December 3, 2021

Ms. Rhonda Romero
New Source Review Permitting
New Mexico Environment Department
Air Quality Bureau
New Source Review Unit
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816

Submitted via Federal Express

Re: Chevron U.S.A. Inc.
Revision to NSR Permit No. 6019-M7
Salado Draw 19 CTB and CS
Jal, Lea County

Dear Ms. Romero:

Chevron U.S.A. Inc. is submitting a revision to NSR Permit No. 6019-M7 for the Salado Draw 19 CTB and CS facility. Enclosed are the signed and certified Universal Application forms along with the appropriate attachments. In this revision application, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. The site is located in a rural area approximately 25.3 miles southwest of Jal, NM.

Please contact me at (512) 255-9999 or at jmechell@waid.com, or Mr. Keaton Byars at (432) 687-7448 or at KBQT@chevron.com if you have any questions.

Sincerely,

Justin K. Mechell, P.E.
Senior Engineer

JKM/tvp

Attachment

cc: Mr. Keaton Byars, Chevron U.S.A. Inc., Midland, TX, w/attachment
Air Permit Leader, NMED Field Office, Carlsbad, NM, w/attachment

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

December 06, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775384723969

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	A.SOBERAD	**Delivery Location:**	525 CAMINO DE LOS MARQUEZ
Service type:	FedEx Standard Overnight		
Special Handling:	Deliver Weekday		SANTA FE, NM, 87505
		Delivery date:	Dec 6, 2021 10:04

Shipping Information:

Tracking number:	775384723969	**Ship Date:**	Dec 3, 2021
		Weight:	4.0 LB/1.82 KG

Recipient:
Ms. Rhonda Romero, NMED Air Quality Bureau
525 Camino de los Marquez, Suite 1
Permits Section
SANTA FE, NM, US, 87505

Shipper:
Tina Purington, WAID ENVIRONMENTAL
13785 N HIGHWAY 183
Ste 100
AUSTIN, TX, US, 78750

Reference CTX14919

Thank you for choosing FedEx

December 06, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775384766310

Delivery Information:

Status:	Delivered	**Delivered To:**	Residence
Signed for by:	Signature not required	**Delivery Location:**	406 N GUADALUPE ST C
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		CARLSBAD, NM, 88220
		Delivery date:	Dec 6, 2021 13:30

Shipping Information:

Tracking number:	775384766310	**Ship Date:**	Dec 3, 2021
		Weight:	2.0 LB/0.91 KG

Recipient:
NMED District 3 (Carlsbad), NMED District 3 (Carlsbad)
406 N GUADALUPE ST
STE C
CARLSBAD, NM, US, 88220

Shipper:
Tina Purington, WAID ENVIRONMENTAL
13785 N HIGHWAY 183
Ste 100
AUSTIN, TX, US, 78750

Reference CTX14919

Proof-of-delivery details appear below; however, no signature is available for this FedEx Express shipment because a signature was not required.

Thank you for choosing FedEx

New Mexico Environmental Department
NSR Permit No. 6019-M7

for

Chevron U.S.A. Inc.
Salado Draw 19 CTB and CS
Jal, Lea County

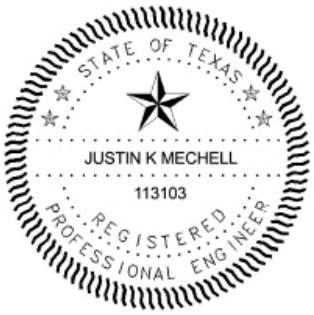
December 2021

Prepared by:

Marshall B. Vandermeer, E.I.T.
Graduate Engineer

Approved by:

Justin K. Mechell, P.E.
Senior Engineer



Justin K. Mechell
12/3/2021

Document based on information provided by
Chevron U.S.A. Inc.
Waid Project No. CTX14919

WAID ENVIRONMENTAL
www.waid.com

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		AIRS No.:

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. See Section 1-I for submittal instructions for other permits.

