



ENTERPRISE PRODUCTS PARTNERS L.P.
ENTERPRISE PRODUCTS HOLDINGS LLC
(General Partner)

ENTERPRISE PRODUCTS OPERATING LLC

October 24, 2024

9589 0710 5270 0140 6088 80
Return Receipt Requested

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

**RE: Application for Renewal
Title V Operating Permit P218-R3
Enterprise Field Services, LLC - Blanco C&D Compressor Station**

Sir or Madam:

Enterprise Field Services, LLC ("Enterprise") is requesting renewal of Title V Operating Permit No. P218-R3 for the Blanco C&D Compressor Station in San Juan County, New Mexico. This application is being submitted pursuant to 20.2.70.300.B(2) New Mexico Administrative Code.

Enclosed are two hard copies of the application (the original and a photocopy). Additional files will be submitted via secure electronic file transfer at the request of NMED.

If you have questions or require additional information, please contact Daniel Quesada, Environmental Engineer at (713) 381-6770 or via email at DEQuesada@eprod.com or Daniel Bissonnette, Supervisor, Environmental at (713) 381-3669.

Sincerely,
Enterprise Field Services, LLC

Daniel Quesada

Daniel Quesada
Engineer, Environmental

/sed
Attachments

Daniel Bissonnette
Supervisor, Environmental

9589 0710 5270 0140 6088 80

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Certified Mail Fee
\$ 24.40

Extra Services & Fees (check box, add fee as appropriate)
☐ Return Receipt (hardcopy) \$ _____
☐ Return Receipt (electronic) \$ _____
☐ Certified Mail Restricted Delivery \$ _____
☐ Adult Signature Required \$ _____
☐ Adult Signature Restricted Delivery \$ _____

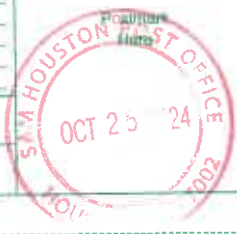
Postage
\$ _____
Total Postage and Fees
\$ 25.40

Sent To

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

PS Form 3800, January 2023 PSN 7530-02-000-9047

See Reverse for Instructions



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: 2434001

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

9590 9402 8976 4064 2907 64

2. Article Number (Transfer from service label)
9589 0710 5270 0140 6088 80

PS Form 3811, July 2020 PSN 7530-02-000-9053

RECEIVED
COMPLETE THIS SECTION ON DELIVERY

A. Signature
X OCT 23 2024

☐ Agent
☐ Addressee

B. Received by (Printed Name)
Air Quality Bureau

C. Date of Delivery
OCT 23 2024

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over \$500)

☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt



**ENTERPRISE FIELD SERVICES, LLC
BLANCO C&D COMPRESSOR STATION**

**Title V Permit Renewal
Application**

OCTOBER 2024

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

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: ☐ a 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.: N/A in the amount of N/A
- ☒ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.
- ☒ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.
- ☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full \$500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70.300.B(2) NMAC** (e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1 st 3 to 5 #s of permit IDEA ID No.): 3552	Updating Permit/NOI #: P218-R3
1	Facility Name: Blanco C&D Compressor Station		Plant primary SIC Code (4 digits): 4922
			Plant NAIC code (6 digits): 486210
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): From Bloomfield, head north on US544 N/ 1 st Street for approximately 1.5 miles. Turn east onto Rd 4900/Arizona Rd. After approximately 0.7 miles, the facility will be on your right.		
2	Plant Operator Company Name: Enterprise Products Operating	Phone/Fax: (713) 381-6595 / (281) 887-8086	
a	Plant Operator Address: P.O. Box 4324, Houston, TX 77210-4324		
b	Plant Operator's New Mexico Corporate ID or Tax ID: 32-89188		

3	Plant Owner(s) name(s): Enterprise Field Services, LLC	Phone/Fax: (713) 381-6595 / (281) 887-8086
a	Plant Owner(s) Mailing Address(s): P.O. Box 4324, Houston TX, 77210-4324	
4	Bill To (Company): Enterprise Products Operating	Phone/Fax: (713) 381-6595 / (281) 887-8086
a	Mailing Address: P.O. Box 4324, Houston, TX 77210-4324	E-mail: environmental@eprod.com
5	☒ Preparer: Daniel Quesada ☐ Consultant:	Phone/Fax: (713) 381-6770
a	Mailing Address: P.O. Box 4324, Houston, TX 77210-4324	E-mail: DEQuesada@eprod.com
6	Plant Operator Contact: Phil Cowan	Phone/Fax: (505) 599-2159 / (505) 320-9626
a	Address: 614 Reilly Drive, Farmington. NM 87401-2634	E-mail: plcowan@eprod.com
7	Air Permit Contact: Daniel Quesada	Title: Environmental Engineer
a	E-mail: DEQuesada@eprod.com	Phone/Fax: (713) 381-6770
b	Mailing Address: P.O. Box 4324, Houston, TX 77210-4324	
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-218-R3
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: 29.2 MMscf	Daily: 700 MMscf	Annually: 255,500 Mscf
b	Proposed	Hourly: 29.2 MMscf	Daily: 700 MMscf	Annually: 255,500 Mscf
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: 29.2 MMscf	Daily: 700 MMscf	Annually: 255,500 Mscf
b	Proposed	Hourly: 29.2 MMscf	Daily: 700 MMscf	Annually: 255,500 Mscf

Section 1-D: Facility Location Information

1	Section: 014	Range: 11W	Township: 29N	County: San Juan	Elevation (ft): 5,605
2	UTM Zone: ☐ 12 or ☒ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 235,540 m E			UTM N (in meters, to nearest 10 meters): 4,069,240 m N	
b	AND Latitude (deg., min., sec.): 36°43'57"N			Longitude (deg., min., sec.): 107°57'42" W	
3	Name and zip code of nearest New Mexico town: Bloomfield, NM 87413				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Bloomfield, head north on US544 N/ 1 st Street for approximately 1.5 miles. Turn east onto Rd 4900/Arizona Rd. After approximately 0.7 miles, the facility will be on your right.				
5	The facility is 2.0 (distance) miles northeast (direction) of Bloomfield, NM (nearest town).				
6	Status of land at facility (check one): ☒ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: <u>Municipalities:</u> Bloomfield, Aztec, Farmington; <u>Indian Tribes:</u> None; <u>Counties:</u> San Juan				
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 - 18.5 miles				
9	Name nearest Class I area: Mesa Verde National Park				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 64.47 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: <200 m				
12	Method(s) used to delineate the Restricted Area: 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? N/A				

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

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

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☒ No If yes, specify: N/A		
a	If yes, NOV date or description of issue: N/A	NOV Tracking No: N/A	
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☒ No If Yes, provide the 1c & 1d info below:		
c	Document Title: N/A	Date: N/A	Requirement # (or page # and paragraph #): N/A
d	Provide the required text to be inserted in this permit: N/A		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☒ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No		
a	If Yes, what type of source? ☒ Major (☐ ≥ 10 tpy of any single HAP OR ☒ ≥ 25 tpy of any combination of HAPS) OR ☐ Minor (☐ < 10 tpy of any single HAP AND ☐ < 25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☒ No		
a	If yes, include the name of company providing commercial electric power to the facility: ___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.) Graham Bacon (20.2.70.300.D.2 NMAC):		Phone: (713) 381-6595
a	R.O. Title: Executive Vice President and Chief Operating Officer	R.O. e-mail: environmental@eprod.com	
b	R. O. Address: P.O. Box 4324, Houston, TX 77210-4324		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): Bradley J. Cooley		Phone: (713) 381-6595
a	A. R.O. Title: Senior Director	A. R.O. e-mail: environmental@eprod.com	
b	A. R. O. Address: P.O. Box 4324, Houston, TX, 77210-4324		
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): Enterprise Field Services LLC and Enterprise Products Operating LLC		
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.): Enterprise Product Partners L.P.		
a	Address of Parent Company: 1100 Louisiana St., Houston, TX 77210		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: N/A		

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: Indian Tribes: Navajo Nation (25 km); Ute Mountain (29 km); Southern Ute (30 km); Jicarilla Apache (70 km). States: Colorado (30 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-toe 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: Daniel Quesada, Email: dequesada@eprod.com,

Phone number: (713) 381-6770

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

Section 1:	General Facility Information
Section 2:	Tables
Section 3:	Application Summary
Section 4:	Process Flow Sheet
Section 5:	Plot Plan Drawn to Scale
Section 6:	All Calculations
Section 7:	Information Used to Determine Emissions
Section 8:	Map(s)
Section 9:	Proof of Public Notice
Section 10:	Written Description of the Routine Operations of the Facility
Section 11:	Source Determination
Section 12:	PSD Applicability Determination for All Sources & Special Requirements for a PSD Application
Section 13:	Discussion Demonstrating Compliance with Each Applicable State & Federal Regulation
Section 14:	Operational Plan to Mitigate Emissions
Section 15:	Alternative Operating Scenarios
Section 16:	Air Dispersion Modeling
Section 17:	Compliance Test History
Section 18:	Addendum for Streamline Applications (streamline applications only)
Section 19:	Requirements for the Title V (20.2.70 NMAC) Program (Title V applications only)
Section 20:	Other Relevant Information
Section 21:	Addendum for Landfill Applications
Section 22:	Certification Page

Table 2-A: Regulated Emission Sources

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

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/Reconstruction ²	Emissions vented to Stack #				
TK-1	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-1				
TK-2	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-2				
TK-3	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-3				
TK-4	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-4				
TK-5	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-5				
TK-6	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-6				
TK-7	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-7				
TK-8	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-8				
TK-9	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-9				
TK-10	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-10				
TK-11	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-11				
TK-12	Stabilization Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD	FL-02	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							TBD	TK-12				
H-1	Heater	National Tank Co	0B133	H-61169	4.0 Mmbtu/hr	4.0 Mmbtu/hr	Unknown	N/A	31000404	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							Feb-11	H-1				
FL-01*	Flare (shared with EPNG; Enterprise contribution only)	Callidus Technologies	BTZ-AA-6	N/A	0.6 MMBtu/hr	0.6 MMBtu/hr	Unknown	N/A	31000205	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							May 1992	FL-01				

Unit Number ¹	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.	
							Date of Construction/ Reconstruction ²	Emissions vented to Stack #					
FL-02	Process Flare	Flare Industries	SFVP 0416	FII-11-0210	84.9 MMBTU/hr	84.9 MMBTU/hr	Unknown	N/A	31000205	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							8/31/2012	FL-02					
T-C01	Natural gas-fueled combustion turbine	General Electric	5221 W	179576	22,280 hp (ISO)	22,280 hp (ISO)	Unknown	N/A	20200203	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							< June 1989	T-C01 or T-C01 HRSG					
T-C02	Natural gas-fueled combustion turbine	General Electric	5221 W	214369	22,280 hp (ISO)	22,280 hp (ISO)	Unknown	N/A	20200203	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							< June 1989	T-C02 or T-C02 HRSG					
T-D01	Natural gas-fueled combustion turbine	General Electric	M5322B	226332	32,550 hp (ISO)	32,550 hp (ISO)	Unknown	N/A	20200203	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							< October 1987	T-D01E and T-D01 W					
F-001	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	N/A					
Truck	Truck Loading	N/A	N/A	N/A	N/A	N/A	Dec-90		31088811	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							Dec-90	Truck					
Haul	Truck Traffic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	Haul					
Vent C**	C Plant blowdown vent	N/A	N/A	N/A	760 Mscf/yr	760 Mscf/yr	N/A	N/A	31000223	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	Vents C1 and C2					
Vent D**	D Plant blowdown vent	N/A	N/A	N/A	280 Mscf/yr	280 Mscf/yr	N/A	N/A	31000223	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	Vent D					
ESD	Emergency shutdown vent	N/A	N/A	N/A	500 Mscf/yr	500 Mscf/yr	N/A	N/A	31000223	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	ESD					
Prod TK-1	Condensate Tank	N/A	N/A	19861	12,600 gal	12,600 gal	Apr-84	FL-02	31000299	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							Apr-84	Prod TK-1					
SSM	Startup, Shutdown, and Maintenance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	SSM					
M	Malfunction Emissions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	☒ Existing (unchanged) ☐ New/Additional ☐ To Be Modified	☐ To be Removed ☐ Replacement Unit ☐ To be Replaced	N/A	N/A
							N/A	M1					

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

* This unit is shared with El Paso Natural Gas (EPNG). Information provided in this application is for the pilot and Blanco C&D Compressor Station's contribution to emissions.

** Blowdown and emergency shutdown (ESD) vent stacks are occasional sources of VOC emissions. (C Plant turbines, T-C01 and T-C02, vent to twin stacks, Vent C, East of C Plant; D Plant turbine, T-D01, vents to a single stack, Vent D, to its North, and the entire facility will vent to twin ESD stacks in the event of an emergency shutdown).

*** Emissions from stabilization tanks are routed to the Flare (FL-02) with an assumed 98% destruction efficiency

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

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at <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.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
S-01, S-03, thru S-18	Storage Tanks	N/A	N/A	Varies	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
S-02	Gasoline Storage Tank	N/A	N/A	500	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	gallons	IA List Item #1.a	N/A	
P-1	Pressure Vessel	N/A	N/A	28140	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Gallons	Not a a source of regulated pollutants	N/A	
P-2	Pressure Vessel	N/A	N/A	28140	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Gallons	Not a a source of regulated pollutants	N/A	
P-01	Purge steam to flare	N/A	N/A	N/A	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
Waste Oil	Waste Oil Tank	N/A	N/A	N/A	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
S-19	Vapor Recovery Surge Tank	N/A	N/A	2310 gal	N/A	N/A	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	2310 gal	Not a a source of regulated pollutants	N/A	
							☐ 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
FL-01	Process Flare	May-92	VOC	Compressor Blowdown/Process Equipment	98%	AP-42
FL-02	Process Flare	Aug-12	VOC	TK-1 through TK-12	98%	AP-42

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 ₂ S		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
T-C01	80.00	350.4	17.82	78.05	0.32	1.40	0.26	1.15	-	-	-	1.52	-	1.52	-	-	-	-
T-C02	80.00	350.4	17.82	78.05	0.32	1.40	0.26	1.15	-	-	-	1.52	-	1.52	-	-	-	-
T-D01	143.33	627.7959	21.6	94.70	0.46	2.01	0.32	1.41	-	-	-	2.59	-	2.59	-	-	-	-
FL-01	0.00	0.015	0.01549	0.07	-	-	7.47E-04	3.29E-03	-	-	-	-	-	-	-	-	-	-
H-1	0.40	1.753754	0.33634	1.47	0.02	0.10	0.06	0.25	-	-	0.03	0.13	0.03	0.13	-	-	-	-
F-001	-	-	-	-	7.03	30.77	-	-	-	-	-	-	-	-	-	-	-	-
Prod TK-1	-	-	-	-	*	1.00	-	-	-	-	-	-	-	-	-	-	-	-
FL-02	0.76	0.48	3.45	2.21	4.97	10.35	7.1E-04	3.1E-03	-	-	-	-	-	-	3.57E-07	1.56E-06	-	-
Truck	-	-	-	-	10.73	31.42	-	-	-	-	-	-	-	-	-	-	-	-
Haul	-	-	-	-	-	-	-	-	-	-	0.16	0.70	0.02	0.07	-	-	-	-
TK-1	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-5	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-6	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-7	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-8	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-9	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-10	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-11	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
TK-12	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	-	-	-	-
Totals	304.49	1330.85	61.05	254.55	23.85	492.47	0.90	3.96	-	-	0.19	6.47	0.05	5.84	3.57143E-07	1.6E-06	-	-

¹TSP emission standard was repealed on November 30, 2018

²Condensable Particulate Matter: Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

"*" Denotes an hourly emission limit is not appropriate for this source.

"-" Denotes emissions are not expected for this pollutant.

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.	NO _x		CO		VOC		SO _x		PM ¹		PM ₁₀ ¹		PM _{2.5} ¹		H ₂ S		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
T-C01	Requested allowable emissions for units T-C01, T-C02, T-D01, and Vent C are represented under Table 2-G.																	
T-C02																		
T-D01																		
FL-01	4.15	1.80	18.91	8.18	96.43	41.42	0.00	0.00	-	-	-	-	-	-	-	-	-	-
H-1	0.40	1.75	0.34	1.47	0.02	0.10	0.06	0.25	-	-	0.03	0.13	0.03	0.13	-	-	-	-
ESD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-001	-	-	-	-	7.03	30.77	-	-	-	-	-	-	-	-	-	-	-	-
Prod TK-1	-	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-02	0.76	0.48	3.45	2.21	4.97	10.35	0.00	0.00	-	-	-	-	-	-	-	-	-	-
Truck	-	-	-	-	10.73	31.42	-	-	-	-	-	-	-	-	-	-	-	-
Haul	-	-	-	-	-	-	-	-	-	-	0.16	0.70	0.02	0.07	-	-	-	-
TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	5.31	4.03	22.70	11.86	119.18	114.06	0.059	0.26	-	-	0.19	0.83	0.046	0.20	-	-	-	-

¹TSP emission standard was repealed on November 30, 2018

²Condensable Particulate Matter: Include condensable particulate matter emissions for PM₁₀ and PM_{2.5} if the source is a combustion source.

*** Denotes an hourly emission limit is not appropriate for this source.

-" Denotes emissions are not expected for this pollutant.

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NO _x		CO		VOC		SO _x		PM		PM ₁₀		PM _{2.5}		□ H ₂ S or □ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
T-C01	T-C01	80.00	350.40	17.82	78.05	0.32	1.40	0.26	1.15	-	-	0.35	1.52	0.35	1.52	-	-
T-C01 HRSG																	
T-C02	T-C02	80.00	350.40	17.82	78.05	0.32	1.40	0.26	1.15	-	-	0.35	1.52	0.35	1.52	-	-
T-C02 HRSG																	
T-D01W	T-D01	71.67	313.90	10.80	47.35	0.230	1.01	0.16	0.71	-	-	0.30	1.29	0.30	1.29	-	-
T-D01 E		71.67	313.90	10.80	47.35	0.230	1.01	0.16	0.71	-	-	0.30	1.29	0.30	1.29	-	-
C1	Vent C	-	-	-	-	0.29	1.26	-	-	-	-	-	-	-	-	-	-
C2		-	-	-	-	0.29	1.26	-	-	-	-	-	-	-	-	-	-
D1	Vent D	-	-	-	-	0.21	0.93	-	-	-	-	-	-	-	-	-	-
ESD	ESD	-	-	-	-	0.38	1.66	-	-	-	-	-	-	-	-	-	-
Totals:		303.33	1328.60	57.24	250.80	2.27	9.93	0.85	3.70	0.00	0.00	1.29	5.63	1.29	5.63	-	-

¹TSP emission standard was repealed on November 30, 2018

"-" Denotes emissions are not expected for this pollutant.

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)			
T-C01	T-C01	Vertical	No	42	625	3763	N/A	N/A	78.1	7.83
T-C01 HRSG	T-C01	Vertical	No	42	325	2963	N/A	N/A	34.7	8.8 x 9.6
T-C02	T-C02	Vertical	No	42	625	4025	N/A	N/A	83.5	7.83
T-C02 HRSG	T-C02	Vertical	No	42	325	2732	N/A	N/A	63	5.0 x 8.6
T-D01 W	T-D01	Vertical	No	37	904	4459	N/A	N/A	99	6.7 x 6.7
T-D01 E	T-D01	Vertical	No	37	904	4459.00	N/A	N/A	99.0	6.7 x 6.7
FL-01	FL-01	Vertical	No	45	1832	N/A	N/A	N/A	65.6	0.54
FL-02	FL-02	Vertical	No	25	1832	N/A	N/A	N/A	65.6	TBD
H-1	H-1	Vertical	No	6	212	18.7	N/A	N/A	24	1.00
Vent C	T-C01 and T-C02	Vertical	No	41.5	N/A	N/A	N/A	N/A	N/A	1.00
Vent D	T-D01	Vertical	No	13	N/A	N/A	N/A	N/A	N/A	1.00
ESD	All	Vertical	No	48	N/A	N/A	N/A	N/A	N/A	2.00

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		Acetaldehyde ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Xylenes ☑ HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		2,2,4 - Trimethylpentane ☑ HAP or ☐ TAP		Propional ☑ 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
T-C01	T-C01	2.04	8.94	0.83	3.6	0.85	3.7	0.03	0.12	-	-	0.06	0.27	0.07	0.324	0.08	0.35	0.04	0.19
T-C02	T-C02	2.04	8.94	0.83	3.6	0.85	3.7	0.03	0.12	-	-	0.06	0.27	0.07	0.324	0.08	0.35	0.04	0.19
T-D01	T-D01	2.89	12.66	1.2	5.3	1.2	5.4	0.04	0.17	0.03	0.13	0.09	0.39	0.11	0.47	0.12	0.5	0.06	0.27
FL-01	FL-01	13.86	5.95	-	-	-	-	1.7	0.73	3.41	1.455	1.34	0.59	7.32	3.16	-	-	-	-
H-1	H-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent C	Vent C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent D	Vent D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESD	ESD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	F-001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	Prod TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL-02	FL-02	0.22	0.47	-	-	-	-	0.0010	0.0040	0.0010	0.0060	0.0000	0.0020	0.0050	0.022	-	-	-	-
N/A	Truck	0.46	1.34	-	-	-	-	0.038	0.110	0.061	0.220	0.025	0.150	0.330	0.840	0.003	0.009	-	-
N/A	Haul	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	SSM	-	0.16	-	-	-	-	0.004	0.017	0.011	0.049	0.000	0.001	0.022	0.097	-	-	-	-
N/A	TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N/A	TK-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals:		21.51	38.46	2.86	12.50	2.90	12.80	1.84	1.27	3.51	1.86	1.58	1.67	7.93	5.24	0.28	1.21	0.14	0.65

"-" Denotes emissions are not expected for this pollutant.

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, ...)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
T-C01	Sweet Natural Gas	Pipeline Quality Natural Gas	999 Btu/scf	183 Mscf	1603 MMscf	Negligible	Negligible
T-C02	Sweet Natural Gas	Pipeline Quality Natural Gas	999 Btu/scf	183 Mscf	1603 MMscf	Negligible	Negligible
T-D01	Sweet Natural Gas	Pipeline Quality Natural Gas	999 Btu/scf	311 Mscf	2729 MMscf	Negligible	Negligible
FL-01	Sweet Natural Gas (Pilot Only)	Pipeline Quality Natural Gas	999 Btu/scf	52 Mscf	456 MMscf	Negligible	Negligible
FL-02	Sweet Natural Gas (Pilot Only)	Pipeline Quality Natural Gas	999 Btu/scf	6.1 Mscf	4.4 MMscf	Negligible	Negligible
H-1	Sweet Natural Gas	Pipeline Quality Natural Gas	999 Btu/scf	4.0 Mscf	35.1 MMscf	Negligible	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)
Prod TK-1	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-1	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-2	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-3	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-4	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-5	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-6	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-7	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-8	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-9	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-10	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-11	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7
TK-12	40400311	Condensate	Condensate	5.88	100	64.24	14.7	64.24	14.7

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			
Prod TK-1	1990	Condensate	N/A	FX	300	48	3.04	1.2	OT	OT	Good	12,000	4.00
TK-1	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-2	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-3	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-4	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-5	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-6	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-7	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-8	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-9	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-10	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-11	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00
TK-12	TBD	Condensate	N/A	FX	750	119	4.72	7.3	OT	OT	Good	20,580,000	653.00

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 M³ = 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)
Inlet Natural Gas	Methane, mixed hydrocarbons	Gas	700 MMscf/day	Natural Gas	Methane, Mixed hydrocarbons	Gas	700 MMscf/day
				Condensate	Mixed hydrocarbons	Liquid	490,000 bbl/yr
				Produced Water	Water	Liquid	Varies

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

[illegible]

Table 2-O: Parametric Emissions Measurement Equipment

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

[illegible]

Table 2-P: Greenhouse Gas Emissions

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

		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²								Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWP ¹	1	298	25	22,800	footnote 3									
T-C01	mass GHG	93608.85	0.18	1.77										93610.80	
	CO ₂ e	93608.85	52.61	44.14											93705.60
T-C02	mass GHG	93608.85	0.18	1.77										93610.80	
	CO ₂ e	93608.85	52.61	44.14											93705.60
T-D01	mass GHG	159313.5	0.30	3.00										159316.8	
	CO ₂ e	159313.5	89.54	75.12											159478.1
FL-01	mass GHG	34324.58	0.04	51.55										34376.17	
	CO ₂ e	34324.58	11.70	1288.77											35625.04
FL-02	mass GHG	6897.69	0.01	8.75										6906.45	
	CO ₂ e	6897.69	2.17	218.69											7118.55
H-1	mass GHG	2047.88	0.00	0.04										2047.92	
	CO ₂ e	2047.88	1.15	0.97											2049.99
Vent C	mass GHG	2395.01	-	19.70										2414.71	
	CO ₂ e	2395.01	-	492.50											2887.51
Vent D	mass GHG	882.40	-	7.30										889.70	
	CO ₂ e	882.40	-	182.50											1064.90
ESD	mass GHG	1575.70	-	13.00										1588.70	
	CO ₂ e	1575.70	-	325.00											1900.70
	mass GHG														
	CO ₂ e														
	mass GHG														
	CO ₂ e														
Total	mass GHG													394762.0	
	CO ₂ e														397536.0

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

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

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

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

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

Section 3

Application Summary

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

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

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

The Blanco C&D Compressor Station is a natural gas compressor station that compresses field natural gas and delivers the compressed gas to another facility, Harvest Four Corners, LLC's San Juan Gas Plant. Blanco C&D Compressor Station is currently authorized to operate under Title V Operating Permit No. P218-R3 and NSR Permit No. 0613-M13. Enterprise seeks to renew their Title V Operating permit, with no revisions nor changes to Blanco C&D facility since the last Title V renewal, issued in October 2020.

The facility is owned by Enterprise Field Services, LLC (Enterprise) and operated by Enterprise Products Operating, LP. Note that Blanco C&D Compressor Station is co-permitted for NSR purposes with El Paso Natural Gas's Blanco A Compressor Station and Harvest Four Corners, LLC's San Juan Gas Plant; however, the three facilities are a separate facility for Title V purposes, and each have their own Title V permit. The Blanco C&D Compressor Station is located approximately 2 miles northeast of Bloomfield, NM in San Juan County.

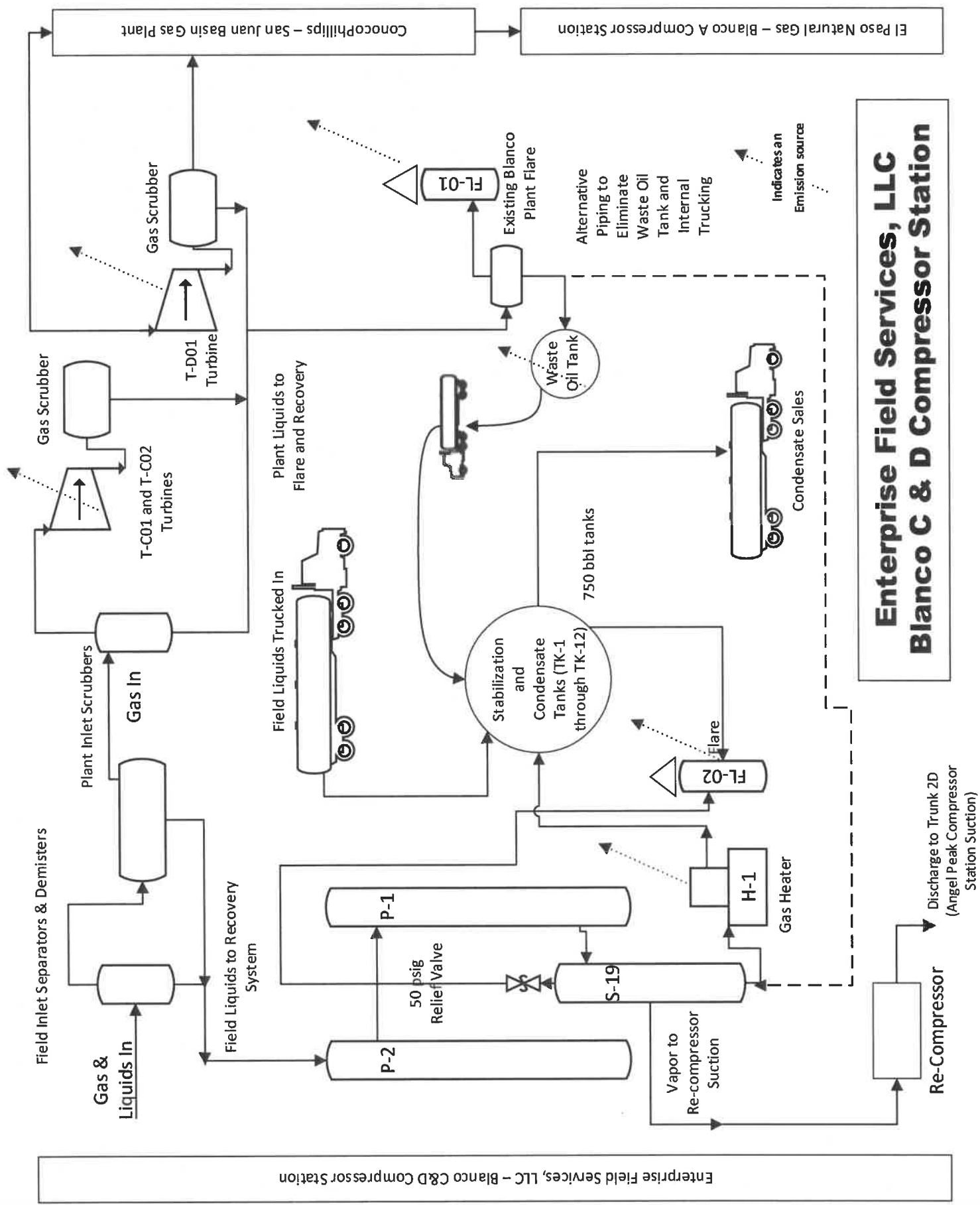
Enterprise proposes for this application to meet the requirements of a Title V Renewal application pursuant to 20.2.70.300.B.(2) NMAC which requires a Title V Permit renewal application to be submitted at least twelve (12) months prior to the expiration date of the current Title V Operating Permit.

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 included in this section.



Enterprise Field Services, LLC
Blanco C & D Compressor Station

Enterprise Field Services, LLC - Blanco C&D Compressor Station

El Paso Natural Gas - Blanco A Compressor Station

ConocoPhillips - San Juan Basin Gas Plant

Re-Compressor

Discharge to Trunk 2D
(Angel Peak Compressor
Station Suction)

H-1
Gas Heater

Vapor to
Re-compressor
Suction

FL-02
Flare

Stabilization and
Condensate
Tanks (TK-1
through TK-12)

750 bbl tanks

Waste
Oil Tank

FL-01
Existing Blanco
Plant Flare

Alternative
Piping to
Eliminate
Waste Oil
Tank and
Internal
Trucking

Condensate Sales

Plant Liquids to
Flare and Recovery

Field Liquids Trucked In

Field Liquids to Recovery
System

Gas In

Plant Inlet Scrubbers

Gas &
Liquids In

T-C01 and T-C02
Turbines

T-D01
Turbine

Gas Scrubber

Indicates an
Emission source

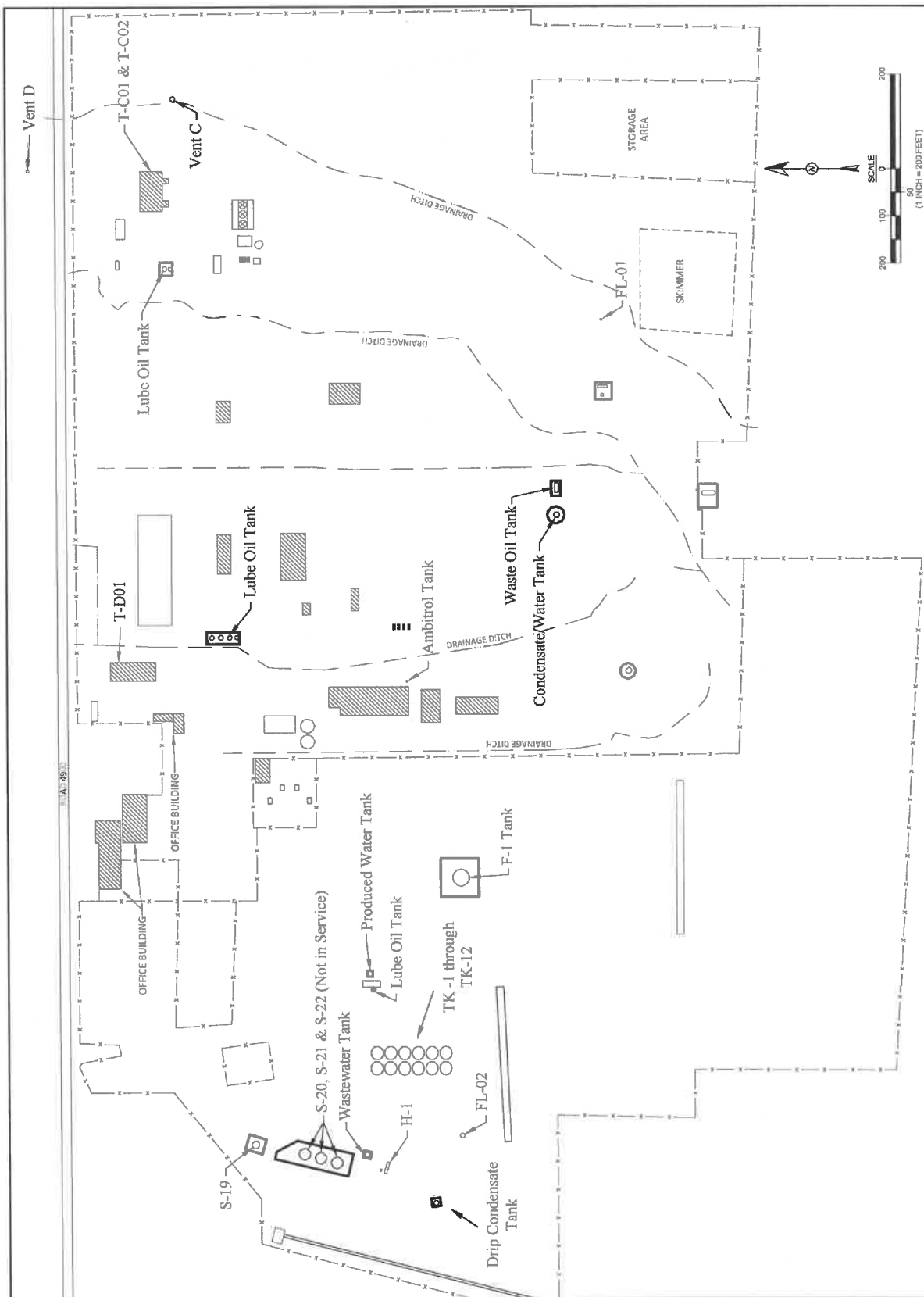
Section 5

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 the Blanco C&D Compressor Station Facility is attached.

Blanco C&D Plot Plan



Section 6

All Calculations

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

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

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rationale 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.

Emission units at Blanco C&D compressor station:

- Three natural gas-fueled combustion turbines (units: T-C01, T-C02, & T-D01)
- One Heater (unit: H-1)
- Fugitive emissions (unit: F-001)
- Blowdown and emergency shutdown emissions (unit: Vent C, Vent D, and ESD)
- Startup, Shutdown, and Maintenance Emissions (unit: SSM)
- Malfunction Emissions (unit: M)
- Twelve 750 bbl stabilization tanks (units: TK-1 through TK-12)
- One 30 bbl Condensate tank (unit: Prod TK-1)
- One Process Flare shared with EPNG (unit: FL-01)
- One Process Flare (unit: FL-02)
- Truck loading (unit: Truck)
- Truck hauling (unit: Haul)

Emission Units

Turbines (units: T-C01, T-C02, & T-D01)

NO_x, CO, and VOC emission calculations for all turbine units are based on manufacturer's data. SO₂ emission calculations for all turbine units are based on the pipeline specification of 5 grains of sulfur per 100 scf of gas. It is assumed that 100% of the gas sulfur content is converted to SO₂. PM (PM_{2.5}, PM₁₀, TSP) emissions are calculated using AP-42 Table 3.1-2a emission factors. HAP emissions are calculated using GRI-HAP Calc v3.0. Greenhouse gas emissions are calculated using EPA 40 CFR 98 Subpart C equations.

Heater (unit: H-1)

NO_x, CO, VOC, and PM (PM_{2.5}, PM₁₀, TSP) emission calculations are based on AP-42 Table 1.4-2 emission factors. SO₂ emission calculations for all turbine units are based on the pipeline specification of 5 grains of sulfur per 100 scf of gas. It is assumed that 100% of the gas sulfur content is converted to SO₂. HAP emissions are calculated using GRI-HAPCalc v3.0. Greenhouse gas emissions are calculated using EPA 40 CFR 98 Subpart C equations.

Fugitives (unit: F-001)

Fugitive emissions presented here are based on the fugitive emissions at both the adjacent Blanco A plant and the Blanco C&D facility. VOC emission calculations are based on components counts from fittings and emission factors from EPA-453 "Protocol for Equipment Leak Emissions Estimates" guidance document (November 1995).

Vents (units: Vent C, Vent D, & ESD)

Venting emissions include SSM emissions. VOC emissions calculations are based on a conservative estimate for venting events and an inlet gas analysis. Greenhouse gas emissions are estimated using gas analyses and the VOC emission rates.

