.17485	0.31465	5398

24 Mole Percent S: 2 St2 HP INLET METHANE
Start: 9/1/2016 6:00:00 AM Stop: 10/1/2016 6:00:00 AM

	Average	Minimum	Maximum	Samples
1 9/1/2016 6:00:00 AM	85.04111	84.35092	85.67935	5573
2 8/1/2016 6:00:00 AM	84.86682	84.06134	85.66080	5575

3	7/1/2016 6:00:00 AM	85.03612	84.41418	85.61156	5398

25 Mole Percent — S: 2 St2 HP INLET CARBON DIOXIDE

Start: 9/1/2016 6:00:00 AM — Stop: 10/1/2016 6:00:00 AM

		Average	Minimum	Maximum	Samples
1	9/1/2016 6:00:00 AM	1.65342	1.39277	1.95213	5573
2	8/1/2016 6:00:00 AM	1.60686	1.33212	1.75570	5575
3	7/1/2016 6:00:00 AM	1.64908	1.46705	1.84828	5398

26 Mole Percent — S: 2 St2 HP INLET ETHANE

Start: 9/1/2016 6:00:00 AM — Stop: 10/1/2016 6:00:00 AM

		Average	Minimum	Maximum	Samples
1	9/1/2016 6:00:00 AM	7.37443	6.98323	7.91849	5573
2	8/1/2016 6:00:00 AM	7.42925	6.87349	7.97532	5575
3	7/1/2016 6:00:00 AM	7.32588	6.99001	7.59158	5398

27 User Calc Result — S: 2 HP Inlet NC4+NP

Start: 9/1/2016 6:00:00 AM — Stop: 10/1/2016 6:00:00 AM

		Average	Minimum	Maximum	Samples
1	9/1/2016 6:00:00 AM	0.84222	0.72417	0.95068	5573
2	8/1/2016 6:00:00 AM	0.85331	0.79281	0.96238	5575
3	7/1/2016 6:00:00 AM	0.83973	0.77067	0.97607	5398

28 Gallons/1000 SCF C2+ — S: 2 St2 HP INLET

Start: 9/1/2016 6:00:00 AM — Stop: 10/1/2016 6:00:00 AM

		Average	Minimum	Maximum	Samples
1	9/1/2016 6:00:00 AM	3.75641	3.50112	3.99213	5573
2	8/1/2016 6:00:00 AM	3.84226	3.60902	4.13917	5575
3	7/1/2016 6:00:00 AM	3.77377	3.58595	3.98715	5398

ConocoPhillips

ConocoPhillips
San Juan Plant
P.O. Box 217
Bloomfield, NM
87413

San Juan Plant Gas Analysis

Sample ID:	EXGAS_9_1_2016 9_	**Location:**	
Injection Date:	9/1/2016	**Sample Type:**	
Method file::	EXGAS	**Pressure Base:**	14.73
Data File	EXGAS_9_1_2016 9_0	**# / MMCF H20**	
Notes:	CONOCOPHILLIPS HP INLET EXTENDED ANALYSIS FOR AUG. 2016		

Peak Name	Normal Mole Percent	Normal Weight Percent
Methane	0.000	0.000
Ethane	0.000	0.000
Propane	0.000	0.000
i-Butane	0.000	0.000
n-butane	0.000	0.000
benzene	3.283	2.871
i-Pentane	0.000	0.000
n-Pentane	0.000	0.000
toluene	4.405	4.543
cyclohexane	8.726	8.220
methylcyclopentane	9.111	8.583
2,2-dimethylbutane	1.939	1.870
2,3-dimethylbutane	6.713	6.475
2-methylpentane	16.235	15.659
3-methylpentane	8.885	8.570
n-hexane	16.314	15.736
p&m-xylene	0.977	1.161
c-1,3-dimethylcycl	0.761	0.837
t-1,3-dimethylcycl	0.193	0.212
o-xylene	0.000	0.000
methylcyclohexane	8.549	9.396
ethylbenzene	0.000	0.000
2,3-dimethylpentan	0.875	0.981
2-methylhexane	3.265	3.662
3-methylhexane	2.987	3.350
n-heptane	5.074	5.691
1,2,4-trimethylben	0.000	0.000
i-propylbenzene	0.000	0.000
n-propylbenzene	0.000	0.000
2,5-dimethylhexane	0.264	0.337
2,4-dimethylhexane	0.187	0.239
n-octane	1.257	1.607
n-butylbenzene	0.000	0.000

Sample ID:	EXGAS_9_1_2016 9_	**Location:**	
Injection Date:	9/1/2016	**Sample Type:**	
Method file::	EXGAS	**Pressure Base:**	14.73
Data File	EXGAS_9_1_2016 9_0	**# / MMCF H20**	
Notes:	CONOCOPHILLIPS HP INLET EXTENDED ANALYSIS FOR AUG. 2016		

Peak Name	Normal Mole Percent	Normal Weight Percent
n-nonane	0.000	0.000
n-decane	0.000	0.000
Totals	100.000	100.000

Molecular Weight	89.3409
Molar Density	3.0847
Relative Density	3.10741
GPM	39.7442
Cubic Ft. / Gallon	25.10
bi $^{0.5}$	0.022873
Z Factor	0.99229
Uncorrected BTU / Cubic Ft.	4831
Z Corrected BTU / Cubic Ft. Fuel as Real Gas.	4869

INSERV
INTEGRATED SERVICE COMPANY LLC
A WILLBROS COMPANY

Service:	Regen Gas Heater	Item No.:	H-501	Rev
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM	
Heater Type:	Vertical Cylindrical	Qty Required:	1	
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313	
Purchaser:	ConocoPhillips	Rev:	0	
Manufacturer:	InServ	Purch. Ref.:	R3-6 Dec 2010	
Date:	December 8, 2010	Page:	1 of 5	

PROCESS DESIGN CONDITIONS

1.						
2.	* Total Heater Absorbed Duty, MM Btu/Hr	10.00				
3.	* Operating Case	Design				
4.	Heater Section	Radiant	Convection			
5.	* Service	Regen Gas				
6.	Heat Absorption, MM Btu/hr	6.79	3.21			
7.	* Fluid name	Residue Gas				
8.	* Flow Rate, Lb/hr	33,500				
9.	* Flow Rate, BPD					
10.	* Pressure Drop (allowable, clean), psi	10				
11.	Pressure Drop (calculated, clean), psi	10				
12.	* Average Heat Flux (allowable), Btu/hr*ft2	9,167				[A]
13.	Average Heat Flux (calculated), Btu/hr*ft2	9,170				[A]
14.	* Maximum Heat Flux (allowable), Btu/hr*ft2	19,800				[A]
15.	Maximum Heat Flux (calculated), Btu/hr*ft2	19,810	19,009			[A]
16.	Velocity Limitation, feet/sec					
17.	Process Fluid Mass Velocity, Lb/sec*ft2	51	51			
18.	* Maximum Film Temperature (allowable), °F	800	800			
19.	Maximum Film Temperature (calculated), °F	697	453			
20.	* Fouling Factor, hr*ft2*°F/BTU	0.002	0.002			
21.	* Corrosion or Erosion Characteristics					
22.	**INLET CONDITIONS:**					
23.	* Temperature, °F	301	160			
24.	* Pressure, psia	877	879			
25.	* Liquid Flow, Lb/hr		0			
26.	* Vapor Flow, Lb/hr		33,500			
27.	* Weight Percent Vapor, wt%		100%			
28.	* Density, Liquid, Lb/ft3					
29.	* Molecular Weight, Vapor		16.38			
30.	* Viscosity, Liquid, cp					
31.	* Viscosity, Vapor, cp		0.014			
32.	* Specific Heat, Liquid, Btu/Lb*°F					
33.	* Specific Heat, Vapor, Btu/Lb*°F		0.622			
34.	* Thermal Conductivity, Liquid, Btu/hr*ft*°F					
35.	* Thermal Conductivity, Vapor, Btu/hr*ft*°F		0.026			
36.	**OUTLET CONDITIONS**					
37.	* Temperature, °F	600	301			
38.	* Pressure, psia	869	877			
39.	* Liquid Flow, Lb/hr	0				
40.	* Vapor Flow, Lb/hr	33,500				
41.	* Weight Percent Vapor, wt%	100.0%				
42.	* Density, Liquid, Lb/ft3					
43.	* Molecular Weight, Vapor	16.38				
44.	* Viscosity, Liquid, cp					
45.	* Viscosity, Vapor, cp	0.019				
46.	* Specific Heat, Liquid, Btu/Lb*°F					
47.	* Specific Heat, Vapor, Btu/Lb*°F	0.768				
48.	* Thermal Conductivity, Liquid, Btu/hr*ft*°F					
49.	* Thermal Conductivity, Vapor, Btu/hr*ft*°F	0.048				
50.	**REMARKS AND SPECIAL REQUIREMENTS:**					
51.	* Distillation Data or Feed Composition					
52.	* Short Term Operating Conditions					

53. **NOTES:** [A] Peak flux rate = Average flux rate x 1.8 (CFF) x 1.2 (LFF), Convection peak flux rate not to exceed radiant peak flux rate based
54. on bare tube basis (Per REP 8-2-1 Sect 7.1.3)
55.
56. [B]

Residue Gas Composition	
Component	Mol%
C1	98.453
C2	0.325
C3	0.007
CO2	0.922
N2	0.293
Total	100.0

64.
65.

INSERV
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Service:	Regen Gas Heater	Item No.:	H-501
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM
Heater Type:	Vertical Cylindrical	Qty Required:	1
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313
Purchaser:	ConocoPhillips	Rev:	0
Manufacturer:	InServ	Purch. Ref.:	R3-6 Dec 2010
Date:	December 8, 2010	Page:	2 of 5

Rev

COMBUSTION DESIGN CONDITIONS

Overall Performance:	Radiant	Convection		
Operating Case	Design			
Type of Fuel	Fuel Gas			
Service	Regen Gas			
Excess Air, Percent	15.0%			
Calculated Heat Release, MMBtu/hr (LHV)	12.13			
Guaranteed Efficiency, Percent (LHV)	81.5%			
Calculated Efficiency, Percent (LHV)	82.5%			
Radiation Loss, % of Heat Release (LHV)	2.0%			
Flue Gas Temperature Leaving Section °F	1,503	664		
Flue Gas Mass Velocity, Lb/sec*ft2		0.244		
Draft at Arch / Bridgewall, in H2O	0.10			
Ambient Temperature, Efficiency Calculation, °F	60			
Ambient Temperature, Stack Design, °F	110			
Altitude Above Sea Level, ft	5600			
Atmospheric Pressure, psia	11.96			
Volumetric Heat Release, MM Btu/hr*ft3	10,100			

FUEL CHARACTERISTICS

FUEL GAS	Fuel Gas			Fuel Oil	#1 FO	#2 FO
LHV, Btu/scf	898			LHV, Btu/Lb		
HHV, Btu/scf				HHV, Btu/Lb		
Press @ Burner, psig	25			Press @ Burner, psig		
Temp @ Burner, °F	40 min			Temp @ Burner, °F		
Molecular Weight	16.41			Viscosity @ ??? °F		
Component	Mole %	Mole %	Mole %	@ ??? °F		
H2				Atomizing Media		
O2				Atomizing Media P & T		
N2	0.363			Component	Wt %	Wt %
CO						
CO2	0.951					
H2O						
C1	98.258					
C2	0.413					
C2=						
C3	0.015					
C3=						
iC4						
nC4						
C4=				Sulphur (wt%)		
iC5				Nitrogen (wt%)		
nC5				Nickel (ppm)		
C6+				Vanadium (ppm)		
H2S				Sodium (ppm)		
S				Ash (wt%)		

BURNER DATA:

Mfgr	CTI/JZC/Zeeco	Qty of Burners	3	Pilot Model No.	Self Inspirating
Type	Low Nox	Draft, inH2O	0.25	Pilot Ht. Rel., Btu/hr	95,000
Model	TBD	Reed Wall	None	Pilot Ignition Metod	MANUAL
Location	Floor / Upfiring	Burner Test	Optional	Flame Rod Location	Pilot

Heat Release per Burner, MMBTU / hr	Maximum	Normal	Minimum	Turndown
	4.85	4.04	1.62	3.0

Burner Clearances (Gas Firing):

	Vertical to Tube Centerline	Vertical to Refractory	Horiz to Tube C/L + 6"	Horizontal to Refractory
Burner Centerline Clearance, Ft				
API Std 560 Required Clearances, ft	14.66	14.66	3.21	n / a
Calculated Clearances, ft	17.50	16.35	3.25	n / a

Emissions

Required Emissions, Lb/MMBTU @ 3%O2 (HHV)	NOx: 0.045			
Guaranteed Emissions, Lb/MMBTU @ 3%O2 (HHV)	NOx: 0.045	CO: 0.02		

NOTES:

INSERV
INTEGRATED SERVICE COMPANY LLC
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Service:	Regen Gas Heater	Item No.:	H-501	Rev	
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM		
Heater Type:	Vertical Cylindrical	Qty Required:	1		
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313		
Purchaser:	ConocoPhillips	Rev:	0		
Manufacturer:	InServ	Purch. Ref.:	R3-6 Dec 2010		
Date:	December 8, 2010	Page:	3 of 5		