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.: **61211** in the amount of **$500**

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

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

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

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

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): 35139	Updating Permit/NOI #: 6019-M7
1	Facility Name: Salado Draw 19 CTB and CS	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): See Section 1-D		
2	Plant Operator Company Name: Chevron U.S.A. Inc.	Phone/Fax: 432-687-7904	
a	Plant Operator Address: 6301 Deauville Blvd, N3203, Midland, TX 79706		
b	Plant Operator's New Mexico Corporate ID or Tax ID: 25-6527925		

3	Plant Owner(s) name(s): Chevron U.S.A. Inc.	Phone/Fax: 432-687-7904
a	Plant Owner(s) Mailing Address(s): 6301 Deauville Blvd, N3203, Midland, TX 79706	
4	Bill To (Company): Chevron U.S.A. Inc.	Phone/Fax: 432-687-7904
a	Mailing Address: 6301 Deauville Blvd, N3203, Midland, TX 79706	E-mail: KBQT@chevron.com
5	■ Preparer: Marshall Vandermeer, Waid Environmental ■ Consultant: Justin Mechell, Waid Environmental	Phone/Fax: (512) 255-9999
a	Mailing Address: 13785 Research Blvd., Ste 100, Austin, TX 78750	E-mail: jmechell@waid.com
6	Plant Operator Contact: Keaton Byars	Phone/Fax: (432) 687-7448
a	Address: 6301 Deauville Blvd, N3203, Midland, TX 79706	E-mail: KBQT@chevron.com
7	Air Permit Contact: Keaton Byars	Title: HSE Specialist
a	E-mail: KBQT@chevron.com	Phone/Fax: (432) 687-7448
b	Mailing Address: 6301 Deauville Blvd, N3203, Midland, TX 79706	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ■ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ■ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ■ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ■ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ■ No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ■ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ■ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes ■ No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ■ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ■ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ■ Yes ☐ No	If yes, the permit No. is: 6019-M7
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ■ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 937.5 bbl/hr condensate 2520.83 bbl/hr water 3.13 MMscf/hr gas	Daily: 22,500 bbl/day condensate 60,500 bbl/day water 75 MMscf/day gas	Annually: 8,212,500 bbl/yr condensate 22,082,500 bbl/yr water 27,375 MMscf/yr gas
b	Proposed	Hourly: 937.5 bbl/hr condensate 2520.83 bbl/hr water 3.13 MMscf/hr gas	Daily: 22,500 bbl/day condensate 60,500 bbl/day water 75 MMscf/day gas	Annually: 8,212,500 bbl/yr condensate 22,082,500 bbl/yr water 27,375 MMscf/yr gas
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: 937.5 bbl/hr condensate 2520.83 bbl/hr water 3.13 MMscf/hr gas	Daily: 22,500 bbl/day condensate 60,500 bbl/day water 75 MMscf/day gas	Annually: 8,212,500 bbl/yr condensate 22,082,500 bbl/yr water 27,375 MMscf/yr gas
b	Proposed	Hourly: 937.5 bbl/hr condensate 2520.83 bbl/hr water 3.13 MMscf/hr gas	Daily: 22,500 bbl/day condensate 60,500 bbl/day water 75 MMscf/day gas	Annually: 8,212,500 bbl/yr condensate 22,082,500 bbl/yr water 27,375 MMscf/yr gas

Section 1-D: Facility Location Information

1	Section: 19	Range: 33E	Township: 26S	County: Lea	Elevation (ft): 3,175
2	UTM Zone: ☐ 12 or ■ 13			Datum: ☐ NAD 27 ■ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 630,641			UTM N (in meters, to nearest 10 meters): 3,545,143	
b	**AND** Latitude (deg., min., sec.): 32° 2' 5.7"			Longitude (deg., min., sec.): -103° 36' 59.2"	
3	Name and zip code of nearest New Mexico town: Jal, NM 88252				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left.				
5	The facility is 25.3 (distance) miles southwest (direction) of Jal (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: Lea County and Eddy County, NM and Loving County, TX				
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/aqb/modeling/class1areas.html)? ☐ Yes ■ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:				
9	Name nearest Class I area: Carlsbad Caverns National Park				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 70 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: >2 miles				
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?				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start:	☐AM ☐PM	End:	☐AM ☐PM		
3	Month and year of anticipated start of construction: October 2021					
4	Month and year of anticipated construction completion: October 2021					
5	Month and year of anticipated startup of new or modified facility: October 2021					
6	Will this facility operate at this site for more than one year? ■ Yes ☐ No					