Startup, Shutdown, and Maintenance/Malfunction Emissions (units: SSM & M1)

For malfunction emissions, Enterprise has requested a maximum of 10 tpy of VOCs. This is pursuant with NMED guidance (Implementation Guidance for Permitting SSM Emissions and Excess Emissions, June 7, 2012). Startup, shutdown, and maintenance emissions are based on historical records for maximum annual emissions from venting and emissions from tanks during unit FL-02 downtime. A 100% safety is added to the final requested SSM emission rate.

Tanks (units: Prod TK-1 & TK-1 through TK-12)

Tank emissions were calculated based on ProMax runs and liquid analysis (Analysis ID: 1030-17031068-001A). Emission associated with tanks are routed to a process flare, with a destruction efficiency of 98%. During FL-02 downtime, TK-1 through TK-12, and Prod TK-1 tank emissions are categorized as SSM emissions.

Emergency Flare (unit: FL-01)

Flare emissions are based on flare operation at the adjacent Blanco A plant and Blanco C&D facility. NO_x and CO emissions are based on emission factors from AP-42, chapter 13.5. H₂S emissions are based on a conservative estimate of 0.25 grains of H₂S per 100 scf of fuel gas. It is assumed that 98% of H₂S is combusted. SO₂ emission calculations are based on 5 grains of sulfur per 100 scf of gas. It is assumed that 100% of the gas sulfur content is converted to SO₂. VOC and HAP emissions are based on and extended inlet gas analysis. Greenhouse gas emissions are calculated using EPA 40 CFR 98 Subpart W equations.

Haul Road Emissions (unit: Haul)

Unpaved haul road emissions are calculated using Equation 2 of AP-42 Section 13.2.2.

Truck Loading Emissions (unit: Truck)

BR&E ProMax with a site-specific liquid analysis (Analysis ID: 2030-17060200-001A) was used to calculate loading emissions.

Process Flare (unit: FL-02)

Fuel flow rates used to calculate the emission rates for flare unit FL-02 are based on tank working, breathing, and flash VOC flow rates from BR&E ProMax. NO_x and CO emissions are based on AP-42 chapter 13.5 emission factors. H₂S emissions are based on 0.25 grains of H₂S per 100 scf of pilot gas fuel and an assumed 98% combustion efficiency. SO₂ emissions are based on 5 grains of sulfur per 100 scf of pilot gas fuel an assumed 100% conversion of elemental sulfur to SO₂. The flare is assumed to have a 2% downtime during which vapors are vented to the atmosphere. For short-term averaging, emissions of criteria pollutants are assumed at the maximum hourly rate. For annual average emissions, NO_x and VOC emissions factor in the 2% downtime assumption and the assumed total throughput of condensate. Greenhouse gas emissions are calculated using EPA 40 CFR 98 Subpart W equations.

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

Global Warming Potentials (GWP):

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

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

Metric to Short Ton Conversion:

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

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

Emission Summary**Uncontrolled Emissions (Based on Estimated Future Production Rates)**

Unit	Description	NO _x		CO		VOC		SO ₂		TSP		PM ₁₀		PM _{2.5}		H ₂ S		Total HAPs		CO ₂	N ₂ O	CH ₄
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	tons/yr	tons/yr	tons/yr
TK-1	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-2	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-3	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-4	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-5	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-6	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-7	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-8	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-9	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-10	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-11	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
TK-12	750 bbl Tank	-	-	-	-	*	34.50	-	-	-	-	-	-	-	-	*	-	*	1.56	-	-	-
PROD TK-1	300 bbl Product Tank	-	-	-	-	-	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H-1	Heater	0.40	1.75	0.34	1.47	0.022	0.10	0.057	0.25	0.030	0.13	0.030	0.13	0.030	0.13	-	-	-	-	2047.88	0.0039	0.039
FL-01	Flare 1	0.0034	0.015	0.015	0.068	-	-	7.47E-04	0.0033	-	-	-	-	-	-	3.57E-07	1.56E-06	-	-	34324.58	0.039	51.55
FL-02	Flare 2	0.76	0.48	3.45	2.21	4.97	10.35	7.14E-04	0.0031	-	-	-	-	-	-	-	-	0.22	0.47	6897.69	0.007	8.75
T-C01	C Turbine 1	80.00	350.40	17.82	78.05	0.32	1.40	0.26	1.15	0.35	1.52	0.35	1.52	0.35	1.52	-	-	2.04	8.94	93608.85	0.18	1.77
T-C02	C Turbine 2	80.00	350.40	17.82	78.05	0.32	1.40	0.26	1.15	0.35	1.52	0.35	1.52	0.35	1.52	-	-	2.04	8.94	93608.85	0.18	1.77
T-D01	D Turbine 1	143.33	627.80	21.60	94.70	0.46	2.01	0.32	1.41	0.59	2.59	0.59	2.59	0.59	2.59	-	-	2.89	12.66	159313.48	0.30	3.00
F-001	Fugitive Emissions	-	-	-	-	7.03	30.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truck	Loading Emissions	-	-	-	-	10.73	31.42	-	-	-	-	-	-	-	-	-	-	0.46	1.34	-	-	-
Haul	Haul Road Emissions	-	-	-	-	-	-	-	-	0.63	2.74	0.16	0.70	0.02	0.07	-	-	-	-	-	-	-
Steady-State Emissions Total		304.49	1330.85	61.05	254.55	23.85	492.47	0.90	3.96	1.94	8.51	1.48	6.47	1.33	5.84	0.00	0.00	7.65	51.01	389801.33	0.70	66.87
Blowdown		-	-	-	-	1.17	5.13	-	-	-	-	-	-	-	-	-	-	-	-	4853.05	-	39.93
SSM		-	-	-	-	-	19.35	-	-	-	-	-	-	-	-	-	-	-	0.16	-	-	-
Steady-State Plus SSM/M Total		304.49	1330.85	61.05	254.55	25.02	516.95	0.90	3.96	1.94	8.51	1.48	6.47	1.33	5.84	0.00	0.00	7.65	51.18	394654.38	0.70	106.81

Controlled Emissions (Based on Estimated Future Production Rates)

Unit	Description	NO _x		CO		VOC		SO ₂		TSP		PM ₁₀		PM _{2.5}		H ₂ S		Total HAPs		CO ₂	N ₂ O	CH ₄
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	tons/yr	tons/yr	tons/yr
TK-1	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-2	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-3	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-4	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-5	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-6	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-7	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-8	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-9	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-10	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-11	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
TK-12	750 bbl Tank	-	-	-	-	*	-	-	-	-	-	-	-	-	-	*	-	*	-	-	-	-
PROD TK-1	300 bbl Product Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H-1	Heater	0.40	1.75	0.34	1.47	0.022	0.10	0.057	0.25	0.030	0.13	0.030	0.13	0.030	0.13	-	-	-	-	2047.88	0.0039	0.039
FL-01	Flare 1	4.15	1.80	18.91	8.18	96.43	41.42	7.50E-04	0.0033	-	-	-	-	-	-	3.57E-07	1.56E-06	13.86	5.95	34324.58	0.039	51.55
FL-02	Flare 2	0.76	0.48	3.45	2.21	4.97	10.35	7.14E-04	0.0031	-	-	-	-	-	-	-	-	0.22	0.47	6897.69	0.0073	8.75
T-C01	C Turbine 1	80.00	350.40	17.82	78.05	0.32	1.40	0.26	1.15	0.35	1.52	0.35	1.52	0.35	1.52	-	-	2.04	8.94	93608.85	0.18	1.77
T-C02	C Turbine 2	80.00	350.40	17.82	78.05	0.32	1.40	0.26	1.15	0.35	1.52	0.35	1.52	0.35	1.52	-	-	2.04	8.94	93608.85	0.18	1.77
T-D01	D Turbine 1	143.33	627.80	21.60	94.70	0.46	2.01	0.32	1.41	0.59	2.59	0.59	2.59	0.59	2.59	-	-	2.89	12.66	159313.48	0.30	3.00
F-001	Fugitive Emissions	-	-	-	-	7.03	30.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truck	Loading Emissions	-	-	-	-	10.73	31.42	-	-	-	-	-	-	-	-	-	-	0.46	1.34	-	-	-
Haul	Haul Road Emissions	-	-	-	-	-	-	-	-	0.63	2.74	0.16	0.70	0.016	0.070	-	-	-	-	-	-	-
Steady-State Emissions Total		308.64	1332.63	79.94	262.67	120.28	118.87	0.90	3.96	1.94	8.51	1.48	6.47	1.33	5.84	0.00	0.00	21.51	38.30	389801.34	0.70	66.87
Blowdown		-	-	-	-	1.17	5.13	-	-	-	-	-	-	-	-	-	-	-	-	4853.05	-	39.93
SSM		-	-	-	-	-	19.35	-	-	-	-	-	-	-	-	-	-	-	0.16	-	-	-
Steady-State Plus SSM/M Total		308.64	1332.63	79.94	262.67	121.45	143.35	0.90	3.96	1.94	8.51	1.48	6.47	1.33	5.84	3.57E-07	1.56E-06	21.51	38.46	394654.38	0.70	106.81

Enterprise Field Services - Blanco C&D Compressor Station

Stabilization and Condensate Tanks

Emission units: TK-1 through TK-12
 Number of Tanks: 12
 Source Description:

750 bbl Oil Tanks

General Tank Information ¹

Description	Value	Unit	Note
Volume	750	bbl	
Height (shell)	24.0	ft	
Diameter	15.5	ft	
Facility Throughput Daily	1,342.5	bbl/day	Estimate of current production rate
Facility Throughput Annual	490,001.6	bbl/yr	Maximum daily throughput*365 days/yr
Tank Throughput Daily	111.9	bbl/day/tank	Max bbl/day per tank
Tank Throughput Annual	40,833.5	bbl/yr/tank	Tank throughput *365 days/yr
Tank Throughput Annual	1,715,005.4	gal/yr/tank	bbl/yr * 42 gal/bbl
Turnovers	54.4	turnovers/yr/tank	Annual tank throughput / Volume of tank

Uncontrolled Emissions

VOCs	Unit	Note
344	tpy	Flashing Losses (BR&E ProMax)
70.0	tpy	Working and Breathing Losses (BR&E ProMax)
34.5	tpy	Total uncontrolled VOC emissions per tank

Controlled Emissions **0.00** **tpy**

Note that the Flare controls VOC tank emissions (working, breathing and flash losses). There is a 98% destruction efficiency.

HAPs	Working & Breathing Losses		Flash Losses	
	lb/hr	tpy	tpy	
Benzene	0.081	0.247	1.701	
Toluene	0.13	0.484	3.1327	
Ethylbenzene	0.0048	0.021	0.12514	
Xylene (-m)	0.054	0.349	1.5682	
n-Hexane	0.70	1.889	9.147	
	Working and Breathing HAPs	2.99	Flash HAPs	15.674
Total HAPs per Tank ¹		1.555	tpy	

¹ Total HAPs per Tank = Working and Breathing HAPs + Flash HAPs

Enterprise Field Services - Blanco C&D Compressor Station

Prod TK-1 Tank

Unit: Prod TK-1
 Number of Tanks 1
 Source Description: 300 bbl condensate tank

General Tank Information

Volume	300	bbl	
Height (shell)	16	ft	
Diameter	15.5	ft	
Tank Throughput	3	maximum bbl/day/tank	Max bbl/day / # of tanks
Tank Throughput	1,200	bbl/yr/tank	Facility throughput / # of tanks
Tank Throughput	50,400	gal/yr/tank	bbl/yr * 42 gal/bbl
Turnovers	4.0	turnovers/yr/tank	Annual tank throughput / Volume of tank
Hours of Operation	8760.0	hr/yr	

Uncontrolled Emissions

VOCs	VOCs		
797	lb/yr	TANKS 4.09 d	Working and Breathing
150%	Annual Safety Factor		
0.996	tpy	$\text{tpy} = \text{lb/hr} \times [(8760\text{hr/yr}) / (2000\text{lb/ton})]$	$\times (1+150\%)$
0.996	tpy	Total uncontrolled VOC emissions per tank	
0.23	lb/hr	$= \text{tpy}(\text{with } 150\% \text{ safety factor}) / 8760 \text{ hr} / 2000 \text{ lb/ton}$	
100%	Short Term Safety Factor		
0.45	lb/hr	$\times (1+100\%)$	

Enterprise Field Services - Blanco C&D Compressor Station

Heater-1 (H-1) Emissions

Fuel Consumption

Input heat rate:	4.0	MMBtu/hr	Maximum nameplate
Fuel heat value:	999	Btu/scf	Pipeline specification
Fuel rate:	4004	scf/hr	Input heat rate / fuel heat value
Annual fuel usage:	35.1	MMscf/yr	8760 hrs/yr operation

Exhaust Parameters

Exhaust temp	212.0	°F	Eng. estimate
Stack height	6.0	ft	Eng. estimate
Stack diameter	1.0	ft	Eng. estimate
F Factor	10610	wscf/10e6 Btu	F factor-40 CFR 60 Appx A Method 19
Exhaust flow	707	scfm	Heat input * F factor/60
Site Elevation	5605.0	ft MSL	USGS 7.5 minute quad
Standard Pressure	29.92	in Hg	
Pressure at Elevation	24.33	in Hg	Hess, Introduction to Theoretical Meteorology, eqn. 6.8
Standard Temperature	520	R	
Exhaust flow	1124	acfm	$V_a = V_s * (P_s/P_a) * (T_a/T_s)$
Exhaust velocity	24	ft/sec	Exhaust flow / stack area

Emission Rates

Uncontrolled Emissions

NO _x	CO	VOC	SO ₂ ¹	
100	84	5.5	50	lb/MMscf AP-42 Table 1.4-2 (7/98)
			gr Total Sulfur/	Pipeline specification
4.00E-01	3.36E-01	2.20E-02	5.72E-02	lb/hr Hourly emission rate
1.75	1.47	9.65E-02	2.51E-01	tpy Annual emission rate (8760 hrs/yr)
TSP ²	PM ₁₀ ²	PM _{2.5} ²		
7.6	7.6	7.6	lb/MMscf	AP-42 Table 1.4-2 (7/98)
3.04E-02	3.04E-02	3.04E-02	lb/hr	Hourly emission rate
1.33E-01	1.33E-01	1.33E-01	tpy	Annual emission rate (8760 hrs/yr)

¹ 1. SO₂ calculation assumes 100% conversion of fuel elemental sulfur to SO₂.

² 2. Assumes PM (Total) = TSP = PM-10 = PM-2.5

GHG Emissions

CO ₂ ³	N ₂ O ³	CH ₄ ³	CO ₂ e ³	
53.02	0.0001	0.001		kg/MMBtu 40 CFR Subpart C Tables C-1
2047.9	0.0039	0.04	2049.9	tpy

³ N₂O, CH₄, and CO₂ tpy Emission Rate= EF* Fuel Usage * Fuel Heat Value * 2.20462 lb/1 kg * 1 ton/2000 lb* 8760 hr/yr

CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor +CH₄ Emission Rate*GWP Factor

Enterprise Field Services - Blanco C&D Compressor Station

Flare-1 Emissions

Pilot Emissions

Pilot Fuel Data		
MW of fuel gas	16.62	typical for methane
Pilot fuel flow	50 scf/hr	Engineering estimate
Fuel heating value	999 Btu/scf	Estimated, nominal for natural gas
Heat rate	0.05 MMBtu/hr	800/scf * scf/hr / 1,000,000
Annual fuel usage	0.44 MMBtu/yr	scf/hr * 8760 hrs/yr / 1,000,000

Pilot Emission Rates

NOx	CO	VOC ¹	H ₂ S ²	SO ₂ ³	HAPs ¹	Units
0.0680	0.3100		1.79E-05			lb/MMBtu
				0.000714286		lb H ₂ S/hr
			3.57E-07	3.29E-05		lb SO ₂ /hr
8.40E-03	1.55E-02		3.57E-07	7.47E-04		lb/hr
1.49E-02	6.78E-02		1.56E-06	3.27E-03		tpy

¹ Fuel is purchased natural gas, comprised mainly of methane. VOC and HAP emissions are assumed to be negligible.

² H₂S emissions based on 0.25 g/100 scf H₂S in fuel, 98% combustion.

0.25 gr H₂S/100 scf * fuel scf/hr * 1 lb/7000 gr = lb/hr H₂S (prior to combustion and conversion to SO₂)

³ SO₂ emissions based on sulfur content of 5 g/100 scf S in fuel and 98% combustion of H₂S to SO₂.

5 gr S/100 scf * fuel scf/hr * 1 lb/7000 gr * 64 lb SO₂/32 lb S = lb/hr SO₂

Flow Rates ¹		
Hourly flare gas volume	32,922 scf/hr	Maximum flow rate
Total flare gas volume	288,392,970 scf/yr	Maximum flow rate
Hourly flare gas volume	3,228 scf/hr	Average flow rate

¹ Facility Design Specification

Flare Gas Analysis					
Component	MW	Mole%	Flow (scf/hr)	Spec Volume (scf/lb)	Loading (lb/hr)
Nitrogen	28.0134	5.1808%	1705.6	13.547	125.901
Oxygen	31.9988	1.2207%	401.9	12.24	32.834
Methane	16.04	42.2300%	13902.8	23.65	587.855
Carbon Dioxide	44.01	1.4871%	489.6	8.623	56.775
Ethane	30.07	14.3482%	4723.7	12.62	374.300
Propane	44.1	15.3238%	5044.8	8.606	586.159
Isobutane	58.12	4.5913%	1511.5	6.529	231.508
n-Butane	58.12	7.1879%	2366.4	6.529	362.441
Neopentane	72.15	0.0000%	0.000	5.26	0.000
Isopentane	72.15	2.9926%	985.2	5.26	187.303
n-Pentane	86.17	2.1395%	704.4	5.26	133.908
H ₂ S	34.08	0.0000%	0.000	11.14	0.000
Hexanes+	86.508	3.2981%	1085.8	4.309	252.000
Total		100.0000	32922		2931.02
VOC		35.83%			1753.36
Safety Factor				175%	
VOC emissions with Safety Factor					4821.74
*HAP emissions with Safety Factor					693.00

*HAP emissions equals the Hexanes+ emissions.

Average component analysis for Hexanes+ ¹			
Component		MW	Spec. Volume (scf/lb)
n-Hexane	0.1887%	86.17	4.404
2-methylpentane	0.1550%	86.18	4.404
methylcyclopentane	0.1770%	84.16	4.509
cyclohexane	0.1240%	84.16	4.509
methylcyclohexane	0.1880%	98.19	3.855
Benzene	0.0480%	78.11	4.858
Toluene	0.0810%	92.13	4.119
Ethylbenzene	0.0000%	106.17	3.574
Xylenes	0.0280%	106.17	3.574
Total	0.3690%	-	-
Weighted AVG	-	88.508	4.309

¹ Component analysis for Hexanes+ based on previous flare gas analysis

Emission Calculations: Normal Operation - Flaring Purge Gas

Mean MW of flare gas	34.06
Mean heating value	1851.37 Btu/scf
Heat rate (Max)	60.95 MMBtu/hr
Heat Rate (Average)	5.98 MMBtu/hr

Total scf/hr * Btu/scf / 1,000,000

NOx	CO	VOC	H ₂ S	SO ₂	HAPs	Units
0.0680	0.3100					lb/MMBtu
		4821.74	0.00		693.00	lb/hr
		96.43	0.00	0.00	13.86	lb/hr
4.14	18.89					lb/hr
4.14	18.89	96.43	0.00	0.00	13.86	lb/hr
1.78	8.11	41.42	0.00	0.00	5.95	tpy
4.15	18.91	96.43	9.57E-07	7.47E-04	13.86	lb/hr
1.79	8.18	41.42	1.56E-06	3.27E-03	5.95	tpy

AP-42, Chapter 13.5

Calculated above

98% combustion VOCs, HAPs, H₂S; 100% H₂S -> SO₂

lb/MMBtu * MMBtu/hr

Flared gas

Flared gas

Total; Flared gas + pilot

Total; Flared gas + pilot

Stack Parameters

	1000 °C	Exhaust temperature	Per NMACB guidelines
	20 m/sec	Exhaust velocity	Per NMACB guidelines
	40 ft	Flare height	Engineering design
Pilot only			
	3,497 cal/sec	Heat release (q)	MMBtu/hr * 10 ⁶ * 252 cal/Btu + 3600 sec/hr
	2,812	q ₀	q ₀ = q(1-0.046/(MW) ^{1/3})
	0.05 m	Effective stack diameter (D)	D = (10 ⁶ q ₀) ^{1/2}
Pilot and flare gas			
	50 scf/hr	Pilot fuel flow	Engineering estimate
	32,922 scf/hr	Flare gas flow	Calculated above
	32,972 scf/hr	Total volume to flare	Pilot fuel flow + flare gas flow
	61.0 MMBtu/hr	Total heat input	Sum of fuel and flare gas heating values
	19.97 g/mol	Total mean MW	Volume weighted average of fuel and flare gas MWs
	4,269,577 cal/sec	Heat release (q)	MMBtu/hr * 10 ⁶ * 252 cal/Btu + 3600 sec/hr
	3,353,651	q ₀	q ₀ = q(1-0.046/(MW) ^{1/3})
	1.831 m	Effective stack diameter (D)	D = (10 ⁶ q ₀) ^{1/2}

Flare-1 GHG Emissions

Emission Unit: Process Flare
Source Description: Flare Gas, Pilot Gas

888.233(n) Flare stack GHG emissions.**Step 1. Calculate contribution of un-combusted CH₄ emissions from the regenerator combustion gas vent (actual conditions).**

$$E_{A,CH_4}(\text{un-combusted}) = V_g \cdot (1 - \eta) \cdot X_{CH_4} \quad (\text{Equation W-20B})$$

where:

E_{A,CH₄} = contribution of annual un-combusted CH₄ emissions from regenerator in cubic feet under actual conditions.V_g = volume of gas sent to combustion unit during the year (cf)

η = Fraction of gas combusted by a burning flare (or regenerator), default value from Subpart W = 0.98

For gas sent to an unit flare, η is zero.

$$X_{CH_4} = \text{Mole fraction of CH}_4 \text{ in gas to the flare} = 0.422 \quad (\text{Client gas analysis})$$

Step 2. Calculate contribution of un-combusted CO₂ emissions from the regenerator combustion gas vent (actual conditions).

$$E_{A,CO_2} = V_g \cdot X_{CO_2} \quad (\text{Equation W-20})$$

where:

E_{A,CO₂} = contribution of annual un-combusted CO₂ emissions from regenerator in cubic feet under actual conditions.V_g = volume of gas sent to combustion unit during the year (cf)

$$X_{CO_2} = \text{Mole fraction of CO}_2 \text{ in gas to the flare} = 0.015$$

Step 3. Calculate contribution of combusted CO₂ emissions from the regenerator combustion gas vent (actual conditions).

$$E_{A,CO_2}(\text{combusted}) = \sum (\eta \cdot V_g \cdot Y_i \cdot R_i) \quad (\text{Equation W-21})$$

where:

η = Fraction of gas combusted by a burning flare (or regenerator) = 0.98

For gas sent to an unit flare, η is zero.

V_g = volume of gas sent to combustion unit during the year (cf)Y_i = mole fraction of gas hydrocarbon constituents j:

Constituent j, Methane = 0.42

Constituent j, Ethane = 0.14

Constituent j, Propane = 0.15

Constituent j, Butane = 0.12

Constituent j, Pentanes = 0.05

Constituent j, Hexane Plus = 0.03

R_i = number of carbon atoms in the gas hydrocarbon constituent j:

Constituent j, Methane = 1

Constituent j, Ethane = 2

Constituent j, Propane = 3

Constituent j, Butane = 4

Constituent j, Pentanes = 5

Constituent j, Hexane Plus = 6

Step 4. Calculate GHG volumetric emissions at standard conditions (scf).

$$E_{A,n} = \frac{E_{A,n} \cdot (459.67 + T_a) \cdot P_a}{(459.67 + T_s) \cdot P_s} \quad (\text{Equation W-33})$$

where:

E_{A,n} = GHG i volumetric emissions at standard temperature and pressure (STP) in cubic feetE_{A,n} = GHG i volumetric emissions at actual conditions (cf)

$$T_s = \text{Temperature at standard conditions (F)} = 70 \text{ F}$$

$$T_a = \text{Temperature at actual conditions (F)} = 78 \text{ F}$$

$$P_s = \text{Absolute pressure at standard conditions (psia)} = 14.7 \text{ psia}$$

$$P_a = \text{Absolute pressure at actual conditions (psia)} = 13.28 \text{ psia}$$

$$\text{Constant} = 459.67 \quad (\text{temperature conversion from F to R})$$

Step 5. Calculate annual CH₄ and CO₂ mass emissions (ton).

$$\text{Mass}_{A,i} = E_{A,i} \cdot \rho_i \cdot 0.0011023 \quad (\text{Equation W-36})$$

where:

Mass_{A,i} = GHG i (CO₂, CH₄, or N₂O) mass emissions at standard conditions in tons (tpy)E_{A,i} = GHG i (CO₂, CH₄, or N₂O) volumetric emissions at standard conditions (cf)ρ_i = Density of GHG i. Use:

$$\text{CH}_4: 0.0192 \text{ kg/ft}^3 \text{ (at 60F and 14.7 psia)}$$

$$\text{CO}_2: 0.0526 \text{ kg/ft}^3 \text{ (at 60F and 14.7 psia)}$$

Step 6. Calculate annual N₂O emissions from portable or stationary fuel combustion sources under actual conditions (cf) using Equation W-40.

$$\text{Mass}_{N_2O} = 0.0011023 \cdot \text{Fuel} \cdot \text{HHV} \cdot \text{EF} \quad (\text{Equation W-40})$$

where:

Mass_{N₂O} = annual N₂O emissions from combustion of a particular type of fuel (tons).

Fuel = mass or volume of the fuel combusted

HHV = high heat value of the fuel

$$\text{Field gas HHV} = 1.235\text{E-}03 \text{ MMBtu/scf} \quad (\text{Default provided in Subpart W Final Amendment.})$$

$$\text{EF} = 1.00\text{E-}04 \text{ kg N}_2\text{O/MMBtu}$$

10⁻³ = conversion factor from kg to metric tons.**Step 7. Calculate total annual emission from flare (regenerator) by summing Equations W-40, W-19, W-20, and W-21.**

Gas Sent to Flare (scf/yr)	CH ₄ Un-Combusted, E _{A,CH₄} (scf)	CO ₂ Un-Combusted, E _{A,CO₂} (scf)	CO ₂ Combusted, E _{A,CO₂} (scf)	CH ₄ Un-Combusted, E _{A,CH₄} (tpy)	CO ₂ Un-Combusted, E _{A,CO₂} (tpy)	CO ₂ Combusted, E _{A,CO₂} (tpy)	N ₂ O Mass Emissions (tpy)
288,392.970	24357.65	4,288.657	591,997.284	51.55	248.661	34,324.58	0.039

Step 8. Calculate CO₂ equivalent¹

$$\text{CO}_2\text{e} = \text{CO}_2 + \{\text{CH}_4 \times \text{GWP}\} + \{\text{N}_2\text{O} \times \text{GWP}\}$$

$$\text{CO}_2\text{e} = 34,573.2 + 1,288.77 + 11.700$$

$$\text{CO}_2\text{e} = 35,873.72 \text{ tons/year}$$

¹ Global Warming Potentials (GWP) are from Table A-1 of the EPA GHG MRR under 40 CFR Part 98CH₄ GWP = 25N₂O GWP = 298

Enterprise Field Services - Blanco C&D Compressor Station

Flare-2 Emissions

Controls emissions from Load and Tank-1 through Tank-12

Unit: FL-02

Destruction Efficiency: 98% Manufacturer guarantee

Waste stream flaring

Operating hours: 8760 hr/yr

Hourly process flow: 0.0061 MMscf/hr

Hourly process flow: 0.0010 MMscf/hr

Total flare gas volume: 53 MMscf/yr

Lower Heating Value: 1826.2 Btu/scf

Lower Heating Value: 1702.3 Btu/scf

Max hourly heat rate: 11.1 MMBtu/hr

Average Annual heat rate: 1.63 MMBtu/hr

Estimated Max Flow Rate (Includes Pilot and Purge)

Average Flow Rate (Includes Pilot and Purge)

Hourly Value

Annual Value

Inlet Liquids Analysis ¹			Hourly Analysis			Annual Analysis		
Composition (Emissions from Tanks)	Mol% (Hourly)	Mol% (Annual)	Flash Mass Flow (lb/hr)	W&B Mass Flow (lb/hr)	Total Flow (lb/hr)	Flash Mass Flow (tpy)	W&B Mass Flow (tpy)	Total Flow (tpy)
Nitrogen	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Methane	2.3930	1.6340	50.0028	0.8656	50.8684	133.5000	3.0503	136.5503
Carbon Dioxide	0.1140	0.0650	5.6399	0.3671	6.0070	11.5007	1.5038	13.0045
Ethane	1.8210	1.3280	49.1662	5.0458	54.2120	116.9070	25.8456	142.7526
Propane	3.5410	2.5860	70.6040	7.1285	77.7326	138.3260	29.0828	167.4088
Isobutane	1.6970	1.2470	20.7903	2.3354	23.1257	39.0438	7.8529	46.8967
n-Butane	3.5930	2.7270	31.2083	3.7175	34.9258	59.4336	12.2102	71.6438
Isopentane	3.5150	2.6090	15.3758	1.9015	17.2773	28.1900	5.5879	33.7779
n-Pentane	3.6910	2.7440	11.8793	1.5112	13.3905	21.8045	4.3729	26.1774
i-Hexane	5.5360	4.2660	8.5610	1.1358	9.6968	16.3759	3.3037	19.6796
n-Hexane	4.7500	3.4310	5.1272	0.6974	5.8246	9.1469	1.8895	11.0364
2,2,4-Trimethylpentane	0.1040	0.0830	0.0484	0.0065	0.0549	0.0968	0.0193	0.1161
Benzene	0.9780	0.8020	0.8812	0.0805	0.9617	1.7009	0.2473	1.9482
Heptane	22.7860	18.9430	8.5869	1.1430	9.7298	17.8921	3.5243	21.4164
Toluene	4.5880	4.5820	1.3310	0.1308	1.4617	3.1327	0.4839	3.6166
Octane	25.4280	16.1060	3.1875	0.4343	3.6217	5.1069	1.0164	6.1233
Ethylbenzene	0.4300	0.5010	0.0455	0.0048	0.0503	0.1251	0.0206	0.1457
m-Xylene	4.0740	6.7820	0.4099	0.0538	0.4637	1.5682	0.3490	1.9173
Nonane	7.4320	16.5180	0.3103	0.0425	0.3528	1.7484	0.0508	1.7991
C10+	3.5290	13.0460	0.0347	0.0039	0.0386	0.3141	0.0039	0.3180
		VOC Total	178.381	20.327	198.7085	344.006	70.015	414.0212
		Total	283.190	26.606	309.7960	605.914	100.415	706.3286

¹ Hourly and Annual Mol % shown above correspond to the liquids analysis detailed in the ProMax calculations and liquids analysis in Section 7

NO _x	CO	VOC ²	H ₂ S	SO ₂ ³		
0.068	0.310				lb/MMBtu	AP-42, Chapter 13.5
				7.14E-04	lb SO ₂ /hr	5 gr S/100scf
0.758	3.453	3.974	-	7.14E-04	lb/hr	Waste stream flaring
0.484	2.207	8.280	-	0.0031	tpy	Waste stream flaring
		25%				Safety Factor
0.76	3.45	4.97	-	0.0007	lb/hr	Total Flare Emissions
0.48	2.21	10.35	-	0.0031	tpy⁴	
n-Hexane	2,2,4-Trimethylpentane	Benzene	Toluene	Ethylbenzene	Xylenes	Total HAPs
0.116	0.001	0.019	0.029	0.001	0.009	0.176 lb/hr ⁵
0.221	0.002	0.039	0.072	0.003	0.038	0.376 tpy ⁴
25%	25%	25%	25%	25%	25%	Safety Factor
0.146	0.001	0.024	0.037	0.001	0.012	0.220 lb/hr⁵
0.276	0.003	0.049	0.090	0.004	0.048	0.470 tpy⁴

Total Flare Emissions

² VOC lb/hr emissions are based on previously permitted values as maximum hourly emissions rates can vary.

Hourly emissions; however, are not expected to increase above previously permitted (calculated) values.

³ Assumed 98% conversion of combusted H₂S to SO₂

⁴ tpy emission rates for VOCs and HAPs are based on a more conservative annual liquids analysis

⁵ For NO_x and CO, lb/hr = EF (lb/MMBtu) * Heat Input (MMBtu/hr)

For VOC, HAPs, and H₂S lb/hr = Flow (lb/hr) * (1 - Control%)

Flare-2 Greenhouse Gas Emissions

Emission Unit: Process Flare

Source Description: Flare Gas, Pilot Gas, controls emissions from Load and Tank-1 through Tank-12

§98.233(n) Flare stack GHG emissions.**Step 1. Calculate contribution of un-combusted CH₄ emissions from the regenerator combustion gas vent (actual conditions).**

$$E_{a,CH_4} (\text{un-combusted}) = V_a * (1 - \eta) * X_{CH_4} \quad (\text{Equation W-39B})$$

where:

 E_{a,CH_4} = contribution of annual un-combusted CH₄ emissions from regenerator in cubic feet under actual conditions. V_a = volume of gas sent to combustion unit during the year (cf) η = Fraction of gas combusted by a burning flare (or regenerator), default value from Subpart W = 0.98For gas sent to an unlit flare, η is zero. X_{CH_4} = Mole fraction of CH₄ in gas to the flare = 0.387 (Client gas analysis)**Step 2. Calculate contribution of un-combusted CO₂ emissions from the regenerator combustion gas vent (actual conditions).**

$$E_{a,CO_2} = V_a * X_{CO_2} \quad (\text{Equation W-20})$$

where:

 E_{a,CO_2} = contribution of annual un-combusted CO₂ emissions from regenerator in cubic feet under actual conditions. V_a = volume of gas sent to combustion unit during the year (cf) X_{CO_2} = Mole fraction of CO₂ in gas to the flare = 0.016**Step 3. Calculate contribution of combusted CO₂ emissions from the regenerator combustion gas vent (actual conditions).**

$$E_{a,CO_2} (\text{combusted}) = \sum (\eta * V_a * Y_j * R_j) \quad (\text{Equation W-21})$$

where:

 η = Fraction of gas combusted by a burning flare (or regenerator) = 0.98For gas sent to an unlit flare, η is zero. V_a = volume of gas sent to combustion unit during the year (cf) Y_j = mole fraction of gas hydrocarbon constituents j:

Constituent j, Methane =	0.387
Constituent j, Ethane =	0.2029
Constituent j, Propane =	0.1987
Constituent j, Butane =	0.11101
Constituent j, Pentanes =	0.04687
Constituent j, Hexane Plus =	0.03413

 R_j = number of carbon atoms in the gas hydrocarbon constituent j:

Constituent j, Methane =	1
Constituent j, Ethane =	2
Constituent j, Propane =	3
Constituent j, Butane =	4
Constituent j, Pentanes =	5
Constituent j, Hexane Plus =	6

Step 4. Calculate GHG volumetric emissions at standard conditions (scf).

$$E_{a,n} = \frac{E_{a,n} * (459.67 + T_a) * P_a}{(459.67 + T_s) * P_s} \quad (\text{Equation W-33})$$

where:

 $E_{a,n}$ = GHG i volumetric emissions at standard temperature and pressure (STP) in cubic feet $E_{a,n}$ = GHG i volumetric emissions at actual conditions (cf) T_s = Temperature at standard conditions (F) = 70 F T_a = Temperature at actual conditions (F) = 76 F P_s = Absolute pressure at standard conditions (psia) = 14.7 psia P_a = Absolute pressure at actual conditions (psia) = 13.28 psia

Constant = 459.67 (temperature conversion from F to R)

Step 5. Calculate annual CH₄ and CO₂ mass emissions (ton).

$$\text{Mass}_{a,i} = E_{a,i} * \rho_i * 0.0011023 \quad (\text{Equation W-36})$$

where:

 $\text{Mass}_{a,i}$ = GHG i (CO₂, CH₄, or N₂O) mass emissions at standard conditions in tons (tpy) $E_{a,i}$ = GHG i (CO₂, CH₄, or N₂O) volumetric emissions at standard conditions (cf) ρ_i = Density of GHG i. Use:CH₄: 0.0192 kg/ft³ (at 60F and 14.7 psia)CO₂: 0.0526 kg/ft³ (at 60F and 14.7 psia)

Step 6. Calculate annual N₂O emissions from portable or stationary fuel combustion sources under actual conditions (cf) using Equation W-40.

$$\text{Mass}_{\text{N}_2\text{O}} = 0.0011023 * \text{Fuel} * \text{HHV} * \text{EF} \quad (\text{Equation W-40})$$

where:

$\text{Mass}_{\text{N}_2\text{O}}$ = annual N₂O emissions from combustion of a particular type of fuel (tons).

Fuel = mass or volume of the fuel combusted

HHV = high heat value of the fuel

Field gas HHV = 1.235E-03 MMBtu/scf (Default provided in Subpart W Final Amendment;)

EF = 1.00E-04 kg N₂O/MMBtu

10⁻³ = conversion factor from kg to metric tons.

Step 7. Calculate total annual emission from flare (regenerator) by summing Equations W-40, W-19, W-20, and W-21.