MECHANICAL DESIGN CONDITIONS

Piot Limitations		None	Stack Limitations		None
Tube Limitations		None	Noise Limitations, dBA		85.0
Structural Design Data	Wind Velocity, MPH	90	Wind Specification		ASCE 7-05
	Snowload	30 psf	Seismic Specification		ASCE 7-05
	Importance Factor	1	Seismic Zone		ASCE 7-05
	Wind Exposure	C	Firebox Pressure		Negative
Min / Max Ambient Air Temperature F		-20 / 60 / 105	Relative Humidity		20%

COIL DESIGN

Heater Section	Radiant	Convection		
Service	Regen Gas			
Design Basis for Tube Wall Thickness	API Std 530	API Std 530		
Design Pressure (elastic or rupture), psig	1,010	1,010		
Design Life, hours	100,000	100,000		
Design Fluid Temperature, °F	750	750		
Temperature Allowance, °F	90	90		
Corrosion Allowance, Tubes & Fittings, in	0.125	0.125		
Supplementary Mfg Requirements	None	None		
Stress Relieve (yes or no)	No	No		
Weld Inspection, (RT or other)	100 of 100%	100 of 100%		
Hydrostatic Test Pressure, psig	3,322	3,322		
Max Tube Wall Temperature (clean), °F	722	487		
Max Tube Wall Temperature (fouled), °F	750	531		
Max Tube Wall Temperature (design), °F	840			
Inside Film Coefficient, BTU / hr * ft2 * °F	196	144		

COIL ARRANGEMENT

Tube Orientation: Vertical / Horizontal	Vertical	Horizontal			
Pipe/Tube Material (ASTM Spec and Gr)	A106 GrB	A106 GrB			
Pipe/Tube Outside Diameter, in	6.625	6.625			
Tube Wall Thickness, (average), in	0.432	0.432			
Number of Flow Passes	1	1			
Number of Tubes per Row (convection)		3			
Overall Tube Length, ft	13.25	12.25			
Effective Tube Length, ft	15.25	10.50			
No of intermediate welds per tube	None	None			
Bare Tubes: Number	28 (6 / 22)	9			[A]
Bare Tubes Total Exposed Surface, ft2	741	164			
Extended Surface Tubes: Number	0	9			
Extended Tubes Total Exposed Surface, ft2	0	1,115			
Tube Spacing, Center to Center, in	18 / 12	12			[A]
Tube Center to Furnace Wall, in	9	6			

DESCRIPTION OF EXTENDED SURFACE:

Service			Regen Gas		
Fin or Stud Row Number (starting @ bottom)			Rows 1-3	Rows 4-6	
Type (segmented fins, solid fins, studs)			Bare	HF Solid	
Fin/Stud Material				11CR	
Dimensions	Height x thickness / dia)			0.75 x 0.05	
	Density (fins / in, studs / plane)			3.5 fpi	
Maximum Fin/Stud Temperature, °F				695	

RETURN BENDS &/OR PLUG TYPE FITTINGS:

Heater Section	Radiant	Convection		
Fitting Type	LR & SR U Bends	SR U Bends		[A]
Material (ASTM Spec and Gr)	A234 WPB	A234 WPB		
Nominal Rating or Schedule	6" sch80	6" sch80		
Location (internal, external, one or both ends)	Internal	External		
Welded or Rolled	welded	welded		

CROSSOVERS:

Location/Welded or Flanged	External / Welded		
Pipe Material (ASTM Spec and Gr)	A106 GrB		
Pipe Size & Schedule or Thickness	6" sch80		
Flange Material			
Flange Size & Rating			

NOTES: [A] Last six (6) tubes of radiant section are on 18" centers (LR), all others are on 12" centers (SR).

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Service:	Regen Gas Heater	Item No.:	H-501	Rev
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM	
Heater Type:	Vertical Cylindrical	Qty Required:	1	
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313	
Purchaser:	ConocoPhillips	Rev:	0	
Manufacturer:	InServ	Purch. Ref.:	R3-6 Dec 2010	
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MECHANICAL DESIGN CONDITIONS (continued)

	Heater Section		Radiant	Convection		
	Service		Regen Gas	Regen Gas		
	TERMINALS &/OR MANIFOLDS:					
*	Type (Bev=Beveled, Man=Maifold, Flg=Flanged)		Flanged	Flanged		
	Terminal / Manifold Location		Rad. Roof	Terminal End		
	Terminals					
*		Flange Material (ASTM Spec and Gr)	A105	A105		
		Tube Flange Size and Rating	6" / 900# RTJWN	6" / 900# RTJWN		
		Number of Terminals				
	Manifolds					
		Manifold Material (ASTM Spec and Gr)	None	None		
		Manifold Size & Thickness				
		Manifold Flange Size and Rating				
	Manifold to Tube Conn (Welded, Extruded, Etc.)					
	TUBE SUPPORTS &/OR TUBESHEETS:					
	Location (Top, Bottom, Ends)		Top	Ends		
	Material (ASTM Spec and Gr)		A351 HK40-min 0.35 wt% C	A-36 C.S.		
	Design Metal Temperature, F		1,800	800		
	Support Thickness, in			0.50"		
	Refractory Type			4 / LW Castable		
	Refractory Thickness, in			4		
	Anchor Material and Type			304 S.S.		
	INTERMEDIATE TUBE SUPPORTS					
	Quantity per Length					
	Material (ASTM Spec and Gr)					
	Spacing, ft					
	Design Metal Temperature, F					
	TUBE GUIDES					
	Location		Bottom			
	Material (ASTM Spec and Gr)		304SS			
	Spacing, in		18 / 12			
	REFRACTORY DESIGN					
*	Refractory Design Basis:		180°F Casing Temperature w/ Ambient Conditions of 0 MPH & 80°F			
	Radiant Casing/Refractory Design:			**Floor**	**Shielded**	**Arch**
	Refractory Thickness, in			9.5	3.0	5.0
	Refractory Hot Face Temp (design), °F			2,500°	2,300°	2,300°
	Refractory Hot Face Temp (calculated), °F			1,303	1,209	1,503
	Hot Face Layer Thickness, in / Material			2.5/HD FBrick	1 / 8 pcf CFB	1 / 8 pcf CFB [A]
	Back-Up Layer No1 Thickness, in / Material			7 / LW Castable	2 / 8 pcf CFB	4 / 8 pcf CFB [A]
	Back-Up Layer No2 Thickness, in / Material			None	None	None
	Foil Vapor Barrier Thickness, mil / Material			None	None	None
	Castable Reinforcement (SS Needles)			None	None	None
	Anchors / Tie Backs:			None	Pins & Clips	Pins & Clips [A]
	Anchor/Tie Back Material			None	304 S.S.	310 S.S. [A]
	Casing Thickness, in / Material			1/4 - A36	1/4 - A36	1/4 - A36
	Casing External Temperature, °F			195	180	180
	Comments / Clarifications			10' min.elev.	(w/o wraps)	(w/ wraps)
	Convection Casing/Refractory Design:		**Sidewalls**	**Hdr Boxes**	**Breeching**	
	Refractory Thickness, in		6.5	2.0	3.0	
	Refractory Hot Face Temp (design), °F		2,200°	2,300°	2,200°	
	Refractory Hot Face Temp (calculated), °F		1,084	902	664	
	Hot Face Layer Thickness, in / Material		6½ / LW Castable	2 / 8 pcf CFB	3 / LW Castable	
	Back-Up Layer No1 Thickness, in / Material		None	None	None	
	Back-Up Layer No2 Thickness, in / Material		None	None	None	
	Foil Vapor Barrier Thickness, mil / Material		None	None	None	
	Castable Reinforcement (SS Needles)		304SS - 3 wt%	None	304SS - 3 wt%	
	Anchors / Tie Backs:		Longhorns	Pins & Clips	Longhorns	
	Anchor/Tie Back Material		304 S.S.	304 S.S.	304 S.S.	
	Anchor/Tie Back Attachment		Welded	Welded	Welded	
	Casing Thickness, in / Material		3/16 - A36	3/16 - A36	3/16 - A36	
	Casing External Temperature, °F		180	180	180	
	Comments / Clarifications					

NOTES: [A] Floor refractory and firebrick will be field installed and therefore no anchors are required per API 560.

INSERV
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Service:	Regen Gas Heater	Item No.:	H-501 Rev
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM
Heater Type:	Vertical Cylindrical	Qty Required:	1
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313
Purchaser:	ConocoPhillips	Rev:	0
Manufacturer:	InServ	Purch. Ref.:	R3-6 Dec 2010
Date:	December 8, 2010	Page:	5 of 5

MECHANICAL DESIGN CONDITIONS (continued)

STACK OR STUB STACK:

Quantity	One	Type	Self Supporting	Location	on Heater
Casing Material	A-36 C.S.	Corrosion Allowance, in	0.063	Min Thickness, in	0.25
Metal OD, ft	3.08	Height Above Grade, ft	78.3	Stack Length, ft	40
Lining Material	2 / LW Castable	Anchor (Material & Type)	304SSS Bent Wire	Clarifications	Top 3' - 316L SS
Extent of Lining	Full	Lining Reinforcement	304SS - 3 wt%		Rain hat req'd

DAMPERS:

	Stack			
Location				
Type (Control, Balance, Tight Shut-off, Etc.)	Control			
Material Blade	316L SS			
Shaft	316L SS			
Multiple / Single Leaf	Single			
Provision for Operation (Manual / Automatic)	Manual			
Type of Operator (Cable / Pneumatic)	Cable			
Operator Location	Grade			

LADDERS AND PLATFORMS (GALVANIZED CS)

* Location	Qty	Width	Length/Arc	Stairs/Ladder	Access From	Estim'd Weight
Hearth Platform	1	3.00	360	0 / 2	Grade	5,770
Conv. End Platforms	2	4.00	5.61	0 / 1	Hearth	6,720
Conv. Side Platform	2	3.00	21.75			
Damper Platform	1	3.00	270	0 / 1	Convection	2,230
EPA Platform	1	3.00	270	0 / 1	Damper	2,090
Type of Handrails	Angle Frames					
Type of Flooring	Serrated Grating					

DOORS:

Type	Number	Location	Size	Bolted/Hinged
Access Doors	1	Floor	18 x 18	Bolted
	1	Arch	24 x 24	Bolted
	1	Transition	24 x 24	Bolted
Observation	3	Hearth	9 x 9	Hinged
	1	Conv Sidewall	6 x 18	Hinged
Tube Removal	1	Arch	24 x 24	Bolted

MISCELLANEOUS CONNECTIONS:

Instrument Connections		Number	Size	Type
Combustion Air	Temperature			
	Pressure			
Flue Gas	Temperature	4	1½"	150# RFWN
	Pressure	4	1½"	150# RFWN
Flue Gas Sample		4	1½"	150# RFWN
Snuffing Steam / Purge		1	2"	150# RFWN
O2/Combustible Analyzer		4	3"	150# RFWN
EPA Testing Connections		4	4"	150# RFWN
Vents / Drains				
Process Fluid Temperature		1	1½"	900# RTJWN
Tubeskin Thermocouples		2	1"	Pipe Sleeve