Section 1-F: Other Facility Information

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

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

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC):		Phone:
a	R.O. Title:	R.O. e-mail:	
b	R. O. Address:		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC):		Phone:
a	A. R.O. Title:	A. R.O. e-mail:	
b	A. R. O. Address:		
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):		
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.):		
a	Address of Parent Company:		
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.):		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations:		
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:		

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

■ secure electronic transfer. Air Permit Contact Name Justin Mechell

Email jmechell@waid.com

Phone number 512-255-9999

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

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

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

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

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

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

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

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

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

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

Table of Contents

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
ENG-1	CAT G3516B LE	Caterpillar	G3516B LE	Unknown	1380 hp	1380 hp	7/26/2014 7/26/2014	CAT-1 ENG-1	20200254	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	4SLB	
ENG-2	CAT G3516B LE	Caterpillar	G3516B LE	Unknown	1380 hp	1380 hp	1/12/2015 1/12/2015	CAT-2 ENG-2	20200254	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	4SLB	
ENG-3	CAT G3516B LE	Caterpillar	G3516B LE	Unknown	1380 hp	1380 hp	6/12/2014 6/12/2014	CAT-3 ENG-3	20200254	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	4SLB	
ENG-4	CAT G3516B LE	Caterpillar	G3516B LE	Unknown	1380 hp	1380 hp	5/31/2017 5/31/2017	CAT-4 ENG-4	20200254	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	4SLB	
ENG-5	CAT G3516B LE	Caterpillar	G3516B LE	Unknown	1380 hp	1380 hp	7/5/2017 7/5/2017	CAT-5 ENG-5	20200254	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	4SLB	
ENG-6	CAT G3516B LE	Caterpillar	G3516B LE	Unknown	1380 hp	1380 hp	8/16/2018 8/16/2018	CAT-6 ENG-6	20200254	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	4SLB	
HTR-1	Heater Treater	Unknown	Unknown	Unknown	4 MMBtu/hr	4 MMBtu/hr	N/A N/A	N/A HTR-1	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
HTR-2	Heater Treater	Unknown	Unknown	Unknown	4 MMBtu/hr	4 MMBtu/hr	N/A N/A	N/A HTR-2	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
HTR-3	Heater Treater	Unknown	Unknown	Unknown	4 MMBtu/hr	4 MMBtu/hr	N/A N/A	N/A HTR-3	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
SEP-1	Heated Production Separator	Unknown	Unknown	Unknown	4 MMBtu/hr	4 MMBtu/hr	N/A N/A	N/A SEP-1	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
SEP-2	Heated Production Separator	Unknown	Unknown	Unknown	4 MMBtu/hr	4 MMBtu/hr	N/A N/A	N/A SEP-2	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
SEP-3	Heated Production Separator	Unknown	Unknown	Unknown	4 MMBtu/hr	4 MMBtu/hr	N/A N/A	N/A SEP-3	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
REB-1	TEG Reboiler	Unknown	Unknown	Unknown	1 MMBtu/hr	1 MMBtu/hr	N/A N/A	N/A REB-1	31000404	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
DHY-1	TEG Dehydrator	Unknown	Unknown	Unknown	Unknown	35 Mscf/day	N/A N/A	N/A DHY-1	31000227	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
LOAD	Truck Loading	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	N/A LOAD	31088811	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
TK-1	Condensate Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400312	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
TK-2	Condensate Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400312	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
TK-3	Condensate Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400312	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
TK-4	Condensate Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2020	VRUs VRUs	40400312	□ Existing (unchanged) □ To be Removed ■ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
PW-1	Water Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400315	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
PW-2	Water Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400315	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
PW-3	Water Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400315	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
PW-4	Water Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400315	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
PW-5	Water Storage	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRUs VRUs	40400315	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
TK-S1	Slop Tank	Unknown	Unknown	Unknown	750 bbl	750 bbl	N/A 2015	VRU3 VRU3	40400315	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
VRU1	Primary Vapor Recovery Unit #1 for Tank Battery	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	VRUs VRUs	30600401	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
VRU2	Redundant Vapor Recovery Unit #2 for Tank Battery	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	VRUs VRUs	30600401	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
VRU3	Single Vapor Recovery Unit #3 for Compressor Station	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	VRU3 VRU3	30600401	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
VRU4	Primary Vapor Recovery Unit #4 for Tank Battery	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	VRUs VRUs	30600401	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
VRU5	Redundant Vapor Recovery Unit #5 for Tank Battery	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	VRUs VRUs	30600401	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
VRU6	Redundant Vapor Recovery Unit #6 for Tank Battery	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	VRUs VRUs	30600401	□ Existing (unchanged) □ To be Removed ■ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
FLARE	Flare Pilot, Purge, Predictable SSM	Unknown	Unknown	Unknown	N/A	N/A	N/A N/A	N/A FLARE	31000205	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
FUG	Fugitives	Unknown	Unknown	Unknown	N/A	N/A	N/A > 09/18/15	N/A FUG	31088811	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