Gas Sent to Flare (scf/yr)	CH ₄ Un-Combusted, E _{a,CH4} (scf)	CO ₂ Un-Combusted, E _{a,CO2} (scf)	CO ₂ Combusted, E _{a,CO2} (scf)	CH ₄ Un-Combusted, E _{a,CH4} (tpy)	CO ₂ Un-Combusted, E _{a,CO2} (tpy)	CO ₂ Combusted, E _{a,CO2} (tpy)	N ₂ O Mass Emissions (tpy)
53,436,000	413326	849,696	118,964,741	8.75	49.265	6,897.69	7.3E-03

Step 8. Calculate CO₂ equivalent¹

$$\text{CO}_2\text{e} = \text{CO}_2 + \{\text{CH}_4 \times \text{GWP}\} + \{\text{N}_2\text{O} \times \text{GWP}\}$$

$$\text{CO}_2\text{e} = 6,947.0 + 218.69 + 2.168$$

$$\text{CO}_2\text{e} = 7,167.8 \text{ tons/year}$$

¹ Global Warming Potentials (GWP) are from Table A-1 of the EPA GHG MRR under 40 CFR Part 98.

CH₄ GWP = 25

N₂O GWP = 298

Gas Sent to Flare 6,100.0 scf/hr pilot gas from flare 130 scf/hr design spec.
53,436,000.0 scf/yr

Enterprise Field Services - Blanco C&D Compressor Station

Turbine T-C01

Blanco C&D Compressor Station		Point source
T-C01		Natural gas-fired turbine (Regenerative Cycle)
Manufacturer:	GE	
Model:	5221 W	
Horsepower	22,280 hp	Rated
Horsepower	16,202 hp	Site

Site Data

Site Elevation	5,605 ft MSL	
Standard Pressure	29.92 in Hg	
Pressure at Elevation	24.33 in Hg	Hess, Introduction to Theoretical Meteorology, eqn. 6.8

Stack Parameters

Temperature (bypass)	590 deg F	C1 test data (5/23/03 tests)
	660 deg F	C2 test data
Temperature (bypass)	625 deg F	Average
Temperature (HRSG)	350 deg F	C1 test data (5/23/03 tests)
	300 deg F	C2 test data
Temperature (HRSG)	325 deg F	Average

Stack Parameters

C1 Bypass	48.2 ft ²	Area	C2 Bypass	48.2 ft ²	Area
	7.83 ft	Diameter		7.83 ft	Equivalent Diameter
	78.1 fps	Test		83.5 fps	
	41.5 ft	Stack Height		41.5 ft	Stack Height
	625 F	Temperature		625 F	Temperature
	225,762 acfm	Flow		241,477 acfm	Flow
C1 HRSG	8.80 ft	Length	C2 HRSG	5.00 ft	Length
	9.60 ft	Width		8.60 ft	Width
	85.4 ft ²	Area		43.3 ft ²	Area
	10.4 ft	Equivalent Diameter		7.43 ft	Equivalent Diameter
	34.7 fps			63.0 fps	
	41.5 ft	Stack Height		41.5 ft	Stack Height
	325 F			325 F	Temperature
	177,780 acfm	Flow		163,907 acfm	Flow

Fuel Usage

Data from 2000 tests

Horsepower	16,100	16,100	16,100	16,100	16,100	16,100	Mean
Fuel (scf/hr)	182,870	181,990	181,080	180,620	182,640	182,030	181872
	1.01	Ratio Nominal/Tested Horsepower					
	183,024 scf/hr	Adjusted Fuel Consumption					
	1,603 MMscf/yr						
	999 Btu/scf	Estimated/Engineering Judgment					
	183 MMBtu/hr						

Emission Calculations

NO _x	CO	VOC	SO ₂	PM ¹	HAPs ²	
80	17.82	0.32	0.5	1.9E-03	lb/hr	As permitted
					gr S/100 scf	Pipeline speciation
					lb/MMBtu	(filterable)
80.0	17.8	0.32		0.35	lb/hr	As permitted
			0.26		lb/hr	Calculated
					lb/hr	5 gr S/100scf * fuel scf/hr * 1lb/7000gr * 64lbSO2/32lbs
350.4	78.1	1.4	1.1	1.5	8.9 tpy	lb/hr * 8,760 hr/yr / 2,000 lb/ton

¹ Particulate Matter (PM): TSP = PM₁₀ = PM_{2.5}

² HAP emissions are calculated using GRI-HAPCalc v3.0

GHG Emissions

CO ₂ ³	N ₂ O ³	CH ₄ ³	CO ₂ e ³		
53.02	0.0001	0.001		kg/MMBtu	40 CFR Subpart C Tables C-1
93,608.9	0.18	1.77	93,700.7	tpy	

³ N₂O, CH₄, and CO₂ tpy Emission Rate= EF* Fuel Usage * Fuel Heat Value * 2.20462 lb/1 kg * 1 ton/2000 lb* 8760 hr/yr

CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor +CH₄ Emission Rate*GWP Factor

Enterprise Field Services - Blanco C&D Compressor Station

Turbine T-C02

Blanco C&D Compressor Station		Point source					
T-C02		Natural gas-fired turbine (Regenerative Cycle)					
Manufacturer:	GE						
Model:	5221 W						
Horsepower	22,280 hp	Rated					
Horsepower	16,202 hp	Site					
Site Data							
Site Elevation	5,605 ft MSL						
Standard Pressure	29.92 in Hg						
Pressure at Elevation	24.33 in Hg	Hess, Introduction to Theoretical Meteorology, eqn. 6.8					
Stack Parameters							
Temperature (bypass)	590 deg F	C1 test data (5/23/03 tests)					
	660 deg F	C2 test data					
Temperature (bypass)	625 deg F	Average					
Temperature (HRSG)	350 deg F	C1 test data (5/23/03 tests)					
	300 deg F	C2 test data					
Temperature (HRSG)	325 deg F	Average					
Stack Parameters							
C1 Bypass	48.2 ft ²	Area	C2 Bypass			48.2 ft ²	Area
	7.83 ft	Diameter				7.83 ft	Equivalent Diameter
	78.1 fps	Test				83.5 fps	
	41.5 ft	Stack Height				41.5 ft	Stack Height
	625 F	Temperature				625 F	Temperature
	225,762 acfm	Flow				241,477 acfm	Flow
C1 HRSG	8.80 ft	Length	C2 HRSG			5.00 ft	Length
	9.60 ft	Width				8.60 ft	Width
	85.4 ft ²	Area				43.3 ft2	Area
	10.4 ft	Equivalent Diameter				7.43 ft	Equivalent Diameter
	34.7 fps					63.0 fps	
	41.5 ft	Stack Height				41.5 ft	Stack Height
	325 F					325 F	Temperature
	177,780 acfm	Flow				163,907 acfm	Flow
Fuel Usage							
Data from 2000 tests							
Horsepower	16,100	16,100	16,100	16,100	16,100	16,100	Mean
Fuel (scf/hr)	182,870	181,990	181,080	180,620	182,640	182,030	181872
	1.01	Ratio Nominal/Tested Horsepower					
	183,024 scf/hr	Adjusted Fuel Consumption					
	1,603 MMscf/yr						
	999 Btu/scf	Estimated/Engineering Judgment					
	183 MMBtu/hr						

Emission Calculations

NO _x	CO	VOC	SO ₂	PM ¹	HAPs ²	
80	17.82	0.32			lb/hr	As permitted
			0.5		gr S/100 scf	Pipeline speciation
				1.9E-03	lb/MMBtu	(filterable)
80.0	17.8	0.32			lb/hr	As permitted
			0.26	0.35	lb/hr	Calculated
					lb/hr	5 gr S/100scf * fuel scf/hr * 1lb/7000gr * 64lbSO ₂ /32lbs
350.4	78.1	1.4	1.1	1.5	8.9 tpy	lb/hr * 8,760 hr/yr / 2,000 lb/ton

¹ Particulate Matter (PM): TSP = PM₁₀ = PM_{2.5}

² HAP emissions are calculated using GRI-HAPCalc v3.0

GHG Emissions

CO ₂ ³	N ₂ O ³	CH ₄ ³	CO ₂ e ³		
53.02	0.0001	0.001		kg/MMBtu	40 CFR Subpart C Tables C-1
93,608.9	0.18	1.77	93,700.7	tpy	

³ N₂O, CH₄, and CO₂ tpy Emission Rate= EF* Fuel Usage * Fuel Heat Value * 2.20462 lb/1 kg * 1 ton/2000 lb* 8760 hr/yr

CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor +CH₄ Emission Rate*GWP Factor

Enterprise Field Services - Blanco C&D Compressor Station

Turbine T-D01

Blanco C&D Compressor Station		Point source	
T-D01		Natural gas-fired turbine	
Model:	5,321		
Hp	32,550 Hp	Rated	
Hp	23,990 Hp	Site	
Site Data			
Site Elevation	5,605 ft MSL		
Standard Pressure	29.92 in Hg		
Pressure at Elevation	24.33 in Hg	Hess, Introduction to Theoretical Meteorology, eqn. 6.8	
Fuel Usage			
	9,560 Btu/hp-hr	Mfg. Data	
	311.18 MMBtu/hr	hp * Btu/hp-hr	
	999 Btu/scf	Estimated/Engineering Judgement	
	311,489 scf/hr		
	2,729 MMscf/yr		
Stack Parameters			
Temperature	904 deg F		
Exhaust Flow			
BSFC	9,560 Btu/hp-hr	Mfg data	
	311.2 MMBtu/hr	heat rate	BSFC * hp
	904 °F	Exhaust temp	
	5605 ft MSL	Site Elevation	
	24.33 in. Hg	Ambient pressure (Pstk)	Calculated based on elevation
	14.70 psia	Standard pressure	
	8710 dscf/MMBtu	O2 f factor	
	15	Excess O2	nominal, turbines
	5.0%	Moisture %	nominal, turbines
	9,601,107 scfh	Exhaust flow = MMBtu/hr * O2 F * [20.9 / (20.9 - O2%)]	
	32,104,234 acfh	Flow (acfh) = Flow (scfh) * (Stack Temp + 460) / 528 * 29.92 / Site Bar. Pres. / (100% - Moisture%)	
	535,071 acfm	Eq. 2-10 of Method 2, App. A, 40 CFR 60	
	160,018 dscfm	calculated	MMBtu/hr * F factor / 60
	267,535 acfm	per stack	
	4,458.92 acfs	per stack	
	8,760 hrs/yr		
Stack Velocities			
	6.7 ft	Length	per stack
	6.7 ft	width	per stack
	44.89 ft2	area	
	7.56013158 ft	equivalent diameter	per stack
	99.3 fps	per stack	
	37.08 ft	stack ht	

Emission Calculations

Conversion Factors

$$\text{lb/dsfc/ppm} = \text{Mw} * (\text{pressure} / (10.73 \text{ scf psia/lbmol R}) * \text{TR} \times 10^6) = \text{Mw} * \text{pressure psia} / 5.662^9) = 5661899100$$

NO _x	CO	VOC	
46	28	44	MW
1.2E-07	7.3E-08	1.1E-07	lb/ppm/DSFC
125	30	1.4	ppmv Mfg. Data
0.46061	0.0672894	0.0049346	lb/MMBtu
143.33	20.94	0.07	lb/hr
627.80	91.71	0.32	tpy

Revised Emissions	NO _x	CO	VOC	SO ₂	PM ¹	HAPs ²	
				0.50			gr/100 scf
					1.9E-03		lb/MMBtu (filterable)
Calculated	143.3	20.9	0.073		5.9E-01	2.9	lb/hr
	628	92	0.32	0.9745171	2.59	12.66	tpy
				0.22			lb/hr
Previously Permitted	180.0	21.6	0.5	0.3			lb/hr
Values	788.4	94.7	2.0	1.4			tpy
							Hourly Fuel Usage * 0.5 gr/100 scf / 7,000 gr/lb
Requested	143.3	21.6	0.5	0.3	0.59	2.89	lb/hr
	628	94.7	2.0	1.4	2.59	12.66	tpy

¹ TSP = PM₁₀ = PM_{2.5}

² HAP emissions calculated from GRI-HAPCalc v3.0

GHG Emissions

CO ₂ ³	N ₂ O ³	CH ₄ ³	CO ₂ e ³		
53.02	0.0001	0.001		kg/MMBtu	40 CFR Subpart C Tables C-1
159313.5	0.30	3.00	159469.7	tpy	

³ N₂O, CH₄, and CO₂ tpy Emission Rate= EF* Fuel Usage * Fuel Heat Value * 2.20462 lb/1 kg * 1 ton/2000 lb* 8760 hr/yr
CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor +CH₄ Emission Rate*GWP Factor

Enterprise Field Services - Blanco C&D Compressor Station

Fugitive Emissions

Unit: F-001
Description: Fugitive Emissions

Emissions

<i>Light Liquid Duty</i>	count	kg/hr/source	kg/hr	lb/hr	tpy
valves	0	2.50E-03	0.00	0.00	0.00
pumps	0	1.30E-02	0.00	0.00	0.00
pressure relief, etc	0	7.50E-03	0.00	0.00	0.00
connectors	4	2.10E-04	0.00	0.00	0.01
flanges	0	1.10E-04	0.00	0.00	0.00
open ended lines	0	1.40E-03	0.00	0.00	0.00
total	4		0.00	0.00	0.01
VOC fraction				100%	100%
VOC emissions				0.00	0.01

<i>Gas Duty</i>	count	kg/hr/source	kg/hr	lb/hr	tpy
valves	515	4.50E-03	2.32	5.10	22.33
pumps	8	2.40E-03	0.02	0.04	0.19
pressure relief, etc	8	8.80E-03	0.07	0.16	0.69
connectors	4	2.00E-04	0.00	0.00	0.01
flanges	1525	3.90E-04	0.59	1.31	5.73
open ended lines	94	2.00E-03	0.19	0.41	1.81
total	2155		3.19	7.02	30.76
VOC fraction				100.0%	100.0%
VOC emissions				7.02	30.76

Total VOC fugitive emissions	7.0	30.8
	lb/hr	tpy

Loading

ProMax Tank Loading Emissions		
Tanks		
VOC Emissions		
10.7	lb/hr	Total
31.4	tpy	Total
HAP Emissions		
0.46	lb/hr	Total
1.34	tpy	Total

Individual HAP Emission Calculations		
Tanks		
HAP	lb/hr	tons/yr
n-Hexane	0.328	0.844
Benzene	0.038	0.110
Toluene	0.061	0.216
Ethylbenzene	0.002	0.009
Xylenes	0.025	0.148
2,2,4-TMP	0.0030	0.0086
Total	0.46	1.34

TPY Values for All Tanks		
Pollutant	lb/hr	tons/yr
VOC	10.7	31.42
HAPs	0.46	1.34

Enterprise Field Services - Blanco C&D Compressor Station

Haul Road Inputs

Mean Vehicle Weight and Trip Calculator for Unpaved Road Emissions

Plant Road

Vehicle Type	Weight (tons)			Mean Vehicle ⁴	Vehicles Per Day (VPD) ⁵	Segments per trip	Trips per hour ⁶
	Empty Vehicle ¹	Load Size ²	Loaded Vehicle ³				
Crude oil trucks	16	22.2	38.2	27.1	7.5	1	0.31
Hours of Operation per Day			24	tons			
Total Vehicles Per Day			7.46				
Weighted Mean Vehicle Weight (WMVW) ⁷			27.1				
Total Trips per Hour			0.311				

¹ Empty vehicle weight includes driver and occupants and full fuel load.

² Cargo, transported materials, etc. (5.88 lb/gal from ProMax *7560 gal truck/ 2000lb/ton)

³ Loaded vehicle weight = Empty + Load Size

⁴ Mean Vehicle weight = (Loaded Weight + Empty Weight) / 2

⁵ Vehicles per day = (Turnovers/year) / (365 days/year)

⁶ Trips per hour = Vehicles per day * Segments per trip ÷ Hours of Operation per Day

⁷ WMVW = [(Mean Vehicle Weight*VPD)Vehicle Type₁ + (Mean Vehicle Weight*VPD)Vehicle Type₂ + ...(Mean Vehicle Weight*VPD)Vehicle Type_n] ÷ Total Vehicles per Day

Enterprise Field Services - Blanco C&D Compressor Station

Unpaved Road Emission Factors

	Factor Calculation (AP-42 Sec. 13.2.2.3 November, 2006, Equation 2)																		Hourly Emission Factor			Annual, Wet Day, Emission Factor			
Route	Operating Hours per Year	Surface material	Mean Vehicle Weight,	PM-30 k lb/VMT	PM-10 k lb/VMT	PM-2.5 k lb/VMT	PM-30 a lb/VMT	PM-10 a lb/VMT	PM-2.5 a lb/VMT	PM-30 b lb/VMT	PM-10 b lb/VMT	PM-2.5 b lb/VMT	E	E	E	E	E	E	Wet Days						
		silt content	tons										PM-30	PM-10	PM-2.5	PM-30	PM-10	PM-2.5		PM-30	PM-10	PM-2.5			
		%	W tons										lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT		lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT
Crude trucks	8760	4.8	27.11	4.9	1.5	0.15	0.7	0.9	0.9	0.45	0.45	0.45	6.95	1.77	0.18	6.95	1.77	0.18	0						

Unpaved Production Road Emissions

Potential Emission Rate																	Potential to Emit									
Route		Segment Length	Trips per Segment	Average Trips per hour	Effective Segment Length	Average VMT/hr	PM-30		PM-10		PM-2.5		PM-30		PM-10		PM-2.5									
		mi		T	mi	mi/hr	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy								
Crude trucks		0.29	1	0.31	0.29	0.090	0.63	2.74	0.160	0.70	0.0160	0.070	0.63	2.74	0.160	0.70	0.0160	0.070								
TOTAL							0.63	2.74	0.160	0.70	0.0160	0.070	0.63	2.74	0.160	0.70	0.0160	0.070								

1 Surface silt = % of 75 micron diameter and smaller particles

2 $E = k \times (s/12)^a \times (W/3)^b$ (AP-42 page 13.2.2-4 Equation 1a, November 2006)

E= Size Specific Emission Factor (lb/VMT)

s = surface material silt content (%)

k, a, b = constants from AP-42 Table 13.2.2-2

W = Weighted Mean Vehicle Weight from Haul Road Inputs (tons)

3 PM-30 emission factor in equation is assumed as a surrogate for TSP emissions

4 VMT/hr = Vehicle Miles Travelled per hour= Trips per hour * Segment Length

5 Wet Day Emission Factor = $E * (365 - \text{Wet Days})/365$. Wet days value is the NM default allowed by NMED without additional justification.

6 Controlled Emissions = Uncontrolled Emissions * (1 - Control Factor/100%)

Control Factor = 0%

Enterprise Field Services - Blanco C&D Compressor Station

Blowdown Vent Emissions

Emission Unit: All

Stack ID: VentC, VentD, ESD

Source Description: Emission Rates from Blowdown Operation

Blowdown Events

Unit	Stack	Volume Mcf	Number of Events (per year)	Annual Volume Mcf	VOC Emissions lb/yr	tpy
C1	VentC	95	4	380	2529.8	1.26
C2	VentC	95	4	380	2529.8	1.26
D1	VentD	140	2	280	1864.1	0.93
	ESD	500	1	500	3328.7	1.66
Totals (Mcf/yr)				1540	10252.4	lb/yr 5.1 tpy

Gas Analyses

Inlet

Component	MW	Wet vol/mol%	Dry vol/mol%	MW * dry vol %	LHV Btu/scf	Btu/scf * dry vol %	Mass Fraction (dry)	Spec. Volume ft³/lb	Spec. Volume VOC ft³/lb	Spec. Volume ft³/lb
Water	18.02	0.00%						21.06		
Nitrogen	28.01	4.64%	4.64%	1.300	0	0.00	6.51%	13.547		0.6286
CO₂	44.01	1.84%	1.84%	0.810	0	0.00	4.06%	8.623		0.1587
H₂S	34.08	0.00%	0.00%	0.000	586.71	0.00	0.00%	11.136		0
Methane	16.04	81.53%	81.52%	13.079	909.1	741.12	65.54%	23.65		19.3
Ethane	30.07	7.07%	7.07%	2.126	1617.8	114.37	10.65%	12.62		0.8922
Propane	44.10	2.88%	2.88%	1.270	2315.9	66.69	6.36%	8.606	5.027	0.2479
I-Butane	58.12	0.52%	0.52%	0.302	3001	15.60	1.51%	6.529	0.689	0.0340
N-Butane	58.12	0.75%	0.75%	0.436	3010.5	22.58	2.18%	6.529	0.993	0.0490
I-Pentane	72.15	0.26%	0.26%	0.188	3697.9	9.61	0.94%	5.26	0.277	0.0137
N-Pentane	72.15	0.19%	0.19%	0.137	3706.8	7.04	0.69%	5.26	0.203	0.0100
Hexanes	86.18	0.15%	0.15%	0.129	4403.9	6.61	0.65%	4.404	0.055	0.0066
Heptanes +	100.20	0.18%	0.18%	0.180	4403.9	7.93	0.90%	4.404	0.161	0.0079
Total		100%	1.00	19.96		991.54	100%		7.405	21.33
Dry total		100.01%		(mixture mol. wt)		(mixture heating value)				
	NMHC	12.00%								
	NMEHC (VOC)	4.93%								

VOC Emissions

4.93%	Vol % VOC
7.41	VOC ft³/lb
0.135	VOC lb/scf
6.66	VOC lb/Mscf
	=1/ ft³/lb
	vol % * 1 Mscf * VOC lb/scf

GHG Emission Calculations

Vent C	CO₂e Short Ton/yr
CO₂	2395.01
CH₄	19.7
N₂O	-
Total	2808.9

Vent D	CO₂e Short Ton/yr
CO₂	882.4
CH₄	7.3
N₂O	-
Total	1034.8

ESD	CO₂e Short Ton/yr
CO₂	1575.7
CH₄	13.0
N₂O	-
Total	1847.9

Enterprise Field Services - Blanco C&D Compressor Station

SSM Events

Unit: SSM
Description: Facility-wide SSM emissions

	Venting		
Maximum annual emissions ¹	8.2	tons VOC / yr	Historical record 8/1/2008 - 10/31/2011
Safety factor	115%		
TK-1 through TK-12	1.7	tons VOC / yr	FL-02 annual downtime
Requested SSM Rate	19.3	tons VOC / yr	

HAP Emissions

	(tpy)
Hexanes	0.097
Benzene	0.017
Toluene	0.049
Ethylbenzene	0.00073
Xylenes	0.00073
Total	0.16

¹ Includes all process units except TK-1 through TK-12

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.
-

The following are included in this application as references for emission determination.

- AP-42: emission factors associated with natural gas combustion for both criteria pollutants and greenhouse gases; emission factors and data for unpaved haul road calculations as well as information used for loading calculations; data on industrial flares and emissions factors.
- Protocol for equipment leaks emissions estimates as reference for fugitives calculations.
- GRI-HAP Calc runs for the heater and the turbines at the facility.
- Test report for exhaust emissions for turbines including procedures, data and sample calculations.
- TNRCC RG-109: Technical Guidance for Flares and Vapor Oxidizers used as reference for flare calculations.
- Liquid analysis for the inlet stream into tanks used for ProMax runs.
 - Analysis ID: 1030-17031068-001A
 - Analysis ID: 2030-17060200-001A
- Gas Analysis: Blanco Flare 11-2-171D
- ProMax run data, product streams and other parameters used as assumptions or input data for tank, loading, and flare calculations associated with the facility (two ProMax runs are included: (1) one based on an hourly liquids analysis corresponding to higher flash emissions and (2) an annual conservative liquids analysis corresponding to lower flash emissions which is more representative of actual conditions present at the facility).

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

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

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code, ND = no data, NA = not applicable.

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

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

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

Pollutant	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating
CO ₂ ^b	120,000	A
Lead	0.0005	D
N ₂ O (Uncontrolled)	2.2	E
N ₂ O (Controlled-low-NO _x burner)	0.64	E
PM (Total) ^c	7.6	D
PM (Condensable) ^c	5.7	D
PM (Filterable) ^c	1.9	B
SO ₂ ^d	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

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

^c All PM (total, condensable, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM₁₀, PM_{2.5}, or PM₁ emissions. Total PM is the sum of the filterable PM and condensable PM. Condensable PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

^d Based on 100% conversion of fuel sulfur to SO₂.

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

Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

Emission Factors ^a - Uncontrolled				
Pollutant	Natural Gas-Fired Turbines ^b		Distillate Oil-Fired Turbines ^d	
	(lb/MMBtu) ^e (Fuel Input)	Emission Factor Rating	(lb/MMBtu) ^e (Fuel Input)	Emission Factor Rating
CO ₂ ^f	110	A	157	A
N ₂ O	0.003 ^g	E	ND	NA
Lead	ND	NA	1.4 E-05	C
SO ₂	0.94S ^h	B	1.01S ^h	B
Methane	8.6 E-03	C	ND	NA
VOC	2.1 E-03	D	4.1 E-04 ⁱ	E
TOC ^k	1.1 E-02	B	4.0 E-03 ⁱ	C
PM (condensable)	4.7 E-03 ⁱ	C	7.2 E-03 ⁱ	C
PM (filterable)	1.9 E-03 ⁱ	C	4.3 E-03 ⁱ	C
PM (total)	6.6 E-03 ⁱ	C	1.2 E-02 ⁱ	C

^a Factors are derived from units operating at high loads (≥ 80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief". ND = No Data, NA = Not Applicable.

^b SCCs for natural gas-fired turbines include 2-01-002-01, 2-02-002-01 & 03, and 2-03-002-02 & 03.

^c Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10⁶ scf), multiply by 1020. Similarly, these emission factors can be converted to other natural gas heating values.

^d SCCs for distillate oil-fired turbines are 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

^e Emission factors based on an average distillate oil heating value of 139 MMBtu/10³ gallons. To convert from (lb/MMBtu) to (lb/10³ gallons), multiply by 139.

^f Based on 99.5% conversion of fuel carbon to CO₂ for natural gas and 99% conversion of fuel carbon to CO₂ for distillate oil. CO₂ (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO₂, C = carbon content of fuel by weight, and D = density of fuel. For natural gas, C is assumed at 75%, and D is assumed at 4.1 E+04 lb/10⁶ scf. For distillate oil, CO₂ (Distillate Oil) [lb/MMBtu] = (26.4 gal/MMBtu) (%CON)(C)(D), where C is assumed at 87%, and the D is assumed at 6.9 lb/gallon.

^g Emission factor is carried over from the previous revision to AP-42 (Supplement B, October 1996) and is based on limited source tests on a single turbine with water-steam injection (Reference 5).

^h All sulfur in the fuel is assumed to be converted to SO₂. S = percent sulfur in fuel. Example, if sulfur content in the fuel is 3.4 percent, then S = 3.4. If S is not available, use 3.4 E-03 lb/MMBtu for natural gas turbines, and 3.3 E-02 lb/MMBtu for distillate oil turbines (the equations are more accurate).

ⁱ VOC emissions are assumed equal to the sum of organic emissions.

^k Pollutant referenced as THC in the gathered emission tests. It is assumed as TOC, because it is based on EPA Test Method 25A.

^l Emission factors are based on combustion turbines using water-steam injection.

13.2.2 Unpaved Roads

13.2.2.1 General

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

The particulate emission factors presented in the previous draft version of this section of AP-42, dated October 2001, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material²³. EPA included these sources in the emission factor equation for unpaved public roads (equation 1b in this section) since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the unpaved public road emission factor equation only estimates particulate emissions from resuspended road surface material^{23, 26}. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOBILE6.2²⁴. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOBILE6.2 to estimate particulate emissions from vehicle traffic on unpaved public roads. It also incorporates the decrease in exhaust emissions that has occurred since the unpaved public road emission factor equation was developed. The previous version of the unpaved public road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.2.2 Emissions Calculation And Correction Parameters¹⁻⁶

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic. Characterization of these source parameters allow for "correction" of emission estimates to specific road and traffic conditions present on public and industrial roadways.

Dust emissions from unpaved roads have been found to vary directly with the fraction of silt (particles smaller than 75 micrometers [μm] in diameter) in the road surface materials.¹ The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200-mesh screen, using the ASTM-C-136 method. A summary of this method is contained in Appendix C of AP-42. Table 13.2.2-1 summarizes measured silt values for industrial unpaved roads. Table 13.2.2-2 summarizes measured silt values for public unpaved roads. It should be noted that the ranges of silt content vary over two orders of magnitude. Therefore, the use of data from this table can potentially introduce considerable error. Use of this data is strongly discouraged when it is feasible to obtain locally gathered data.

Since the silt content of a rural dirt road will vary with geographic location, it should be measured for use in projecting emissions. As a conservative approximation, the silt content of the parent soil in the area can be used. Tests, however, show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Other variables are important in addition to the silt content of the road surface material. For example, at industrial sites, where haul trucks and other heavy equipment are common, emissions are highly correlated with vehicle weight. On the other hand, there is far less variability in the weights of cars and pickup trucks that commonly travel publicly accessible unpaved roads throughout the United States. For those roads, the moisture content of the road surface material may be more dominant in determining differences in emission levels between, for example a hot, desert environment and a cool, moist location.

The PM-10 and TSP emission factors presented below are the outcomes from stepwise linear regressions of field emission test results of vehicles traveling over unpaved surfaces. Due to a limited amount of information available for PM-2.5, the expression for that particle size range has been scaled against the result for PM-10. Consequently, the quality rating for the PM-2.5 factor is lower than that for the PM-10 expression.

**Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL
ON INDUSTRIAL UNPAVED ROADS***

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

*References 1,5-15.

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

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

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

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

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

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

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

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

$$1 \text{ lb/VMT} = 281.9 \text{ g/VKT}$$

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

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

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

*Assumed equivalent to total suspended particulate matter (TSP)

"-" = not used in the emission factor equation

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

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

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

* See discussion in text.

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

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (C) was obtained from EPA's MOBILE6.2 model²³. The emission factor also varies with aerodynamic size range

as shown in Table 13.2.2-4

Table 13.2.2-4. EMISSION FACTOR FOR 1980'S VEHICLE FLEET
EXHAUST, BRAKE WEAR AND TIRE WEAR

Particle Size Range ^a	C, Emission Factor for Exhaust, Brake Wear and Tire Wear ^b lb/VMT
PM _{2.5}	0.00036
PM ₁₀	0.00047
PM ₃₀ ^c	0.00047

- ^a Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers.
- ^b Units shown are pounds per vehicle mile traveled (lb/VMT).
- ^c PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

It is important to note that the vehicle-related source conditions refer to the average weight, speed, and number of wheels for all vehicles traveling the road. For example, if 98 percent of traffic on the road are 2-ton cars and trucks while the remaining 2 percent consists of 20-ton trucks, then the mean weight is 2.4 tons. More specifically, Equations 1a and 1b are *not* intended to be used to calculate a separate emission factor for each vehicle class within a mix of traffic on a given unpaved road. That is, in the example, one should *not* determine one factor for the 2-ton vehicles and a second factor for the 20-ton trucks. Instead, only one emission factor should be calculated that represents the "fleet" average of 2.4 tons for all vehicles traveling the road.

Moreover, to retain the quality ratings when addressing a group of unpaved roads, it is necessary that reliable correction parameter values be determined for the road in question. The field and laboratory procedures for determining road surface silt and moisture contents are given in AP-42 Appendices C.1 and C.2. Vehicle-related parameters should be developed by recording visual observations of traffic. In some cases, vehicle parameters for industrial unpaved roads can be determined by reviewing maintenance records or other information sources at the facility.

In the event that site-specific values for correction parameters cannot be obtained, then default values may be used. In the absence of site-specific silt content information, an appropriate mean value from Table 13.2.2-1 may be used as a default value, but the quality rating of the equation is reduced by two letters. Because of significant differences found between different types of road surfaces and between different areas of the country, use of the default moisture content value of 0.5 percent in Equation 1b is discouraged. The quality rating should be downgraded two letters when the default moisture content value is used. (It is assumed that readers addressing industrial roads have access to the information needed to develop average vehicle information in Equation 1a for their facility.)

The effect of routine watering to control emissions from unpaved roads is discussed below in Section 13.2.2.3, "Controls". However, all roads are subject to some natural mitigation because of rainfall and other precipitation. The Equation 1a and 1b emission factors can be extrapolated to annual

average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual average emissions are inversely proportional to the number of days with measurable (more than 0.254 mm [0.01 inch]) precipitation:

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

where:

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

E = emission factor from Equation 1a or 1b

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

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

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

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

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

13.2.2.3 Controls¹³⁻²²

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

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

2. Surface improvement, by measures such as (a) paving or (b) adding gravel or slag to a dirt road; and
3. Surface treatment, such as watering or treatment with chemical dust suppressants.

Available control options span broad ranges in terms of cost, efficiency, and applicability. For example, traffic controls provide moderate emission reductions (often at little cost) but are difficult to enforce. Although paving is highly effective, its high initial cost is often prohibitive. Furthermore, paving is not feasible for industrial roads subject to very heavy vehicles and/or spillage of material in transport. Watering and chemical suppressants, on the other hand, are potentially applicable to most industrial roads at moderate to low costs. However, these require frequent reapplication to maintain an acceptable level of control. Chemical suppressants are generally more cost-effective than water but not in cases of temporary roads (which are common at mines, landfills, and construction sites). In summary, then, one needs to consider not only the type and volume of traffic on the road but also how long the road will be in service when developing control plans.

Vehicle restrictions. These measures seek to limit the amount and type of traffic present on the road or to lower the mean vehicle speed. For example, many industrial plants have restricted employees from driving on plant property and have instead instituted bussing programs. This eliminates emissions due to employees traveling to/from their worksites. Although the heavier average vehicle weight of the busses increases the base emission factor, the decrease in vehicle-miles-traveled results in a lower overall emission rate.

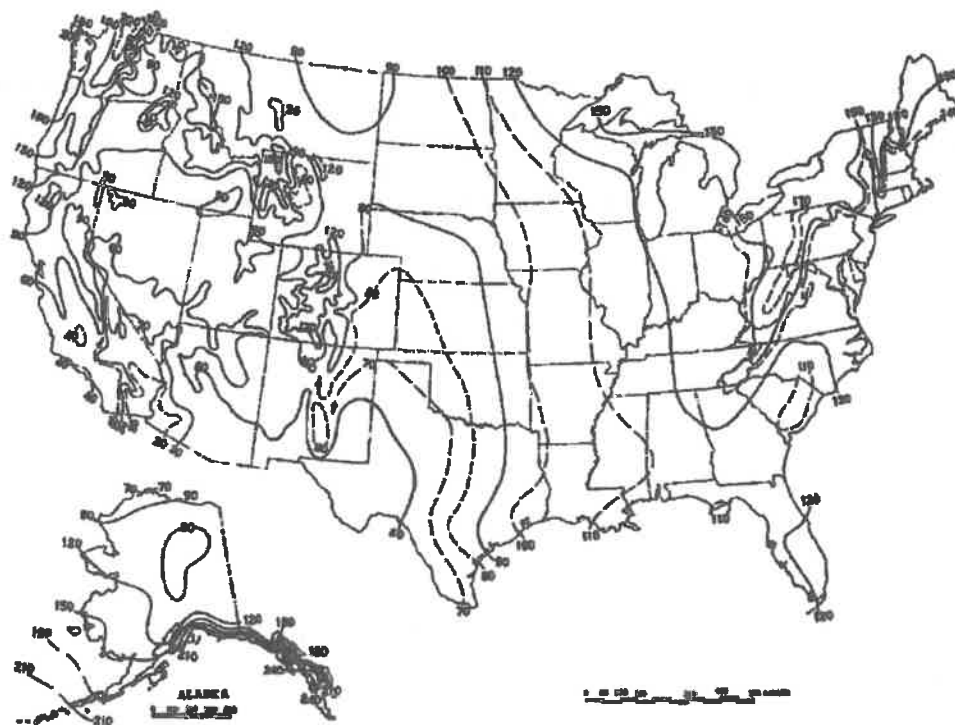
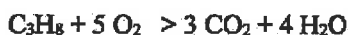


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

13.5 Industrial Flares

13.5.1 General

Flaring is a high-temperature oxidation process used to burn combustible components, mostly hydrocarbons, of waste gases from industrial operations. Natural gas, propane, ethylene, propylene, butadiene and butane constitute over 95 percent of the waste gases flared. In combustion, gaseous hydrocarbons react with atmospheric oxygen to form carbon dioxide (CO₂) and water. In some waste gases, carbon monoxide (CO) is the major combustible component. Presented below, as an example, is the combustion reaction of propane.



During a combustion reaction, several intermediate products are formed, and eventually, most are converted to CO₂ and water. Some quantities of stable intermediate products such as carbon monoxide, hydrogen, and hydrocarbons will escape as emissions.

Flares are used extensively to dispose of (1) purged and wasted products from refineries, (2) unrecoverable gases emerging with oil from oil wells, (3) vented gases from blast furnaces, (4) unused gases from coke ovens, and (5) gaseous wastes from chemical industries. Gases flared from refineries, petroleum production, chemical industries, and to some extent, from coke ovens, are composed largely of low molecular weight hydrocarbons with high heating value. Blast furnace flare gases are largely of inert species and CO, with low heating value. Flares are also used for burning waste gases generated by sewage digesters, coal gasification, rocket engine testing, nuclear power plants with sodium/water heat exchangers, heavy water plants, and ammonia fertilizer plants.

There are two types of flares, elevated and ground flares. Elevated flares, the more common type, have larger capacities than ground flares. In elevated flares, a waste gas stream is fed through a stack anywhere from 10 to over 100 meters tall and is combusted at the tip of the stack. The flame is exposed to atmospheric disturbances such as wind and precipitation. In ground flares, combustion takes place at ground level. Ground flares vary in complexity, and they may consist either of conventional flare burners with no enclosures or of multiple burners in refractory-lined steel enclosures.

The typical flare system consists of (1) a gas collection header and piping for collecting gases from processing units, (2) a knockout drum (disentrainment drum) to remove and store condensables and entrained liquids, (3) a proprietary seal, water seal, or purge gas supply to prevent flash-back, (4) a single- or multiple-burner unit and a flare stack, (5) gas pilots and an ignitor to ignite the mixture of waste gas and air, and, if required, (6) a provision for external momentum force (steam injection or forced air) for smokeless flaring. Natural gas, fuel gas, inert gas, or nitrogen can be used as purge gas. Figure 13.5-1 is a diagram of a typical steam-assisted elevated smokeless flare system.