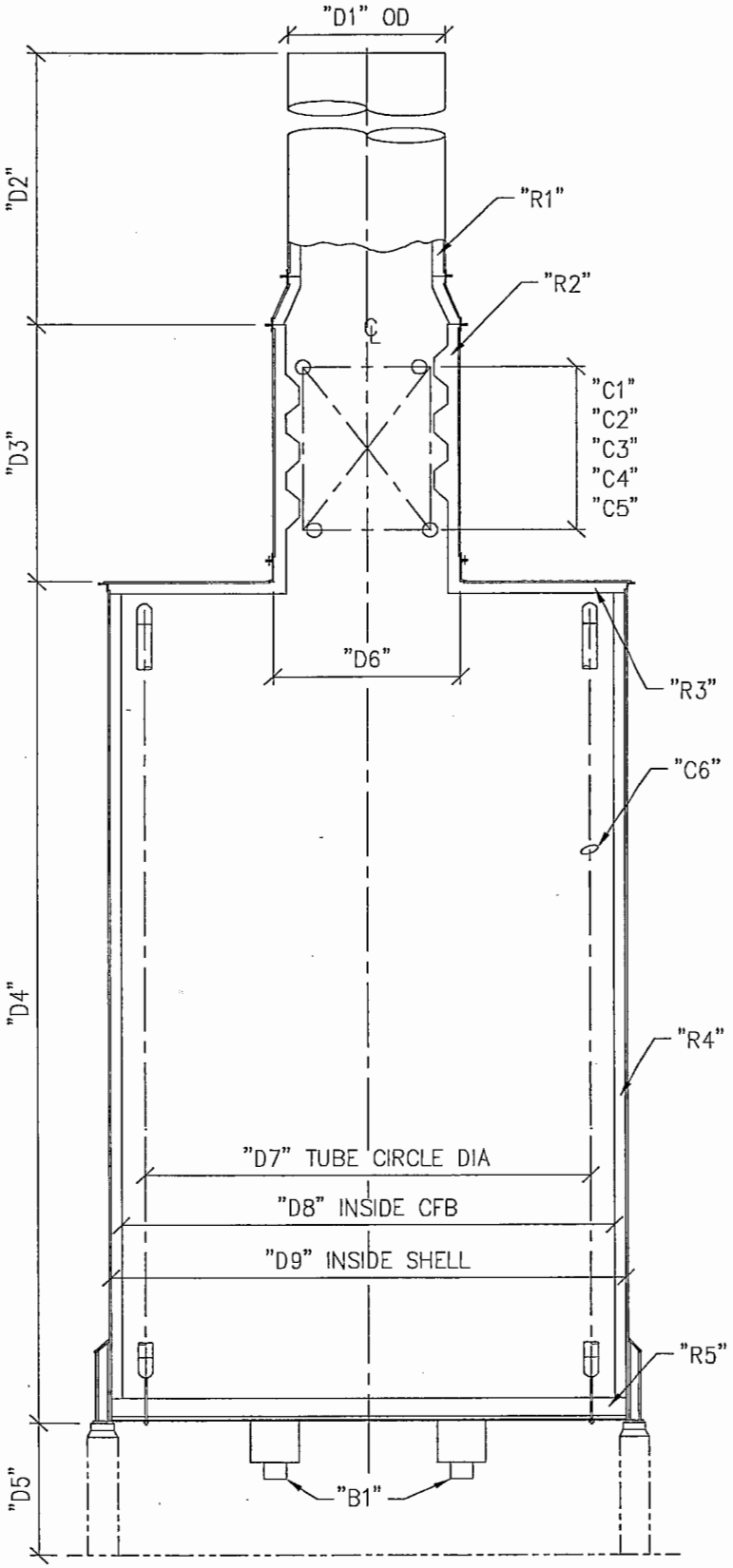
COATING REQUIREMENTS

External Coatings & Preparatory Blast (SSPC)	SSPC-SP10 + 2½-3½ mils dft of IOZ Primer + 4-5 mils dft Epoxy Mastic +2-2½ mils dft Polyurethane per Coating System 1
Internal Coatings & Preparatory Blast (SSPC)	SSPC-SP6 + 8-10 mils Coal Tar Epoxy on all surfaces under refractory except floor and tubesheets
Galvanizing Requirements	All ladders and platforms

SPECIAL EQUIPMENT

Sootblowers
Air Preheater
Fan(s)
Other

NOTES:



COIL INFORMATION

"C1"	
"C2"	
"C3"	2 Future Rows
"C4"	3 Rows Finned Tubes
"C5"	3 Rows Bare Tubes
"C6"	28 Tubes

INSULATION

"R1"	2" LW Castable
"R2"	6½" LW Castable
"R3"	5" Ceramic Fiber
"R4"	3" Ceramic Fiber
"R5"	2.5" HDFB + 7" LW Castable

BURNER

"B1"	3 Burners (BCD=3'-6")

DIMENSIONS

"D1"	3'-1"
"D2"	40'-0"
"D3"	10'-7"
"D4"	17'-9"
"D5"	10'-0" (By others)
"D6"	4'-7"
"D7"	10'-0"
"D8"	11'-6"
"D9"	12'-0"

Estimated Total Weight (Lbs)

Radiant Section	31,000
Convection Section	29,900
Stack / Transition	11,800
Misc - Ship Loose Items	10,000
Ladders and Platforms	16,810

All dimensions are estimated. Final dimensions to b supplied with General Arrangement Package

INSERV
INTEGRATED SERVICE COMPANY LLC
A WILLBROS COMPANY

ConocoPhillips / Regen Gas Heater
Proposal Sketch

DRAWN	ELM	DWG NO	REV
DATE	12/8/10	HP-10-313	0
SCALE	NONE		

INSERV
INTEGRATED SERVICE COMPANY LLC
A WILLBROS COMPANY

Service:	Regen Gas Heater	Item No.:	H-501
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM
Heater Type:	Vertical Cylindrical	Qty Required:	1
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313
Purchaser:	ConocoPhillips	Rev:	0
Manufacturer:	InServ	Purch. Ref.:	
Date:	Dec 13, 2010	Page:	1 of 3

REV

GENERAL DATA :	
TYPE OF HEATER	Vertical Cylindrical
ALTITUDE ABOVE SEA LEVEL, FT.	5600
AIR SUPPLY	
AMBIENT / PREHEATED AIR	Ambient
TEMPERATURE, F (MIN./MAX./DESIGN)	-20 / 60 / 105
RELATIVE HUMIDITY, %	20%
DRAFT TYPE	Natural Draft
TOTAL DRAFT AVAILABLE, : ACROSS BURNER, IN H2O	0.25
INCLUDING DRAFT ACROSS PLENUM, IN H2O	0.05
REQUIRED TURNDOWN	3:1
HEATER FLOOR LINING THICKNESS, IN.	9.5 (7.0" Castable + 2.5" Firebrick)
HEATER CASING THICKNESS, IN.	0.25
FIREBOX HEIGHT, FT	15.5'
TUBE CIRCLE DIAMETER, FT.	10.0'
BURNER DATA :	
MANUFACTURER	TBD
TYPE OF BURNER	Lo-NOx
MODEL / SIZE	TBD
DIRECTION OF FIRING	Veritcal Up
LOCATION (ROOF / FLOOR / SIDEWALL)	Floor
NUMBER REQUIRED	3
MINIMUM DISTANCE BURNER CENTERLINE: FT:	
TO TUBE CENTERLINE (HORIZ / VERT)	3.25' (Horizontal) / 17.5' (Vertical)
TO ADJACENT BURNER CENTERLINE (HORIZ / VERT)	3.06' Hroiz
TO UNSHIELDED REFRACTORY (HORIZ / VERT)	16.33' Vertically
BURNER CIRCLE DIAMETER, FT.	3.50'
PILOTS :	
NUMBER REQUIRED	1 / Burner
TYPE	Self Inspirating
IGNITION METHOD	Manual
FUEL	Nat Gas
FUEL PRESSURE,PSIG	7-10
CAPACITY,MMBTU / HR	.095 MIN
OPERATING DATA :	
FUEL	Fuel Gas
HEAT RELEASE PER BURNER, MMBTU / HR. (LHV)	
DESIGN	4.85
NORMAL	4.04
MINIMUM	1.62
EXCESS AIR @ DESIGN HEAT RELEASE, (%)	15%
AIR TEMPERATURE,F	60
DRAFT (AIR PRESSURE) LOSS,IN H2O	
DESIGN	0.25
NORMAL	0.25
MINIMUM	0.25
FUEL PRESSURE AVAILABLE,PSIG	25
FLAME LENGTH @ DESIGN HEAT RELEASE, FT.	Maximum 10.5'
FLAME SHAPE (ROUND, FLAT, ETC.)	ROUND
ATOMIZING MEDIUM / OIL RATIO,LB/LB	N/A

NOTES :

INSERV
INTEGRATED SERVICE COMPANY LLC
A WILLBROS COMPANY

Service:	Regen Gas Heater	Item No.:	H-501
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM
Heater Type:	Vertical Cylindrical	Qty Required:	1
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313
Purchaser:	ConocoPhillips	Rev:	0
Manufacturer:	InServ	Purch. Ref.:	0
Date:	Dec 13, 2010	Page:	2 of 3

GAS FUEL CHARACTERISTICS

FUEL TYPE		**Fuel Gas**			
HEATING VALVE (LHV), Btu/scf)		898			
HEATING VALVE (HHV), Btu/scf)					
SPECIFIC GRAVITY @ 60° F (AIR = 1.0)					
MOLECULAR WEIGHT		16.41			
FUEL TEMPERATURE @ BURNER, °F		Ambient			
FUEL PRESSURE, AVAILABLE @ BURNER, PSIG		25			
FUEL GAS COMPOSITION, VOLUME % (DRY)					
	HYDROGEN				
	OXYGEN				
	NITROGEN	0.363			
	CARBON MONOXIDE				
	CARBON DIOXIDE	0.951			
	WATER				
	METHANE	98.258			
	ETHANE	0.413			
	ETHYLENE				
	PROPANE	0.015			
	PROPYLENE				
	I- BUTANE				
	N-BUTANE				
	BUTALENE				
	I-PENTANE				
	N-PENTANE				
	N-HEXANE				
	HYDROGEN SULFIDE				
	SULFUR				
	TOTAL	100			

LIQUID FUEL CHARACTERISTICS

FUEL TYPE				
HEATING VALUE (LHV), BTU / LB.				
SPECIFIC GRAVITY / DEG. API				
H / C RATIO (BY WEIGHT)				
VISCOSITY, @ F. (SSU)				
@ F. (SSU)				
VANADIUM,PPM				
SODIUM,PPM				
POTASSIUM,PPM				
NICKEL,PPM				
FIXED NITROGEN,PPM				
SULFUR,% WT.				
ASH,% WT.				
WATER,% WT.				
DISTILLATION :ASTM INITIAL BOILING POINT,F.				
ASTM MID-POINT,F.				
ASTM END-POINT,F.				
FUEL TEMPERATURE @ BURNER,F.				
FUEL PRESSURE AVAILABLE @ BURNER,PSIG.				
ATOMIZING MEDIUM : AIR / STEAM / MECHANICAL				
TEMPERATURE,F.				
PRESSIRE. PSIG.				

NOTES :

INSERV
INTEGRATED SERVICE COMPANY LLC
A WILLBROS COMPANY

Service:	Regen Gas Heater	Item No.:	H-501
Unit No:	San Juan Gas Plant	Location:	Bloomfield, NM
Heater Type:	Vertical Cylindrical	Qty Required:	1
Owner:	ConocoPhillips	Mfgr's Ref.:	HP-10-313
Purchaser:	ConocoPhillips	Rev:	0
Manufacturer:	InServ	Purch. Ref.:	0
Date:	Dec 13, 2010	Page:	3 of 3

				REV
1	**MISCELLANEOUS**			
2	BURNER PLENUM :	COMMON / INTEGRAL	INTEGRAL	
3		MATERIAL	CARBON STEEL	
4		PLATE THICKNESS, IN.		
5		INTERNAL INSULATION		
6	INLET AIR CONTROL :	DAMPER OR REGISTERS	DAMPER	
7		MODE OF OPERATION	MANUAL	
8		LEAKAGE, %	5% OF AIR FLOW AT NORMAL HEAT RELEASE	
9	BURNER TILE :	COMPOSITION	By Burner Vendor	
10	MAXIMUM SERVICE TEMPERATURE, F		By Burner Vendor	
11	NOISE SPECIFICATION		85 dba @ 3FT	
12	ATTENUATION METHOD			
13	BURNER / PILOT FUEL CONNECTION		Flanged / Flanged	
14	PAINTING REQUIREMENTS		Per manufacturers standards	
15	IGNITION PORT :	SIZE / NO.	2" / 1 per burner	
16	SIGHT PORT :	SIZE / NO.	2" / 1 per burner	
17	FLAME DETECTION :			
18	NUMBER			
19	SCANNER CONNECTION	SIZE / NO.	2" / 1 per burner	
20	SAFETY INTERLOCK SYSTEM FOR ATOMIZING MEDIUM & OI		N/A	
21	PERFORMANCE TEST REQUIRED(YES OR NO)		Optional	[A]
22	**EMISSION REQUIREMENTS :**			
23	FIREBOX BRIDGEWALL TEMPERATURE, F.		1503 AT BRIDGEWALL	
24	NOx	* LB/MMBTU (HHV)	0.045	
25	CO	* LB/MMBTU (HHV)	0.02	
26	VOC	* LB/MMBTU (HHV)		
27	PM	* LB/MMBTU (HHV)		
28	PM10	* LB/MMBTU (HHV)		
29	SOx			
30	* CORRECTED TO 3 % O2 (DRY BASIS @ DESIGN HEAT RELEASE)			

NOTES : [A] Burner Vendor shall provide a separate price for the completion of a witnessed burner test to be held at the burner vendor facility based on the attached fuel and operating conditions.

[B] Burner Vendor to supply pricing for spare parts.

[C] Burner Vendor to submit bi-weekly production shedules throughout the engineering and production of the burners.