Combustion requires three ingredients: fuel, an oxidizing agent (typically oxygen in air), and heat (or ignition source). Flares typically operate with pilot flames to provide the ignition source, and they use ambient air as the oxidizing agent. The waste gases to be flared typically provide the fuel necessary for combustion. Combustible gases generally have an upper and lower flammability limit. The upper flammability limit (UFL) is the highest concentration of a gas in air that is capable of burning. Above this flammability limit, the fuel is too rich to burn. The lower flammability limit (LFL) is the lowest concentration of the gas in air that is capable of burning. Below the LFL, the fuel is too lean to burn. Between the upper and lower flammability limits, combustion can occur. Flare waste gases with

concentrations above the UFL will become more dilute as the waste gas mixes with ambient air above the flare tip. As this dilution occurs, the air-waste gas mixture will pass through the flammability region, and combustion will occur. However, if flare waste gas concentrations are near the LFL prior to mixing with air, the air-waste gas mixture can fall below the flammability region, and reduced combustion efficiencies can occur. If steam is added to the flare waste gas at or prior to the flare tip (i.e., prior to the "combustion zone" where the mixing with air occurs), the steam will act to dilute the waste gas. Thus, even if there are adequate concentrations of combustibles in the waste gas, if too much steam is added to the waste gas so that the combustibles concentration becomes diluted to near the LFL as the steam-waste gas mixture enters the combustion zone, reduced combustion efficiencies will result. Consequently, critical considerations of flare combustion include the net heating value and the combustibles concentration in the flare gas and in the combustion zone (e.g., accounting for the amount of dilution by steam or other assist gas that occurs to the waste gas prior to the combustion zone).

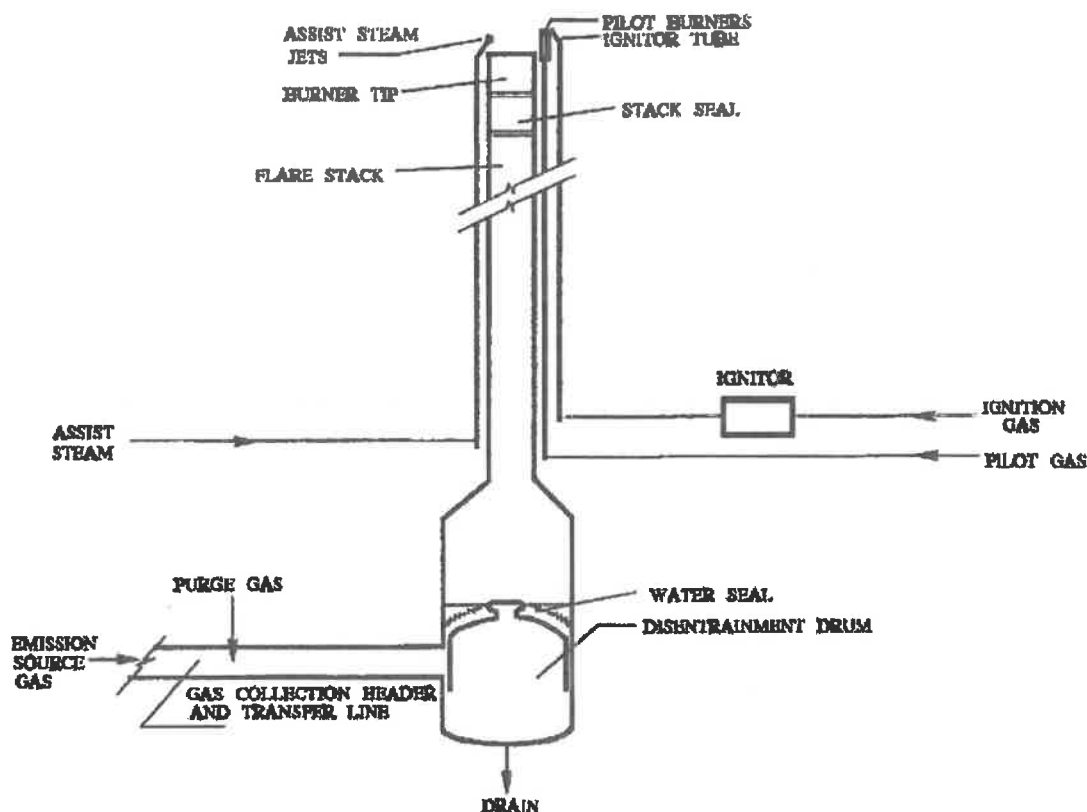


Figure 13.5-1. Diagram of a typical steam-assisted smokeless elevated flare.

Combustion efficiency is the percentage of hydrocarbon in the flare vent gas that is completely converted to CO_2 and water vapor. Destruction efficiency is the percentage of a specific pollutant in the flare vent gas that is converted to a different compound (such as CO_2 , CO or other hydrocarbon intermediate). The destruction efficiency of a flare will always be greater than the combustion efficiency of a flare. It is generally estimated that a combustion efficiency of 96.5 percent is equivalent to a destruction efficiency of 98 percent.¹⁰

Smoking may result from combustion, depending upon waste gas components and the quantity and distribution of combustion air. Waste gases containing methane, hydrogen, CO, and ammonia

usually burn without smoke. Waste gases containing heavy hydrocarbons such as paraffins above methane, olefins, and aromatics, have a higher tendency to smoke. An external momentum force, such as steam injection or blowing air, is used for efficient air/waste gas mixing and turbulence, which promotes smokeless flaring of heavy hydrocarbon waste gas. Other external forces may be used for this purpose, including water spray, high velocity vortex action, or natural gas. External momentum force is rarely required in ground flares.

Steam injection is accomplished either by nozzles on an external ring around the top of the flare tip or by a single nozzle located concentrically within the tip. At installations where waste gas flow varies, both are used. The internal nozzle provides steam at low waste gas flow rates, and the external jets are used with large waste gas flow rates. Several other special-purpose flare tips are commercially available, one of which is for injecting both steam and air.

Flares are generally designed to handle large quantities of waste gases that may be intermittently generated during plant emergencies, although they may also be used routinely to dispose of low-volume continuous or intermittent emissions from various sources at the plant. Flare gas volumes can vary from a few cubic meters per hour during regular operations up to several thousand cubic meters per hour during major upsets. Flow rates at a refinery could be 45 to 90 kilograms per hour (kg/hr) (100 - 200 pounds per hour [lb/hr]) during regular operation but could reach a full plant emergency rate of 700 megagrams per hour (Mg/hr) (750 tons/hr). Normal process blowdowns may release 450 to 900 kg/hr (1000 - 2000 lb/hr), and unit maintenance or minor failures may release 25 to 35 Mg/hr (27 - 39 tons/hr). Thus, the required flare turndown ratio can be over 15,000 to 1.

Many plants have 2 or more flares, in parallel or in series. In the former, 1 flare can be shut down for maintenance while the other serves the system. In systems of flares in series, 1 flare is intended to handle regular gas volumes and the other flare is generally intended to handle excess gas flows from emergencies.

13.5.2 Emissions

Noise, heat, and visible flame and/or smoke are the most apparent undesirable effects of flare operation. Flares are usually located away from populated areas or are sufficiently isolated, thus minimizing their effects on populations.

Emissions from flaring may include carbon particles (soot), unburned hydrocarbons, CO, and partially burned and altered hydrocarbons. Also emitted are nitrogen oxides (NO_x) and, if sulfur-containing material such as hydrogen sulfide or mercaptans is flared, sulfur dioxide (SO₂). The quantities of hydrocarbon emissions generated relate to the degree of combustion. The degree of combustion depends largely on the rate and extent of fuel-air mixing and on the flame temperatures achieved and maintained. Properly operated flares achieve at least 98 percent destruction efficiency in the flare plume, meaning that hydrocarbon emissions amount to less than 2 percent of the hydrocarbons in the gas stream.

The tendency of a fuel to smoke or make soot is influenced by fuel characteristics and by the amount and distribution of oxygen in the combustion zone. For complete combustion, at least the stoichiometric amount of oxygen must be provided in the combustion zone. The theoretical amount of oxygen required increases with the molecular weight of the gas burned. The oxygen supplied as air ranges from 9.6 units of air per unit of methane to 38.3 units of air per unit of pentane, by volume. Air is supplied to the flame as primary air and secondary air. Primary air is mixed with the gas before combustion, whereas secondary air is drawn into the flame. For smokeless combustion, sufficient primary air must be supplied, this varying from about 20 percent of stoichiometric air for a paraffin to about 30 percent for an olefin. If the amount of primary air is insufficient, the gases entering the base of the flame are preheated by the combustion zone, and larger hydrocarbon molecules crack to form

hydrogen, unsaturated hydrocarbons, and carbon. The carbon particles may escape further combustion and cool down to form soot or smoke. Olefins and other unsaturated hydrocarbons may polymerize to form larger molecules which crack, in turn forming more carbon.

The fuel characteristics influencing soot formation include the carbon-to-hydrogen (C-to-H) ratio and the molecular structure of the gases to be burned. All hydrocarbons above methane, i. e., those with a C-to-H ratio of greater than 0.33, tend to soot. Branched chain paraffins smoke more readily than corresponding normal isomers. The more highly branched the paraffin, the greater the tendency to smoke. Unsaturated hydrocarbons tend more toward soot formation than do saturated ones. Soot is eliminated by adding steam or air; hence, most industrial flares are steam-assisted and some are air-assisted. Flare gas composition is a critical factor in determining the amount of steam necessary.

Since flares do not lend themselves to conventional emission testing techniques, until recently only a few attempts have been made to characterize flare emissions. Early 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/m³ (300 Btu/ft³).¹ However, recent studies on flare performance using passive Fourier Transform Infrared (pFTIR) spectroscopy have been performed on a number of different flares.⁴⁻⁸ The studies cover a number of flares at different industrial sources with different waste gas compositions. The pFTIR studies support the conclusion that the combustion zone properties of the steam-waste gas mixture are predictive of proper flare combustion.¹⁰ There have also been recent studies on sources, including flares, using differential infrared absorption LIDAR [light detection and ranging] (DIAL). To date, many of these studies do not provide the data necessary to isolate the emissions from a particular flare. But enough data existed in one study that the emissions measured by DIAL could be attributed to the flare.⁹

Table 13.5-1 presents flare emissions factors from the EPA tests¹; Table 13.5-2 presents flare emissions factors from pFTIR and DIAL studies.⁴⁻⁹ Crude propylene was used as flare gas during the early EPA 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 Typical refinery waste gas feeds were used as flare gas during the pFTIR and DIAL studies.

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 SO₂ when burned. The amount of SO₂ emitted depends directly on the quantity of sulfur in the flared gases.

Table 13.5-1 (English Units). THC AND SOOT EMISSIONS FACTORS FOR FLARE OPERATIONS^a

EMISSIONS FACTOR RATING: B

Pollutant	SCC	Emissions Factor Value	Emissions Factor Units
Total hydrocarbons ^b	30190099	0.14	lb/10 ⁶ Btu
Nitrogen oxides ^c	30190099	0.068	lb/10 ⁶ Btu
Soot ^c	30190099	0 - 274	µg/L

^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 13.5-2 (English Units). VOC and CO EMISSIONS FACTORS FOR FLARE OPERATIONS^a

Pollutant	SCC	Emissions Factor (lb/10 ⁶ Btu)	Representativeness
Volatile organic compounds ^b	30190099; 30600904	0.57	Poorly
Carbon monoxide ^c	30190099; 30600904	0.31	Poorly

^a These factors apply to well operated flares achieving at least 98% destruction efficiency and operating in compliance with the current General Provisions requirements of 40 CFR Part 60, i.e. >300 btu/scf net heating value in the vent gas and less than the specified maximum flare tip velocity. These factors are based on steam-assisted and air-assisted flares burning a variety of vent gases.

^b References 4-9 and 11.

^c References 1, 4-8 and 11.

References for Section 13.5

1. Flare Efficiency Study, EPA-600/2-83-052, U. S. Environmental Protection Agency, Cincinnati, OH, July 1983.
2. K. D. Siegel, Degree Of Conversion Of Flare Gas In Refinery High Flares, Dissertation, University of Karlsruhe, Karlsruhe, Germany, February 1980.
3. **Manual On Disposal Of Refinery Wastes, Volume On Atmospheric Emissions**, API Publication 931, American Petroleum Institute, Washington, DC, June 1977.
4. TCEQ 2010 Flare Study Final Report. Texas Commission on Environmental Quality Tracking No. 2008-81. Austin, Texas. The University of Texas at Austin Center for Energy and Environmental Resources. August 2011.
5. Performance Test of a Steam-Assisted Elevated Flare with Passive FTIR-Detroit. Marathon Petroleum Company, LP. Detroit, Michigan. Clean Air Engineering, Inc. November 2010.
6. PFTIR Test of Steam-Assisted Elevated Flares-Port Arthur. Flint Hills Resources Port Arthur, LLC. Port Arthur, Texas. Clean Air Engineering, Inc. June 2011.
7. Deer Park Refinery East Property Flare Performance Test Report. Shell Deer Park Refining LP, Deer Park, Texas. Shell Global Solutions (US) Inc. April 2011.
8. Passive Fourier Transform Infrared Technology (FTIR) Evaluation of P001 Process Control Device. INEOS ABS (USA) Corporation. Addyston, Ohio. INEOS ABS (USA) Corporation. July 2010.
9. Differential Absorption Lidar Study – Final Report. Texas Commission on Environmental Quality. Austin, Texas. March 2010.
10. Parameters for Properly Designed and Operated Flares. Prepared for U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. April 2012.
11. Performance Test of a Steam-Assisted Elevated Flare with Passive FTIR. Marathon Petroleum Company, LLC. Texas City, Texas. Clean Air Engineering, Inc. May 2010.

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

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

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

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

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

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

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

where:

L_L = loading loss, pounds per 1000 gallons (lb/10³ gal) of liquid loaded

S = a saturation factor (see Table 5.2-1)

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia)
(see Section 7.1, "Organic Liquid Storage Tanks")

M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")

T = temperature of bulk liquid loaded, °R (°F + 460)

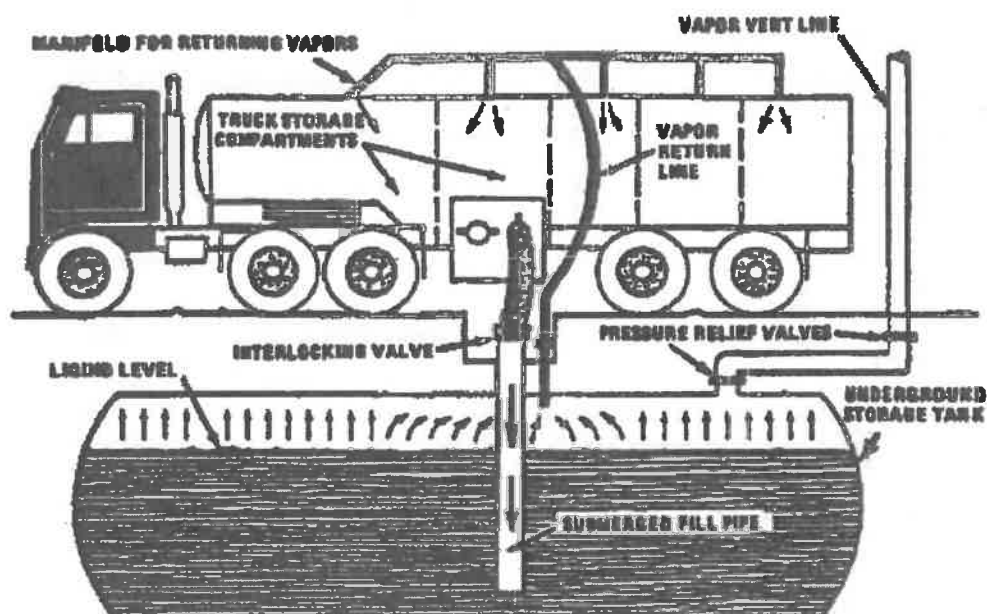


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode Of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.50
	Submerged loading: dedicated normal service	0.60
	Submerged loading: dedicated vapor balance service	1.00
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.00
Marine vessels ^a	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

^a For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

The saturation factor, S , represents the expelled vapor's fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Table 5.2-1 lists suggested saturation factors.

Emissions from controlled loading operations can be calculated by multiplying the uncontrolled emission rate calculated in Equation 1 by an overall reduction efficiency term:

$$\left(1 - \frac{\text{eff}}{100}\right)$$

The overall reduction efficiency should account for the capture efficiency of the collection system as well as both the control efficiency and any downtime of the control device. Measures to reduce loading emissions include selection of alternate loading methods and application of vapor recovery equipment. The latter captures organic vapors displaced during loading operations and recovers the vapors by the use of refrigeration, absorption, adsorption, and/or compression. The recovered product is piped back to storage. Vapors can also be controlled through combustion in a thermal oxidation unit, with no product recovery. Figure 5.2-6 demonstrates the recovery of gasoline vapors from tank trucks during loading operations at bulk terminals. Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used.^{5,6} However, not all of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system. The collection efficiency should be assumed to be 99.2 percent for tanker trucks passing the MACT-level annual leak test (not more than 1 inch water column pressure change in 5 minutes after pressurizing to 18 inches water followed by pulling a vacuum of 6 inches water).⁷ A collection efficiency of 98.7 percent (a 1.3 percent leakage rate) should be assumed for trucks passing the NSPS-level annual test (3 inches pressure change). A collection efficiency of 70 percent should be assumed for trucks not passing one of these annual leak tests.⁸

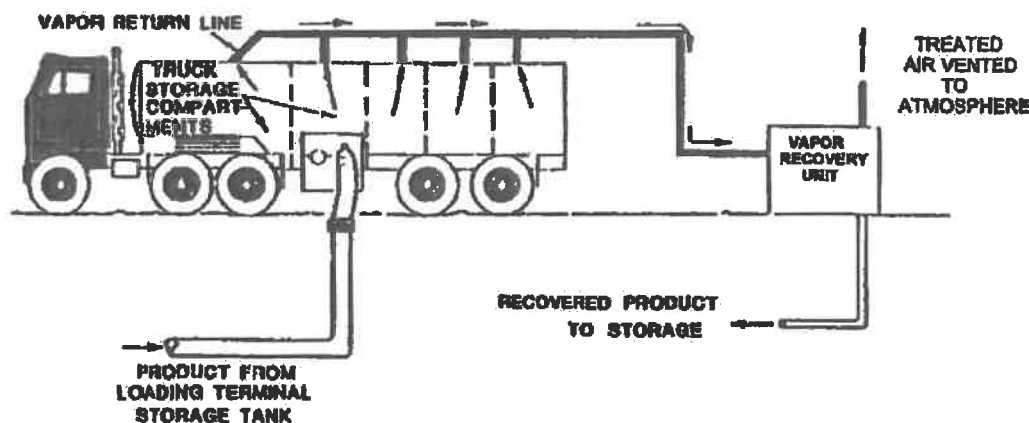


Figure 5.2-6. Tank truck loading with vapor recovery.

Sample Calculation -

Loading losses (L_L) from a gasoline tank truck in dedicated vapor balance service and practicing vapor recovery would be calculated as follows, using Equation 1:

Design basis -

Cargo tank volume is 8000 gal
Gasoline Reid vapor pressure (RVP) is 9 psia
Product temperature is 80°F
Vapor recovery efficiency is 95 percent
Vapor collection efficiency is 98.7 percent (NSPS-level annual leak test)

Loading loss equation -

$$L_L = 12.46 \frac{SPM}{T} \left(1 - \frac{\text{eff}}{100} \right)$$

where:

S = saturation factor (see Table 5.2-1) = 1.00
P = true vapor pressure of gasoline = 6.6 psia
M = molecular weight of gasoline vapors = 66
T = temperature of gasoline = 540°R
eff = overall reduction efficiency (95 percent control x 98.7 percent collection) = 94 percent

$$\begin{aligned} L_L &= 12.46 \frac{(1.00)(6.6)(66)}{540} \left(1 - \frac{94}{100} \right) \\ &= 0.60 \text{ lb}/10^3 \text{ gal} \end{aligned}$$

Total loading losses are:

$$(0.60 \text{ lb}/10^3 \text{ gal})(8.0 \times 10^3 \text{ gal}) = 4.8 \text{ pounds (lb)}$$

Measurements of gasoline loading losses from ships and barges have led to the development of emission factors for these specific loading operations.⁴ These factors are presented in Table 5.2-2 and should be used instead of Equation 1 for gasoline loading operations at marine terminals. Factors are expressed in units of milligrams per liter (mg/L) and pounds per 1000 gallons (lb/10³ gal).

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park NC 27711

EPA-453/R-05-017
November 1995

Air



Protocol for Equipment Leak Emission Estimates

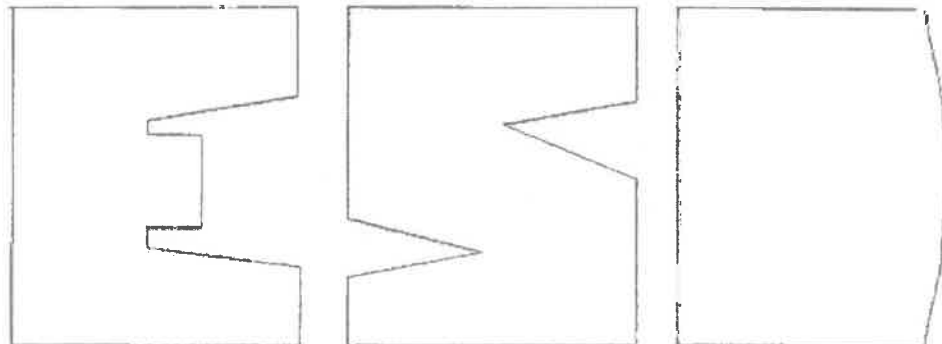
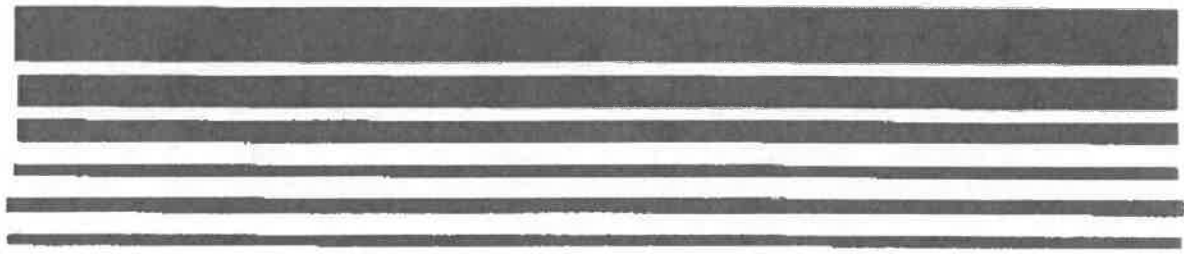


TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

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

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

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

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

GRI-HAPCalc® 3.0
External Combustion Devices Report

Facility ID: BLANCO C&D
 Operation Type: COMPRESSOR STATION
 Facility Name: BLANCO C&D
 User Name:
 Units of Measure: U.S. STANDARD

Notes:

*Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero.
 These emissions are indicated on the report with a "0".
 Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".*

External Combustion Devices

Unit Name: H-1

Hours of Operation: 8,760 Yearly
 Heat Input: 4.00 MMBtu/hr
 Fuel Type: NATURAL GAS
 Device Type: HEATER
 Emission Factor Set: FIELD > EPA > LITERATURE
 Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
HAPs			
3-Methylchloranthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000167 lb/MMBtu	EPA
Formaldehyde	0.0148	0.0008440090 lb/MMBtu	GRI Field
Methanol	0.0169	0.0008636360 lb/MMBtu	GRI Field
Acetaldehyde	0.0129	0.0007375920 lb/MMBtu	GRI Field
1,3-Butadiene	0.0060	0.0003423560 lb/MMBtu	GRI Field
Benzene	0.0131	0.0007480470 lb/MMBtu	GRI Field
Toluene	0.0178	0.0010183310 lb/MMBtu	GRI Field
Ethylbenzene	0.0370	0.0021128220 lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0231	0.0013205140 lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0498	0.0028417560 lb/MMBtu	GRI Field
n-Hexane	0.0247	0.0014070860 lb/MMBtu	GRI Field
Phenol	0.0000	0.0000001070 lb/MMBtu	GRI Field
Styrene	0.0364	0.0020788960 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000005100 lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000001470 lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000670 lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000004730 lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000900 lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000870 lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000600 lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000900 lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000630 lb/MMBtu	GRI Field

Benz(a)anthracene	0.0000	0.0000000870	lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001170	lb/MMBtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000007800	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000002300	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001200	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000001030	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.2525			

Criteria Pollutants

VOC	0.0945	0.0053921589	lb/MMBtu	EPA
PM	0.1305	0.0074509804	lb/MMBtu	EPA
PM, Condensable	0.0979	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0326	0.0018627451	lb/MMBtu	EPA
CO	0.5670	0.0323636360	lb/MMBtu	GRI Field
NMHC	0.1494	0.0085294118	lb/MMBtu	EPA
NOx	1.6997	0.0970167730	lb/MMBtu	GRI Field
SO2	0.0103	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.1643	0.0105212610	lb/MMBtu	GRI Field
Acetylene	0.2453	0.0140000000	lb/MMBtu	GRI Field
Ethylene	0.0166	0.0009476310	lb/MMBtu	GRI Field
Ethane	0.0461	0.0026312210	lb/MMBtu	GRI Field
Propylene	0.0411	0.0023454550	lb/MMBtu	GRI Field
Propane	0.0187	0.0010588280	lb/MMBtu	GRI Field
Isobutane	0.0257	0.0014540770	lb/MMBtu	GRI Field
Butane	0.0241	0.0013788990	lb/MMBtu	GRI Field
Cyclopentane	0.0196	0.0011304940	lb/MMBtu	GRI Field
Pentane	0.0607	0.0034571850	lb/MMBtu	GRI Field
n-Pentane	0.0249	0.0014221310	lb/MMBtu	GRI Field
Cyclohexane	0.0161	0.0009183830	lb/MMBtu	GRI Field
Methylcyclohexane	0.0366	0.0022011420	lb/MMBtu	GRI Field
n-Octane	0.0500	0.0028538630	lb/MMBtu	GRI Field
1,2,3-Trimethylbenzene	0.0600	0.0034224540	lb/MMBtu	GRI Field
1,2,4-Trimethylbenzene	0.0600	0.0034224540	lb/MMBtu	GRI Field
1,3,5-Trimethylbenzene	0.0600	0.0034224540	lb/MMBtu	GRI Field
n-Nonane	0.0841	0.0036604170	lb/MMBtu	GRI Field
CO2	2,061.1765	117.6470688235	lb/MMBtu	EPA

GRI-HAPCalc ® 3.01
Turbine Report

Facility ID:	BLANCO CD	Notes:
Operation Type:	COMPRESSOR STATION	
Facility Name:	BLANCO CD	
User Name:		
Units of Measure:	U.S. STANDARD	

Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0".
Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".

Turbine Unit

Unit Name: T-C01+C02

Hours of Operation: 8,760 Yearly
Rate Power: 22280 hp
Fuel Type: NATURAL GAS
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
HAPs			
PAHs	0.0021	0.00000970 g/bhp-hr	EPA
Formaldehyde	3.6403	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	3.7263	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0132	0.00006180 g/bhp-hr	GRI Field
Acrolein	0.0559	0.00026000 g/bhp-hr	GRI Field
Propional	0.1859	0.00088500 g/bhp-hr	GRI Field
Propylene Oxide	0.0274	0.00012730 g/bhp-hr	EPA
Benzene	0.1157	0.00053840 g/bhp-hr	GRI Field
Toluene	0.0883	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0302	0.00014050 g/bhp-hr	EPA
Xylenes(m,p,o)	0.2674	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.3451	0.00160530 g/bhp-hr	GRI Field
n-Hexane	0.3237	0.00160580 g/bhp-hr	GRI Field
Phenol	0.0237	0.00011010 g/bhp-hr	GRI Field
Naphthalene	0.0016	0.00000760 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0003	0.00000130 g/bhp-hr	GRI Field
Biphenyl	0.0710	0.00033050 g/bhp-hr	GRI Field
Phenanthrene	0.0001	0.00000050 g/bhp-hr	GRI Field
Chrysene	0.0002	0.00000100 g/bhp-hr	GRI Field
Beryllium	0.0000	0.00000010 g/bhp-hr	GRI Field
Phosphorus	0.0140	0.00006520 g/bhp-hr	GRI Field
Chromium	0.0018	0.00000620 g/bhp-hr	GRI Field
Manganese	0.0036	0.00001750 g/bhp-hr	GRI Field
Nickel	0.0013	0.00000610 g/bhp-hr	GRI Field
Cobalt	0.0003	0.00000160 g/bhp-hr	GRI Field
Arsenic	0.0001	0.00000080 g/bhp-hr	GRI Field
Selenium	0.0001	0.00000030 g/bhp-hr	GRI Field

Cadmium	0.0000	0.00000020 g/bhp-hr	GRI Field
Mercury	0.0008	0.00000270 g/bhp-hr	GRI Field
Lead	0.0007	0.00000340 g/bhp-hr	GRI Field
Total	8.9413		

Criteria Pollutants

PM	6.2275	0.02897200 g/bhp-hr	EPA
CO	453.1715	2.10828420 g/bhp-hr	GRI Field
NMHC	41.8737	0.18387800 g/bhp-hr	GRI Field
NMEHC	1.9815	0.00821840 g/bhp-hr	EPA
NOx	289.1499	1.25216280 g/bhp-hr	GRI Field
SO2	0.2208	0.00102720 g/bhp-hr	GRI Field

Other Pollutants

Methane	212.1950	0.98719230 g/bhp-hr	GRI Field
Acetylene	1.5402	0.00716540 g/bhp-hr	GRI Field
Ethylene	2.9995	0.01395450 g/bhp-hr	GRI Field
Ethane	32.2602	0.15008370 g/bhp-hr	GRI Field
Propane	3.4392	0.01600000 g/bhp-hr	GRI Field
Isobutane	1.0318	0.00490000 g/bhp-hr	GRI Field
Butane	1.1177	0.00520000 g/bhp-hr	GRI Field
Cyclopentane	0.3849	0.00185110 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.2680	0.00134000 g/bhp-hr	GRI Field
n-Pentane	17.4430	0.08115000 g/bhp-hr	GRI Field
Cyclohexane	1.3163	0.00612400 g/bhp-hr	GRI Field
Methylcyclohexane	1.8862	0.00683120 g/bhp-hr	GRI Field
n-Octane	0.8854	0.00318890 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.6448	0.00300000 g/bhp-hr	GRI Field
n-Nonane	0.1145	0.00053280 g/bhp-hr	GRI Field
CO2	103,791.1052	482.88607780 g/bhp-hr	EPA
Vanadium	0.0002	0.00000070 g/bhp-hr	GRI Field
Copper	0.0044	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0044	0.00002030 g/bhp-hr	GRI Field
Barium	0.0049	0.00002280 g/bhp-hr	GRI Field

Unit Name: T-D01

Hours of Operation: 8,760 Yearly
Rate Power: 32550 hp
Fuel Type: NATURAL GAS
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
HAPs			
PAHs	0.0030	0.00000970 g/bhp-hr	EPA
Formaldehyde	5.3188	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	5.4439	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0193	0.00008160 g/bhp-hr	GRI Field
Acrolein	0.0816	0.00026000 g/bhp-hr	GRI Field
Propional	0.2716	0.00085500 g/bhp-hr	GRI Field
Propylene Oxide	0.0400	0.00012730 g/bhp-hr	EPA
Benzene	0.1691	0.00053840 g/bhp-hr	GRI Field

Toluene	0.1291	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0441	0.00014050 g/bhp-hr	EPA
Xylenes(m,p,o)	0.3907	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.5041	0.00180530 g/bhp-hr	GRI Field
n-Hexane	0.4728	0.00150580 g/bhp-hr	GRI Field
Phenol	0.0348	0.00011010 g/bhp-hr	GRI Field
Naphthalene	0.0024	0.00000780 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0004	0.00000130 g/bhp-hr	GRI Field
Biphenyl	0.1038	0.00033050 g/bhp-hr	GRI Field
Phenanthrene	0.0002	0.00000050 g/bhp-hr	GRI Field
Chrysene	0.0003	0.00000100 g/bhp-hr	GRI Field
Beryllium	0.0000	0.00000010 g/bhp-hr	GRI Field
Phosphorus	0.0205	0.00006520 g/bhp-hr	GRI Field
Chromium	0.0026	0.00000820 g/bhp-hr	GRI Field
Manganese	0.0055	0.00001750 g/bhp-hr	GRI Field
Nickel	0.0019	0.00000610 g/bhp-hr	GRI Field
Cobalt	0.0005	0.00000180 g/bhp-hr	GRI Field
Arsenic	0.0002	0.00000050 g/bhp-hr	GRI Field
Selenium	0.0001	0.00000030 g/bhp-hr	GRI Field
Cadmium	0.0001	0.00000020 g/bhp-hr	GRI Field
Mercury	0.0008	0.00000270 g/bhp-hr	GRI Field
Lead	0.0011	0.00000340 g/bhp-hr	GRI Field
Total	13.0630		

Criteria Pollutants

PM	9.0980	0.02897200 g/bhp-hr	EPA
CO	682.0818	2.10828420 g/bhp-hr	GRI Field
NMHC	60.8832	0.18387800 g/bhp-hr	GRI Field
NMEHC	2.8948	0.00921840 g/bhp-hr	EPA
NOx	393.2150	1.25216280 g/bhp-hr	GRI Field
SO2	0.3226	0.00102720 g/bhp-hr	GRI Field

Other Pollutants

Methane	310.0086	0.98719230 g/bhp-hr	GRI Field
Acetylene	2.2501	0.00716540 g/bhp-hr	GRI Field
Ethylene	4.3821	0.01385450 g/bhp-hr	GRI Field
Ethane	47.1308	0.15008370 g/bhp-hr	GRI Field
Propane	5.0245	0.01800000 g/bhp-hr	GRI Field
Isobutane	1.5073	0.00480000 g/bhp-hr	GRI Field
Butane	1.8329	0.00520000 g/bhp-hr	GRI Field
Cyclopentane	0.5185	0.00185110 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.4208	0.00134000 g/bhp-hr	GRI Field
n-Pentane	25.4834	0.08115000 g/bhp-hr	GRI Field
Cyclohexane	1.9231	0.00812400 g/bhp-hr	GRI Field
Methylcyclohexane	2.7732	0.00883120 g/bhp-hr	GRI Field
n-Octane	1.0014	0.00318890 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.8421	0.00300000 g/bhp-hr	GRI Field
n-Nonane	0.1673	0.00053280 g/bhp-hr	GRI Field
CO2	151,833.7750	482.88807780 g/bhp-hr	EPA
Vanadium	0.0002	0.00000070 g/bhp-hr	GRI Field
Copper	0.0084	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0084	0.00002030 g/bhp-hr	GRI Field
Barium	0.0072	0.00002290 g/bhp-hr	GRI Field



**TEST REPORT
ON
EXHAUST EMISSIONS**

FROM ONE

GE MS 5002R TURBINE

**IN SERVICE AT
ENTERPRISE PRODUCTS OPERATING
BLANCO D COMPRESSOR STATION**

PREPARED FOR

Enterprise Products Operating

**TEST DATE: NOVEMBER 16, 2009
REPORT DATE: DECEMBER 18, 2009**

TRC PROJECT No. 172911.0000.0000

TABLE OF CONTENTS

I. INTRODUCTION	1
A. Reasons for Conducting Test	1
B. Applicable Regulations and Permits	1
C. Date of Test	1
D. Startup Date	1
E. Date of Achievement of Maximum Production Rate	1
F. Description of Plant Process and Sampling Points	1
G. Company Name, Contact Person, Mailing Address	1
H. Facility Name and Location	1
I. Name of Testing Organization, Contact Person	2
J. List of Test Participants	2
K. Unit Description and Design Capacity	2
L. Control Equipment Description	2
II. SUMMARY OF RESULTS (TABULAR)	
A.-C. Operational Data, Concentrations, Exhaust Flow Rates, Mass Emission Rates	3
D. Comparison of Modeled and Measured Parameters	4
III. TEST PROCEDURES	
A. Schematic of Exhaust Stack (see Section IV.A.)	4
B. Schematic of the Gaseous Sampling System	5
C. Test Instrumentation Specifications	6
C. Description of EPA Methods	7-10
D. Deviations from EPA Reference Methods	10
E. Methods for Obtaining Unit Operating Data	10
IV. DATA AND CALCULATIONS	
A. Raw Data Used in Emission Calculations	11-20
B. Laboratory Data (not applicable)	21
C. Data Log Records	22-28
D. Example Calculations	36-38
E. Calibration Gas Certifications	39-49
F. Audit Sample Results (not applicable)	50
G. Visible Emissions Field Sheets (not applicable)	50
H. Sample Chain of Custody (not applicable)	50
I. Quality Assurance Activities	51-53

V. APPENDIX

A. Complications During the Test (not applicable)	57
B. Special Information (not applicable)	57
C. Test Contractor's Resume	57

I. INTRODUCTION

A. Reasons for Conducting Test:

Exhaust emissions from one turbine located at Enterprise Products Operating (Enterprise) Blanco D Compressor Station was tested to determine the mass emissions rates for criteria pollutants.

B. Applicable Regulations and Permits:

The State of New Mexico Environment Department, Air Quality Bureau Air Quality Permit Number 0613-M6 is the permit in place for this station.

C. Date of Test:

The testing was conducted on November 16, 2009.

D. Startup Date:

The start-up date of this unit is not available.

E. Date of Achievement of Maximum Production Rate:

The achievement date of the maximum production rate is not available.

F. Description of Plant Process and Sampling Points

This facility is used for the compression and transportation of natural gas. The gaseous sample was extracted by stainless steel probes placed in ports in the side of each stack. No exhaust stack diagram was made since the testing did not use Method 1 (sample point location).

G. Company Name, Contact Person, Mailing Address:

Enterprise is the owner and operator of this station. The contact person with Enterprise for this testing project is:

Mr. Donald Fernald
Enterprise Products Operating
614 Reilly Ave.
Farmington, NM 87401
Telephone Number: (505) 599-2141
Fax Number: (505) 599-2119

H. Facility Name and Location:

Enterprise Products Operating Blanco D Compressor Station is located off of CR 4900 in Bloomfield, New Mexico in San Juan County.

I. Name of Testing Organization, Contact Person:

The project manager for the testing firm of TRC of Albuquerque, New Mexico is:

Mr. Richard Stallings
TRC
4221-A Balloon Park Rd. NE
Albuquerque, New Mexico 87109
Phone Number: (505) 238-2088
Fax Number: (505) 761-0208

J. List of Test Participants:

Enterprise
Don Fernald

TRC
Richard Stallings
Grisha Grigoriev

K. Unit Description and Design Capacities

Unit D1 - GE MS 5002R natural gas fired turbine used for the compression and transportation of natural gas bears the serial number 226332 is site rated at 22,884 Hp at 5000 rpm. This turbine powers a Dresser-Rand, single-staged compressor bearing the serial number 65653273.

L. Control Equipment Description

There are no control devices in place for this unit.

II.A-C: Summary of Results, Runs 1-3 (Unit #D1, Test Summary)

Operational Data, Concentrations, Exhaust Flow Rates, Mass Emission Rates

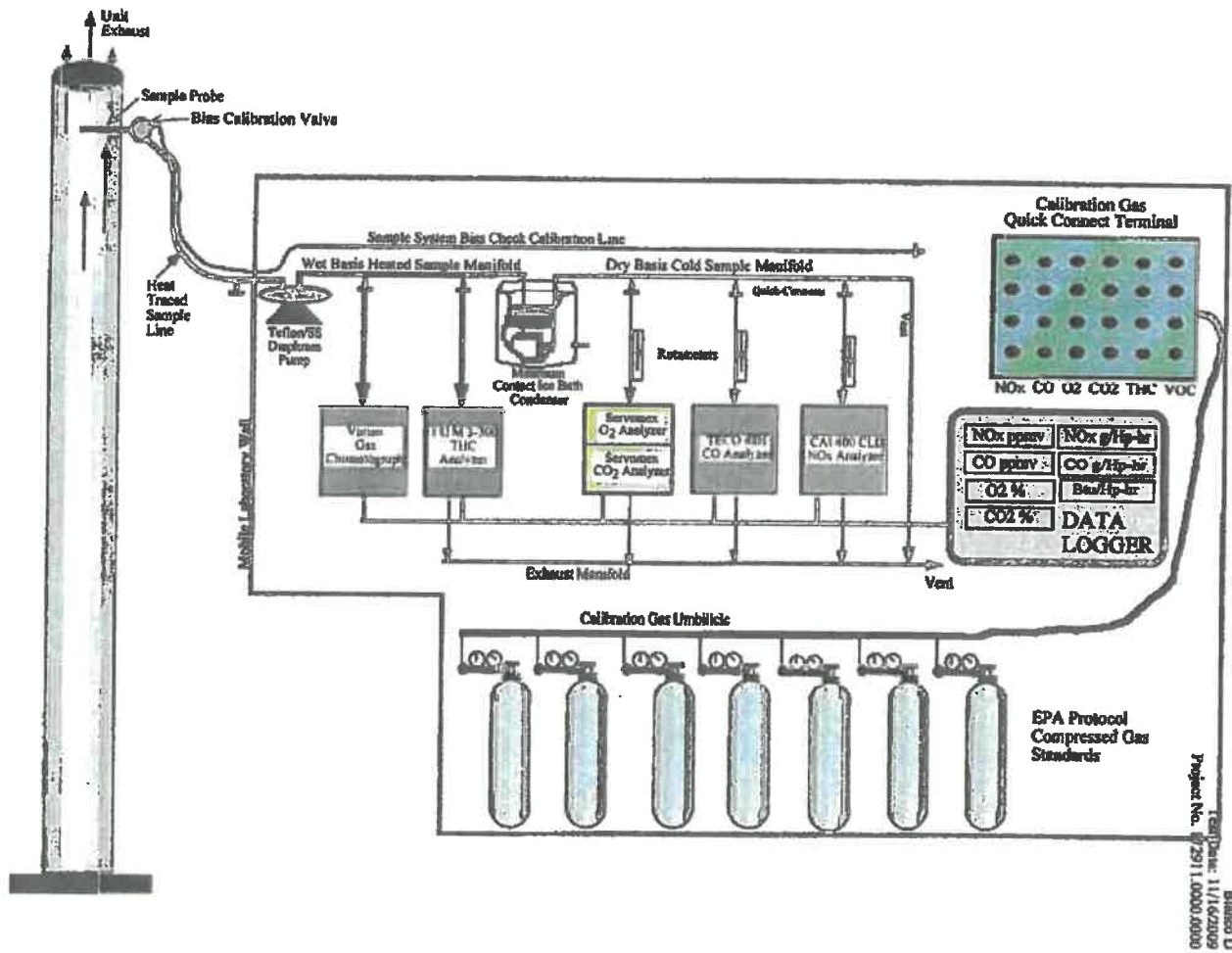
Company: Enterprise Products
Location: Blanco
Source: T-D01
Technicians: RS & GC

<i>Test Number</i>	<i>1</i>	<i>2</i>	<i>3</i>	
Load Condition	4570%	4611%	4624%	
Date	11/16/09	11/16/09	11/16/09	
Start Time	12:19 PM	1:29 PM	2:43 PM	
Stop Time	1:23 PM	2:36 PM	3:46 PM	
<i>Turbine/Compressor Operation</i>				
HP Speed (RPM)	4,911	5,098	5,104	
LP Speed (RPM)	4,570	4,611	4,624	
Compressor Suction Pressure (psig)	363	363	363	
Compressor Discharge Pressure (psig)	911	913	917	
Air Inlet Temperature (T1) (°F)	41	41	42	
<i>Fuel Data</i>				
Fuel Heating Value (Gross Btu/scf)	1040	1040	1040	
Fuel O2 F-Factor (DSCFH/MMBTU)	8710	8710	8710	
Fuel Flow Rate (SCFH)	213,327	220,363	220,185	
<i>Measured Emissions (dry), (corrected for instrument drift)</i>				<i>Averages</i>
NO _x (ppmv)	94.42	97.53	97.99	96.65
CO (ppmv)	1.27	1.16	1.82	1.42
O ₂ (%)	2.10	2.09	2.10	2.10
<i>Exhaust Flow Rates</i>				
via EPA Method 19 (SCFH, dry)	2.15E+06	2.22E+06	2.22E+06	2.19E+06
<i>Mass Emission Rates (Based on Method 19)</i>				
NO _x (lbs/hr) {Limit = 180}	24.22	25.82	25.95	25.33
CO (lbs/hr) {Limit = 21.6}	0.20	0.19	0.29	0.23
NO _x (tons/yr) {Limit = 788.4}	106.08	113.11	113.66	110.95
CO (tons/yr) {Limit = 94.7}	0.87	0.82	1.28	0.99

II. D. Comparison of Modeled and Measured Parameters
The modeled parameters are not available for report publication.

III. TEST PROCEDURES

A. Schematic of Exhaust Stack



III.B: Instrumental Sampling System Diagram

III.C: Analytical Instrumentation

Parameter	Model and Manufacturer	Common Use Ranges	Sensitivity	Response Time (sec.)	Detection Principle
NO _x	CAI 400CLD	0-10 ppm 0-100 ppm 0-200 ppm 0-500 ppm 0-1,000 ppm 0-10,000 ppm	0.1 ppm	1.7	Thermal reduction of NO _x to NO. Chemiluminescence of reaction of NO with O ₃ . Detection by PMT. Inherently linear for listed ranges.
CO	TECO 48	0-500 ppm 0-5,000 ppm 0-10,000 ppm	1 ppm	10.0	Infrared absorption, gas filter correlation detector, microprocessor based linearization
CO ₂	Servomex 1400	0-25%	0.02%	5.0	Infrared absorption, Luft detector, analog linearization
O ₂	Servomex 1400	0-25%	0.10%	15.0	Electrochemical cell, inherently linear.
Temperature	Omega HH82	-256 to 2502 °F	0.1 °F	n/a	Chromel-alumel, K-type thermocouple with digital thermometer. Response time based on thermocouple design.

NOTE: Higher ranges available by sample dilution.
Other ranges available via signal attenuation.

Enterprise Products
Blanco D
Test Date: 1/16/2009
Project No. 172911.0000.0000

III. TEST PROCEDURES

C. Description of EPA Test Methods and Procedures

Exhaust emissions from one turbine was tested to determine the quantity of NO_x and CO being vented to the atmosphere. Three test runs at a load greater than 90% were conducted to determine emissions of these criteria pollutants. This turbine has two exhaust stacks so separate sample systems were used to collect the criteria pollutants. After the Method 6C-1 calculation (drift correction) was applied to all gaseous constituents measured, the pollutant concentrations were averaged. This average was then used to determine the mass emissions rates or percent by volume limits in place for this unit. Each sample system was challenged to determine the reliability of the measured quantities by the testing methodologies that apply to this turbine and are outlined in the remainder of this report section. The testing procedures mentioned here apply to both sample systems.

The sampling and analyses procedures used during these tests conformed to those outlined in The Code of Federal Regulations, Title 40, Chapter 60, Appendix A, Methods 3a, 7e, 10 and 19.

Stack gas entered the system through a stainless steel probe with a 90-micron filter housing in-line. The sample was transported via 3/8-inch heat-traced Teflon® tubing to a specially designed stainless steel minimum-contact condenser, which dried the sample without removing NO_x or other compounds of interest. The sample was then passed to the manifold where it was partitioned to the NO_x, CO and O₂ analyzers through glass and stainless steel rotometers for flow control of the sample. The sample flow did not vary throughout the testing.

The sample system was also equipped with a separate path through which a calibration gas could be delivered to the probe and back through the entire sampling system. This allowed for convenient performance of system bias checks as required by the testing methods.

Stack volumetric flow measurements were conducted in accordance with EPA Method 19. The fuel consumption readings were taken from the turbine operational parameters.

EPA Method 7e was used to determine concentrations of NO_x. A chemiluminescence analyzer was used for this purpose. NO_x mass emission rates were calculated as if all of the NO_x were in the form of NO₂. This

approach tends to overestimate the amount of NO_x emissions, but corresponds to the EPA's convention.

The stack gas analyses for O₂ concentrations were performed in accordance with procedures set forth in EPA Method 3a. Instrumental analyses were utilized by TRC in lieu of an Orsat or a Fyrite procedure due to the greater accuracy and precision provided by the instruments. The O₂ analyzer utilizes an electrochemical cell to quantify the oxygen content of the exhaust gases.

CO emission concentrations were quantified during the tests in accordance with procedures set forth in EPA Method 10. A continuous nondispersive infrared (NDIR) analyzer was used for this purpose. This analyzer was equipped with a gas correlation filter, which also eliminates any interference from moisture, CO₂, and other combustion products. Method 10 requires a range of 1000 ppmv, however, due to the lower stack concentrations and the desire to provide better data, a range of 50 ppmv was used.

TRC personnel collected ambient absolute pressure, temperature and humidity data during each test run. A digital psychrometer utilizing a wet/dry bulb was used to determine temperature and humidity conditions. An aircraft-type aneroid barometer (altimeter) was used to measure absolute atmospheric pressure.

All instruments were housed in an air-conditioned truck-mounted mobile laboratory. Gaseous calibration standards were provided in aluminum cylinders with the concentrations certified by the vendor. EPA Protocol Number 1 was used to determine the cylinder concentrations where applicable (i.e. NO_x calibration gases).

All gaseous data from each sample system were recorded on National Instruments based data logging program. Minute data was recorded in the data log, while the continuous average for each run is recorded in the Quality Assurance section.

A number of quality assurance activities were undertaken before, during, and after this testing project. This section of the report combined with the supporting documentation describes each of those activities.

Each instrument's response was checked and adjusted in the field prior to the collection of data via multi-point calibration. The instrument's linearity was checked by first adjusting its zero and span responses to zero (nitrogen) and

an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration. The instrument's response was accepted as being linear if the response of the other calibration gases agreed within $\pm 2\%$ of range of the predicted values. The response of the infrared absorption type CO analyzer is electronically linearized.

As a minimum, before and after a set of test runs, the analyzers were checked for zero and span drift. This allows each set of test runs to be bracketed by calibrations and documents the precision of the data just collected. The criterion for acceptable data is that the instrument drift is no more than $\pm 2\%$ of the full-scale response. The Quality Assurance Worksheet summarizes all multi-point calibration checks and zero to span checks performed during the tests. This worksheet shows that no analyzer calibration drifted in excess of any method's specifications during the tests and also calculates the drift corrected percent by volume value from the raw data collected from a complete test run. This worksheet is contained in Section IV.I. of the report.

Interference response tests on the instruments were conducted by the instrument vendors and TRC on the NO_x, CO and O₂ analyzers. The sum of the interference responses for H₂O, CO, CO₂ and O₂ (as appropriate for each analyzer) is less than 2 percent of the applicable full-scale span value. The instruments used for the tests meet the performance specifications for EPA Methods 3a, 7e, and 10. The interference response documentation is contained in Section IV.I. of the report.

The sampling systems were leak checked by demonstrating that a vacuum greater than 10" Hg could be held for at least 1 minute with a decline of less than 1" Hg. A leak test was conducted after each sample system was set up and before the systems were dismantled. These tests were conducted to ensure that ambient air had not diluted the sample. No leaks were detected. Documentation of this procedure is included with the Quality Assurance Report in Section IV.I.

The absence of leaks in the sampling system was also verified by system bias checks, as required by testing methodology. Comparing the responses of an analyzer to a calibration gas introduced via two paths tested the sample system's integrity. The first path was into the analyzer via the zero/span calibration manifold. The second path was to introduce zero and calibration gases into the sample system at the sample probe. Any difference in the

instrument responses by these two methods was attributed to sampling system bias or leakage. These bias checks were conducted before the testing. The same sample system was used throughout the tests. The Quality Assurance Report shows that the analyzer responses via both sample paths agreed within $\pm 5\%$, the allowed difference from the recorded span, in all cases. During the sample system bias check, the response time of each instrument was measured and recorded. No reported data was collected outside of this time.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to $\pm 1\%$ accuracy for NO_x and O_2 , and to $\pm 2\%$ accuracy for the remaining gases. EPA Protocol Number 1 was used, where applicable (i.e. NO_x gases), to assign the concentration values traceable to the National Institute of Standards and Technology, Standard Reference Materials (SRM's). The gas calibration sheets, as prepared by the vendor, are contained in Section IV.E. of this test report.

TRC collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. TRC makes no warranty as to the suitability of the test methods. TRC assumes no liability relating to the interpretation and use of the test data.

D. Deviations from EPA Reference Methods and Protocol

There were no deviations from the protocol or reference methods.

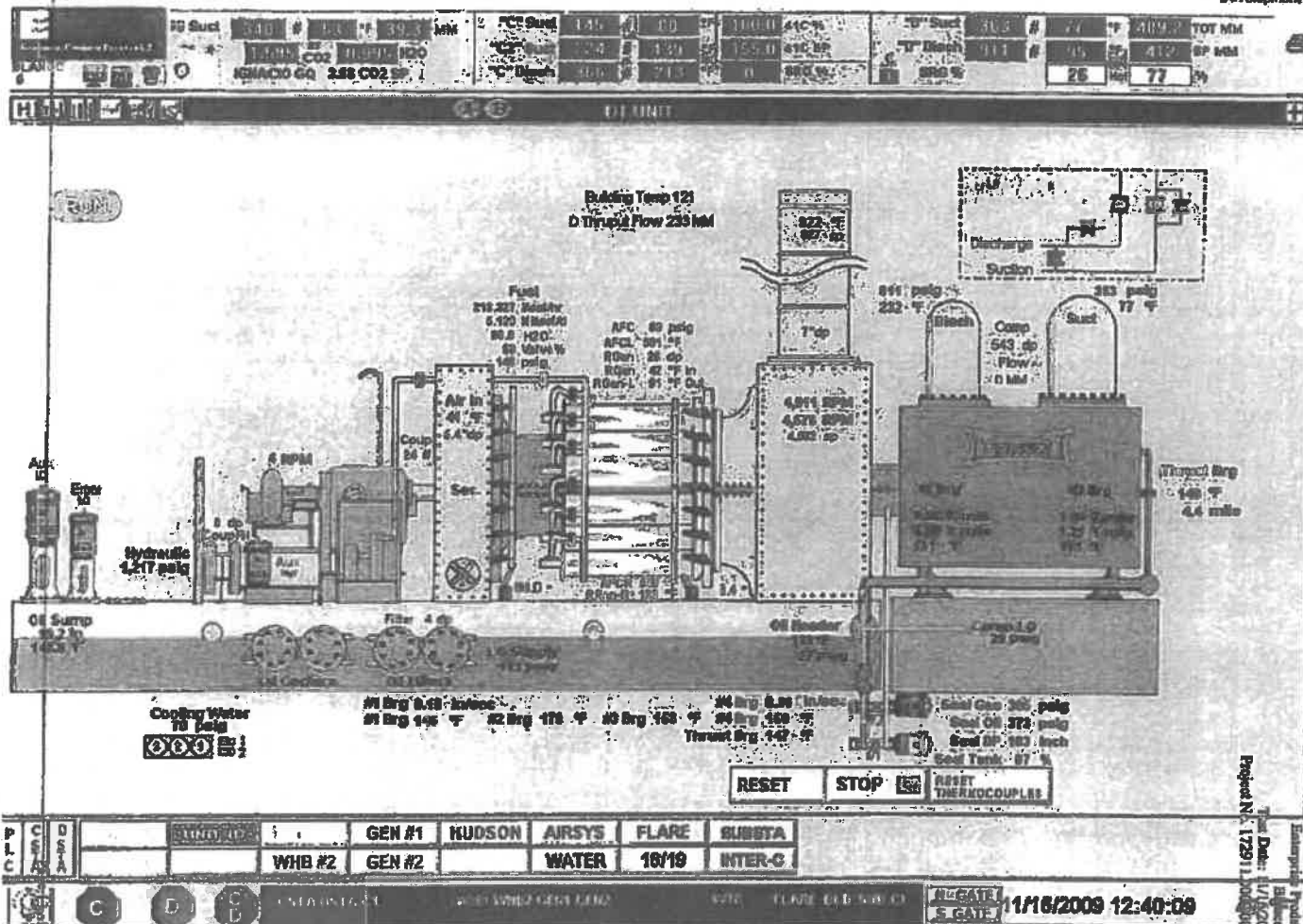
E. Methods for Obtaining Unit Operational Parameters

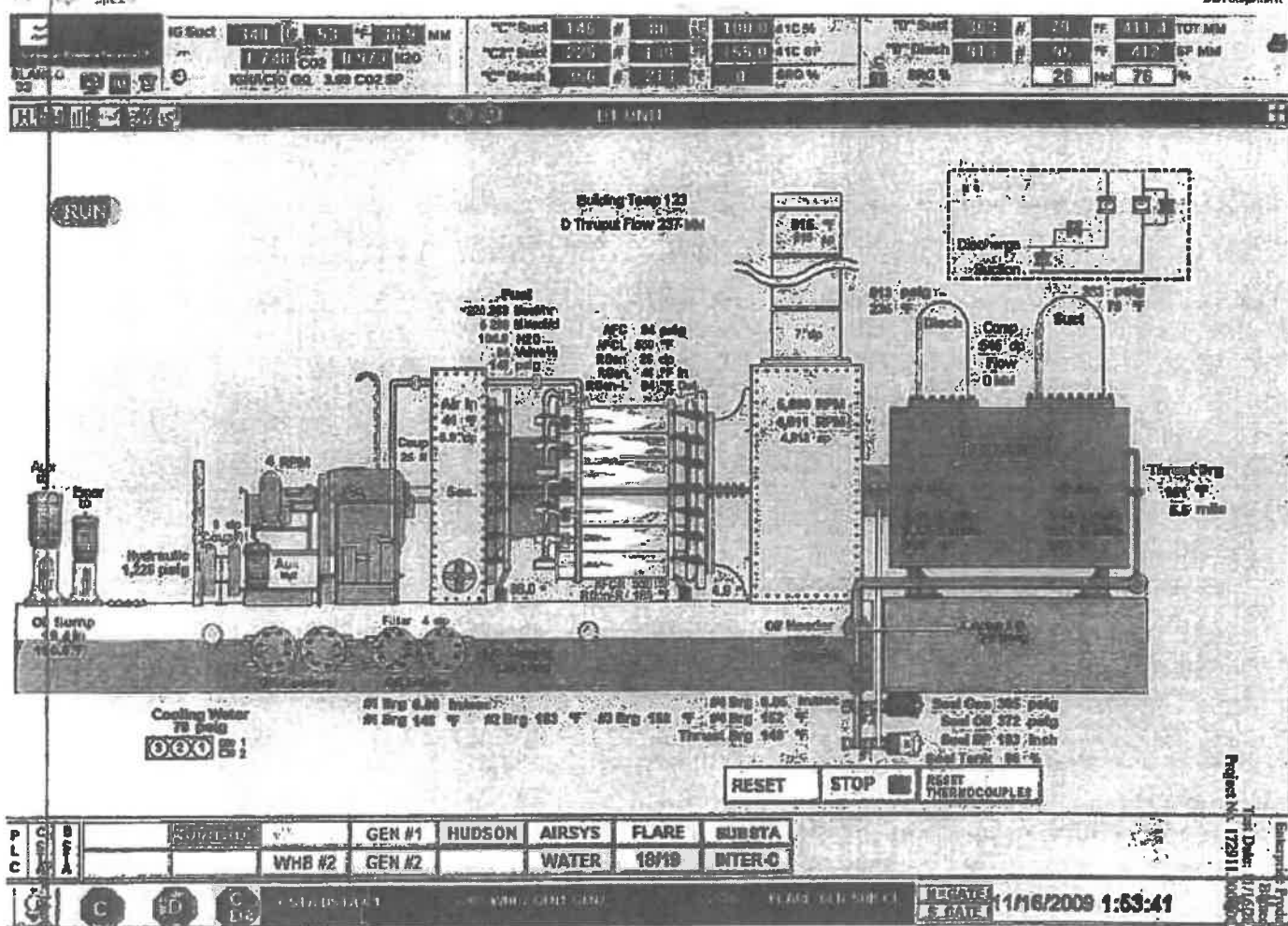
Operational data was taken from available instrumentation control panels or gauges by TRC personnel once per test run. Operational parameters obtained during the testing included engine rpm, fuel flow, suction and discharge pressures/temperatures and engine performance data.

IV. DATA AND CALCULATIONS

A. RAW DATA USED IN EMISSION CALCULATIONS

1. Field Data





(B) LABORATORY DATA (NOT APPLICABLE)

**C. COPY OF DATA LOG RECORDS
NO_x, CO & O₂**

Client	Source	Run Number	Date	Time	NO _x (ppmv)	CO (ppmv)	O ₂ (% vol)
Enterprise	Blanco D		11/16/2009	11:33	100.0	99.7	0.63
Enterprise	Blanco D		11/16/2009	11:34	0.0	2.0	0.63
Enterprise	Blanco D		11/16/2009	11:35	0.0	1.8	0.65
Enterprise	Blanco D		11/16/2009	11:35	0.0	1.6	-1.23
Enterprise	Blanco D		11/16/2009	11:37	0.0	-1.4	-0.02
Enterprise	Blanco D		11/16/2009	11:38	0.0	-1.8	0.00
Enterprise	Blanco D		11/16/2009	11:39	-0.1	-1.9	0.00
Enterprise	Blanco D		11/16/2009	11:40	101.1	-1.8	0.00
Enterprise	Blanco D		11/16/2009	11:41	138.0	0.9	0.00
Enterprise	Blanco D		11/16/2009	11:41	77.8	130.4	0.00
Enterprise	Blanco D		11/16/2009	11:41	77.2	147.0	0.03
Enterprise	Blanco D		11/16/2009	11:41	76.8	147.1	0.03
Enterprise	Blanco D		11/16/2009	11:41	76.9	128.5	0.03
Enterprise	Blanco D		11/16/2009	11:41	19.3	0.4	0.03
Enterprise	Blanco D		11/16/2009	11:41	1.2	-1.6	0.03
Enterprise	Blanco D		11/16/2009	11:41	0.6	-1.3	8.78
Enterprise	Blanco D		11/16/2009	11:41	0.4	2.1	8.23
Enterprise	Blanco D		11/16/2009	11:41	0.5	1.8	8.25
Enterprise	Blanco D		11/16/2009	11:41	0.4	2.0	8.25
Enterprise	Blanco D		11/16/2009	11:41	0.0	1.8	8.28
Enterprise	Blanco D		11/16/2009	11:41	0.1	1.6	8.28
Enterprise	Blanco D		11/16/2009	11:41	0.1	2.4	8.28
Enterprise	Blanco D		11/16/2009	11:41	0.0	2.2	8.28
Enterprise	Blanco D		11/16/2009	11:41	0.0	1.9	8.28
Enterprise	Blanco D		11/16/2009	11:41	0.0	1.7	8.28
Enterprise	Blanco D		11/16/2009	11:41	0.0	2.0	8.25
Enterprise	Blanco D		11/16/2009	11:41	0.0	2.1	8.25
Enterprise	Blanco D		11/16/2009	11:41	0.1	2.6	26.68
Enterprise	Blanco D		11/16/2009	11:41	0.0	1.9	26.68
Enterprise	Blanco D		11/16/2009	11:41	0.1	2.0	26.68
Enterprise	Blanco D		11/16/2009	11:41	0.3	1.8	26.68
Enterprise	Blanco D		11/16/2009	12:03	0.5	2.1	0.08
Enterprise	Blanco D		11/16/2009	12:03	0.4	1.6	4.98
Enterprise	Blanco D		11/16/2009	12:03	0.3	1.7	16.01
Enterprise	Blanco D		11/16/2009	12:03	0.2	1.6	16.01
Enterprise	Blanco D		11/16/2009	12:03	0.2	1.7	16.01
Enterprise	Blanco D		11/16/2009	12:03	0.2	1.4	16.01
Enterprise	Blanco D		11/16/2009	12:03	0.3	1.2	11.81
Enterprise	Blanco D		11/16/2009	12:03	0.0	4.2	5.01
Enterprise	Blanco D		11/16/2009	12:03	0.2	2.8	10.37
Enterprise	Blanco D		11/16/2009	12:03	51.3	2.3	2.28
Enterprise	Blanco D		11/16/2009	12:03	119.0	98.3	0.11
Enterprise	Blanco D		11/16/2009	12:03	142.2	145.2	1.20
Enterprise	Blanco D		11/16/2009	12:16	1.7	3.4	10.35
Enterprise	Blanco D		11/16/2009	12:17	0.7	-1.4	10.35
Enterprise	Blanco D		11/16/2009	12:18	63.7	-0.7	2.33
Enterprise	Blanco D		11/16/2009	12:19	96.5	1.9	2.36
Enterprise	Blanco D		11/16/2009	12:19	96.7	2.9	2.34
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:20	89.7	5.2	2.31
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:21	87.9	3.7	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:22	94.6	2.4	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:23	95.2	4.7	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:24	90.6	4.9	2.30
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:25	92.6	1.4	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:26	94.7	3.9	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:27	90.7	3.5	2.27

Client	Source	Run Number	Date	Time	NO _x (ppmv)	CO (ppmv)	O ₂ (% vol)
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:28	91.2	4.3	2.31
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:29	97.0	2.7	2.37
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:30	94.5	3.8	2.31
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:31	93.6	2.6	2.31
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:32	94.0	5.2	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:33	94.7	4.3	2.30
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:34	93.1	4.1	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:35	95.2	3.3	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:36	94.9	3.0	2.30
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:37	94.1	1.7	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:38	95.6	0.1	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:39	95.6	0.2	2.31
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:40	94.5	0.4	2.33
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:41	94.7	0.2	2.27
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:42	86.7	0.4	2.24
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:43	93.5	0.3	2.31
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:44	85.3	0.3	2.19
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:45	87.6	0.5	2.27
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:46	87.5	0.5	2.21
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:47	85.3	0.5	2.24
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:48	89.2	0.2	2.28
Enterprise	Blanco D	East Stack-Run 1	11/16/2009	12:49	88.2	0.2	2.27
Enterprise	Blanco D		11/16/2009	12:50	2.6	-0.3	0.23
Enterprise	Blanco D		11/16/2009	12:51	1.1	-0.6	0.21
Enterprise	Blanco D		11/16/2009	12:52	82.7	-0.1	2.22
Enterprise	Blanco D		11/16/2009	12:53	85.9	0.3	2.24
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	12:54	86.0	0.5	2.25
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	12:55	92.3	0.0	2.34
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	12:56	96.1	-0.1	2.33
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	12:57	94.9	0.0	2.28
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	12:58	94.6	0.0	2.27
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	12:59	93.9	0.0	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:00	94.7	0.0	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:01	95.0	-0.1	2.27
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:02	93.5	0.0	2.22
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:03	90.1	0.2	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:04	96.0	1.2	2.31
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:05	94.0	4.6	2.27
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:06	93.3	0.6	2.27
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:07	92.8	0.0	2.28
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:08	93.5	0.0	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:09	94.7	0.2	2.27
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:10	93.9	0.6	2.24
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:11	91.0	0.8	2.33
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:12	94.0	3.0	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:13	94.1	3.4	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:14	94.1	3.0	2.28
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:15	88.9	0.3	2.18
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:16	93.2	0.2	2.36
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:17	95.5	2.2	2.30
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:18	95.3	0.3	2.28
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:19	96.1	0.0	2.31
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:20	97.0	0.2	2.31
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:21	97.3	-0.1	2.27
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:22	87.3	0.3	2.22
Enterprise	Blanco D	West Stack-Run 1	11/16/2009	13:23	94.5	0.0	2.36

Client	Source	Run Number	Date	Time	NO _x (ppmv)	CO (ppmv)	O ₂ (% vol)
Enterprise	Blanco D		11/16/2009	13:24	98.0	-0.2	2.30
Enterprise	Blanco D		11/16/2009	13:25	145.5	140.2	0.20
Enterprise	Blanco D		11/16/2009	13:26	144.5	102.9	10.11
Enterprise	Blanco D		11/16/2009	13:27	1.7	0.0	10.34
Enterprise	Blanco D		11/16/2009	13:28	93.1	-0.5	2.30
Enterprise	Blanco D		11/16/2009	13:29	93.0	1.3	2.22
Enterprise	Blanco D		11/16/2009	13:29	92.0	1.5	2.25
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:30	98.2	0.4	2.31
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:31	95.4	2.2	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:32	96.1	3.7	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:33	91.6	4.5	2.22
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:34	93.0	5.2	2.34
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:35	96.1	1.4	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:36	96.6	1.4	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:37	97.4	0.2	2.25
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:38	92.4	0.3	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:39	98.2	-0.1	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:40	97.4	1.4	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:41	96.2	0.7	2.24
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:42	93.5	1.7	2.34
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:43	97.4	0.6	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:44	97.4	0.3	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:45	97.8	1.1	2.27
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:46	91.8	0.8	2.27
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:47	97.9	0.2	2.31
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:48	97.6	0.2	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:49	96.3	0.3	2.25
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:50	93.8	0.8	2.31
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:51	96.7	1.0	2.31
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:52	97.9	0.5	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:53	96.2	0.6	2.27
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:54	95.8	-0.1	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:55	96.9	0.5	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:56	96.5	0.0	2.27
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:57	94.5	0.0	2.30
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:58	95.4	0.2	2.33
Enterprise	Blanco D	West Stack-Run 2	11/16/2009	13:59	96.6	8.5	2.30
Enterprise	Blanco D		11/16/2009	14:00	91.6	19.3	2.24
Enterprise	Blanco D		11/16/2009	14:01	13.9	7.7	0.26
Enterprise	Blanco D		11/16/2009	14:02	2.4	-0.9	0.45
Enterprise	Blanco D		11/16/2009	14:03	98.9	3.5	2.33
Enterprise	Blanco D		11/16/2009	14:04	95.3	4.1	2.30
Enterprise	Blanco D		11/16/2009	14:05	101.2	2.6	2.37
Enterprise	Blanco D		11/16/2009	14:06	102.5	1.2	2.37
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:07	101.0	0.3	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:08	100.1	0.4	2.30
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:09	95.3	2.2	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:10	100.3	2.3	2.37
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:11	101.0	1.1	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:12	101.0	0.0	2.33
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:13	98.8	0.0	2.30
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:14	98.5	0.5	2.39
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:15	102.0	0.1	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:16	100.2	-0.1	2.31
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:17	99.2	0.0	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:18	101.2	0.0	2.36

Client	Source	Run Number	Date	Time	NO _x (ppmv)	CO (ppmv)	O ₂ (% vol)
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:19	101.1	0.1	2.33
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:20	98.6	4.2	2.33
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:21	98.1	8.5	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:22	101.4	1.6	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:23	101.6	0.0	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:24	100.7	-0.2	2.33
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:25	100.3	0.2	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:26	101.1	-0.1	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:27	101.3	-0.1	2.37
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:28	100.8	8.4	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:29	100.4	0.5	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:30	101.5	0.0	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:31	101.0	0.0	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:32	100.5	0.0	2.34
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:33	100.6	0.3	2.37
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:34	101.8	0.0	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:35	101.0	0.7	2.36
Enterprise	Blanco D	East Stack-Run 2	11/16/2009	14:36	100.8	0.0	2.36
Enterprise	Blanco D		11/16/2009	14:37	100.5	0.3	2.36
Enterprise	Blanco D		11/16/2009	14:38	100.3	0.3	3.84
Enterprise	Blanco D		11/16/2009	14:39	148.8	142.3	0.23
Enterprise	Blanco D		11/16/2009	14:40	148.9	146.1	0.23
Enterprise	Blanco D		11/16/2009	14:41	4.6	9.8	10.25
Enterprise	Blanco D		11/16/2009	14:42	2.1	-1.7	10.28
Enterprise	Blanco D		11/16/2009	14:43	99.7	0.0	2.39
Enterprise	Blanco D		11/16/2009	14:43	99.0	0.2	2.39
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:44	99.7	0.0	2.34
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:45	99.3	0.2	2.39
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:46	101.5	0.0	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:47	101.6	0.4	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:48	102.0	0.3	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:49	101.8	0.2	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:50	101.2	0.6	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:51	100.3	-0.1	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:52	101.1	0.8	2.39
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:53	102.3	0.3	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:54	102.7	0.5	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:55	101.9	0.3	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:56	101.3	1.0	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:57	101.5	0.2	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:58	101.4	0.2	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	14:59	100.7	0.1	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:00	101.2	1.1	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:01	102.5	2.6	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:02	100.8	0.3	2.33
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:03	100.1	0.0	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:04	102.1	-0.2	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:05	102.3	-0.1	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:06	102.3	-0.2	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:07	101.0	0.4	2.34
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:08	99.8	0.3	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:09	101.4	0.3	2.37
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:10	102.1	1.2	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:11	101.5	1.5	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:12	101.9	2.3	2.36
Enterprise	Blanco D	East Stack-Run 3	11/16/2009	15:13	101.9	1.8	1.67

Client	Source	Run Number	Date	Time	NO _x (ppmv)	CO (ppmv)	O ₂ (% vol)
Enterprise	Blanco D		11/16/2009	15:14	3.9	0.3	2.24
Enterprise	Blanco D		11/16/2009	15:15	95.4	0.0	2.31
Enterprise	Blanco D		11/16/2009	15:16	97.4	0.1	2.31
Enterprise	Blanco D		11/16/2009	15:16	97.5	0.0	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:17	97.5	0.3	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:18	97.5	0.4	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:19	97.5	0.4	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:20	98.2	0.0	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:21	97.0	1.2	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:22	97.3	0.2	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:23	98.4	0.1	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:24	98.8	0.5	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:25	99.0	1.8	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:26	98.4	1.4	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:27	97.9	0.1	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:28	97.7	0.0	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:29	98.3	0.1	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:30	98.6	-0.2	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:31	98.7	0.1	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:32	98.5	0.6	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:33	96.8	0.4	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:34	96.3	0.4	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:35	97.5	0.0	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:36	99.0	0.0	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:37	99.6	0.2	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:38	99.2	0.3	2.31
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:39	98.6	1.3	2.30
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:40	98.8	1.0	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:41	100.2	-0.1	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:42	101.0	-0.1	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:43	100.4	1.6	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:44	100.6	0.6	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:45	100.2	0.7	2.33
Enterprise	Blanco D	West Stack-Run 3	11/16/2009	15:46	100.2	0.0	2.33
Enterprise	Blanco D		11/16/2009	15:47	101.1	0.9	1.65
Enterprise	Blanco D		11/16/2009	15:48	149.7	142.8	0.23
Enterprise	Blanco D		11/16/2009	15:49	150.4	145.8	0.23
Enterprise	Blanco D		11/16/2009	15:50	11.5	32.3	10.13
Enterprise	Blanco D		11/16/2009	15:51	1.9	-1.6	10.19