[D] The following requirements shall apply
Submittal for customer review of weld procedures (WPS) and material test reports (MTR's)
Submittal for customer review of PMI of all materials

[E] Applicable Customer Specifications include;
REP 5-2-2 Flanges, Gaskets, and Bolting
REP 5-6-3 Piping for Fired Heaters
REP 8-2-1 Fired Heaters
REP 10-2-2 Supplemental Material Requirements for Metallic Materials
REP 10-2-3 Material Hardness Requiren
REP 15-1-4 Positive Materails Identifica

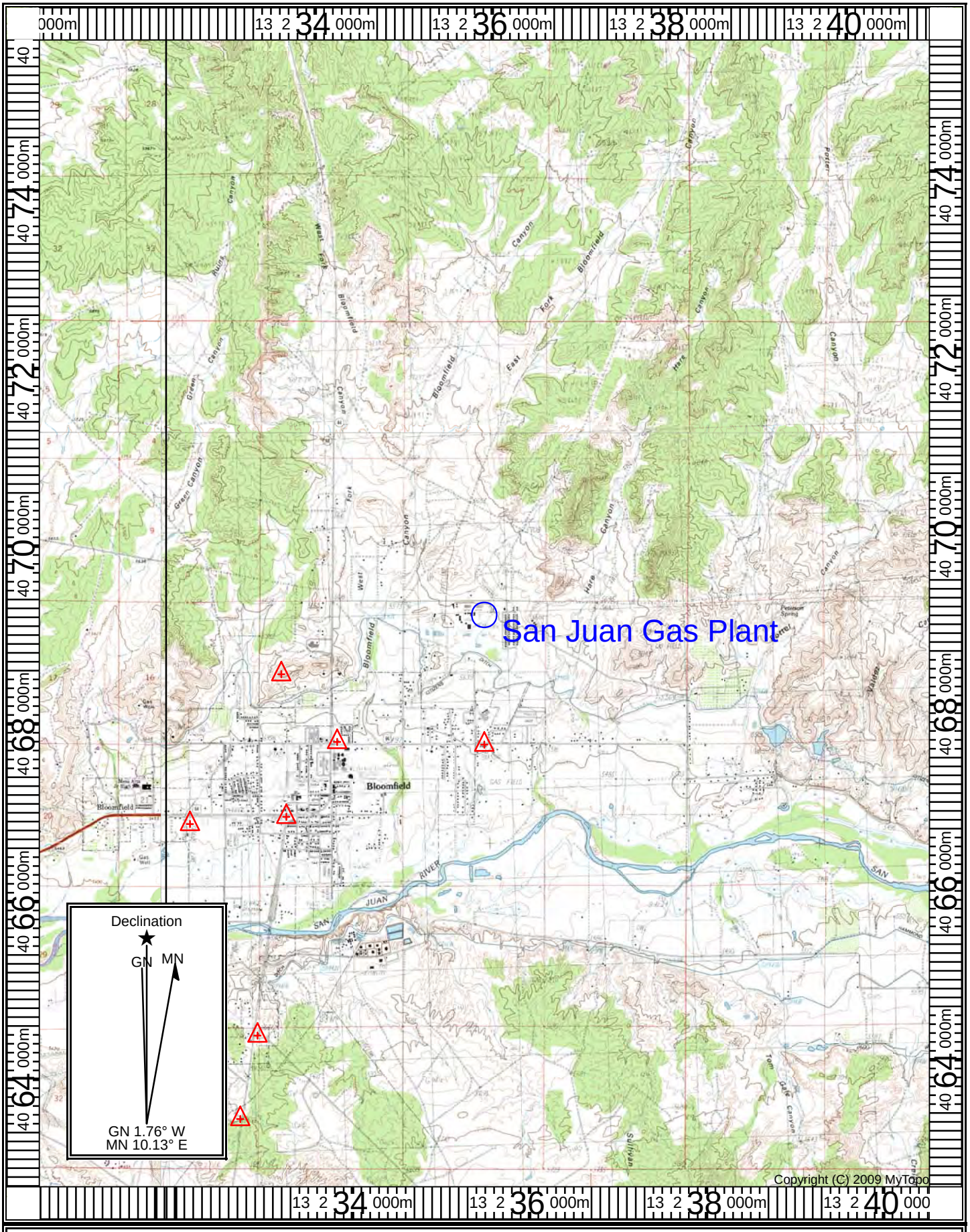
Section 8

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 topographical map is attached to this application.



Map Name: BLOOMFIELD
Print Date: 06/13/12

Scale: 1 inch = 4,761 ft.
Map Center: 13 0235699 E 4069190 N

Horizontal Datum: WGS84

map brought forward from previous application

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")

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

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

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

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

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

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

All public notice requirements are completed and are attached to this application.

NOTICE

Hilcorp Energy Company announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its gas processing plan known as **San Juan Gas Plant**. The expected date of application submittal to the Air Quality Bureau is **December 15, 2023.**

The exact location for the facility known as **San Juan Gas Plant**, is at latitude **36.73251°** and longitude -**107.96701°**. The approximate location of this facility is **0.9** miles **northeast** of **Bloomfield** in **San Juan** County.

The proposed **modification** consists of replacing two turbines.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	5	20
PM_{10}	5	19
$PM_{2.5}$	5	19
Sulfur Dioxide (SO_2)	5	21
Nitrogen Oxides (NO_x)	485	953
Carbon Monoxide (CO)	97	230
Volatile Organic Compounds (VOC)	16	78
Total sum of all Hazardous Air Pollutants (HAPs)	2	12
Green House Gas Emissions as Total CO_2e	n/a	301,000

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

The owner of the Facility is: **Hilcorp Energy Company; 1111 Travis Street; Houston, TX 77002**

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 505-372-8373.

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: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. 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.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Total Postage & Fees $
$0.00
US POSTAGE
12/20/2023
062S12395454
B7113
000028638
7014 2870 0001 4719 0791
Sent To
Street & Apt. No. or PO Box No.
City, State, ZIP+
RONALD G & MILDRED JEAN COREY
PO BOX 747
BLOOMFIELD, NM 87413
PS Form 3800


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062S12395454
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000028641
7014 2870 0001 4719 0784
Sent To
Street & Apt. No. or PO Box No.
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NATIVE VISION FOR CHRIST NAVAJO MINISTRY
2004 SAIZ LANE
BLOOMFIELD, NM 87413
PS Form 3800


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B7113
000028643
7014 2870 0001 4719 0777
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MYRON G CASUAS
2000 SAIZ LANE
BLOOMFIELD, NM 87413
PS Form 3800


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US POSTAGE
12/20/2023
062S12395454
B7113
000028644
7014 2870 0001 4722 6858
Sent To
Street & Apt. No. or PO Box No.
City, State, ZIP+
CATHOLIC CHURCH BLOOMFIELD
307 N CHURCH STREET
BLOOMFIELD, NM 87413
PS Form 3800


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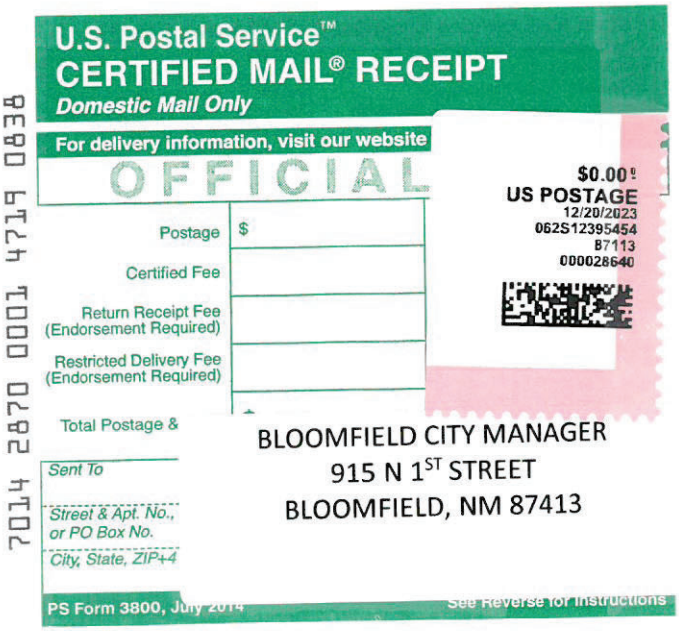
062S12395454
B7113
000028646
7014 2870 0001 4722 6841
Sent To
Street & Apt. No. or PO Box No.
City, State, ZIP+
EL PASO NATURA
81 ROAD 4900
BLOOMFIELD, NM 87413
PS Form 3800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Postage $
Certified Fee
Return Receipt Fee (Endorsement Required)
Restricted Delivery Fee (Endorsement Required)
$0.00
US POSTAGE
12/20/2023
062S12395454
B7113
000028640
7014 2870 0001 4719 0838
Sent To
Street & Apt. No., or PO Box No.
City, State, ZIP+4
BLOOMFIELD CITY MANAGER
915 N 1ST STREET
BLOOMFIELD, NM 87413
PS Form 3800, July 2014
See Reverse for Instructions

7014 2870 0001 4719 0807

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Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage	

$0.00
US POSTAGE
12/20/2023
062S12395454
87113
000028639

Sent To
Street & Apt. No. or PO Box No.
City, State, ZIP+

AZTEC CITY HALL
201 W. CHACO STREET
AZTEC, NM 87410

PS Form 3800, July 2014 — See Reverse for Instructions

7014 2870 0001 4719 0814

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Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage	

$0.00
US POSTAGE
12/20/2023
062S12395454
87113
000028642

Sent To
Street & Apt. No. or PO Box No.
City, State, ZIP+

SAN JUAN COUNTY EXECUTIVE OFFICE
100 S OLIVER DRIVE
AZTEC, NM 87410

PS Form 3800, July 2014 — See Reverse for Instructions

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Total Postag	

$0.00
US POSTAGE
12/20/2023
062S12395454
87113
000028645

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City, State, ZI

PRESIDENT BUU NYGREN
P.O. BOX 7440
WINDOW ROCK, AZ 86515

PS Form 3800, July 2014 — See Reverse for Instructions

Table of Posted Notice Locations

Name	Address	City	State	Zip Code
San Juan Gas Plant Facility Entrance				
United States Postal Service	1108 W Broadway Ave	Bloomfield	NM	87413
Public Library	333 S 1st St	Bloomfield	NM	87413
Roadside Café	319 S Bloomfield Blvd	Bloomfield	NM	87413

- Account Search
- View Created Report(s)
- Help?
- San Juan County Assessor
- San Juan County Office
- San Juan County Treasurer
- Logout Public

Account: R4007792

Location

Parcel Number 2062171477463

Situs Address 1001 ARIZONA AVE

Tax Area 6INNR - District 6IN Non-Residential

Legal Summary BEG N89-48-16-E 255.27 FT FROM NW COR OF SEC 14 29 11 TH N89-48-16- E 1039.73 FT, S00-02-06- E 228.30 FT, S51-28-15- W 290.01 FT, S89-47-37- W 91.92 FT, S14-48-37- W 639.35 FT, N89-47-18- E 431.17 FT, S01-32-34- W 292.14 FT, S89-45-57- W 685.45 FT, N12-27-57- E 67.10 FT, N21-43-03- W 74.30 FT, N45-42-03- W 101.20 FT, N70-33-03- W 270.10 FT, S75-48-57- W 223.01 FT, N00-17-49- E 818.18 FT, N89-57-28- E 252.25 FT, N00-57-56- E 258.25 FT TO PT OF BEG. BK.1621 PG.803

Serial Number

Owner Information

Owner Name HILCORP SAN JUAN LP

Owner Address 1111 TRAVIS ST HOUSTON, TX 77002

Assessment History

Actual Value (2023) $898,222

Assessed $299,407

Tax Area: 6INNR **Mill Levy**: 34.133000

Type	Actual	Assessed	Acres	SQFT
LAND AND/OR IMPROVEMENT(S)	$898,222	$299,407	28.129	1253153.240

Transfers

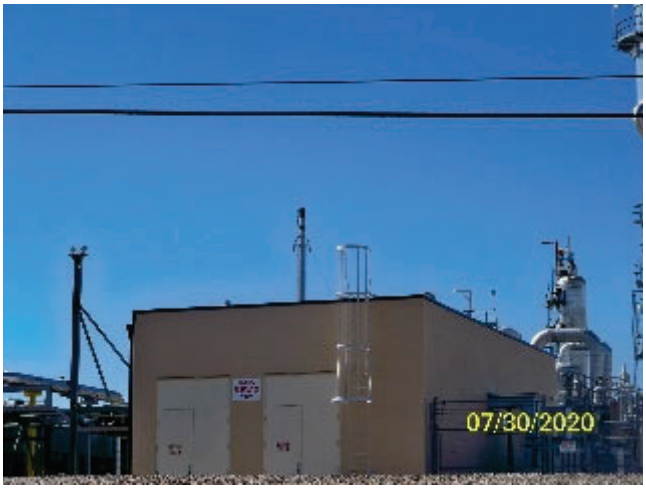
Reception Number	Book Page	Recording Date	Sale Date	Grantee	Grantor	Doc Type
201711503	B: 1621 P: 803	09/26/2017	07/24/2017	HILCORP SAN JUAN LP	CONOCOPHILLIPS CO	SWD
2009-01536	B: 1488 P: 436	02/03/2009	12/18/2008	CONOCO PHILLIPS CO AND TOC ROCKY MOUNTAINS INC	EL PASO NATURAL GAS COMPANY	QC

Tax History

Tax Year	Taxes
2023	$10,219.64
2022	$9,406.56

Images

- Photo
- Sketch



December 20, 2023

CERTIFIED MAIL 7014 2870 0001 4719 0791
RETURN RECEIPT REQUESTED (certified mail is required, return receipt is optional)

Dear **Neighbor,**
Hilcorp Energy Company announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its gas processing plan known as **San Juan Gas Plant.** The expected date of application submittal to the Air Quality Bureau is **December 15, 2023.**

The exact location for the facility known as **San Juan Gas Plant**, is at latitude **36.73251°** and longitude -**107.96701°**. The approximate location of this facility is **0.9** miles **northeast** of **Bloomfield** in **San Juan** County.