D. EXAMPLE CALCULATIONS

Example Calculations

Company: Enterprise Products

Location: Blanco

Source: T-D01

Technicians: RS & GG

All calculations refer to test run 1

Corrected Emission Concentrations (equation 7e-5)

$$C_{gas} = (C - C_0) \times \frac{C_{ma}}{C_m - C_0} \quad (\text{Equation 7e-5})$$

$$C_{NOx} = \text{Concentration of NOx (Uncorrected)} = 92.78 \text{ ppmv}$$

$$C_0 = \text{avg. of initial and final zero bias checks} = 0.95 \text{ ppmv}$$

$$C_m = \text{avg. of initial and final span bias checks} = 144.50 \text{ ppmv}$$

$$C_{ma} = \text{actual concentration of span gas} = 147.60 \text{ ppmv}$$

$$C_{NOx} = (92.78 - 0.95) \times \frac{147.60}{(144.50 - 0.95)} = 94.42 \text{ ppmv}$$

$$C_{CO} = \text{Concentration of CO (Uncorrected)} = 1.53 \text{ ppmv}$$

$$C_0 = \text{avg. of initial and final zero bias checks} = 0.23 \text{ ppmv}$$

$$C_m = \text{avg. of initial and final span bias checks} = 143.85 \text{ ppmv}$$

$$C_{ma} = \text{actual concentration of span gas} = 148.00 \text{ ppmv}$$

$$C_{CO} = (1.53 - 0.23) \times \frac{148.00}{(143.85 - 0.23)} = 1.35 \text{ ppmv}$$

$$C_{O2} = \text{Concentration of O2 (Uncorrected)} = 2.29 \%$$

$$C_0 = \text{avg. of initial and final zero bias checks} = 0.15 \%$$

$$C_m = \text{avg. of initial and final span bias checks} = 10.34 \%$$

$$C_{ma} = \text{actual concentration of span gas} = 10.00 \%$$

$$C_{O2} = (2.29 - 0.15) \times \frac{10.00}{(10.34 - 0.15)} = 2.10 \%$$

Stack Gas Flow Rate via Method 19

Qf	= Fuel Flow (Measured)	= 213327.00	$\frac{\text{SCF}}{\text{hour}}$
FBTU	= gas heating value (from fuel analysis)	= 1040.00	$\frac{\text{BTU}}{\text{SCF}}$
FO2	= O2 F-Factor (from fuel analysis)	= 8710.00	$\frac{\text{DSCF}}{\text{MMBTU}}$
CO2	= concentration of O2	= 2.10	%
Qs	= Stack flow rate on dry basis at standard conditions		$\frac{\text{DSCF}}{\text{hour}}$

$$\begin{aligned}
 &= Qf \times FBtu \times FO2 \times 10^{-6} \times \frac{20.9}{20.9 - \%O_2} \\
 &= 213327.00 \times 1040.00 \times 8710.00 \times 10^{-6} \times \frac{20.9}{20.9 - 2.10} \\
 &= 2.15E+06
 \end{aligned}$$

Mass Emissions rates via EPA Method 19 (lbs/hr, tons/year)

CNO _x	= Concentration of NO _x	=	94.42 ppmv
CCO	= Concentration of CO	=	1.27 ppmv
Q _s	= stack flow rate	=	2.15E+06 DSCFH
MW NO _x	= Molecular Weight of NO _x	=	46.01 lb/lb-mol
MW CO	= Molecular Weight of CO	=	28.00 lb/lb-mol

$$\text{Ex (lb/hr)} = \text{Cx} \times 10^{-6} \times \text{Qs} \times \frac{\text{MWx}}{385.15}$$

$$\text{Ex (TPY)} = \text{Ex (lb/hr)} \times \frac{8760 \text{ hr/yr}}{2000 \text{ lb/ton}}$$

$$\text{Ex (g/bhp-l)} = \frac{\text{Ex (lb/hr)}}{\text{hp}} \times \frac{454 \text{ g}}{1 \text{ lb}}$$

$$\begin{aligned} \text{ENO}_x &= \text{C NO}_x \times 10^{-6} \times \text{Qs} \times \frac{46.01}{385.15} \\ &= 94.42 \times 10^{-6} \times 2.15\text{E}+06 \times \frac{46.01}{385.15} = 24.22 \text{ lb/hr} \\ &= 24.22 \text{ lb/hr} \times \frac{8760 \text{ hrs/yr}}{2000 \text{ lbs/ton}} = 106.08 \text{ TPY} \end{aligned}$$

$$\begin{aligned} \text{ECO} &= \text{C CO} \times 10^{-6} \times \text{Qs} \times \frac{28.00}{385.15} \\ &= 1.27 \times 10^{-6} \times 2.15\text{E}+06 \times \frac{28.00}{385.15} = 0.20 \text{ lb/hr} \\ &= 0.20 \text{ lb/hr} \times \frac{8760 \text{ hrs/yr}}{2000 \text{ lbs/ton}} = 0.87 \text{ TPY} \end{aligned}$$

**E. ANALYSIS AND CERTIFICATION DOCUMENTS FOR
CALIBRATION GASES**



Enterprise Products
Blanco D
Test Date: 11/16/2009
Project No. 172911.0000.0000
Airgas Specialty Gases
1075 Condon Drive
Port Allen, LA 70767
225.388.0800
FAX: 225.388.8858
www.airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E03NI99E15A02T9 Reference Number: 83-124173490-3
Cylinder Number: CC181731 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Apr 24, 2009 Valve Outlet: 680

Expiration Date: Apr 24, 2011

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig, i.e. 1 Mega Pascal

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	80.00 PPM	79.42 PPM	G1	+/- 1% NIST Traceable
NITRIC OXIDE	80.00 PPM	77.76 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

Total oxides of nitrogen

77.77 PPM

For Reference Only

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
GMIS	82070602	CC207650	3055PPM NITRIC OXIDE/NITROGEN	May 01, 2011
NTRM	08060207	CC255258	51.26PPM CARBON MONOXIDE/NITROGEN	Jan 15, 2012
NTRM	080610	CC205950	49.38PPM NITRIC OXIDE/NITROGEN	Oct 02, 2012

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
FTIR2MCO	FTIR	Apr 18, 2009
FTIR2LND	FTIR	Apr 22, 2009

Triad Data Available Upon Request

Notes: 

QA Approval

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
11711 S. Alameda Street
Los Angeles, CA 90059-2130
(323) 357-6881
Fax: (323) 567-3686
www.airgas.com

Part Number: E03NI99E15AC3R0 Reference Number: 48-124180712-2
Cylinder Number: CC87041 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Los Angeles - CA Cylinder Pressure: 2015 PSIG
Analysis Date: Jun 26, 2009 Valve Outlet: 660

Expiration Date: Jun 26, 2011

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig i.e. 1 Mega Pascal

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	145.0 PPM	149.0 PPM	G1	+/- 1% NIST Traceable
NITRIC OXIDE	145.0 PPM	147.6 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

Total oxides of nitrogen

148.6 PPM

For Reference Only

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	080603	GC254681	250.0PPM CARBON MONOXIDE/NITROGEN	May 15, 2012
NTRM	080603	GC255845	250.6PPM NITRIC OXIDE/NITROGEN	Feb 01, 2011
ANALYTICAL EQUIPMENT				
Instrument/Make/Model	Analytical Principle			Last Multipoint Calibration
Nicolet CO	FTIR			Jun 12, 2009
Nicolet NO	FTIR			Jun 05, 2009

Triad Data Available Upon Request

Permanent Notes: IRC ENVIRONMENTAL

Notes

QA Approval



3434 Route 22 West, Branchburg, New Jersey 08876 USA
Enterprise Products
Blanco D
Test Date: 11/16/2009
Project No. 172911.0000.0000
ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: TRC Air Measurements
SGI ORDER #: 0124453
ITEM#: 10
P.O.#: VERBAL-GRIGORI

CYLINDER #: CC-173325
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590
PRODUCT CODE: TRC 22

CERTIFICATION DATE: 3/4/2008
EXPIRATION DATE: 3/4/2011

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	3/4/2008	5.04 %	5.04 %	+/- 1%
Oxygen	3/4/2008	4.99 %	4.99 %	+/- 1%

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	GMIS-1	CC-85169	5.02 %
Oxygen	NTRM-82659x	CC-237212	24.52 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	CAI-300	S03001	NDIR	3/3/2008
Oxygen	CAI-300	S03001	PM	2/8/2008

THIS STANDARD IS **NOT** TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cody Hamlin

CODY HAMLIN

DATE: 3/4/2008



Enterprise Products

Blanco D

Test Date: 11/16/2009

Project: 83-124174653-2

1075 Dandridge Drive

Port Allen, LA 70767

225.388.0900

FAX: 225.388.0959

www.airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E03N180E15A0138 Reference Number: 83-124174653-2
Cylinder Number: CC18621@ Cylinder Volume: 151 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Apr 22, 2009 Valve Outlet: 590

Expiration Date: Apr 22, 2012

Certification performed in accordance with "EPA Transferability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig i.e. 1 Mega Pascal

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON DIOXIDE	10.00 %	9.995 %	G1	+/- 1% NIST Traceable
OXYGEN	10.00 %	9.996 %	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	09060821	CC207958	22.51% OXYGEN/NITROGEN	May 01, 2010
NTRM	97050913	SG9182176BAL	8.954% CARBON DIOXIDE/NITROGEN	Jul 01, 2009

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
SCO2GM	NonDispersive Infrared	Apr 02, 2009
HO2GH	PMO2	Apr 03, 2009

Triad Data Available Upon Request

Notes:

QA Approval

F. AUDIT SAMPLE RESULTS (NOT APPLICABLE)
G. VISIBLE EMISSIONS FIELD SHEETS AND CERTIFICATION
(NOT APPLICABLE)
H. SAMPLE CHAIN OF CUSTODY (NOT APPLICABLE)

I. QUALITY ASSURANCE ACTIVITIES

Enterprise		Blanco D									
Initial Calibration Error		Range	Zero Gas	Mid Gas	High Gas	Zero Response	Mid Response	High Response	Zero Cal Error	Mid Cal Error	High Cal Error
NOx		800	0.0	77.8	147.8	0.0	76.7	146.8	0.00%	-0.77%	-0.88%
CO		500	0.0	78.4	148.0	1.0	78.8	148.9	1.20%	-0.84%	-0.75%
O2		15	0.00	4.98	10.00	0.00	5.00	10.47	0.04%	0.02%	0.27%
Then the Probe Was and Drift		Raw Gas Used	TTP Initial Zero	TTP Final Zero	TTP Initial Span	TTP Final Span	Zero Bias	Span Bias	Zero Drift	Span Drift	
NOx		147.8	0.0	1.9	142.6	148.8	1.20%	-0.07%	1.29%	2.71%	
CO		148.0	0.0	0.6	142.7	145.0	0.41%	-1.38%	0.41%	1.58%	
O2		10.00	0.11	0.20	10.34	10.34	1.90%	-8.80%	0.90%	0.00%	
East Stack-Run 1		11/16/2009	12:10	12:40							
Test Run Results		Minimum	Maximum	Std. Dev.	Raw Results						
NOx		83.8	97.8	9.3	82.3						
CO		0.0	7.8	1.9	2.3						
O2		2.18	2.37	0.04	2.30						
West Stack-Run 1		11/16/2009	12:50	13:23							
Test Run Results		Minimum	Maximum	Std. Dev.	Raw Results		Average Raw	Averaged Corrected			
NOx		88.7	97.5	2.9	93.4		82.8	94.4			
CO		-0.2	0.4	1.2	0.7		1.5	3.3			
O2		2.18	2.37	0.03	2.28		2.28	2.38			

Enterprise		Blanco D									
Initial Calibration Error		Range	Zero Gas	Mid Gas	High Gas	Zero Response	Mid Response	High Response	Zero Cal Error	Mid Cal Error	High Cal Error
NOx		800	0.0	77.8	147.8	0.0	76.7	146.8	0.00%	-0.77%	-0.88%
CO		500	0.0	78.4	148.0	1.0	78.8	148.9	1.20%	-0.84%	-0.75%
O2		15	0.00	4.98	10.00	0.00	5.00	10.40	0.04%	0.02%	0.27%
Then the Probe Was and Drift		Raw Gas Used	TTP Initial Zero	TTP Final Zero	TTP Initial Span	TTP Final Span	Zero Bias	Span Bias	Zero Drift	Span Drift	
NOx		147.6	1.8	2.1	146.8	148.7	1.42%	1.40%	0.14%	1.40%	
CO		148.0	0.0	-0.8	145.8	145.9	-0.54%	-0.50%	0.05%	0.61%	
O2		10.00	0.20	0.20	10.34	10.28	2.25%	-1.35%	0.30%	0.78%	
West Stack-Run 2		11/16/2009	13:20	13:50							
Test Run Results		Minimum	Maximum	Std. Dev.	Raw Results						
NOx		89.7	99.6	1.8	88.4						
CO		-0.2	0.8	1.4	1.1						
O2		2.21	2.38	0.03	2.29						
East Stack-Run 2		11/16/2009	14:00	14:38							
Test Run Results		Minimum	Maximum	Std. Dev.	Raw Results		Average Raw	Averaged Corrected			
NOx		84.8	103.2	1.4	90.4		88.8	97.5			
CO		-0.2	0.9	1.9	1.0		1.0	3.2			
O2		2.28	2.39	0.02	2.34		2.32	2.60			

Enterprise		Blanco D									
Initial Calibration Error		Range	Zero Gas	Mid Gas	High Gas	Zero Response	Mid Response	High Response	Zero Cal Error	Mid Cal Error	High Cal Error
NOx		800	0.0	77.8	147.8	0.0	76.7	146.8	0.00%	-0.77%	-0.88%
CO		500	0.0	78.4	148.0	1.0	78.8	148.9	1.20%	-0.84%	-0.75%
O2		15	0.00	4.98	10.00	0.00	5.00	10.40	0.04%	0.02%	0.27%
Then the Probe Was and Drift		Raw Gas Used	TTP Initial Zero	TTP Final Zero	TTP Initial Span	TTP Final Span	Zero Bias	Span Bias	Zero Drift	Span Drift	
NOx		147.6	2.1	1.8	148.7	150.3	1.22%	2.51%	0.20%	1.69%	
CO		148.0	-0.8	-1.8	145.9	146.0	-1.32%	-0.61%	0.88%	0.87%	
O2		10.00	0.23	0.24	10.26	10.18	2.40%	-2.70%	0.18%	0.70%	
East Stack-Run 3		11/16/2009	14:43	15:13							
Test Run Results		Minimum	Maximum	Std. Dev.	Raw Results						
NOx		88.8	103.0	0.9	101.3						
CO		-0.3	2.8	0.7	0.5						
O2		1.87	2.40	0.02	2.35						
West Stack-Run 3		11/16/2009	15:18	15:48							
Test Run Results		Minimum	Maximum	Std. Dev.	Raw Results		Average Raw	Averaged Corrected			
NOx		96.1	101.9	1.2	98.5		90.5	98.0			
CO		-0.2	1.0	0.6	0.5		0.5	1.8			
O2		2.28	2.53	0.01	2.31		2.34	2.60			

V. APPENDIX

A. COMPLICATIONS DURING THE TESTS (NOT APPLICABLE)

B. SPECIAL INFORMATION (NOT APPLICABLE)

V. C. Test Contractor's Resume

Richard B. Stallings

Education

Chemistry, Senior Status, University of New Mexico.
Studies in Chemical Engineering; New Mexico State University
Studies in Engineering Math, Engineering Physics, Chemistry and
Biology

Professional Experience

- 1996-Present:** Cubix Corporation, Albuquerque, New Mexico. Air Emissions Project Manager. Responsible for air emission source tests using EPA Methods 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 17, 18, 20, 25a, 26, 29, 101, 102, and 107 of the Code of Federal Regulations, Title 40. Experience includes testing a wide variety of emission sources including measurements for particulate matter, condensable particulates, metals, organic chemicals, volatile organic compounds, and combustion products. Responsibilities include maintenance, design and fabrication of custom test equipment; mobile lab maintenance; project management; test data reduction and reporting.
- 1993-1996:** Test Team Leader, Kramer and Associates. Directed field operations of a four man test team. Responsible for maintenance and fabrication of test equipment. Performed laboratory analysis of effluent gas and water samples using GC, Spectrophotometry, Ion Chromatography and classic wet chemical techniques. Sources tested include: asphalt plants, mineral processing mills, portland cement plants, semiconductor plants, textile mills, potash mines, gas turbines, gas and liquid-fueled reciprocating engines, pharmaceutical plants, incinerators, gas, coal and woodwaste fueled boilers, fiberboard plants and nuclear weapons laboratories.
- 1992-1993:** Employed by A-U enterprises as technical service director. Duties included initiating customer contact, sampling water supplies, designing and installing water treatment systems for domestic and commercial water systems.



October 2000
RG-109 (Draft)

Air Permit Technical Guidance for Chemical Sources:

Flares and Vapor Oxidizers

printed on
recycled paper

Air Permits Division

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Waste Stream	Destruction/Removal Efficiency (DRE)
VOC	98 percent (generic) 99 percent for compounds containing no more than 3 carbons that contain no elements other than carbon and hydrogen in addition to the following compounds: methanol, ethanol, propanol, ethylene oxide and propylene oxide
H ₂ S	98 percent
NH ₃	case by case
CO	case by case
Air Contaminants	Emission Factors
thermal NO _x	steam-assist: high Btu 0.0485 lb/MMBtu low Btu 0.068 lb/MMBtu other: high Btu 0.138 lb/MMBtu low Btu 0.0641 lb/MMBtu
fuel NO _x	NO _x is 0.5 wt percent of inlet NH ₃ , other fuels case by case
CO	steam-assist: high Btu 0.3503 lb/MMBtu low Btu 0.3465 lb/MMBtu other: high Btu 0.2755 lb/MMBtu low Btu 0.5496 lb/MMBtu
PM	none, required to be smokeless
SO ₂	100 percent S in fuel to SO ₂

*The only exception of this is if inorganics might be emitted from the flare. In the case of landfills, the AP-42 PM factor may be used. In other cases, the emissions should be based on the composition of the waste stream routed to the flare.

Natural Gas Analysis

Meter Number:	--	Flow Pressure:	20
Meter Name:	Blanco Process Flare 11-28-17	Flow Temp:	--
Location:	Blanco Plant	H2O, Lb/MMCF:	--
Sample Date:	11/28/2017	H2S, ppmol:	--
GC File name	BLANCO PROCESS FLARE 11-28-17_1.D	Type:	Composite
		Pulled by:	Rick Wade

<u>Component</u>	<u>Mole%</u>	<u>Weight%</u>	<u>Liquid%</u>
Nitrogen	5.1808	4.2615	2.4500
Oxygen	1.2207	1.1470	0.4658
Methane	42.2300	19.8927	30.7746
Carbon Dioxide	1.4871	1.9217	1.0898
Ethane	14.3482	12.6683	16.4946
Propane	15.3238	19.8409	18.1474
Isobutane	4.5913	7.8357	6.4582
n-Butane	7.1879	12.2672	9.7410
Neopentane	0.0000	0.0000	0.0000
Isopentane	2.9926	6.3399	4.7045
n-Pentane	2.1395	4.5325	3.3337
Hexane+	3.2981	9.2926	6.3403
Total	100.0000	100.0000	100.0000

Avg MW, Total Sample	34.056
Relative Density	1.1873
BTU Dry @ 14.73 psia, 1/Z	1851.4
BTU Sat @ 14.73 psia, 1/Z	1819.2
C2+ GPM @ 14.73 psia	15.166
C3+ GPM @ 14.73 psia	11.329
C5+ GPM @ 14.73 psia	3.341

Hourly Liquids Analysis


Certificate of Analysis
 Number: 1030-17031068-001A

Houston Laboratories
 8820 Interchange Drive
 Houston, TX 77054
 Phone 713-660-0901

 Jim Lieb
 Enterprise Products
 770 W. Navajo
 Farmington, NM 87401

May 01, 2017

 Station Name: Pigging Liquids
 Station Location: Manzaneros Comp. Station
 Cylinder No: 11220
 Analyzed: 03/29/2017 17:17:02

 Sampled By: N/A
 Sample Of: Liquid Spot
 Sample Date: 03/15/2017
 Sample Conditions:
 Method: GPA 2103M
Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Nitrogen	NIL	28.013	NIL	0.807	NIL
Methane	2.393	16.043	0.413	0.300	0.982
Carbon Dioxide	0.114	44.010	0.054	0.817	0.047
Ethane	1.821	30.069	0.589	0.356	1.179
Propane	3.541	44.096	1.680	0.507	2.364
Iso-Butane	1.697	58.122	1.061	0.563	1.345
n-Butane	3.593	58.122	2.247	0.584	2.745
Iso-Pentane	3.515	72.149	2.729	0.625	3.115
n-Pentane	3.691	72.149	2.865	0.631	3.242
i-Hexanes	5.536	84.819	5.052	0.668	5.398
n-Hexane	4.750	86.175	4.404	0.664	4.733
2,2,4-Trimethylpentane	0.104	114.229	0.128	0.696	0.131
Benzene	0.978	78.112	0.822	0.884	0.663
Heptanes	22.786	94.781	23.238	0.719	23.066
Toluene	4.588	92.138	4.548	0.872	3.723
Octanes	25.428	107.356	29.370	0.741	28.297
Ethylbenzene	0.430	106.165	0.491	0.872	0.402
Xylenes	4.074	106.165	4.654	0.870	3.818
Nonanes	7.432	124.328	9.946	0.749	9.481
Decanes Plus	3.529	150.359	5.709	0.773	5.269
	100.000		100.000		100.000

Calculated Physical Properties

	Total	C10+
Specific Gravity at 60°F	0.7137	0.7730
API Gravity at 60°F	66.775	51.553
Molecular Weight	92.941	150.359
Pounds per Gallon (in Vacuum)	5.950	6.445
Pounds per Gallon (in Air)	5.943	6.438
Cu. Ft. Vapor per Gallon @ 14.696 psia	24.294	16.265

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Certificate of Analysis

Number: 1030-17031068-001A

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Jim Lieb
Enterprise Products
770 W. Navajo
Farmington, NM 87401

May 01, 2017

Station Name: Pigging Liquids
Station Location: Manzaneres Comp. Station
Cylinder No: 11220
Analyzed:

Sampled By: N/A
Sample Of: Liquid Spot
Sample Date: 03/15/2017
Sample Conditions:
Method: EOS Flash

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia
Nitrogen	0.000	0.000	
Methane	0.000	0.000	
Carbon Dioxide	0.000	0.000	
Ethane	0.000	0.000	0.000
Propane	0.000	0.000	0.000
Iso-Butane	0.000	0.000	0.000
n-Butane	0.000	0.000	0.000
Iso-Pentane	0.000	0.000	0.000
n-Pentane	0.000	0.000	0.000
i-Hexanes	0.000	0.000	0.000
n-Hexane	0.000	0.000	0.000
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.000	0.000	0.000
Heptanes	0.000	0.000	0.000
Toluene	0.000	0.000	0.000
Octanes	0.000	0.000	0.000
Ethylbenzene	0.000	0.000	0.000
Xylenes	0.000	0.000	0.000
Nonanes	0.000	0.000	0.000
Decane Plus	0.000	0.000	0.000
	0.000	0.000	0.000

GPM TOTAL C2+
GPM TOTAL iC5+

Calculated Physical Properties

Total

Calculated Molecular Weight
Real Dry BTU at 14.696 Psia, 60°F
Real Wet BTU at 14.696 Psia, 60°F
Relative Density Real Gas
Compressibility Factor

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Certificate of Analysis
Number: 1030-17031068-001A

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Jim Lieb
Enterprise Products
770 W. Navajo
Farmington, NM 87401

May 01, 2017

Station Name: Pigging Liquids
Station Location: Manzaneros Comp. Station
Cylinder No: 11220
Analyzed:

Sampled By: N/A
Sample Of: Liquid Spot
Sample Date: 03/15/2017
Sample Conditions:
Method: EOS Flash

Analytical Data

Components	Mol. %	Wt. %	L.V. %
Nitrogen	0.000	0.000	0.000
Methane	0.000	0.000	0.000
Carbon Dioxide	0.000	0.000	0.000
Ethane	0.000	0.000	0.000
Propane	0.000	0.000	0.000
Iso-Butane	0.000	0.000	0.000
n-Butane	0.000	0.000	0.000
Iso-Pentane	0.000	0.000	0.000
n-Pentane	0.000	0.000	0.000
i-Hexanes	0.000	0.000	0.000
n-Hexane	0.000	0.000	0.000
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.000	0.000	0.000
Heptanes	0.000	0.000	0.000
Toluene	0.000	0.000	0.000
Octanes	0.000	0.000	0.000
Ethylbenzene	0.000	0.000	0.000
Xylenes	0.000	0.000	0.000
Nonanes	0.000	0.000	0.000
Decane Plus	0.000	0.000	0.000
	0.000	0.000	0.000

Calculated Physical Properties

Total

Molecular Weight
BTU / LB.
BTU / GAL.
Cu. Ft. Vapor per Gallon @ 14.696 psia
Pounds per Gallon (in Vacuum)
Pounds per Gallon (in Air)
Specific Gravity at 60°F
API Gravity at 60°F

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Certificate of Analysis
Number: 1030-17031068-001A

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Jim Lieb
Enterprise Products
770 W. Navajo
Farmington, NM 87401

May 01, 2017

Station Name: Pigging Liquids
Station Location: Manzaneres Comp. Station
Cylinder No: 11220

Sampled By: N/A
Sample Of: Liquid Spot
Sample Date: 03/15/2017
Sample Conditions:

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Reid Vapor Pressure @ 100°F	ASTM D-323M	NA				
Color Visual	Proprietary	Light Straw			JH	03/30/2017
API Gravity @ 60° F	ASTM D-4052	61.09	°		JH	04/05/2017

Comments:

AS-D-323M: NA = No Results Available: Insufficient sample for analysis.

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Certificate of Analysis
Number: 1030-17031068-001B

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Jim Lieb
Enterprise Products
770 W. Navajo
Farmington, NM 87401

May 01, 2017

Station Name: Pigging Liquids
Station Location: Manzaneres Comp. Station
Cylinder No: 9151

Sampled By: N/A
Sample Of: Liquid Spot
Sample Date: 03/15/2017
Sample Conditions:

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Reid Vapor Pressure @ 100°F	ASTM D-323M	NA				

Comments:

AS-D-323M: NA = No Results Available: Insufficient sample for analysis.

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Bryan Research & Engineering, Inc.

ProMax[®] 4.0

Copyright © 2002-2016 BRE Group, Ltd. All Rights Reserved

Simulation Report

Project: Blanco ProMax Hourly Analysis v0.1.pmx

Licensed to Trinity Consultants, Inc. and Affiliates

Client Name: Enterprise
Location: Blanco C&D
Job:

ProMax Filename: \\10.32.1.2\p11.CLIENTS\Enterprise\Projects\Blanco C&D\173201.0171 Blanco C&D Compressor Station Revision\06 CALCULATIONS\ProMax\Blanco_ProMax_Hourly_Analysis_v0.1.pmx

ProMax Version: 4.0.16071.0

Simulation Initiated: 12/7/2017 1:24:59 PM

Bryan Research & Engineering, Inc.
Chemical Engineering Consultants
P.O. Box 4747 Bryan, Texas 77805
Office: (979) 776-5220
Fax: (979) 776-4818
<http://www.bre-engineering.com>
info@bre-engineering.com

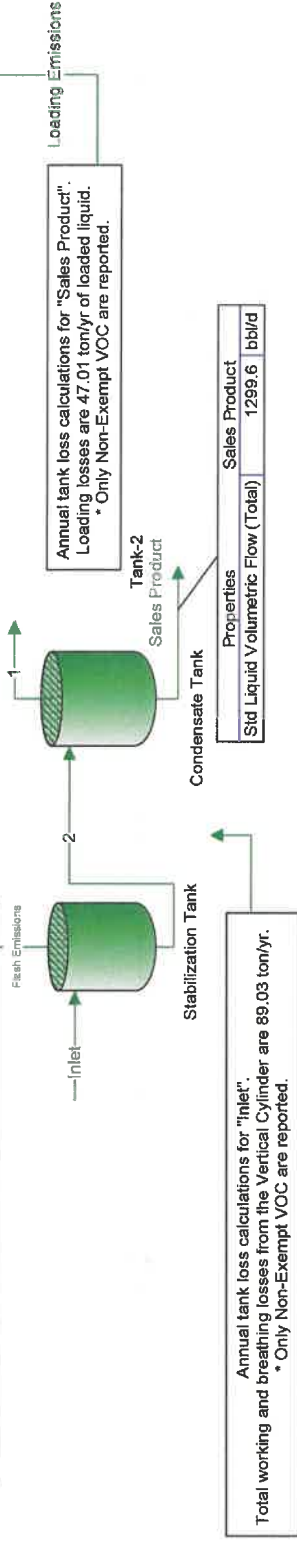
Report Navigator can be activated via the ProMax Navigator Toolbar.
An asterisk (*), throughout the report, denotes a user specified value.

A question mark (?) after a value, throughout the report, denotes an extrapolated or approximate value.

Properties		Flash Emissions	
Vapor Volumetric Flow (Total)		3049.8	ft ³ /h
Liquid Volumetric Flow (Total)		13036	bb/d

"1" C3+ Mass Flow = 0 ton/yr

"Flash Emissions" C3+ Mass Flow = 781.3 ton/yr



Tank-1

Working and Breathing Emissions

Process Streams			Flash Emissions			Inlet			Loading Emissions			Sales Product			Working and Breathing Emissions			1			2		
Composition			Status:			Solved			Solved			Solved			Solved			Solved			Solved		
Phase: Total			From Block:			--			--			--			--			--			--		
To Block:			Stabilization Tank			%			Stabilization Tank			%			Condensate Tank			Condensate Tank			Stabilization Tank		
Mole Fraction			0			0			0			0			0			0			0		
			lbmol/h			lbmol/h			lbmol/h			lbmol/h			lbmol/h			lbmol/h			lbmol/h		
			%			%			%			%			%			%			%		
Nitrogen			38.6748	0.114	2.393	0.0087	5.06087	0.198907	0.0246524	0.703181	2.55279	1.53107	3.40721	3.56770	9.25352	1.43052	1.59012	0.0246524	0.703181	2.55279	1.53107	3.40721	3.56770
Methane			1.59012	0.114	2.393	0.0087	5.06087	0.198907	0.0246524	0.703181	2.55279	1.53107	3.40721	3.56770	9.25352	1.43052	1.59012	0.0246524	0.703181	2.55279	1.53107	3.40721	3.56770
Carbon Dioxide			20.2886	1.821	3.541	31.8661	30.5705	0.703181	2.55279	1.53107	3.40721	3.56770	9.25352	1.43052	1.59012	0.0246524	0.703181	2.55279	1.53107	3.40721	3.56770	9.25352	1.43052
Ethane			19.8873	3.541	1.697	6.94324	10.7012	3.40721	3.56770	9.25352	1.43052	1.59012	0.0246524	0.703181	2.55279	1.53107	3.40721	3.56770	9.25352	1.43052	1.59012	0.0246524	0.703181
Propane			4.43837	3.593	3.515	4.17058	3.27753	3.79075	2.26030	1.23267	4.99283	0.00877969	0.109577	1.02572	0.00877969	0.109577	1.02572	0.00877969	0.109577	1.02572	0.00877969	0.109577	1.02572
Isobutane			6.66244	3.515	3.515	4.17058	3.27753	3.79075	2.26030	1.23267	4.99283	0.00877969	0.109577	1.02572	0.00877969	0.109577	1.02572	0.00877969	0.109577	1.02572	0.00877969	0.109577	1.02572
n-Butane			2.64431	3.691	5.336	2.01930	1.23439	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991
Isopentane			2.04298	4.75	0.104	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872	0.00862991	0.109577	1.02872
n-Pentane			1.23267	0.978	22.786	0.179240	0.346238	0.00532355	0.0479071	0.0300195	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759
i-Hexane			0.738247	0.104	0.978	0.179240	0.346238	0.00532355	0.0479071	0.0300195	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759
n-Hexane			0.00525251	0.978	22.786	0.179240	0.346238	0.00532355	0.0479071	0.0300195	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759
2,2,4-Trimethylpentane			0.139971	0.978	22.786	0.179240	0.346238	0.00532355	0.0479071	0.0300195	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759
Benzene			1.06332	4.588	25.428	0.00532355	0.0479071	0.0300195	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759	0.00286759
Heptane			0.179240	0.43	0.074	0.0500043	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661
Toluene			0.346238	0.43	0.074	0.0500043	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661
Octane			0.00532355	0.43	0.074	0.0500043	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661
Ethylbenzene			0.0479071	7.432	3.529	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243
m-Xylene			0.0300195	3.529	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661
Nonane			0.00286759	3.529	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661
C10+			0.00286759	3.529	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661	3.74243	0.00388661
Molar Flow			lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Nitrogen			3.11690	0	3.37908	0.0156162	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Methane			0.128152	0.160978	2.57138	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Carbon Dioxide			1.63511	5.00114	2.39628	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Ethane			1.60116	5.00114	2.39628	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Propane			0.357700	5.07356	4.86342	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Isobutane			0.536943	5.21195	7.81721	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
n-Butane			0.213112	5.21195	7.81721	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Isopentane			0.164649	6.70733	0.146855	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
n-Pentane			0.0993440	6.70733	0.146855	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
i-Hexane			0.0594972	0.146855	1.38100	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
n-Hexane			0.000423314	0.146855	1.38100	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
2,2,4-Trimethylpentane			0.0112808	32.1754	6.46413	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Benzene			0.0656955	35.9061	0.607190	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Heptane			0.0144454	35.9061	0.607190	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Toluene			0.0276042	5.72771	10.4945	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Octane			0.000423039	5.72771	10.4945	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Ethylbenzene			0.00386086	4.98319	0.000231106	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
m-Xylene			0.00386086	4.98319	0.000231106	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
Nonane			0.00241935	4.98319	0.000231106	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0
C10+			0.000231106	4.98319	0.000231106	0.00413348	0.0983285	0.0214246	0.0330203	0.0128691	0.0101134	5.04730	0.00877969	0.0535932	0.00834153	0.00834153	0	0.0535932	0.00834153	0	0.0535932	0.00834153	0

Mass Fraction		%	%	%	%	%	%	%
Nitrogen	0	0	0*	0	0	0	0	0
Methane	17.6570	0.396593*	1.77386*	0.0315919	3.25349*	17.6570	0.0315919	0
Carbon Dioxide	1.99156	0.0521046*	1.28806*	0.0108505	1.37979*	1.99156	0.0108505	0
Ethane	17.3615	0.566663*	20.9350*	0.211461	18.9651*	17.3615	0.211461	0
Propane	24.9317	1.62161*	29.4528*	1.12578	26.7930*	24.9317	1.12578	0
Isobutane	7.34147	1.02435*	8.81716*	0.89980	8.77789*	7.34147	0.89980	0
n-Butane	11.0203	2.16882*	13.5893*	1.98055	13.9725*	11.0203	1.98055	0
Isopentane	5.42949	2.63378*	6.57430*	0.57430*	5.42949	5.42949	0.57430*	0
n-Pentane	4.19480	2.76566*	5.16654*	2.73526	5.68010*	4.19480	2.73526	0
n-Hexane	3.02306	4.95455*	3.80197*	4.99564	4.26694*	3.02306	4.99564	0
n-Heptane	1.81051	4.25111*	2.32412*	4.30302	2.62106*	1.81051	4.30302	0
2,2,4-Trimethylpentane	0.0170749	0.123377*	0.0215390*	0.125638	0.0244841*	0.0170749	0.125638	0
Benzene	0.311152	0.793379*	0.267997*	0.803637	0.302574*	0.311152	0.803637	0
Hepilene	3.03219	23.7121*	3.77821*	24.1519	4.29594*	3.03219	24.1519	0
Toluene	0.469894	4.39025*	0.431932*	4.47364	0.491453*	0.469894	4.47364	0
Octane	1.12355	30.1658*	1.43152*	30.7633	1.63220*	1.12355	30.7633	0
Ethylbenzene	0.0160842	0.474105*	0.0157406*	0.48348	0.0179494*	0.0160842	0.48348	0
m-Xylene	0.144743	4.48187*	0.177281*	4.58434	0.202171*	0.144743	4.58434	0
p-Xylene	0.106571	9.89932*	0.140122*	10.1076	0.159907*	0.106571	10.1076	0
Nonane	0.0122705	5.51059*	0.0127681*	5.62765	0.0145758*	0.0122705	5.62765	0
C10+								
Mass Flow								
Nitrogen	0	0	0*	0	0	0	0	0
Methane	50.0028	54.2088*	0.265622*	4.20597	0.865622*	50.0028	4.20597	0
Carbon Dioxide	5.63989	7.06447*	0.161912*	1.44457	0.367106*	5.63989	1.44457	0
Ethane	49.1662	77.37189*	2.95664*	28.1527	5.04585*	49.1662	28.1527	0
Propane	70.6040	220.484*	4.15858*	149.880	7.12854*	70.6040	149.880	0
Isobutane	20.7903	139.277*	1.24525*	118.487	2.33544*	20.7903	118.487	0
n-Butane	31.2083	294.887*	1.91921*	263.678	3.71752*	31.2083	263.678	0
Isopentane	15.3758	358.105*	0.928468*	342.729	1.90150*	15.3758	342.729	0
n-Pentane	11.8793	376.038*	0.729689*	364.156	1.51125*	11.8793	364.156	0
n-Hexane	8.56101	673.651*	0.536952*	665.090	1.13579*	8.56101	665.090	0
n-Heptane	5.12719	578.006*	0.328235*	572.879	0.697360*	5.12719	572.879	0
2,2,4-Trimethylpentane	0.0483545	16.7751*	0.0304180*	16.7267	0.00851423*	0.0483545	16.7267	0
Benzene	0.881151	107.873*	0.0378492*	106.992	0.0805028*	0.881151	106.992	0
Heplene	1.59835	3224.04*	0.533596*	3215.45	1.14298*	1.59835	3215.45	0
Toluene	1.33097	596.925*	0.0610016*	595.594	0.130756*	1.33097	595.594	0
Octane	3.18746	4101.50*	0.202173*	4098.31	0.434262*	3.18746	4098.31	0
Ethylbenzene	0.0455469	64.4623*	0.00222303*	64.4167	0.00477562*	0.0455469	64.4167	0
m-Xylene	0.409699	610.743*	0.0250374*	610.333	0.0537896*	0.409699	610.333	0
Nonane	0.0120294	1345.97*	0.0197694*	1345.66	0.0425447*	0.0120294	1345.66	0
C10+	0.0347489	749.268*	0.00180323*	749.233	0.00387604*	0.0347489	749.233	0