The proposed **modification** consists of replacing two turbines.
The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tons per year (tpy) and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	5	20
PM_{10}	5	19
$PM_{2.5}$	5	19
Sulfur Dioxide (SO_2)	5	21
Nitrogen Oxides (NO_x)	485	953
Carbon Monoxide (CO)	97	230
Volatile Organic Compounds (VOC)	16	78
Total sum of all Hazardous Air Pollutants (HAPs)	2	12
Green House Gas Emissions as Total CO_2e	n/a	301,000

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

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

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has

performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

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,
Hilcorp Energy Company
1111 Travis Street
Houton, TX 77002

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.

December 20, 2023

CERTIFIED MAIL 7014 2870 0001 4719 0814
RETURN RECEIPT REQUESTED (certified mail is required, return receipt is optional)

Dear **County Manager,**
Hilcorp Energy Company announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its gas processing plan known as **San Juan Gas Plant.** The expected date of application submittal to the Air Quality Bureau is **December 15, 2023.**

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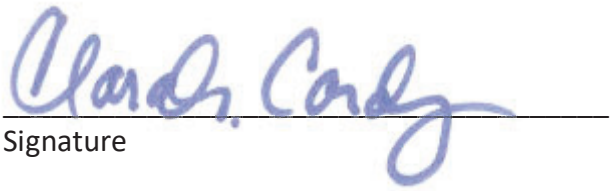
General Posting of Notices – Certification

I, Clara Cardoza, the undersigned, certify that on **12/18/2023,** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **CITY of BLOOMFIELD** of **SAN JUAN** County, State of New Mexico on the following dates:

1. Facility Entrance: 12/18/2023
2. USPS (Post Office): 12/18/2023
3. Public Library: 12/18/2023
4. Roadside Café: 12/18/2023

Signed this 18 day of December, 2023,



Signature

12/18/2023
Date

Clara Cardoza
Printed Name

Environmental Compliance, Hilcorp Energy
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

DIRECTION
82 deg(T)

36.73289°N
107.96668°W

ACCURACY 4 m
DATUM WGS84

2023-12-18
10:15:32-07:00

DIRECTION
178 deg(T)
36.71186°N
107.99189°W
ACCURACY 35 m
DATUM WGS84

July 1, 2023

mpound for the Management

(BLM) is preparing to monitor and
l livestock are found within the area
re are excessive amounts of trespass
ds. Unauthorized livestock are
on range resources for their permitted
otify the public before impoundment

ority of the Code of Federal Regulations
n part, that "unauthorized livestock
within the 12-month period following
of impound will be given to owners of
described areas. If the owner is
Title 43 Subsection 4150.4-1b at which
lays from the publishing and posting of

pound unauthorized livestock on BLM
elivery of this notice, and for the
are subject to impoundment, removal
leral regulations and State laws.
porarily for brand identification and

y these legal subdivisions within the
Map)

COLORADO BASIN
UTAH, WYOMING

PUBLIC NOTICE

BLOOMFIELD IRRIGATION DISTRICT
Special Board Meeting
Canvass of the Vote

To be held on **Monday, December 10, 2023 at 6:30 PM.** Items on the agenda include: Election Recap, Canvass of the Vote, Oath of Office, and CPO Designation Letter. If there are any questions, please contact Stacy at the Bloomfield Irrigation District Office 632-2800 or 1205 E. Broadway in Bloomfield.

NOTICE

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USPS Bloomfield NM 2023-12-18 10:59:58-07:00

DIRECTION 351 deg(T)
36.70872°N 107.97952°W
ACCURACY 68 m
DATUM WGS84

We know your first baby is your first priority.

FREE SUPPORT via phone or video conferencing

Childhaven Will Meet Your Child's Medical Needs.

Children are provided with food, shelter [illegible] transportation [illegible] recreation [illegible] and schooling. Tutors are available onsite for educational assistance.

Childhaven Will Assist with Your Child's Health Needs.

Childhaven assists with medical, vision, dental, and mental health needs.

- Temporary Homelessness

We're Here to Help...

As a parent or guardian, you can call and visit DAILY and you are the decision maker for your children.

www.childhavennm.org/shelter/

For any additional info about private placements, please contact the Childhaven Shelter directly.

Childhaven Shelter
(505) 325- 5358 EXT. 1
807 W Apache St.
Farmington, NM 87401

Childhaven

Open 24/7, 365 Days a Year

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Center.

The TRI
Bloomf

- Academic t
- College and
- Financial ai
- SAT/ACT pr

Contact TRIO U

(505) 566-4237
trioub@sanjuanc

**Only available fo

Public Library Bloomfield NM
2023-12-18
10:41:17-07:00

DIRECTION 296 deg(T)
36.70887°N 107.98554°W
ACCURACY 12 m DATUM WGS84

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Roadside Cafe Bloomfield NM
2023-12-18 10:52:41-07:00

Table of Notices Neighbors

Name	Address	City	State	Zip Code
EL Paso Natural Gas Co	81 Road 4900	Bloomfield	NM	87413
Catholic Church Bloomfield	307 N Church St	Bloomfield	NM	87413
Casuas Myron G	2000 Saiz Ln	Bloomfield	NM	87413
Native Vision For Christ Navajo Ministr*	2004 Saiz Ln	Bloomfield	NM	87413
Corey Ronald G and Mildred Jean	PO Box 747	Bloomfield	NM	87413

Table of Noticed Municipalities

Name	Address	City	State	Zip Code
Bloomfield - City Manager	915 N 1st Street	Bloomfield	NM	87413
Aztec - City Hall	201 W. Chaco St.	Aztec	NM	87410

Table of Noticed Counties

Name	Address	City	State	Zip Code
San Juan County - Executive Office	100 S. Oliver Dr.	Aztec	NM	87410

Table of Noticed Tribes

Name	Address	City	State	Zip Code
President Buu Nygren	P.O. Box 7440	Window Rock	AZ	86515

Submittal of Public Service Announcement – Certification

I, Daniel Dolce, the undersigned, certify that on **December 22, 2023**, submitted a public service announcement to **iHeartMEDIA** that serves the City\Town\Village of **Farmington**, **San Juan** County, New Mexico, in which the source is or is proposed to be located and that **iHeartMEDIA DID NOT RESPOND.**

Signed this 22 day of December, 2023,

Daniel Dolce
Signature

12/22/23
Date

Daniel Dolce
Printed Name

Associate Consultant - Trinity Consultants
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

PSA REQUEST

Please provide the information below to submit your Public Service Announcement.

Get Started With iHeartMedia Farmington
  To purchase or learn about advertising with iHeartMedia, call us at 1-844-AD-HELP-5 (1-844-234-3575)

Form Wrapper

Trinity Consultants

Daniel

Dolce

Associate Consultant

(505) 818-8761

daniel.dolce@trinityconsultants.com

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: San Juan Gas Plant, location: 36.73251° N, -107.96701°W and type of business: Gas Plant.
b. The name and principal owner or operator: Hilcorp Energy Company – owner and operator.
c. The type of process or change for which the permit is sought: Replacing two turbines
d. Locations where the notices have been posted in Loving, NM 88256: (1) San Juan Gas Plant Facility Entrance (2) United States Postal Service, 1108 W Broadway Ave, Bloomfield, NM 87413 (3) Public Library, 333 S 1st St, Bloomfield, NM 87413 (4) Roadside Cafe, 319 S Bloomfield Blvd, Bloomfield, NM 87413.
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☑ I acknowledge that this is a business request

I'm not a robot

reCAPTCHA
Privacy - Terms

SEND

Radio (/radio)

Digital (/digital)

Podcasting (/podcasting)

Endorsements (/endorsements)

Sponsorships (/sponsorships)

Traffic & Weather (/traffic-weather)

Creative (/creative)

Results (/results)

Events (/results)

Roi (/roi)

Contact (/contact)

Featured (/featured)

Experts (/ask-an-expert)

iHeartMedia Farmington

Phone: (tel:+)

200 E. Broadway Ave Farmington NM 87401

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Cookie Preferences

iHeartMedia | www.iheartmedia.com (https://www.iheartmedia.com/)

Radio/Digital/Outdoor/Mobile/Social/Events

Farmington Daily Times
PART OF THE USA TODAY NETWORK

Affidavit of Publication

Ad # 0005866454

This is not an invoice

TRINITY CONSULTANTS
9400 HOLLY AVE NE

ALBUQUERQUE, NM 87122-2968

I, being duly sworn say: **Farmington Daily Times**, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newsaper duly qualified for the purpose within the State of New Mexico for publication and appeared in the internet at The Daily Times web site on the following days(s):

12/15/2023

Legal Clerk

Subscribed and sworn before me this December 15, 2023:

State of WI, County of Brown
NOTARY PUBLIC

1-2-25
My commission expires

KATHLEEN ALLEN
Notary Public
State of Wisconsin

Ad # 0005866454
PO #:
# of Affidavits 1

This is not an invoice

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Permit Programs Manager; New Mexico Environment Department; Air Quality Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816. Other cor 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 of this notice along with your comments. This information is necessary since ment may have not yet received the permit application. Please include a legible ing address. Once the Department has completed its preliminary review of the and its air quality impacts, the Department's notice will be published in the leg a newspaper circulated near the facility location.

Atención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio A Nuevo México, acerca de las emisiones producidas por un establecimiento en usted desea información en español, por favor comuníquese con esa oficina al te 372-8373.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability in the administration of its programs or activities, as required by applicable laws tions. NMED is responsible for coordination of compliance efforts and receipt concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, in VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation the Age Discrimination Act of 1975, Title IX of the Education Amendments of 19 tion 13 of the Federal Water Pollution Control Act Amendments of 1972. If yc questions about this notice or any of NMED's non-discrimination programs, pol cedures, or if you believe that you have been discriminated against with respect program or activity, you may contact: Kathryn Becker, Non-Discrimination C NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (50 nd.coordinator@state.nm.us. You may also visit our website at https://www.env.r -employee-discrimination-complaint-page/ to learn how and where to file a c discrimination.

#5866454, Daily Times, December 15, 2023

Text of Ad: 12/12/2023

NOTICE

Hilcorp Energy Company announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its gas processing plan known as San Juan Gas Plant. The expected date of application submittal to the Air Quality Bureau is December 15, 2023.

The exact location for the facility known as San Juan Gas Plant, is at latitude 36.73251° and longitude -107.96701°. The approximate location of this facility is 0.9 miles northeast of Bloomfield in San Juan County.

The proposed modification consists of replacing two turbines.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	5	20
PM_{10}	5	19
$PM_{2.5}$	5	19
Sulfur Dioxide (SO_2)	5	21
Nitrogen Oxides (NO_x)	485	953
Carbon Monoxide (CO)	97	230
Volatile Organic Compounds (VOC)	16	78
Total sum of all Hazardous Air Pollutants (HAPs)	2	12
Green House Gas Emissions as Total CO_2e	n/a	301,000

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

The owner of the Facility is: Hilcorp Energy Company; 1111 Travis Street; Houston, TX 77002

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 505-372-8373.

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#5866454, Daily Times, December 15, 2023

THE DAILY TIMES

AFFIDAVIT OF PUBLICATION
Ad No.
GCI1126214

TRINITY CONSULTANTS
9400 HOLLY AVE NE BLDG 38
ALBUQUERQUE, NM 87122

I, being duly sworn say: **THE DAILY TIMES**, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said **DAILY TIMES**, a daily newspaper duly qualified for the purpose within the State of New Mexico for publication and appeared in the internet at The Daily Times web site on the following days(s):

12/15/2023

Legal Clerk
Subscribed and sworn before me this
15TH of December, 2023

State of WI, County of Brown
NOTARY PUBLIC

5.15.27
My Commission Expires

Ad#: GCI1126214
Ad Cost: $176.12
PO: PUBLIC NOTICE
# of Affidavits: 1

NANCY HEYRMAN
Notary Public
State of Wisconsin

NOTICE

Hilcorp Energy Company announces its application submittal to the New Mexico Environment Department for an air quality permit for the **modification** of its gas processing plan known as **San Juan Gas Plant**. The expected date of application submittal to the Air Quality Bureau is **December 15, 2023.**

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The proposed **modification** consists of replacing two turbines.

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Pollutant:	Pounds per hour	Tons per year
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PM 2.5	5	19
Sulfur Dioxide (SO2)	5	21
Nitrogen Oxides (NOx)	485	953
Carbon Monoxide (CO)	97	230
Volatile Organic Compounds (VOC)	16	78
Total sum of all Hazardous Air Pollutants (HAPs)	2	12
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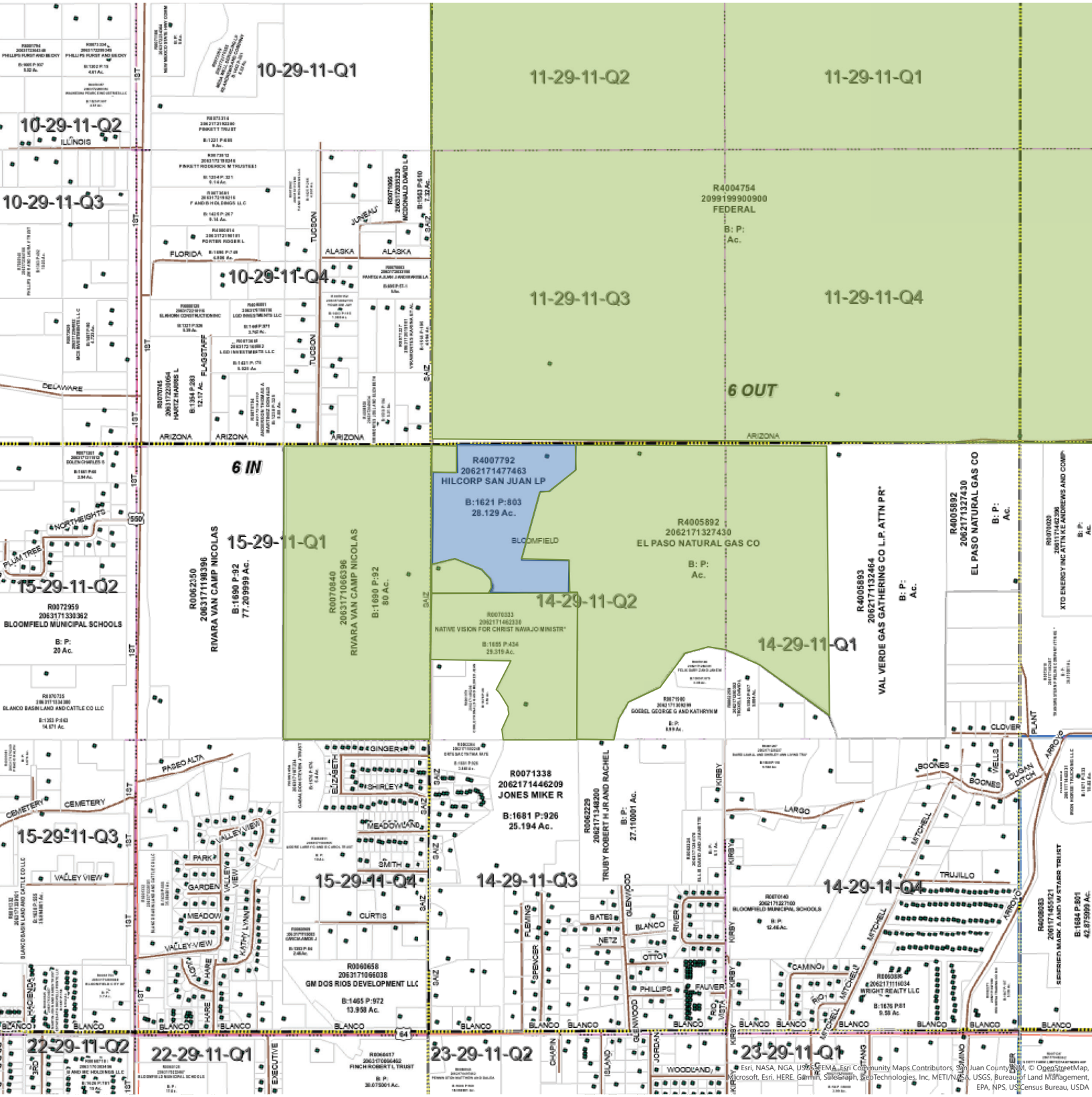
TX-GCI112621A-01



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Section 10

Written Description of the Routine Operations of the Facility

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

In operation, a 15,000 horsepower (hp) inlet compression turbine (Unit 1) boosts the low-pressure inlet gas stream pressure. This compressed gas combines with the high-pressure inlet gas stream and is routed to an inlet separator for removal of free liquids. Gas from the inlet separator is split into two streams (for processing in two parallel trains) and is dehydrated by molecular sieve dehydration beds (two beds per train) to remove water prior to cryogenic processing. In each train, one dehydration bed is in service while the other is being regenerated. For regeneration, a slipstream of gas is taken from the inlet separator, compressed by a regeneration compressor, and then heated by regeneration heaters (Units 8 and 13). The heated gas passes through the wet dehydration bed to remove the water. The gas stream is then re-injected into the inlet stream.

The dehydrated gas is then refrigerated in the cryogenic plants to approximately -100 °F by a series of heat exchangers using a propane refrigeration system. Free liquids are then removed in the high-pressure cold separator. Condensed liquids are fed to the demethanizer; pressurized vapors are fed to the turboexpander where a near isentropic expansion reduces pressure and temperature and delivers shaft work to the recompressor for partial recompression of residue gas, recovering some of the energy expended in compressing the gas.

In the demethanizer in each train, ethane, propane, butane, and condensate (EPBC) are liquefied. EPBC is transferred to either the deethanizer or to a pipeline for delivery to customers for further processing and fractionation. The cold methane residue stream off the demethanizer is warmed through a series of heat exchangers (which cool gas streams for processing) prior to recompression by one of two 15,000 hp residue compressors (Units 2 & 3) and delivery to customers by pipeline. Note that the inlet and residue compressors, Units 1, 2, & 3, have Engelhard oxidation catalytic converters which reduce CO emissions. In the deethanizer process, the ethane/propane (EP) stream recovered from the deethanizer tower may be condensed and combined with the EPBC product stream from the cryogenic plants or compressed and injected into the residue gas stream. The deethanizer bottoms, a propane-butane-condensate (PBC) blend, are routed via pipeline to customers or sent to temporary pressurized storage.

Before shipping, the EPBC is routed to an amine contactor for CO_2 removal. Vent gas from amine system regeneration (CO_2 and H_2S) is routed to a sulfur removal system (Thermal Oxidizer, Unit 15) or to the flare system. CO_2 and the remaining H_2S (approximately <10 ppm or less) removed from the EPBC via the amine contactor are released to the atmosphere after being controlled by either the thermal oxidizer or the backup flare system. After CO_2 removal, the EPBC is routed through a desiccant system to remove any remaining entrained water. A natural gas fired heater (Unit 12) is used to regenerate the desiccant.

All liquid hydrocarbon product storage is pressurized. Several atmospheric tanks containing liquids with a vapor pressure less than ten millimeters of mercury (mmHg) are insignificant, as are the few atmospheric storage tanks which emit less than one ton per year (tpy).

Electricity used at the San Juan Gas Plant is generated by four natural gas-fired (using only pipeline quality sweet natural gas), turbines (Units 4, 5, 6, and 7). There are no proposed changes to this with the replacement of Units 6 and 7.

In the event of an emergency or for maintenance, some or all of the facility piping may be blown down for safety reasons. In addition, the shutdown of turbines involves the purging of gas contained within the equipment. With the exception of the six PSVs, all blowdown and emergency shutdown emissions are routed to a staged flare system, consisting of two flares (Units 9 and 16). Non-routine emissions from the Demethanizers are vented to the atmosphere.

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 to 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):

San Juan Gas Plant, Blanco A Compressor Station, and Blanco C&D Compressor Station are located on contiguous and/or adjacent properties. San Juan Gas Plant is owned and operated by Hilcorp Energy Company and belongs to the Standard Industrial Classification (SIC) Major Group 13 (Oil & Gas Extraction)). Blanco A Compressor Station is owned and operated by El Paso Natural Gas Company and belongs to SIC Major Group 49. The Blanco C&D Compressor Station is owned by Enterprise Field Services, LLC and operated by Enterprise Products Operating, LLC and belongs to SIC Major Group 13 (Oil & Gas Extraction).

The plants are separate facilities for Title V permitting purposes. Common control of the three plants was established in 1984 through the issuance of a common NSR permit

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.**

B. **This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions** for this modification are **not significant. The "project" emissions listed below do only result from changes described in this permit application, thus no emissions from other past modification to this facility. Also, specifically discuss whether this project results in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

a. **NOx: 32.76 TPY**
b. **CO: 39.97 TPY**
c. **VOC: 11.47 TPY**
d. **SO_X: 0.70 TPY**
e. **PM: 2.16 TPY**
f. **PM_{10}: 2.16 TPY**
g. **$PM_{2.5}$: 2.16 TPY**
h. **Lead: 0.0046 TPY**
i. **GHG: 38,364.14 TPY**

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

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

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

This project does not result in debottlenecking. The replacement units will serve the same purpose and function as currently permitted Units 4-5 and will not debottleneck any other processes. There are not any permit modifications within the last two years related to this process.

Hilcorp Energy Co. - San Juan Gas Plant

Permit Comparison

Unit No.	Emissions Scenario	NO_X		CO		VOC		SO_2		PM		PM_{10}		$PM_{2.5}$		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
4	Permitted	15.9	69.8	2.3	10	0.05	0.24	0.01	0.05	0.22	0.95	0.22	0.95	0.22	0.95	--	--	0.0000228	0.0001
	Proposed	3.74	16.38	4.56	19.99	1.31	5.73	0.078	0.34	0.25	1.08	0.25	1.08	0.25	1.08	--	--	5.24E-04	2.29E-03
	Net Change in Emissions	-12.16	-53.42	2.26	9.99	1.26	5.49	0.07	0.29	0.027	0.13	0.027	0.13	0.027	0.13	--	--	0.00050	0.0022
5	Permitted	15.9	69.8	2.3	10	0.05	0.24	0.01	0.05	0.22	0.95	0.22	0.95	0.22	0.95	--	--	0.0000228	0.0001
	Proposed	3.74	16.38	4.56	19.99	1.31	5.73	0.08	0.34	0.25	1.08	0.25	1.08	0.25	1.08	--	--	5.24E-04	2.29E-03
	Net Change in Emissions	-12.16	-53.42	2.26	9.99	1.26	5.49	0.07	0.29	0.027	0.13	0.027	0.13	0.027	0.13	--	--	0.00050	0.0022
Total Changes in Emissions		**-24.32**	**-106.84**	**4.53**	**19.97**	**2.52**	**10.99**	**0.14**	**0.58**	**0.054**	**0.26**	**0.054**	**0.26**	**0.054**	**0.26**	**0.00E+00**	**0.00E+00**	**0.0010**	**0.0044**
Conservative Assumption for Baseline Actual Emissions[1]		**0.00E+00**		**0.00E+00**		**0.00E+00**		**0.00E+00**		**0.00E+00**		**0.00E+00**		**0.00E+00**		**0.00E+00**		**0.00E+00**	
Project Potential Emissions (Sum of Units 4 and 5)		**32.76**		**39.97**		**11.47**		**0.68**		**2.16**		**2.16**		**2.16**		**0.00E+00**		**0.0046**	
Project Emission Increases		**32.76**		**39.97**		**11.47**		**0.68**		**2.16**		**2.16**		**2.16**		**0.00E+00**		**0.0046**	
Significant Emission Rate (ton/yr)[1]		**40.00**		**100.00**		**40.00**		**40.00**		**25.00**		**15.00**		**10.00**		**10.00**		**0.60**	
Is Project Significant?		**NO**		**NO**		**NO**		**NO**		**NO**		**NO**		**NO**		**NO**		**NO**	

[1] As a conservative first estimate, it was assumed that the baseline actual emissions for Units 4 and 5 is 0 tpy. Since these units are replacement units, this is in lieu of reviewing 10 years of data to determine the highest baseline actual emissions based on the highest 24-month consecutive p

[2] Significant Emission Rates (SER) per Table 2 - 20.2.74.502 NMAC.

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 from both federal and state regulations. 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 facility will comply with all applicable requirements under this subpart.
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 equipment was subject to 20.2.37 NMAC before the repeal, the 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 facility does not meet the definition as outlined in 20.2.38 NMAC and is therefore not subject to this regulation.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	**N/A**	This regulation could apply to sulfur recovery plants that are not part of petroleum or natural gas processing facilities. This facility does not have a sulfur recovery unit as defined in this regulation and is therefore not subject to this regulation.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	No	1-7, 14	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 natural gas-fired turbines (Unit 1-7). The facility will comply with this regulation. **(Units 1-3, 6 & 7) [Existing] (Units 4 & 5) [Replacement units]** ☐114 – Compressor Seals: Engines and Turbines: This facility does not have reciprocating compressors subject to this regulation. ☐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.

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.)
				☒116 – Equipment Leaks and Fugitive Emissions: This facility has equipment leaks and fugitive emissions. Thus, the facility will comply with this regulation. **(Unit 14) [Existing]** ☐ 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: This facility does not have any dehydrators. Thus, this facility is not subject to this regulation. ☐ 119 – Heaters: This facility does not have a heater that has a capacity greater than 20 MMBtu/hr. Thus, this facility is not subject to this subpart. ☐ 120 – Hydrocarbon Liquid Transfers: This facility does not truck out any product. Thus, this regulation does not apply to this facility. ☐121 – Pig Launching and Receiving: This facility does not have pig launching and receiving VOC emission. Therefore, this facility is not subject to this subpart. ☐122 – Pneumatic Controllers and Pumps: This facility does not have any gas driven emissions and all pneumatic controllers are compressed air-driven. Thus, this regulation does not apply to this facility. ☐ 123 – Storage Vessels: This facility does not have any applicable storage vessels. 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	1-13, 15, 16	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as engines, boilers, turbines, heaters, and flares unless the 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.
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 is subject to this regulation.
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 #0613-M13 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.