Molar Flow	lbmol/h	lb/h	%	lbmol/h	lb/h	%
Nitrogen	0	0	0	0	0	0
Methane	3.37908	0.262177	0.0315919	0.262177	0.0315919	0.0315919
Carbon Dioxide	0.160976	0.0328242	0.0108505	0.0328242	0.0108505	0.0108505
Ethane	2.57138	0.986269	0.211461	0.986269	0.211461	0.211461
Propane	5.00014	3.39998	1.12578	3.39998	1.12578	1.12578
i-Butane	2.39828	2.03868	0.889980	2.03868	0.889980	0.889980
n-Butane	5.07358	4.53862	1.98055	4.53862	1.98055	1.98055
Isopentane	4.96342	4.75031	2.57431	4.75031	2.57431	2.57431
n-Pentane	5.21195	5.04730	2.73526	5.04730	2.73526	2.73526
i-Hexane	7.81721	7.71787	4.99564	7.71787	4.99564	4.99564
n-Hexane	6.70733	6.64783	4.30302	6.64783	4.30302	4.30302
2,2,4-Trimethylpentane	0.146855	0.146432	0.125638	0.146432	0.125638	0.125638
Benzene	1.38100	1.36972	0.803637	1.36972	0.803637	0.803637
Heptane	32.1754	32.0897	24.1519	32.0897	24.1519	24.1519
Toluene	6.7857	6.46413	4.47364	6.46413	4.47364	4.47364
Octane	35.9081	35.8782	30.7833	35.8782	30.7833	30.7833
Ethylbenzene	0.607190	0.606761	0.483948	0.606761	0.483948	0.483948
m-Xylene	5.75277	5.74891	4.58434	5.74891	4.58434	4.58434
p-Xylene	10.4945	10.4921	10.1076	10.4921	10.1076	10.1076
Nonane	4.98319	4.98296	5.62785	4.98296	5.62785	5.62785
C10+	0	0	0	0	0	0
Mass Fraction	%	%	%	%	%	%
Nitrogen	0	0	0	0	0	0
Methane	0.398693	0.0315919	0.0315919	0.0315919	0.0315919	0.0315919
Carbon Dioxide	0.0521046	0.0108505	0.0108505	0.0108505	0.0108505	0.0108505
Ethane	0.368663	0.211461	0.211461	0.211461	0.211461	0.211461
Propane	1.62161	1.12578	1.12578	1.12578	1.12578	1.12578
i-Butane	1.02435	0.889980	0.889980	0.889980	0.889980	0.889980
n-Butane	2.16882	1.98055	1.98055	1.98055	1.98055	1.98055
Isopentane	2.63378	2.57431	2.57431	2.57431	2.57431	2.57431
n-Pentane	2.76566	2.73526	2.73526	2.73526	2.73526	2.73526
i-Hexane	4.95455	4.99564	4.99564	4.99564	4.99564	4.99564
n-Hexane	4.25111	4.30302	4.30302	4.30302	4.30302	4.30302
2,2,4-Trimethylpentane	0.123377	0.125638	0.125638	0.125638	0.125638	0.125638
Benzene	0.793379	0.803637	0.803637	0.803637	0.803637	0.803637
Heptane	23.7121	24.1519	24.1519	24.1519	24.1519	24.1519
Toluene	4.39025	4.47364	4.47364	4.47364	4.47364	4.47364
Octane	30.1656	30.7833	30.7833	30.7833	30.7833	30.7833
Ethylbenzene	0.474105	0.483948	0.483948	0.483948	0.483948	0.483948
m-Xylene	4.49187	4.58434	4.58434	4.58434	4.58434	4.58434
p-Xylene	9.89832	10.1076	10.1076	10.1076	10.1076	10.1076
Nonane	5.51069	5.62785	5.62785	5.62785	5.62785	5.62785
C10+	0	0	0	0	0	0
Mass Fraction	%	%	%	%	%	%
Nitrogen	0	0	0	0	0	0
Methane	54.2088	4.20597	4.20597	4.20597	4.20597	4.20597
Carbon Dioxide	7.08447	1.44457	1.44457	1.44457	1.44457	1.44457
Ethane	77.3189	28.1527	28.1527	28.1527	28.1527	28.1527
Propane	220.484	149.880	149.880	149.880	149.880	149.880

Process Streams		Flash Emissions		Inlet		Loading Emissions		Sales Product		Working and Breathing Emissions		1	2	
Properties		Status:	From Block:		To Block:		Stabilization Tank		Solved		Solved		Solved	
Phase: Light Liquid							Stabilization Tank		Solved		Solved		Solved	
Property	Units													
Temperature	°F				70				64,2384				64,2384	
Pressure	psia				114,696				14,6959				14,6959	
Mole Fraction Vapor	%				0				0				0	
Mole Fraction Light Liquid	%				100				100				100	
Mole Fraction Heavy Liquid	%				0				0				0	
Molecular Weight	lb/lbmol				96,2886				99,9899				99,9899	
Mass Density	lb/ft³				43,5465				44,0108				44,0108	
Molar Flow	lbmol/h				141,207				133,148				133,148	
Mass Flow	lb/h				13596,6				13313,4				13313,4	
Vapor Volumetric Flow	ft³/h				312,232				302,504				302,504	
Liquid Volumetric Flow	gpm				38,9276				37,7148				37,7148	
Std Vapor Volumetric Flow	MMSCFD				1,26606				1,21266				1,21266	
Std Liquid Volumetric Flow	sgpm				39,1553				37,9039				37,9039	
Compressibility					0,0446170				0,00593849				0,00593849	
Specific Gravity					0,698208				0,705651				0,705651	
API Gravity					69,7322				68,4415				68,4415	
Enthalpy	Btu/h				-1,18540E+07				-1,15045E+07				-1,15045E+07	
Mass Enthalpy	Btu/lb				-871,836				-864,130				-864,130	
Mass Cp	Btu/(lb*°F)				0,504876				0,498669				0,498669	
Ideal Gas CpCv Ratio					1,05790				1,05629				1,05629	
Dynamic Viscosity	cP				0,401208				0,444192				0,444192	
Kinematic Viscosity	cSt				0,575168				0,630073				0,630073	
Thermal Conductivity	Btu/(h*ft²*F)				0,0711477				0,0721736				0,0721736	
Surface Tension	lb/ft				0,00133537				0,00143710				0,00143710	
Net Ideal Gas Heating Value	Btu/ft³				4855,21				5038,55				5038,55	
Net Liquid Heating Value	Btu/lb				18975,3				18962,1				18962,1	
Gross Ideal Gas Heating Value	Btu/ft³				5223,84				5419,50				5419,50	
Gross Liquid Heating Value	Btu/lb				20428,1				20407,9				20407,9	



Certificate of Analysis

Number: 2030-17060200-001A

Carencro Laboratory
4790 NE Evangeline Thruway
Carencro, LA 70520
Phone 337-896-3055

Felipe Aragon
Envirotech, Inc
5796 US Highway 64
Farmington, NM 87401

June 30, 2017

Field: Enterprise
Station Name: Trunk D
Station Number:
Sample Point: Site Glass on Slug Catcher
Analyzed: 06/29/2017 12:52:34 by GR

Sampled By: FA-Envirotech
Sample Of: Liquid Spot
Sample Date: 06/14/2017 13:45
Sample Conditions: 70 psig
Method: GPA-2186M/GPA-2103
Cylinder No: 93364

Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Nitrogen	NIL	NIL	NIL	NIL	NIL
Methane	1.634	16.043	0.256	0.300	0.627
Carbon Dioxide	0.065	44.010	0.028	0.817	0.025
Ethane	1.328	30.069	0.390	0.356	0.805
Propane	2.586	44.096	1.114	0.507	1.615
Iso-Butane	1.247	58.122	0.708	0.563	0.925
n-Butane	2.727	58.122	1.548	0.584	1.948
Iso-Pentane	2.609	72.149	1.839	0.625	2.163
n-Pentane	2.744	72.149	1.934	0.631	2.255
i-Hexanes	4.266	84.728	3.531	0.668	3.886
n-Hexane	3.431	86.175	2.888	0.664	3.198
2,2,4-Trimethylpentane	0.083	114.229	0.093	0.696	0.098
Benzene	0.802	78.112	0.612	0.884	0.509
Heptanes	18.943	94.787	17.538	0.720	17.916
Toluene	4.582	92.138	4.124	0.872	3.478
Octanes	16.106	105.589	16.611	0.748	16.329
Ethylbenzene	0.501	106.165	0.520	0.872	0.439
Xylenes	6.782	106.165	7.033	0.870	5.947
Nonanes	16.518	125.163	20.200	0.740	20.079
Decanes Plus	13.046	149.367	19.033	0.788	17.758
	100.000		100.000		100.000

Calculated Physical Properties

	Total	C10+
Specific Gravity at 60°F	0.7353	0.7881
API Gravity at 60°F	60.927	48.046
Molecular Weight	102.371	149.367
Pounds per Gallon (in Vacuum)	6.131	6.570
Pounds per Gallon (in Air)	6.124	6.563
Cu. Ft. Vapor per Gallon @ 14.73 psia	22.673	16.655

Patti L. Petro

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Certificate of Analysis
Number: 2030-17060200-001A

Carencro Laboratory
4790 NE Evangeline Thruway
Carencro, LA 70520
Phone 337-896-3055

Felipe Aragon
Envirotech, Inc
5796 US Highway 64
Farmington, NM 87401

June 30, 2017

Field: Enterprise
Station Name: Trunk D
Station Number:
Sample Point: Site Glass on Slug Catcher
Analyzed: 06/29/2017 12:52:34 by GR

Sampled By: FA-Envirotech
Sample Of: Liquid Spot
Sample Date: 06/14/2017 13:45
Sample Conditions: 70 psig
Method: GPA-2186M/GPA-2103
Cylinder No: 93364

Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Nitrogen	NIL	NIL	NIL	NIL	NIL
Carbon Dioxide	0.065	44.010	0.028	0.817	0.025
Methane	1.634	16.043	0.256	0.300	0.627
Ethane	1.328	30.069	0.390	0.356	0.805
Propane	2.586	44.096	1.114	0.507	1.615
Iso-butane	1.247	58.122	0.708	0.563	0.925
n-Butane	2.727	58.122	1.548	0.584	1.948
Iso-pentane	2.609	72.149	1.839	0.625	2.163
n-Pentane	2.744	72.149	1.934	0.631	2.255
Hexanes	7.697	85.373	6.419	0.666	7.084
Heptanes Plus	77.363	113.488	85.764	0.764	82.553
	100.000		100.000		100.000

Calculated Physical Properties

	Total	C7+
Specific Gravity at 60°F	0.7353	0.7640
API Gravity at 60°F	60.927	53.702
Molecular Weight	102.371	113.488
Pounds per Gallon (in Vacuum)	6.131	6.370
Pounds per Gallon (in Air)	6.124	6.363
Cu. Ft. Vapor per Gallon @ 14.73 psia	22.673	21.250



Hydrocarbon Laboratory Manager

Quality Assurance:

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



Certificate of Analysis
Number: 2030-17060200-001A

Carencro Laboratory
4790 NE Evangeline Thruway
Carencro, LA 70520
Phone 337-896-3055

Felipe Aragon
Envirotech, Inc
5796 US Highway 64
Farmington, NM 87401

June 30, 2017

Field: Enterprise
Station Name: Trunk D
Station Number:
Sample Point: Site Glass on Slug Catcher

Sampled By: FA-Envirotech
Sample Of: Liquid Spot
Sample Date: 06/14/2017 13:45
Sample Conditions: 70 psig
Cylinder No: 93364

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Color Visual	Proprietary	Straw			EG	06/29/2017
Reid Vapor Pressure (RVP) @ 100° F	ASTM D-323	8.00	psi		AD	06/29/2017
API Gravity @ 60° F	ASTM D-5002	58.83	°		EG	06/29/2017
Specific Gravity @ 60/60° F	ASTM D-5002	0.7434			EG	06/29/2017
Density @ 60° F	ASTM D-5002	0.7427	g/ml		EG	06/29/2017
Shrinkage Factor	Proprietary	0.9737			EG	06/29/2017
Flash Factor	Proprietary	38.1183	Cu. Ft./S.T. Bbl		EG	06/29/2017

Hydrocarbon Laboratory Manager

Quality Assurance:

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



Bryan Research & Engineering, Inc.

ProMax® 4.0

Copyright © 2002-2016 BRE Group, Ltd. All Rights Reserved

Simulation Report

Project: Blanco ProMax Annual Analysis_v0.1.pmx

Licensed to Trinity Consultants, Inc. and Affiliates

Client Name: Enterprise
Location: Blanco C&D
Job:

ProMax Filename: \\10.32.1.2\p1. CLIENTS\Enterprise\Projects\Blanco C&D\173201.0171 Blanco C&D Compressor Station Revision\06 CALCULATIONS\ProMax\Blanco_ProMax_Annual_Analysis_v0.1.pmx
ProMax Version: 4.0.16071.0
Simulation Initiated: 12/7/2017 1:22:49 PM

Bryan Research & Engineering, Inc.
Chemical Engineering Consultants
P.O. Box 4747 Bryan, Texas 77805
Office: (979) 776-5220
Fax: (979) 776-4618
Email: info@breyer.com
Web: <http://www.breyer.com>

Report Navigator can be activated via the ProMax Navigator Toolbar.

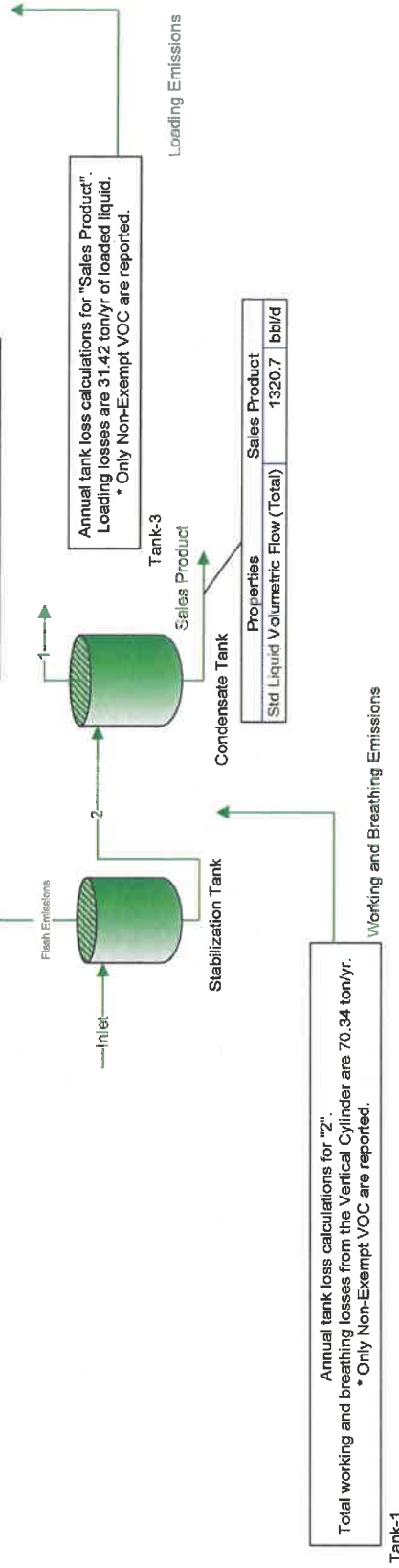
An asterisk (*), throughout the report, denotes a user specified value.

A question mark (?) after a value, throughout the report, denotes an extrapolated or approximate value.

Properties		Flash Emissions	
Vapor Volumetric Flow (Total)		1620.1	ft ³ /h
Liquid Volumetric Flow (Total)		6925.3	bb/d

"Flash Emissions" C3+ Mass Flow = 344 ton/yr

"1" C3+ Mass Flow = 0 ton/yr



Process Streams			Flash Emissions			Inlet			Loading Emissions			Sales Product			Working and Breathing Emissions			1			2		
Composition			Status:			Solved			Solved			Solved			Solved			Solved			Solved		
Phase Total			From Block:			Stabilization Tank			Stabilization Tank			Condensate Tank			Condensate Tank			Condensate Tank			Stabilization Tank		
Mole Fraction			To Block:			%			%			%			%			%			%		
Nitrogen						0			0*			0			0*			0			0		
Methane						44.7333			1.634*			0.217677			8.10513*			44.7333			0.217677		
Carbon Dioxide						1.40474			0.065*			0.0209736			1.45657*			1.40474			0.0209736		
Ethane						20.8997			1.328*			0.684838			36.63397*			20.8997			0.684838		
Propane						16.8627			2.586*			2.11684			28.1142*			16.8627			2.11684		
Isobutane						3.61102			1.247*			1.16931			5.75932*			3.61102			1.16931		
n-Butane						5.49880			2.727*			2.63598			8.95504*			5.49880			2.63598		
Isopentane						2.10032			2.609*			3.30147*			3.30147*			2.10032			3.30147*		
n-Pentane						1.62456			2.744*			2.78079			2.58358*			1.62456			2.78079		
n-Hexane						1.02151			4.268*			4.37262			1.63417*			1.02151			4.37262		
n-Heptane						0.570573			3.431*			3.52500			0.934641*			0.570573			3.52500		
2,2,4-Trimethylpentane						0.00455734			0.083*			0.0855778			0.00719790*			0.00455734			0.0855778		
Benzene						0.117051			0.802*			0.824509			0.134976*			0.117051			0.824509		
Heptane						0.958855			18.943*			19.5340			1.49926*			0.958855			19.5340		
Toluene						0.182765			4.582*			4.72657			0.223894*			0.182765			4.72657		
Octane						0.240324			16.106*			16.6274			0.379299*			0.240324			16.6274		
Ethylbenzene						0.00633622			0.501*			0.517256			0.00825451*			0.00633622			0.517256		
m-Xylene						0.0794057			6.782*			7.00226			0.132830*			0.0794057			7.00226		
Nonane						0.0732778			16.518*			17.0584			0.115988*			0.0732778			17.0584		
C10+						0.0113042			13.046*			13.4743			0.0144852*			0.0113042			13.4743		
Molar Flow						lbmol/h			lbmol/h			lbmol/h			lbmol/h			lbmol/h			lbmol/h		
Nitrogen						0			0*			0			0*			0			0		
Methane						1.99993			2.18127*			0.281337			0.0193899*			1.99993			0.281337		
Carbon Dioxide						0.0596626			0.0667700*			0.0271074			0.00348454*			0.0596626			0.0271074		
Ethane						0.857658			1.77278*			0.885120			0.0675532*			0.857658			0.885120		
Propane						0.716197			3.45211*			2.73592			0.0672575*			0.716197			2.73592		
Isobutane						0.153368			1.66465*			1.51128			0.0137780*			0.153368			1.51128		
n-Butane						0.233462			3.64034*			3.40687			0.0214231*			0.233462			3.40687		
Isopentane						0.0892057			3.48282*			3.39361			0.00789811*			0.0892057			3.39361		
n-Pentane						0.0689990			3.66303*			3.59403			0.00618069*			0.0689990			3.59403		
n-Hexane						0.0433859			5.69478*			5.65140			0.00390943*			0.0433859			5.65140		
2,2,4-Trimethylpentane						0.0242336			4.58012*			4.55589			0.00223594*			0.0242336			4.55589		
Benzene						0.000193561			0.110799*			0.110605			1.72195E-05*			0.000193561			0.110605		
Heptane						0.00457145			1.07061*			1.06584			0.00322903*			0.00457145			1.06584		
Toluene						0.00776245			25.2875*			25.2467			0.00358669*			0.00776245			25.2467		
Octane						0.0102071			6.11662*			6.10986			0.00035622*			0.0102071			6.10986		
Ethylbenzene						0.000269114			21.5003*			21.4901			0.000907397*			0.000269114			21.4901		
m-Xylene						0.00337255			0.668797*			0.668528			1.97473E-05*			0.00337255			0.668528		
Nonane						0.00311228			9.05345*			9.05008			0.000317770*			0.00311228			9.05008		
C10+						0.000480116			22.0503*			22.0472			0.000277501*			0.000480116			22.0472		
									17.4154*			17.4149			3.46529E-05*						17.4149		

Mass Fraction		%		%		%		%		%		%		%		%	
		lb/h		lb/h		lb/h		lb/h		lb/h		lb/h		lb/h		lb/h	
Nitrogen		0		0		0		0		0		0		0		0	
Methane		22.0329		0.248796*		3.02786*		0.0324083		3.02786*		0.0324083		22.0329		0.0324083	
Carbon Dioxide		1.89607		0.0271507*		1.49273*		0.00856628		1.49273*		0.00856628		1.89607		0.00856628	
Ethane		19.2843		0.379000*		25.6553*		0.191108		25.6553*		0.191108		19.2843		0.191108	
Propane		22.8293		1.08229*		28.8686*		0.866275		28.8686*		0.866275		22.8293		0.866275	
Isobutane		6.44380		0.887907*		7.79503*		0.630732		7.79503*		0.630732		6.44380		0.630732	
n-Butane		9.80893		1.50435*		12.1203*		1.42186		12.1203*		1.42186		9.80893		1.42186	
Isopentane		4.65249		1.96659*		5.54678*		1.75812		5.54678*		1.75812		4.65249		1.75812	
n-Pentane		3.59861		1.87903*		4.34065*		1.86195		4.34065*		1.86195		3.59861		1.86195	
i-Hexane		2.70268		3.48919*		3.27933*		3.49701		3.27933*		3.49701		2.70268		3.49701	
n-Hexane		1.50961		2.80624*		1.87557*		2.81912		1.87557*		2.81912		1.50961		2.81912	
2,2,4-Trimethylpentane		0.0159829		0.0898858*		0.0191463*		0.0907209		0.0191463*		0.0907209		0.0159829		0.0907209	
Benzene		0.280714		0.594553*		0.245515*		0.597701		0.245515*		0.597701		0.280714		0.597701	
Heptane		2.95292		18.0155*		3.49831*		18.1651		3.49831*		18.1651		2.95292		18.1651	
Toluene		0.517015		4.00698*		0.480383*		4.04165		0.480383*		4.04165		0.517015		4.04165	
Octane		0.842835		17.4616*		1.00893*		17.5267		1.00893*		17.5267		0.842835		17.5267	
Ethylbenzene		0.0206529		0.504824*		0.0204069*		0.509534		0.0204069*		0.509534		0.0206529		0.509534	
m-Xylene		0.258823		6.83377*		0.328386*		6.89508		0.328386*		6.89508		0.258823		6.89508	
Nonane		0.288548		20.1073*		0.346441*		20.3041		0.346441*		20.3041		0.288548		20.3041	
C10+		0.0518400		18.4950*		0.0503829*		18.6782		0.0503829*		18.6782		0.0518400		18.6782	
Mass Flow		lb/h		lb/h		lb/h		lb/h		lb/h		lb/h		lb/h		lb/h	
Nitrogen		0		0		0		0		0		0		0		0	
Methane		30.4795		34.9929*		0.311062*		4.51334		0.311062*		4.51334		30.4795		4.51334	
Carbon Dioxide		2.62572		3.81871*		0.153353*		1.19298		0.153353*		1.19298		2.62572		1.19298	
Ethane		26.6910		53.3057*		2.63565*		26.6147		2.63565*		26.6147		26.6910		26.6147	
Propane		31.5812		152.223*		2.96576*		120.642		2.96576*		120.642		31.5812		120.642	
Isobutane		8.91411		96.7531*		0.800508*		87.8390		0.800508*		87.8390		8.91411		87.8390	
n-Butane		13.5593		211.584*		1.24516*		198.015		1.24516*		198.015		13.5593		198.015	
Isopentane		6.43608		251.281*		0.569839*		244.845		0.569839*		244.845		6.43608		244.845	
n-Pentane		4.97819		284.283*		0.445929*		259.305		0.445929*		259.305		4.97819		259.305	
i-Hexane		3.73879		480.750*		0.336886*		487.011		0.336886*		487.011		3.73879		487.011	
n-Hexane		2.08834		394.694*		0.192883*		392.605		0.192883*		392.605		2.08834		392.605	
2,2,4-Trimethylpentane		0.0221102		12.6554*		0.00196696*		12.6343		0.00196696*		12.6343		0.0221102		12.6343	
Benzene		0.388329		83.6272*		0.0252225*		83.2389		0.0252225*		83.2389		0.388329		83.2389	
Heptane		4.08496		2533.95*		0.358383*		2529.77		0.358383*		2529.77		4.08496		2529.77	
Toluene		0.715220		563.576*		0.0493513*		562.860		0.0493513*		562.860		0.715220		562.860	
Octane		1.16595		2455.95*		0.103651*		2454.78		0.103651*		2454.78		1.16595		2454.78	
Ethylbenzene		0.0285705		71.0028*		0.00206647*		70.9742		0.00206647*		70.9742		0.0285705		70.9742	
m-Xylene		0.358046		961.160*		0.0337361*		960.802		0.0337361*		960.802		0.358046		960.802	
Nonane		0.399166		2828.05*		0.0355910*		2827.66		0.0355910*		2827.66		0.399166		2827.66	
C10+		0.0717135		2601.29*		0.00517600*		2601.22		0.00517600*		2601.22		0.0717135		2601.22	

Process Streams			Flash Emissions		Inlet		Loading Emissions		Sales Product		Working and Breathing Emissions		1		2	
Properties			Status:	Solved	Stabilization Tank		Solved	Stabilization Tank		Solved	Stabilization Tank		Solved	Stabilization Tank		Solved
Phase: Total			From Block:	Stabilization Tank	To Block:		Stabilization Tank	Stabilization Tank		Stabilization Tank	Stabilization Tank		Stabilization Tank	Stabilization Tank		Stabilization Tank
Property			Units	Units	Units		Units	Units		Units	Units		Units	Units		Units
Temperature			°F	67.5590	70*		81.7784*	81.7784*		87.5590	87.5590		87.5590	87.5590		67.5590
Pressure			psia	14.6959	114.696*		14.7146	14.7146		14.6959	14.6959		14.6959	14.6959		14.6959
Mole Fraction Vapor			%	100	0		100*	100*		0	0		100	100		0
Mole Fraction Light Liquid			%	0	100		0	0		100	100		0	0		100
Mole Fraction Heavy Liquid			%	0	0		0	0		0	0		0	0		0
Molecular Weight			lb/lbmol	32.5709	105.361		42.9433	42.9433		107.753	107.753		32.5709	32.5709		107.753
Mass Density			lb/ft³	0.0853874	48.0032		0.110407	0.110407		45.2159	45.2159		0	0		45.2159
Molar Flow			lbmol/h	4.24724	133.492		0.239230	0.239230		129.245	129.245		0	0		129.245
Mass Flow			lb/h	136.336	14064.9		10.2733*	10.2733*		13926.5	13926.5		0	0		13926.5
Vapor Volumetric Flow			ft³/h	1620.10	312.530		93.0497	93.0497		308.000	308.000		0	0		308.000
Liquid Volumetric Flow			gpm	201.987	38.9647		11.6010	11.6010		38.4000	38.4000		0	0		38.4000
Sid Vapor Volumetric Flow			MMSCFD	0.0386822	1.21560		0.00217681	0.00217681		1.17711	1.17711		0	0		1.17711
Sid Liquid Volumetric Flow			sgpm	0.635880	39.1563*		0.0425783	0.0425783		38.5204	38.5204		0	0		38.5204
Compressibility				0.990765	0.0472405		0.964979	0.964979		0.00618973	0.00618973		0	0		0.00618973
Specific Gravity				1.12458	0.721564		1.48272	1.48272		0.724974	0.724974		0	0		0.724974
API Gravity					63.3077					62.7192	62.7192		0	0		62.7192
Enthalpy			Btu/h	-176856	-1.14777E+07		-11095.5	-11095.5		-1.13007E+07	-1.13007E+07		0	0		-1.13007E+07
Mass Enthalpy			Btu/lb	-1278.17	-816.096		-1080.03	-1080.03		-811.456	-811.456		0	0		-811.456
Mass Cp			Btu/(lb*F)	0.423680	0.490519		0.408568	0.408568		0.487838	0.487838		0	0		0.487838
Ideal Gas Cp/Cv Ratio				1.16924	1.05373		1.12867	1.12867		1.05277	1.05277		0	0		1.05277
Dynamic Viscosity			cP	0.00928988	0.488214		0.00861656	0.00861656		0.515238	0.515238		0	0		0.515238
Kinematic Viscosity			cSt	6.77968	0.677245		4.87211	4.87211		0.711369	0.711369		0	0		0.711369
Thermal Conductivity			Btu/(ft²*F)	0.0134573	0.0713762		0.0111036	0.0111036		0.0718291	0.0718291		0	0		0.0718291
Surface Tension			lbf/ft	1702.33	5283.52		2219.93	2219.93		5401.21	5401.21		0	0		5401.21
Net Ideal Gas Heating Value			Btu/ft³	19712.8	18870.2		19466.1	19466.1		18861.9	18861.9		0	0		18861.9
Net Liquid Heating Value			Btu/ft³	1858.65	5673.06		2413.11	2413.11		5798.40	5798.40		0	0		5798.40
Gross Ideal Gas Heating Value			Btu/ft³	21534.1	20273.2		21173.2	21173.2		20280.7	20280.7		0	0		20280.7
Gross Liquid Heating Value			Btu/lb										0	0		

Process Streams			Flash Emissions		Inlet		Loading Emissions		Sales Product		Working and Breathing Emissions		1		2	
Composition			Status:	Solved	Stabilization Tank		Solved	Stabilization Tank		Solved	Stabilization Tank		Solved	Stabilization Tank		Solved
Phase: Vapor			From Block:	Stabilization Tank	To Block:		Stabilization Tank	Stabilization Tank		Stabilization Tank	Stabilization Tank		Stabilization Tank	Stabilization Tank		Stabilization Tank
Mole Fraction			Units	Units	Units		Units	Units		Units	Units		Units	Units		Units
Nitrogen				0	0		0	0		0	0		0	0		0
Methane				44.7333	1.40474		8.10513	8.10513		1.45657	1.45657		0	0		1.45657
Carbon Dioxide				20.8997	16.8627		36.6397	36.6397		36.6397	36.6397		0	0		36.6397
Propane				3.61102	5.49680		28.1142	28.1142		28.1142	28.1142		0	0		28.1142
Isobutane				2.10032	1.82456		5.75932	5.75932		5.75932	5.75932		0	0		5.75932
n-Butane				1.02151	0.934641		3.30147	3.30147		3.30147	3.30147		0	0		3.30147
n-Pentane				0.570573	0.00455734		2.58358	2.58358		2.58358	2.58358		0	0		2.58358
n-Hexane				0.117051	0.934641		1.63417	1.63417		1.63417	1.63417		0	0		1.63417
2,2,4-Trimethylpentane				0.00455734	0.00719790		0.00719790	0.00719790		0.00719790	0.00719790		0	0		0.00719790
Benzene				0.959855	0.134976		1.49926	1.49926		1.49926	1.49926		0	0		1.49926
Heptane				0.182765	0.223894		0.223894	0.223894		0.223894	0.223894		0	0		0.223894
Toluene				0.240324	0.379299		0.379299	0.379299		0.379299	0.379299		0	0		0.379299
Octane				0.00633622	0.00825451		0.00825451	0.00825451		0.00825451	0.00825451		0	0		0.00825451
Ethylbenzene				0.0794057	0.132830		0.132830	0.132830		0.132830	0.132830		0	0		0.132830
m-Xylene				0.0732778	0.115988		0.115988	0.115988		0.115988	0.115988		0	0		0.115988
Nonane				0.0113042	0.014852		0.014852	0.014852		0.014852	0.014852		0	0		0.014852

Molar Flow	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Nitrogen	0	0	0	0	0	0	0
Methane	1.89993	0.0193899	0.00348454	0.00780138	0.0434111	0.00780138	0.00780138
Carbon Dioxide	0.0596626	0.0076532	0.0876532	0.196243	0.196243	0.196243	0.196243
Ethane	0.716197	0.0672575	0.0672575	0.150580	0.0308469	0.150580	0.150580
Propane	0.153368	0.0214231	0.0214231	0.0479632	0.0479632	0.0479632	0.0479632
Isobutane	0.233462	0.00789811	0.00789811	0.0176627	0.0176627	0.0176627	0.0176627
n-Butane	0.0892057	0.00618069	0.00618069	0.0138376	0.0138376	0.0138376	0.0138376
Isopentane	0.0588990	0.00390943	0.00390943	0.0035263	0.0035263	0.0035263	0.0035263
n-Pentane	0.0433859	0.00223594	0.00223594	0.00500594	0.00500594	0.00500594	0.00500594
i-Hexane	0.0242336	1.72195E-05	1.72195E-05	3.85520E-05	3.85520E-05	3.85520E-05	3.85520E-05
n-Hexane	0.000193561	0.000322903	0.000322903	0.000722932	0.000722932	0.000722932	0.000722932
2,2,4-Trimethylpentane	0.00497145	0.00368669	0.00368669	0.00803006	0.00803006	0.00803006	0.00803006
Benzene	0.0407673	0.000317770	0.000317770	0.00119918	0.00119918	0.00119918	0.00119918
Heptane	0.00776245	0.000907397	0.000907397	0.00203153	0.00203153	0.00203153	0.00203153
Toluene	0.0102071	1.97473E-05	1.97473E-05	4.42112E-05	4.42112E-05	4.42112E-05	4.42112E-05
Octane	0.000266114	0.000317770	0.000317770	0.000711441	0.000711441	0.000711441	0.000711441
Ethylbenzene	0.00337255	0.00027501	0.00027501	0.000621285	0.000621285	0.000621285	0.000621285
m-Xylene	0.00311228	3.46529E-05	3.46529E-05	7.75627E-05	7.75627E-05	7.75627E-05	7.75627E-05
Nonane	0.000450116	0	0	0	0	0	0
C10+	0	0	0	0	0	0	0
Mass Fraction	%	%	%	%	%	%	%
Nitrogen	0	0	0	0	0	0	0
Methane	22.0329	3.02786	1.49273	3.02786	3.02786	3.02786	3.02786
Carbon Dioxide	1.89807	1.49273	25.6553	1.49273	1.49273	1.49273	1.49273
Ethane	19.2943	25.6553	28.8686	25.6553	25.6553	25.6553	25.6553
Propane	22.8293	28.8686	7.79503	28.8686	28.8686	28.8686	28.8686
Isobutane	6.44380	7.79503	12.1203	7.79503	7.79503	7.79503	7.79503
n-Butane	3.80893	12.1203	5.54678	12.1203	12.1203	12.1203	12.1203
Isopentane	4.85249	5.54678	4.34065	5.54678	5.54678	5.54678	5.54678
n-Pentane	3.59881	4.34065	3.27933	4.34065	4.34065	4.34065	4.34065
i-Hexane	2.70268	3.27933	1.87557	3.27933	3.27933	3.27933	3.27933
n-Hexane	1.50961	1.87557	0.0191463	1.87557	1.87557	1.87557	1.87557
2,2,4-Trimethylpentane	0.0159829	0.0191463	0.245515	0.0191463	0.0191463	0.0191463	0.0191463
Benzene	0.280714	0.245515	3.49831	0.245515	0.245515	0.245515	0.245515
Heptane	2.95292	3.49831	0.480383	3.49831	3.49831	3.49831	3.49831
Toluene	0.517015	0.480383	1.00893	0.480383	0.480383	0.480383	0.480383
Octane	0.842835	1.00893	0.0204069	1.00893	1.00893	1.00893	1.00893
Ethylbenzene	0.0206529	0.0204069	0.328385	0.0204069	0.0204069	0.0204069	0.0204069
m-Xylene	0.258823	0.328385	0.346441	0.328385	0.328385	0.328385	0.328385
Nonane	0.288548	0.346441	0.0503829	0.346441	0.346441	0.346441	0.346441
C10+	0.0518400	0.0503829	0.0503829	0.0503829	0.0503829	0.0503829	0.0503829

Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Nitrogen		0	0	0	0	0	0
Methane		30.4795	0.311052	0.311052	0.311052	0.311052	0.311052
Carbon Dioxide		2.62572	0.153353	0.153353	0.153353	0.153353	0.153353
Ethane		26.6910	2.63565	2.63565	2.63565	2.63565	2.63565
Propane		31.5812	2.96576	2.96576	2.96576	2.96576	2.96576
Isobutane		8.91411	0.800808	0.800808	0.800808	0.800808	0.800808
n-Butane		13.5693	1.24516	1.24516	1.24516	1.24516	1.24516
Isopentane		6.43608	0.569639	0.569639	0.569639	0.569639	0.569639
n-Pentane		4.97819	0.445929	0.445929	0.445929	0.445929	0.445929
i-Hexane		3.73879	0.336895	0.336895	0.336895	0.336895	0.336895
n-Hexane		2.06834	0.192583	0.192583	0.192583	0.192583	0.192583
2,2,4-Trimethylpentane		0.0221102	0.00196596	0.00196596	0.00196596	0.00196596	0.00196596
Benzene		0.368329	0.0252225	0.0252225	0.0252225	0.0252225	0.0252225
Heptane		4.08496	0.359393	0.359393	0.359393	0.359393	0.359393
Toluene		0.715220	0.0493513	0.0493513	0.0493513	0.0493513	0.0493513
Octane		1.16595	0.103651	0.103651	0.103651	0.103651	0.103651
Ethylbenzene		0.0285705	0.00209647	0.00209647	0.00209647	0.00209647	0.00209647
m-Xylene		0.358046	0.0337361	0.0337361	0.0337361	0.0337361	0.0337361
Nonane		0.399166	0.0355910	0.0355910	0.0355910	0.0355910	0.0355910
C10+		0.0717135	0.00517600	0.00517600	0.00517600	0.00517600	0.00517600