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.)
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	Yes	Facility	This regulation establishes requirements for obtaining a prevention of significant deterioration permit. This facility is a major source with respect to PSD and is therefore 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	1-9, 13, 14, & 16	The following equipment of this facility are subject under the subparts of 40 CFR Part 60: • 40 CFR 60, Subpart GG: Stationary gas turbines (Unit 1-3, 6 & 7) • 40 CFR 60, Subpart Dc: Regeneration heaters (Unit 8 & 13) • 40 CFR 60, Subpart KKK: Fugitive emissions (Unit 14) and flares (Unit 9 & 16) • 40 CFR 60, Subpart KKKK: Stationary combustion turbines (Units 4-5)
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.
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	Yes	N/A	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. All stacks at the facility follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	10 & 11	The following equipment are subject to the requirements of 40 CFR 63: • 40 CFR 63, Subpart ZZZZ: Diesel Generator (Unit 10) and Fire Pump (Unit 11)

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	If subject, this would normally apply to the entire facility. This applies if you are subject to 20.2.70, 20.2.72, 20.2.74, and/or 20.2.79 NMAC.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	1-9, 13, 14, & 16	The following equipment of this facility are subject under the subparts of 40 CFR Part 60: • 40 CFR 60, Subpart GG: Stationary gas turbines (Unit 1-3, 6 & 7) • 40 CFR 60, Subpart Dc: Regeneration heaters (Unit 8 & 13) • 40 CFR 60, Subpart KKK: Fugitive emissions (Unit 14) and flares (Unit 9 & 16) • 40 CFR 60, Subpart KKKK: Stationary combustion turbines (Units 4-5)
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	Yes	8 & 13	Units 8 and 13 have a heat input greater than the 10 MMBtu/hr threshold and were constructed in 2011, after the June 9, 1989 applicability data (§60.40c(a)). Since these units combust only natural gas, there are no applicable standards, monitoring or reporting requirements. Records of fuel use are maintained in accordance with §60.48c(g)(1) and (2).
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). This facility does not have a tank with a capacity greater than 75 m^3. Therefore, this regulation does not apply to the facility.
NSPS 40 CFR 60.330 Subpart GG	Stationary Gas Turbines	Yes	1-3, 6 & 7	Units 1-3, 6, & 7 have a heat input greater than the 10 MMBtu/hr threshold and were installed in 1986, after the October 3, 1977 applicability date (§60.330(a)).
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from Onshore Gas Plants	Yes	9, 14 & 16	This regulation is applicable because portions of the gas plant are in wet gas or VOC service and were constructed after January 20, 1984 and before August 23, 2011 (§60.630(a)).
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	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, and on or before August 23, 2011. This regulation is not applicable because although the plant is a natural gas processing plant, as defined by the subpart, the facility has a design capacity less than 2 long tons per day of H_2S. (§60.640(b))

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No	N/A	This regulation is not applicable because the plant does not have equipment covered under the regulation that was constructed, modified or reconstructed after August 23, 2011 and before September 18, 2015 (§60.5365).
NSPS 40 CFR 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced **After** September 18, 2015	No	N/A	This regulation is not applicable because the plant does not have equipment covered under the regulation that was constructed, modified or reconstructed after September 18, 2015 (§60.5365(a)).
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation is not applicable as the compression ignition engines (Units 10 and 11) were manufactured and commenced construction prior to July 11, 2005 (§60.4200(a)(2)).
NSPS 40 CFR 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No	N/A	This regulation establishes standards of performance for stationary spark ignition internal combustion engines. This facility does not have any applicable equipment. Therefore, this regulation does not apply to this facility.
NSPS 40 60 Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	Yes	4-5	This applies to owners or operator of stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005, your turbine is subject to this subpart. Units 4-5 will be subject to this regulation, and per §60.4305(b), these stationary turbines are exempt from the requirements of NSPS Subpart GG.
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	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.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Emissions and Compliance Times for Electric Utility Generating Units			
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. This regulation does not apply.
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	10 & 11	The following equipment are subject to the requirements of 40 CFR 63: • 40 CFR 63, Subpart ZZZZ: Diesel Generator (Unit 10) and Fire Pump (Unit 11)
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	No	N/A	This regulation establishes national emission standards for hazardous air pollutants from oil and natural gas production facilities. This facility does not have any applicable units. This regulation does not apply.
MACT 40 CFR 63 Subpart HHH	National Emissions Standards for Hazardous Air Pollutants form 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	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.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Utility Steam Generating Unit			
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	10 & 11	This regulation defines national emissions standards for HAPs from stationary reciprocating Internal Combustion Engines. This regulation applies because the plant is an area HAP source equipped with existing stationary RICE (§63.6590(a)(iii)) . These units are subject to the emergency stationary RICE provisions of ZZZZ ((§63.6603(a) and Table 2d, paragraphs 4 and 5).
40 CFR 64	Compliance Assurance Monitoring	Yes	1-3	Uncontrolled CO emissions from each of Units 1-3 are major in and of itself (394.20 TPY CO). Therefore, Unit 1-3 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. An RMP is maintained as required.
Title IV – Acid Rain 40 CFR 72	Acid Rain	No	N/A	The facility does not operate an affected source under this subpart.
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.

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

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

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

There are no alternative operating scenarios at the San Juan Gas Plant, as Hilcorp understands the term.

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.

New Mexico Environment Department
Air Quality Bureau
Modeling Section
525 Camino de Los Marquez - Suite 1
Santa Fe, NM 87505

Phone: (505) 476-4300
Fax: (505) 476-4375
www.env.nm.gov/air-quality/

For Department use only:

Approved by:

Date:

Air Dispersion Modeling Waiver Request Form

This form must be completed and submitted with all air dispersion modeling waiver requests.

If an air permit application requires air dispersion modeling, in some cases the demonstration that ambient air quality standards and Prevention of Significant Deterioration (PSD) increments will not be violated can be satisfied with a discussion of previous modeling. The purpose of this form is to document and streamline requests to certify that previous modeling satisfies all or some of the current modeling requirements. The criteria for requesting and approving modeling waivers are found in the Air Quality Bureau Modeling Guidelines. Typically, only construction permit applications submitted per 20.2.72, 20.2.74, or 20.2.79 NMAC require air dispersion modeling. However, modeling is sometimes also required for a Title V permit application.

A waiver may be requested by e-mailing this completed form in **MS Word** format to the modeling manager, sufi.mustafa@env.nm.gov.

This modeling waiver is not valid if the emission rates in the application are higher than those listed in the approved waiver request.

Section 1 and Table 1: Contact and facility information:

Contact name	Mike Celente
E-mail Address:	mcelente@trinityconsultants.com
Phone	(505) 266-6611
Facility Name	San Juan Gas Plant
Air Quality Permit Number(s)	0613-M13
Agency Interest Number (if known)	1177
Latitude and longitude of facility (decimal degrees)	36.732500°, -107.966389°

General Comments: (Add introductory remarks or comments here, including the purpose of and type of permit application.)

Hilcorp Energy Company (Hilcorp) is requesting a Significant Revision to NSR Permit #0613M13 for its San Juan Gas Plant in accordance with 20.2.72.219.D(1)(a) NMAC. The facility is in the city of Bloomfield in San Juan County, New Mexico.

San Juan Gas plant processes natural gas from two field natural gas streams (high and low pressure) which are delivered to the plant where hydrocarbon liquids are extracted via a cryogenic process. The resulting residue gas and hydrocarbon liquids are delivered, primarily via pipelines, to customers.

Hilcorp is proposing to replace existing Emission Units (EU) 6 and 7, with newer units. NO_X, CO, and VOC emissions for these units will also be modified based on updated manufacturer data provided by Solar. These units are also sources of PM and SO_2.

Section 2 – List All Regulated Pollutants from the Entire Facility - Required

In Table 2, below, list all regulated air pollutants emitted from your facility, except for New Mexico Toxic Air Pollutants, which are listed in Table 6 of this form. All pollutants emitted from the facility must be listed whether or not a modeling waiver is requested for that pollutant or if the pollutant emission rate is subject to the proposed permit changes.

Table 2: Air Pollutant summary table (Check all that apply. Include all pollutants emitted by the facility):

Pollutant	Pollutant is not emitted at the facility and modeling or waiver are not required.	Pollutant does not increase in emission rate at any emission unit (based on levels currently in the permit) and stack parameters are unchanged. Modeling or waiver are not required.	Stack parameters or stack location has changed.	Pollutant is new to the permit, but already emitted at the facility.	Pollutant is increased at any emission unit (based on levels currently in the permit).	A modeling waiver is being requested for this pollutant.	Modeling for this pollutant will be included in the permit application.
CO			X		X	X	
NO_2			X			X	
SO_2			X		X	X	
PM10			X		X	X	
PM2.5			X		X	X	
H_2S		X					
Reduced S	X						
O_3 (PSD only)	X						
Pb			X		X	X	

Section 3: Pollutants, other than NMTAPs, with very small emission rates

The Air Quality Bureau has performed generic modeling to demonstrate that small sources, as listed in Appendix 2 of this form, do not need computer modeling. This modeling compared emissions from a project (the increase in emissions from the previous permit or total facility emissions for a new facility) with significance levels. After comparing the project's emission rates for various pollutants to Appendix 2, list in Table 3 the pollutants that do not need to be modeled because of very small emission rates.

The facility must be at least 2 km from the nearest Class I area to qualify for a waiver due to very small emission rates. List the nearest Class I area and the distance from the facility in Section 3 comments.

Section 3 Comments. (If you are not requesting a waiver for any pollutants based on their low emission rate, then note that here. You do not need to complete the rest of Section 3 or Table 3.)

Table 3: List of Pollutants with very small emission rates from the project

Pollutant	Requested Allowable Emission Rate for Project (pounds/hour)	Release Type (select "all from stacks >20 ft" or "other")	Waiver Threshold (from appendix 2) (lb/hr)
CO	+4.53	all from stacks >20 ft	16.037
NO_2	-24.32	all from stacks >20 ft	0.189
Lead	+0.0010	all from stacks >20 ft	0.005
PM_{10}	+0.054	all from stacks >20 ft	0.255
$PM_{2.5}$	+0.054	all from stacks >20 ft	0.056
SO_2	+0.14	All from stacks >20 ft	0.179

Section 4: Pollutants that have previously been modeled at equal or higher emission rates

List the pollutants and averaging periods in Table 4 for which you are requesting a modeling waiver based on previous modeling for this facility. The previous modeling reports that apply to the pollutant must be submitted with the modeling waiver request. Request previous modeling reports from the Modeling Section of the Air Quality Bureau if you do not have them and believe they exist in the AQB modeling file archive.

Section 4 Comments. (If you are not asking for a waiver based on previously modeled pollutants, note that here. You do not need to complete the rest of section 4 or table 4.) Hilcorp is not requesting a waiver based on previously modeled pollutants.

Table 4: List of previously modeled pollutants (facility-wide emission rates)

Pollutant	Averaging period	Proposed emission rate (pounds/hour)	Previously modeled emission rate (pounds/hour)	Proposed minus modeled emissions (lb/hr)	Modeled percent of standard or increment	Year modeled

Section 4, Table 5: Questions about previous modeling:

Question	Yes	No
Was AERMOD used to model the facility?		
Did previous modeling predict concentrations less than 95% of each air quality standard and PSD increment?		
Were all averaging periods modeled that apply to the pollutants listed above?		
Were all applicable startup/shutdown/maintenance scenarios modeled?		
Did modeling include all sources within 1000 meters of the facility fence line that now exist?		
Did modeling include background concentrations at least as high as current background concentrations?		
If a source is changing or being replaced, is the following equation true for all pollutants for which the waiver is requested? (Attach calculations if applicable.) $\frac{[(g) \times (h1)] + [(v1)^2/2] + [(c) \times (T1)]}{q1} <= \frac{[(g) \times (h2)] + [(v2)^2/2] + [(c) \times (T2)]}{q2}$ Where g = gravitational constant = 32.2 ft/sec^2 h1 = existing stack height, feet v1 = exhaust velocity, existing source, feet per second c = specific heat of exhaust, 0.28 BTU/lb-degree F T1 = absolute temperature of exhaust, existing source = degree F + 460 q1 = emission rate, existing source, lbs/hour h2 = replacement stack height, feet v2 = exhaust velocity, replacement source, feet per second T2 = absolute temperature of exhaust, replacement source = degree F + 460 q2 = emission rate, replacement source, lbs/hour		

If you checked "no" for any of the questions, provide an explanation for why you think the previous modeling may still be used to demonstrate compliance with current ambient air quality standards.

Section 5: Modeling waiver using scaled emission rates and scaled concentrations

At times it may be possible to scale the results of modeling one pollutant and apply that to another pollutant. Increases in emissions of one pollutant might also demonstrate compliance by applying a scaling factor to the modeling results. If the analysis for the waiver gets too complicated, then it becomes a modeling review rather than a modeling waiver, and applicable modeling fees will be charged for the modeling. Plume depletion, ozone chemical reaction modeling, post-processing, and unequal pollutant ratios from different sources are likely to invalidate scaling.

Pollutant	Averaging period	Proposed emission rate (pounds/hour)	Previously modeled emission rate (pounds/hour)	Scaled Impact* (% of standard)	Modeled percent of standard or increment	Year modeled

*Scaled Percent of Standard=Proposed Emission Rate (lb/hr) / Modeled Emission Rate (lb/hr) x Modeled Percent of Standard

If you are not scaling previous results, note that here. You do not need to complete the rest of section 5. Scaling analyses are not intended to be used for previously modeled pollutants with decreasing emissions, which is already addressed in section 4. Hilcorp is not requesting a waiver based on scaled emission rates.

To demonstrate compliance with standards for a pollutant describe scenarios below that you wish the modeling section to consider for scaling results.

Section 6: New Mexico Toxic air pollutants – 20.2.72.400 NMAC

Modeling must be provided for any New Mexico Toxic Air Pollutant (NMTAP) with a facility-wide controlled emission rate in excess of the pound per hour emission levels specified in Tables A and B at **20.2.72.502 NMAC** - Toxic Air Pollutants and Emissions. An applicant may use a stack height correction factor based on the release height of the stack for the purpose of determining whether modeling is required. See Table C - Stack Height Correction Factor at 20.2.72.502 NMAC. Divide the emission rate for each release point of a NMTAP by the correction factor for that release height and add the total values together to determine the total adjusted pound per hour emission rate for that NMTAP. If the total adjusted pound per hour emission rate is lower than the emission rate screening level found in Tables A and B, then modeling is not required.

In Table 6, below, list the total facility-wide emission rates for each New Mexico Toxic Air Pollutant emitted by the facility. The table is pre-populated with common examples. Extra rows may be added for NMTAPS not listed or for NMTAPS emitted from multiple stack heights. NMTAPS not emitted at the facility may be deleted, left blank, or noted as 0 emission rate. Toxics previously modeled may be addressed in Section 5 of this waiver form. For convenience, we have listed the stack height correction factors in Appendix 1 of this form.

Section 6 Comments. (If you are not requesting a waiver for any NMTAPs then note that here. You do not need to complete the rest of section 6 or Table 6.)
Hilcorp is not requesting a wavier for Toxics modeling.

Table 6: New Mexico Toxic Air Pollutants emitted at the facility

If requesting a waiver for any NMTAP, all NMTAPs from this facility must be listed in Table 3 regardless of if a modeling waiver is requested for that pollutant or if the pollutant emission rate is subject to the proposed permit changes.

Pollutant	Requested Allowable	Release Height	Correction Factor	Allowable Emission Rate Divided by Correction Factor	Emission Rate Screening Level

	Emission Rate (pounds/hour)	(Meters)			(pounds/hour)
Ammonia					1.20
Asphalt (petroleum) fumes					0.333
Carbon black					0.233
Chromium metal					0.0333
Glutaraldehyde					0.0467
Nickel Metal					0.0667
Wood dust (certain hard woods as beech & oak)					0.0667
Wood dust (soft wood)					0.333
(add additional toxics if they are present)					

Section 7: Approval or Disapproval of Modeling Waiver

The AQB air dispersion modeler should list each pollutant for which the modeling waiver is approved, the reasons why, and any other relevant information. If not approved, this area may be used to document that decision.
Project emissions increases are less than the threshold listed in table 3. The new turbines have better dispersion characteristics compared to retiring turbines as provided below by the applicant.

EXISTING SOURCE				REPLACMENT SOURCE			
$[(g) \times (h1)] + [(v1)^2/2] + [(c) \times (T1)] <= [(g) \times (h2)] + [(v2)^2/2] + [(c) \times (T2)]$							
	q1				q2		
Where							
g = gravitational constant = 32.2 ft/sec^2							
h1 = existing stack height, feet							
v1 = exhaust velocity, existing source, feet per second							
c = specific heat of exhaust, 0.28 BTU/lb-degree F							
T1 = absolute temperature of exhaust, existing source = degree F + 460							
q1 = emission rate, existing source, lbs/hour							
h2 = replacement stack height, feet							
v2 = exhaust velocity, replacement source, feet per second							
T2 = absolute temperature of exhaust, replacement source = degree F + 460							
q2 = emission rate, replacement source, lbs/hour							
Existing Source	**6352.12**			**Replacement Source**	**11147.36**		
Existing Turbine				New Turbine			
g	32.2	ft/sec2		g	32.2	ft/sec2	
h1	30.8	ft		h2	30.8	ft	
v1	100	ft/s		v2	139.98	ft/s	
c	0.28	BTU/lb*F		c	0.28	BTU/lb*F	
T1	1287	F		T2	1280	F	
q1	1	lb/hr		q2	1	lb/hr	
IS EXISTING SOURCE VALUE < REPLACEMENT SOURCE VALUE?							**YES**

Appendix 1: Stack Height Release Correction Factor (adapted from 20.2.72.502 NMAC)

Release Height in Meters	Correction Factor
0 to 9.9	1
10 to 19.9	5
20 to 29.9	19
30 to 39.9	41
40 to 49.9	71
50 to 59.9	108
60 to 69.9	152
70 to 79.9	202
80 to 89.9	255
90 to 99.9	317
100 to 109.9	378
110 to 119.9	451
120 to 129.9	533
130 to 139.9	617
140 to 149.9	690
150 to 159.9	781
160 to 169.9	837
170 to 179.9	902
180 to 189.9	1002
190 to 199.9	1066
200 or greater	1161

Appendix 2. Very small emission rate modeling waiver requirements (updated 7/27/2023)
Modeling is waived if emissions of a pollutant for the project are below the amount:

Pollutant	If all emissions come from stacks 20 feet or greater in height and there are no horizontal stacks or raincaps (lb/hr)	If not all emissions come from stacks 20 feet or greater in height, or there are horizontal stacks, raincaps, volume, or area sources (lb/hr)
CO	16.037	2.580
H_2S (Pecos-Permian Basin)	0.114	0.015
H_2S (Not in Pecos-Permian Basin)	0.022	0.003
Lead	0.005	0.001
NO_2	0.189	0.024
PM2.5 – Point Sources	0.056	0.009
PM2.5 – Volume Sources		0.003
PM10 – Point Sources	0.255	0.039
PM10 – Volume Sources		0.015
SO_2	0.179	0.023
Reduced sulfur (Pecos-Permian Basin)	0.033	No waiver
Reduced sulfur (Not in Pecos-Permian Basin)	No waiver	No waiver

From: Mustafa, Sufi A., ENV
To: Mike Celente
Subject: RE: [EXTERNAL] RE: Modeling Waiver for Hilcorp - San Juan Gas Plant
Date: Thursday, January 11, 2024 5:22:00 PM
Attachments: image002.png
image003.png
0613M13_San Juan Gas Plant_Modeling Waiver_01112024.pdf

Mike
I approved your request.
Thank you.

Sufi A. Mustafa, Ph.D.
Manager Air Dispersion Modeling and Emission Inventory Section
New Mexico Environment Department's Air Quality Bureau
Office: (505) 629 6186
sufi.mustafa@state.nm.us
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https://www.env.nm.gov/air-quality/

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From: Mike Celente <MCelente@trinityconsultants.com>
Sent: Thursday, January 11, 2024 11:15 AM
To: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Subject: RE: [EXTERNAL] RE: Modeling Waiver for Hilcorp - San Juan Gas Plant

Great, thanks Sufi. Please find the requested calculations attached.

Best,
Mike

Michael Celente, M.S.
Managing Consultant

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From: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Sent: Wednesday, January 10, 2024 3:58 PM
To: Mike Celente <MCelente@trinityconsultants.com>
Subject: RE: [EXTERNAL] RE: Modeling Waiver for Hilcorp - San Juan Gas Plant

Mike
You are replacing engines. It will be a good documentation of the emissions and dispersion characteristics if you provide the information in the modeling waiver form as I suggested. I believe the project qualifies for a waiver.
Thank you.

Sufi A. Mustafa, Ph.D.
Manager Air Dispersion Modeling and Emission Inventory Section
New Mexico Environment Department's Air Quality Bureau
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525 Camino de los Marquez
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Santa Fe, New Mexico, 87505
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From: Mike Celente <MCelente@trinityconsultants.com>
Sent: Monday, January 8, 2024 1:16 PM
To: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Cc: Peters, Eric, ENV <eric.peters@env.nm.gov>
Subject: RE: [EXTERNAL] RE: Modeling Waiver for Hilcorp - San Juan Gas Plant

Hi Sufi,

Thanks for the response. I was under the impression that Section 4 was only required if we are requesting a modeling waiver based on previous modeling for this facility. This is not the case, as we are requesting a waiver under Section 3 for very small emission rates. Although the turbines are being replaced, the minor increase in emissions in CO, Pb, PM, and SO2 falls within the very small

emission rates, and these newer units actually have new NOx control technology thus resulting in a net decrease in NOx emissions (when compared to the existing units).

With that being said, the newer units will have the same stack height (30.8 ft) and diameter (3.3 ft) as the existing units, but with an increase in exit velocity from 100 ft/s to 140 ft/s. As such, the dispersion characteristics of the new turbines will be greater than that of the current units. As noted in Section 3, as the proposed project emissions (when compared to the previous permit) fall below the emissions in Table 3, it is assumed that the modeled impacts from the new turbines will fall below significance levels.

Best,
Mike

Michael Celente, M.S.
Managing Consultant

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From: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Sent: Monday, January 8, 2024 11:29 AM
To: Mike Celente <MCelente@trinityconsultants.com>
Cc: Peters, Eric, ENV <eric.peters@env.nm.gov>
Subject: RE: [EXTERNAL] RE: Modeling Waiver for Hilcorp - San Juan Gas Plant

Mike
Please complete various sections applicable to this request.
Table 3 list a negative NO2 emission rate. If this means project emissions (change in NO2 emissions from this permit modification i.e; new engines is less than older engines) please provide information in table 4 to help me evaluate your request. Since you are changing engines, please provide comparison of air dispersion equation in Section 4, table 5.
Thank you.

Sufi A. Mustafa, Ph.D.
Manager Air Dispersion Modeling and Emission Inventory Section
New Mexico Environment Department's Air Quality Bureau
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From: Mike Celente <MCelente@trinityconsultants.com>
Sent: Tuesday, January 2, 2024 10:13 AM
To: Mustafa, Sufi A., ENV <sufi.mustafa@env.nm.gov>
Cc: Peters, Eric, ENV <eric.peters@env.nm.gov>
Subject: [EXTERNAL] RE: Modeling Waiver for Hilcorp - San Juan Gas Plant

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Good morning and Happy New Year!

Just wanted to follow up on the below email and modeling waiver request. Please note that since the original submittal, the units to be replaced have changed from Units 6 and 7 to Units 4 and 5 (which are identical to the original replacement units). As such, there is no anticipated change in information represented in the original waiver request. Thank you!

Best,
Mike

Michael Celente, M.S.
Managing Consultant

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Email: mcelente@trinityconsultants.com

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From: Mike Celente
Sent: Friday, December 8, 2023 1:35 PM
To: Mustafa, Sufi A., NMENV <sufi.mustafa@state.nm.us>
Cc: eric.peters@state.nm.us
Subject: Modeling Waiver for Hilcorp - San Juan Gas Plant

Hi Sufi,

Please find a modeling wavier attached for Hilcorp's San Juan Gas Plant. Hilcorp is proposing to replace two existing turbines (Units 6 and 7), with more modern replacement units. Updated emissions from these units fall under the very small emission rates for all pollutants, as noted in the attached waiver.

Please do not hesitate to reach out should you have any questions!

Best,
Mike

Michael Celente, M.S.
Managing Consultant

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9400 Holly Ave NE, Building 3, Suite B | Albuquerque, NM 87122
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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

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

Compliance Test History Table

Unit No.	Test Description	Test Date
1-7	Tested in accordance with EPA test methods for NO_X and CO as required by Title V permit P124-R4.	4/24/2019, 6/9/2020, 6/9/2021, 6/8/2022, 9/13/2023

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 - No other relevant information for this facility.

Section 22: Certification

Company Name: Hilcorp Energy Company

I, Matt Henderson, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 12 day of December, 2023, upon my oath or affirmation, before a notary of the State of Texas.

*Signature

12-12-23
Date

Matt Henderson
Printed Name

Env. Manager
Title

Scribed and sworn before me on this 12th day of December, 2023.

My authorization as a notary of the State of Texas expires on the 7th day of May, 2026.

Notary's Signature

12.12.23
Date

Andrea Stautberg
Notary's Printed Name

ANDREA STAUTBERG
Notary ID #129396991
My Commission Expires
May 7, 2026

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