Process Streams		Flash Emissions		Inlet		Loading Emissions		Sales Product		Working and Breathing Emissions	
Properties	Status:	From Block:	To Block:	Solved	Stabilization Tank	Solved	Stabilization Tank	Solved	Condensate Tank	Solved	Stabilization Tank
Phase: Vapor											
Property	Units										
Temperature	°F	67.5550		81.7784		81.7784		81.7784		81.7784	
Pressure	psia	14.6959		14.7146		14.7146		14.7146		14.7146	
Mole Fraction Vapor	%	100		100		100		100		100	
Mole Fraction Light Liquid	%	0		0		0		0		0	
Mole Fraction Heavy Liquid	%	0		0		0		0		0	
Molecular Weight	lb/lbmol	32.5709		42.9433		42.9433		42.9433		42.9433	
Mass Density	lb/ft³	0.0653874		0.110407		0.110407		0.110407		0.110407	
Molar Flow	lbmol/h	4.24724		0.239230		0.239230		0.239230		0.239230	
Mass Flow	lb/h	138.336		10.2733		10.2733		10.2733		10.2733	
Vapor Volumetric Flow	ft³/h	1620.10		93.0497		93.0497		93.0497		93.0497	
Liquid Volumetric Flow	gpm	201.987		11.6010		11.6010		11.6010		11.6010	
Std Vapor Volumetric Flow	MMSCFD	0.0396822		0.00217881		0.00217881		0.00217881		0.00217881	
Std Liquid Volumetric Flow	sgpm	0.635680		0.0425783		0.0425783		0.0425783		0.0425783	
Compressibility		0.990765		0.984979		0.984979		0.984979		0.984979	
Specific Gravity		1.12458		1.48272		1.48272		1.48272		1.48272	
API Gravity											
Enthalpy	Btu/h	-176956		-11095.5		-11095.5		-11095.5		-11095.5	
Mass Enthalpy	Btu/lb	-1279.17		-1080.03		-1080.03		-1080.03		-1080.03	
Mass Cp	Btu/(lb*°F)	0.423680		0.408568		0.408568		0.408568		0.408568	
Ideal Gas Cp/Cv Ratio		1.16924		1.12867		1.12867		1.12867		1.12867	
Dynamic Viscosity	cP	0.00926998		0.00861656		0.00861656		0.00861656		0.00861656	
Kinematic Viscosity	cSt	6.77688		4.87211		4.87211		4.87211		4.87211	
Thermal Conductivity	Btu/(h*ft*°F)	0.0134573		0.0111036		0.0111036		0.0111036		0.0111036	
Surface Tension	lbf/ft										
Net Ideal Gas Heating Value	Btu/ft³	1702.33		2219.93		2219.93		2219.93		2219.93	
Net Liquid Heating Value	Btu/lb	19712.8		19466.1		19466.1		19466.1		19466.1	
Gross Ideal Gas Heating Value	Btu/ft³	1858.65		2413.11		2413.11		2413.11		2413.11	
Gross Liquid Heating Value	Btu/lb	21534.1		21173.2		21173.2		21173.2		21173.2	

Mass Fraction	%	lb/h	%	lb/h	%	lb/h	%	lb/h
Nitrogen	0	0	0.0324083	0	0.0324083	0	0.0324083	0
Methane	0.248796	0.0271507	0.00856628	0.191108	0.00856628	0.191108	0.00856628	0.191108
Carbon Dioxide	0.379000	1.08229	0.866275	0.630732	0.866275	0.630732	0.866275	0.630732
Ethane	0.594583	1.50435	0.687907	1.42186	0.687907	1.42186	0.687907	1.42186
Propane	1.78659	1.87903	1.75812	1.75812	1.75812	1.75812	1.75812	1.75812
Isobutane	3.48919	3.48919	1.86195	1.86195	1.86195	1.86195	1.86195	1.86195
n-Butane	2.80624	2.80624	3.49701	3.49701	3.49701	3.49701	3.49701	3.49701
Isopentane	0.0899858	0.0899858	2.81912	2.81912	2.81912	2.81912	2.81912	2.81912
n-Pentane	0.594583	1.50435	0.0907209	0.0907209	0.0907209	0.0907209	0.0907209	0.0907209
i-Hexane	18.0155	4.00698	0.597701	0.597701	0.597701	0.597701	0.597701	0.597701
n-Hexane	17.4616	17.4616	18.1651	18.1651	18.1651	18.1651	18.1651	18.1651
2,2,4-Trimethylpentane	0.504824	0.504824	4.04165	4.04165	4.04165	4.04165	4.04165	4.04165
Benzene	6.83377	6.83377	17.6287	17.6287	17.6287	17.6287	17.6287	17.6287
Heptane	20.1073	20.1073	0.508634	0.508634	0.508634	0.508634	0.508634	0.508634
Toluene	18.4950	18.4950	6.89908	6.89908	6.89908	6.89908	6.89908	6.89908
Octane	34.9929	34.9929	20.3041	20.3041	20.3041	20.3041	20.3041	20.3041
Isobutane	3.81871	3.81871	18.6782	18.6782	18.6782	18.6782	18.6782	18.6782
n-Butane	53.3057	53.3057	0	0	0	0	0	0
Isopentane	152.223	152.223	4.51334	4.51334	4.51334	4.51334	4.51334	4.51334
n-Pentane	96.7531	96.7531	1.19298	1.19298	1.19298	1.19298	1.19298	1.19298
i-Hexane	211.584	211.584	26.6147	26.6147	26.6147	26.6147	26.6147	26.6147
n-Hexane	251.281	251.281	120.642	120.642	120.642	120.642	120.642	120.642
2,2,4-Trimethylpentane	264.283	264.283	87.8390	87.8390	87.8390	87.8390	87.8390	87.8390
Benzene	490.750	490.750	198.015	198.015	198.015	198.015	198.015	198.015
Heptane	394.694	394.694	244.845	244.845	244.845	244.845	244.845	244.845
Toluene	12.6564	12.6564	259.305	259.305	259.305	259.305	259.305	259.305
Octane	83.6272	83.6272	487.011	487.011	487.011	487.011	487.011	487.011
Ethylbenzene	2533.85	2533.85	392.605	392.605	392.605	392.605	392.605	392.605
m-Xylene	563.576	563.576	12.6343	12.6343	12.6343	12.6343	12.6343	12.6343
Nonane	2455.95	2455.95	83.2389	83.2389	83.2389	83.2389	83.2389	83.2389
C10+	71.0028	71.0028	2529.77	2529.77	2529.77	2529.77	2529.77	2529.77
	961.160	961.160	562.860	562.860	562.860	562.860	562.860	562.860
	2828.06	2828.06	2454.78	2454.78	2454.78	2454.78	2454.78	2454.78
	2801.29	2801.29	70.9742	70.9742	70.9742	70.9742	70.9742	70.9742
			960.802	960.802	960.802	960.802	960.802	960.802
			2827.66	2827.66	2827.66	2827.66	2827.66	2827.66
			2801.22	2801.22	2801.22	2801.22	2801.22	2801.22

Process Streams		Flash Emissions		Inlet		Loading Emissions		Sales Product		Working and Breathing Emissions		1		2	
Properties		Status:		Solved		Solved		Solved		Solved		Solved		Solved	
Phase: Light Liquid		From Block:		Stabilization Tank		Stabilization Tank		Condensate Tank		Stabilization Tank		Condensate Tank		Stabilization Tank	
Property		To Block:		Units		Units		Units		Units		Units		Units	
Temperature					70				67.5590						67.5590
Pressure					114.696				14.6959						14.6959
Mole Fraction Vapor					0				0						0
Mole Fraction Light Liquid					100				100						100
Mole Fraction Heavy Liquid					0				0						0
Molecular Weight					105.361				107.753						107.753
Mass Density					45.0032				45.2159						45.2159
Molar Flow					133.492				129.245						129.245
Mass Flow					14064.9				13925.5						13925.5
Vapor Volumetric Flow					312.530				308.000						308.000
Liquid Volumetric Flow					38.9647				38.4000						38.4000
Std Vapor Volumetric Flow					1.17711				1.17711						1.17711
Std Liquid Volumetric Flow					1.21580				38.5204						38.5204
Compressibility					39.1563				0.00618973						0.00618973
Specific Gravity					0.0472405				0.724974						0.724974
API Gravity					0.721564				62.7192						62.7192
Enthalpy					63.3077				-1.13007E+07						-1.13007E+07
Mass Enthalpy					-816.056				-811.456						-811.456
Mass Cp					0.490619				0.487838						0.487838
Ideal Gas Cp/Cv Ratio					1.05373				1.05277						1.05277
Dynamic Viscosity					0.486214				0.515238						0.515238
Kinematic Viscosity					0.677245				0.711369						0.711369
Thermal Conductivity					0.0713762				0.0718291						0.0718291
Surface Tension					0.00143230				0.00151430						0.00151430
Net Ideal Gas Heating Value					5283.52				5401.21						5401.21
Net Liquid Heating Value					18670.2				18861.9						18861.9
Gross Ideal Gas Heating Value					5673.06				5798.40						5798.40
Gross Liquid Heating Value					20273.2				20260.7						20260.7

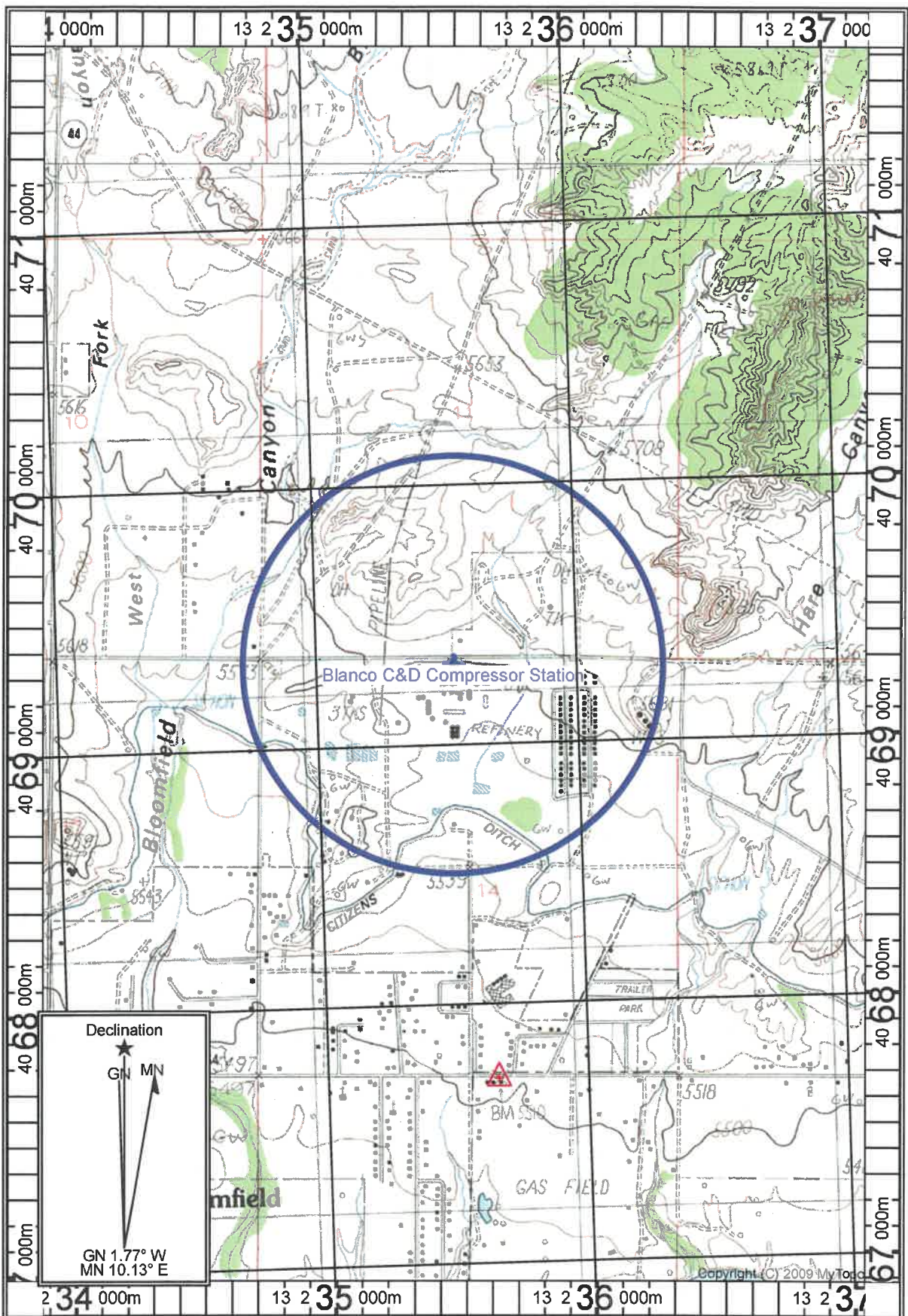
Section 8

Map(s)

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

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

A map showing the location of the facility is attached.



Map Name: BLOOMFIELD
Print Date: 09/11/18

Scale: 1 inch = 1,750 ft.
Map Center: 13 0235540 E 4069240 N

Horizontal Datum: WGS84

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

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

☒ **I have read the AQB “Guidelines for Public Notification for Air Quality Permit Applications”**

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

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

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

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

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

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

This application is a Title V renewal being submitted under 20.2.70.300.B.(2) NMAC so no public notice is required.

Section 10

Written Description of the Routine Operations of the Facility

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

The Blanco C&D Compressor Station is capable of transporting as much as 700 MMscfd of natural gas. The gas is compressed by the two C Plant turbine compressors (units T-C01 and T-C02). From the C Plant, a portion of the compressed gas is sent directly to the neighboring Harvest Four Corners, LLC's San Juan Gas Plant cryogenic facility for liquids extraction. The remaining C Plant compressed gas is sent to the D Plant turbine compressor for further compression prior to being sent to the Harvest Four Corners, LLC facility for liquids extraction.

The facility has two waste heat boilers attached to the C turbine exhaust stacks. These waste heat boilers are not fired units.

Prior to delivery to the plant inlet filter separators, gas flows through liquid separators in the gathering field. The liquids removed by those field separators are discharged into a series of pressure vessels. Excess pressure from the pressure vessels is directed to the flare (FL-01), which is operated jointly with El Paso's A Plant. Emissions from the 12 new tanks will be controlled by a flare as well (FL-02).

Section 11

Source Determination

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

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

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

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

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

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

☒ Yes ☐ No

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

☒ Yes ☐ No

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

☒ Yes ☐ No

C. Make a determination:

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

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

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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 emission increases do not exceed the PSD significance thresholds. The “project” emissions listed below do not only result from changes described in this permit application, thus no emissions from other revisions or modifications to this facility. This project does not result in “debottlenecking”. See the table included in this section for comparison of the proposed emission increases to the PSD Significance Levels.**

C. **Netting** is not required (project 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 application is a Title V renewal being submitted under 20.2.70.300.B.(2) NMAC so PSD applicability is not required.

Section 13

Determination of State & Federal Air Quality Regulations

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

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

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

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

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

STATE REGULATIONS:

<u>State Regulation Citation</u>	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 Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies. This would not apply to Notices of Intent since these are not permits.
20.2.23 NMAC	Fugitive Dust Control	No	N/A	This is a permitted facility.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This facility does not have gas burning equipment (external combustion emission sources, such as gas fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit. This regulation does not apply.
20.2.34 NMAC	Oil Burning Equipment: NO ₂	No	N/A	This facility does not have oil burning equipment. This regulation does not apply.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	This regulation could apply to existing (prior to July 1, 1974) or new (on or after July 1, 1974) natural gas processing plants that use a Sulfur Recovery Unit to reduce sulfur emissions. This facility is not a natural gas processing plant. This regulation does not apply.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	This regulation could apply to storage tanks at petroleum production facilities, processing facilities, tanks batteries, or hydrocarbon storage facilities. Not applicable as this facility is not a "petroleum processing facility" or "petroleum production facility" and does not contain a "tank battery" or a "hydrocarbon storage facility" associated with a "petroleum processing facility" as the terms are understood.
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. Not applicable as this facility is not a "Sulfur Recovery Plant" as the term is understood.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	T-C01 T-C02 T-D01 FL-01 FL-02	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 ☐ 114 – Compressor Seals ☒ 115 – Control Devices and Closed Vent Systems ☒ 116 – Equipment Leaks and Fugitive Emissions ☐ 117 – Natural Gas Well Liquid Unloading ☐ 118 – Glycol Dehydrators ☐ 119 – Heaters ☒ 120 – Hydrocarbon Liquid Transfers ☐ 121 – Pig Launching and Receiving

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.)
				☐ 122 – Pneumatic Controllers and Pumps ☐ 123 – Storage Vessels ☐ 124 – Well Workovers ☐ 125 – Small Business Facilities ☐ 126 – Produced Water Management Unit ☐ 127 – Flowback Vessels and Preproduction Operations
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	T-C01, TC02, T-D01, and H-1	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as engines, boilers, heaters, and flares unless your equipment is subject to another state regulation that limits particulate matter such as 20.2.19 NMAC (see 20.2.61.109 NMAC). If equipment at your facility was subject to the repealed regulation 20.2.37 NMAC it is now subject to 20.2.61 NMAC.
20.2.70 NMAC	Operating Permits	Yes	Facility	Applies if your facility's potential to emit (PTE) is 100 tpy or more of any regulated air pollutant other than HAPs; and/or a HAPs PTE of 10 tpy or more for a single HAP or 25 or more tpy for combined HAPs; is subject to a 20.2.79 NMAC nonattainment permit; or is a facility subject to a federal regulation that requires you to obtain a Title V permit such as landfills or air curtain incinerators. Facility is major for NOX, CO, VOC, and HAP.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	If subject to 20.2.70 NMAC and your permit includes numerical ton per year emission limits, you are subject to 20.2.71 NMAC and normally applies to the entire facility.
20.2.72 NMAC	Construction Permits	Yes	Facility	Applies based on facility's potential emission rate (PER). Facility is permitted under NSR Permit 0613-M13
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	All facilities that are a Title V Major Source as defined at 20.2.70.7.R NMAC, are subject to Emissions Inventory Reporting.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	Yes	Facility	This regulation applies according to the following section of the subpart: 20.2.74.7.AG (2) A stationary source not listed in Table 1 of this Part (20.2.74.501 NMAC) and which emits or has the potential to emit stack emissions of two hundred fifty (250) tons per year or more of any regulated pollutant.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation applies if you are submitting an application pursuant to 20.2.72, 20.2.73, 20.2.74, and/or 20.2.79 NMAC.
20.2.77 NMAC	New Source Performance	No	Units subject to 40 CFR 60	This facility does not contain any equipment subject to the requirements of 40 CFR Part 60.
20.2.78 NMAC	Emission Standards for HAPS	Yes	Units Subject to 40 CFR 61	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	This facility is not located within an area designated as nonattainment area. This regulation does not apply.
20.2.80 NMAC	Stack Heights	No	N/A	Usually not applicable for TV. Not applicable as the facility does not have stacks subject to this regulation.
20.2.82 NMAC	MACT Standards for source categories of HAPS	H-1 T-C01 T-C02 T-D01	Units Subject to 40 CFR 63	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63.

Table for Applicable Federal Regulations

<u>Federal Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	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	No	Units subject to 40 CFR 60	Applies if any other Subpart in 40 CFR 60 applies. No Subpart in 40 CFR 60 applies.
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for Electric Utility Steam Generating Units	No	N/A	Site does not have any electric utility steam generating units.
NSPS 40 CFR60.40b Subpart Db	Electric Utility Steam Generating Units	No	N/A	Site does not have any electric utility steam generating units.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No	N/A	Site does not have any institutional steam generating units.
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	Not applicable as the tanks at this facility are below the capacity thresholds of §60.110a(a).
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including	No	N/A	This facility does not have vessels with a design capacity less than or equal to 1,589.874 m3 used for petroleum or condensate stored, processed, or treated prior to custody.

<u>Federal Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984			
NSPS 40 CFR 60.330 Subpart GG	Stationary Gas Turbines	No	N/A	Not applicable as the turbines at this facility were installed before the October 3, 1977 applicability date.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from Onshore Gas Plants	No	N/A	This facility is not an onshore gas plant. This regulation does not apply.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO ₂ Emissions	No	N/A	The facility is not a natural gas processing plant therefore this regulation does not apply.
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No	N/A	The rule applies to “affected” facilities that are constructed, modified, or reconstructed after Aug 23, 2011 (40 CFR 60.5365): gas wells, including fractured and hydraulically refractured wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, certain equipment at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. This facility does not have any “affected” facilities which have been constructed, modified, or reconstructed after August 23, 2011. This regulation does not apply.
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	No	N/A	This facility does not have any “affected” facilities which have been constructed, modified, or reconstructed after September 18, 2015. This regulation does not apply.
NSPS 40 CFR Part 60 Subpart OOOOb	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction	No	N/A	This facility does not have any “affected” facilities which have been constructed, modified, or reconstructed after December 6, 2022. This regulation does not apply.

<u>Federal Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Commenced After December 6, 2022			
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	Not applicable as there are no compression ignition internal combustion engines in operation at this facility.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No	N/A	Not applicable as there are no spark ignition internal combustion engines in operation at this facility.
NSPS 40 CFR 60 Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No	N/A	No units meet the applicability criteria of 60.4305. D turbine is not new, reconstructed, or modified; cost does not meet applicability test of Subpart A, and no emissions increase of affected pollutant occurred.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No	N/A	The turbines at this facility are not used for electric generation. This regulation does not apply.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No	N/A	This facility does not have electric utility generating units. This regulation does not apply
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No	N/A	This facility is not a municipal solid waste landfill. This regulation does not apply.
NESHAP 40 CFR 61 Subpart A	General Provisions	No (potentially, see Subpart M)	Units Subject to 40 CFR 61	Applies if any other Subpart in 40 CFR 61 applies. There is one potentially applicable NESHAP; see discussion of 40 CFR 61, part M below.
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 which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge. This facility does not include any sources or activities subject to this subpart.
NESHAP 40 CFR 61 Subpart M	National Emission Standards for Asbestos	No (Potentially if during	N/A	Although this standard does not apply to this facility under routine operating conditions, in the case of asbestos demolition, Subpart M would apply.

<u>Federal Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
		asbestos demolition)		
NESHAP 40 CFR 61 Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	N/A	The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart. VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated. Benzene is a VHAP (See 40 CFR 61 Subpart J). Note: If 40 CFR 60 also applies source only needs to comply with this part. The facility does not have any equipment operating in VHAP service. This regulation does not apply.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Units Subject to 40 CFR 63	Applies if any other Subpart in 40 CFR 63 applies. MACT Subpart YYYYY applies to the turbines T-C01, T-C02, and T-D01 and Subpart DDDDD applies to unit H-1.
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	No	N/A	Not applicable as there are no units in operation at this facility that are subject to the requirements of this Subpart.
MACT 40 CFR 63 Subpart HHH	Natural Gas Transmission and Storage Facilities	No	N/A	This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. Per §63.1270(a), “A compressor station that transports natural gas prior to the point of custody transfer or to a natural gas processing plant (if present) is not considered a part of the natural gas transmission and storage source category.” This regulation does not apply.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	Yes	H-1	This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. Unit H-1 is a 4 MMBtu/hr process heater located at a major source of HAP. This regulation applies.
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No	N/A	See 63.9980 (known as the MATs rule) This facility does not have a coal or oil-fired electric utility steam generating unit. This regulation does not apply.
MACT 40 CFR 63	National Emission Standards for	Yes	T-C01 T-C02	Per 63.6090(a) an affected sources is any existing, new, or reconstructed stationary combustion turbine located at a major source of HAP emissions. A

<u>Federal Regulation Citation</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
Subpart YYYY	Hazardous Air Pollutants for Stationary Combustion Turbines		T-D01	stationary combustion turbine is existing if you commenced construction or reconstruction of the stationary combustion turbine on or before January 14, 2003, as defined in 63.6090(a)(1). 63.6090(b)(4) states that existing stationary combustion turbines in all subcategories do not have to meet the requirements of this subpart and of subpart A of this part. Units T-C01, T-C02, and T-D01 are existing stationary combustion engines; therefore, are affected by Subpart YYYY but do not have to meet the requirements of this subpart.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	No	N/A	Not applicable as there are no reciprocating internal combustion engines in operation at this facility.
40 CFR 64	Compliance Assurance Monitoring	Yes	FL-02	Unit FL-02 is subject and meets the requirements contained in Subpart 3, 7, 9(a), and 9(b).
40 CFR 68	Chemical Accident Prevention	No	N/A	This facility does not have more than a threshold quantity of a regulated substance in a process, as determined under §68.115. Blanco C&D Compressor Station is regulated under DOT Office of Pipeline Safety Regulations (49 CFR Parts 192, I 93, and 195). This regulation does not apply.
Title IV – Acid Rain 40 CFR 72	Acid Rain	No	N/A	This site does not meet the applicability requirements of 40 CFR 72.6.
Title IV – Acid Rain 40 CFR 73	Sulfur Dioxide Allowance Emissions	No	N/A	This site does not meet the applicability requirements of 40 CFR 73.2.
Title IV-Acid Rain 40 CFR 75	Continuous Emissions Monitoring	No	N/A	The provisions of this part apply to each affected unit subject to Acid Rain emission limitations or reduction requirements for SO ₂ or NO _x . This regulation does not apply.
Title IV – Acid Rain 40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	No	N/A	This site does not meet the applicability requirements of 40 CFR 76.1, it does not include any coal-fired utility units.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	Yes	Facility	40 CFR 82 may apply if you: (82.150) if you service, maintain, or repair appliances, dispose of appliances, refrigerant reclaimers, if you are an owner or operator of an appliance, if you are a manufacturer of appliances or of recycling and recovery equipment, if you are an approved recycling and recovery equipment testing organization, and/or if you sell or offer for sell or purchase class I or class I refrigerants. Enterprise owns appliances containing CFCs and is therefore subject to this requirement. Enterprise uses only certified technicians for the maintenance, service, repair, and disposal of appliances and maintains the appropriate records for this requirement.

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.
-

Enterprise maintains the required plans to mitigate emissions during routine or predictable SSM and malfunction events at the Blanco C&D Compressor Station.

Emissions during startups, shutdowns, maintenance and emergencies (ESDs) will be minimized through the use of industry standard and/or manufacturer recommended operating practices. Enterprise Field Services, LLC engineers and trained technicians are responsible for the timely and effective execution of these actions. In addition, equipment at the facility is equipped with safety devices that will aid in minimizing excess emissions during non-routine operating conditions. The following summarizes Enterprise's operational plans for minimizing excess emissions.

Maintenance

Key to minimizing excess emissions during non-routine operating conditions is minimizing the occurrence of such conditions. To this end, Enterprise has taken a pro-active approach to facility and equipment maintenance and environmental awareness. Operations personnel are aware of the importance of proper and efficient operation of equipment, and of the potential liabilities associated with improper operation. Moreover, Enterprise recognizes the economic incentives to maintain and operate equipment efficiently. Malfunctioning equipment wastes resources and costs money.

Equipment at the facility is maintained in accordance with manufacturers' recommendations, industry best operating practices, and Enterprise's own practices designed to minimize downtime and non-routine operations. Procedures exist for maintenance of each major piece of equipment; personnel are trained in proper procedures; and Enterprise's own internal review processes ensure that procedures are followed. As a result, non-routine operational events and consequent excess emissions are minimized.

Startup and Shutdown

Excess emissions from startup and shutdown events are brief, as the duration of the actual startup or shutdown event is relatively short. Moreover, the nature of the equipment at the facility is such that startup and shutdown events typically do not result in hourly emission rates being exceeded. For example, while a gas turbine may emit CO at a higher instantaneous rate during its initial warmup period, the warmup period will be of limited duration and have a negligible effect on total emissions for that hour.

However, Enterprise takes steps to minimize the number of such events, and to minimize their duration.

For example, equipment shutdowns for maintenance are performed in accordance with procedures designed to minimize the duration of shutdown events. Such procedures include the following:

- Compression and other operational loads may be shifted to other units.
- Maintenance may be scheduled for periods of low load.
- Multiple maintenance activities may be scheduled to occur simultaneously.
- Startup procedures for the gas turbines are normally completed in less than 15 minutes, and shutdown procedures are normally completed in less than 5 minutes.

Startup, shutdown, and maintenance events are not in themselves reportable pursuant to 20.2.7 NMAC; they are allowable events and violate no applicable requirements. In the event that a startup, shutdown, or maintenance event violates an applicable requirement or results in emissions greater than the allowable emission rate for the affected emissions unit(s) considered over an averaging time consistent with the averaging time for the most stringent applicable emissions limit, Enterprise will report such an event pursuant to 20.2.7 NMAC where the applicable requirement that is the basis for the limit is an Air Quality Control Regulation, except NSPS or MACT.

For purposes of NSPS and MACT, the emissions limits do not apply during startup, shutdown and malfunction. Therefore, Enterprise will comply with 40 CFR 60.11 and 40 CFR 63.6, as applicable, and not 20.2.7 NMAC, during startup, shutdown and malfunctions of equipment subject to NSPS or MACT requirements, should such requirements become applicable.

Emergency Conditions

Despite Enterprise's best planning and maintenance efforts, excess emissions might occur, often as the result of external causes not under Enterprise's control. Enterprise monitors the operating condition of equipment and Enterprise procedures specify that abnormal operations be investigated and rectified. Thus, prolonged abnormal operations will not occur; the malfunctioning equipment will be repaired or adjusted, or shutdown for repair.

In the event of a malfunction or other event that may potentially increase emissions or otherwise violate an applicable requirement, Enterprise complies with the requirements of the facility's permits, including provisions relating to emergencies; with applicable regulations, including 20.2.7 NMAC as appropriate; and with permit conditions, including taking appropriate steps to minimize emissions. During an emergency situation, gas may be vented, a trivial activity.

In the event of an emergency as defined by 20.2.70.304 NMAC, being an unforeseen failure resulting in exceedance of a technology-based emission limitation (that is, NSPS or technology-based NMAC limitation), Enterprise will comply with the specific requirements of 20.2.70.304 NMAC in addition to those of 20.2.7 NMAC.

Enterprise maintains records of startup, shutdown, and malfunction events and submits reports as required.

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.

Under normal operating conditions, the facility process flare (FL-02) will control emissions from the stabilization tanks – the destruction efficiency for this flare is assumed to be 98%.

Section 16

Air Dispersion Modeling

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

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

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.

Air dispersion modeling was submitted to NMED and approved with the November 2011 application for significant revision of NSR Permit 0613-M7. Additionally, NMED completed modeling that shows compliance with the NAAQS and NMAAQs, including 1-hr standards. This modeling was completed after the submittal of NSR 0613-M11, which was issued on April 2, 2018.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
T-D01	Annual Emission Test	8/2/2005
T-D01	Annual Emission Test	9/21/2006
T-C01	Annual Emission Test	9/17/2007
T-C02	Annual Emission Test	9/18/2007
T-D01	Annual Emission Test	9/19/2007
T-C01	Annual Emission Test	9/29/2008
T-C02 and T-D01	Annual Emission Test	9/30/2008
T-D01	Annual Emission Test	11/16/2009
T-C01, T-C02, T-D01	Annual Emission Test	9/10/2009
T-C01, T-C02	Annual Emission Test	10/21/2010
T-D01	Annual Emission Test	10/18/2010
T-C01, T-C02, T-D01	Annual Emission Test	8/15, 8/16, 8/2/2012
T-C01, T-C02, T-D01	Annual Emission Test	8/2, 8/3, 8/6/2012
T-C01, T-C02, T-D01	Annual Emission Test	9/4, 9/4, 9/5/2013
T-C01, T-C02, T-D01	Annual Emission Test	8/5, 8/6, 8/6/2014
T-C01, T-C02, T-D01	Annual Emission Test	8/26 and 8/27/2015
T-C01, T-C02	Annual Emission Test	10/12/16
T-D01	Annual Emission Test	10/13/16
T-C01, T-C02, T-D01	Annual Emission Test	8/22 and 8/23/17
T-C01, T-C02, T-D01	Annual Emission Test	10/1, 10/2, 10/3/18
T-C01, T-C02, T-D01	Annual Emission Test	10/01/2019
T-C01, T-C02, T-D01	Annual Emission Test	9/30/2020
T-C01, T-C02, T-D01	Annual Emission Test	10/7/2021
T-C01, T-C02, T-D01	Annual Emission Test	10/5/2022
T-C01, T-C02, T-D01	Annual Emission Test	5/10/2023

Section 19

Requirements for Title V Program

Do not print this section unless this is a Title V application.

Who Must Use this Attachment:

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

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

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

The process flare, unit FL-02, is subject to 40 CFR 64 per Condition A420.C of Title V Permit P218-R3.

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

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

As described in Section 13, and based on the information and belief formed after reasonable inquiry, Enterprise believes that the Blanco C&D Compressor Station is in compliance with each requirement applicable to the facility.

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

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

As described in Sections 13 and 19.2 and based on information and belief formed after reasonable inquiry, Enterprise states that Blanco C&D Compressor Station will continue to be operated in compliance with applicable requirements for which it is in compliance as of the date of submittal of this application.

In addition, Enterprise will meet additional applicable requirements that become effective during the permit term in a timely manner or on such a time schedule as expressly required by the applicable requirement. In the event that Enterprise should discover new information affecting the compliance status of the facility, Enterprise will make appropriate notifications and/or take corrective actions as appropriate.

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

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

Condition A408.B of Operating Permit P218R3 specifies that Enterprise must submit compliance certification reports every 12 months. The annual report is due no later than 30 days after the first of the month, December 1.

19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☒ **Yes** ☐ **No**
 2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ **Yes** ☒ **No**
(If the answer is yes, describe the type of equipment and how many units are at the facility.)
 3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82.152)? ☐ **Yes** ☒ **No**
 4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)
-

Based on information and belief formed after reasonable inquiry, Enterprise Field Services, LLC (Enterprise) states that Title VI, Section 608 (National Recycling and Emissions Reduction Program) of the Clean Air Act may apply to this facility, as Enterprise may own CFC-containing refrigeration equipment meeting the criteria of this Section, specifically, 40 CFR 82, Subpart F, which applies to owners of CFC-containing appliances (40 CFR 82.150 (b) and 40 CFR 82.152). Enterprise may own appliances affected by this subpart, and abides by this regulation. Enterprise is in compliance with the requirements of this Section

Enterprise does not service motor vehicle air conditioners at this facility and therefore Section 609 does not apply.

Blanco C&D Compressor Station will continue to be operated in compliance with the requirements of Title VI, Section 608 of the Clean Air Act as they apply to this facility.

19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)

A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)

A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)

A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)

A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)

If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

NOTE: The Acid Rain program has additional forms. See www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

Based on information and belief formed after reasonable inquiry and as described in Section 19.2, and with this filing, Enterprise Field Services, LLC states that Blanco C&D Compressor Station is in compliance with applicable requirements. No compliance plan, compliance schedule, or compliance reports are required.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

Based on information and belief formed after reasonable inquiry, Enterprise Field Services, LLC states that Blanco C&D Compressor Station is not subject to 40 CFR 68, Chemical Accident Prevention Provisions.

As per 40 CFR 68.3 (definitions), the term "stationary source" does not apply to transportation of any regulated substance or any other extremely hazardous substance under the provisions of this part, provided that such transportation is regulated under 49 CFR Parts 192, 193, or 195 (DOT Office of Pipeline Safety Regulations).

Enterprise's Blanco C&D Compressor Station is regulated under DOT Office of Pipeline Safety Regulations (49 CFR 192, 193, and 195). Therefore, it is not subject to 112(r).

19.8 - Distance to Other States, Bernalillo, Indian Tribes and Pueblos

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

Other States: Colorado ~ 30 Km

Indian Tribes: Navajo Indian Reservation ~ 25 Km

Ute Mountain Indian Reservation ~ 29 Km

Southern Ute Indian Reservation ~ 30 Km

Jicarilla Apache Indian Reservation ~ 70 Km

Class I Areas: Mesa Verde National Park ~ 62 Km

Bernalillo County: > 80 Km

19.9 - Responsible Official

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

The responsible official is Graham Bacon, Executive Vice President and Chief Operating Officer

Phone: (713) 381-6595

Email: environmental@eprod.com

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

Enterprise believes this application is technically complete. However, additional information will be provided to the NMED as requested.

Section 22: Certification

Company Name: Enterprise Field Services, LLC

I, Bradley J. Cooley, 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 day of October, 2024, upon my oath or affirmation, before a notary of the State of

Texas.

*Signature

Date

Bradley J. Cooley
Printed Name

Senior Director, Environmental
Title

Scribed and sworn before me on this 24 day of October, 2024.

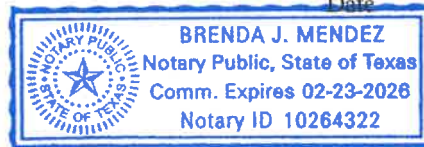
My authorization as a notary of the State of Texas expires on the

23rd day of February, 2026.

Notary's Signature

Date

Brenda J. Mendez
Notary's Printed Name



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