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

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
Does not apply.							☐ 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
CAT-1	DCL - Oxidation - A Coat Catalyst (2 elements) C3F1-01-4A3W-31	Apr-15	CO, VOC, HCHO	ENG-1	VOC- 44.6%; CO- 91.5%; HCHO- 75.5%	Engineering Estimate
CAT-2	DCL - Oxidation - A Coat Catalyst (2 elements) C3F1-01-4A3W-31	Jan-16	CO, VOC, HCHO	ENG-2	VOC- 44.6%; CO- 91.5%; HCHO- 75.5%	Engineering Estimate
CAT-3	DCL - Oxidation - A Coat Catalyst (2 elements) C3F1-01-4A3W-31	Jan-16	CO, VOC, HCHO	ENG-3	VOC- 44.6%; CO- 91.5%; HCHO- 75.5%	Engineering Estimate
CAT-4	DCL - Oxidation - A Coat Catalyst (2 elements) C3F1-01-4A3W-31	Mar-18	CO, VOC, HCHO	ENG-4	VOC- 44.6%; CO- 91.5%; HCHO- 75.5%	Engineering Estimate
CAT-5	DCL - Oxidation - A Coat Catalyst (2 elements) C3F1-01-4A3W-31	Mar-20	CO, VOC, HCHO	ENG-5	VOC- 44.6%; CO- 91.5%; HCHO- 75.5%	Engineering Estimate
CAT-6	DCL - Oxidation - A Coat Catalyst (2 elements) C3F1-01-4A3W-31	Mar-20	CO, VOC, HCHO	ENG-6	VOC- 44.6%; CO- 91.5%; HCHO- 75.5%	Engineering Estimate
VRU1	Flogistix, Model #HG17222VIE	2019	VOC	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VOC- 100%	Engineering Estimate
VRU2	Flogistix, Model #HG12258H5IE	2016	VOC	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VOC- 100%	Engineering Estimate
VRU3	Flogistix, Model #HG12228H5FE	2016	VOC	TK-S1	VOC- 95%	Engineering Estimate
VRU4	Flogistix, Model #HGF10000H1	2016	VOC	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VOC- 100%	Engineering Estimate
VRU5	Flogistix, Model #HGF10000H1	2016	VOC	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VOC- 100%	Engineering Estimate
VRU6	Flogistix, Model # HG17222VIE	Pending	VOC	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VOC- 100%	Engineering Estimate
Flare	Zeeco	2015	VOC	Various (emergency/MSS)	VOC-98%	Engineering Estimate
COND	Condenser	2015	VOC	DHY-1	VOC- 80%	Engineering Estimate
REB-1	Reboiler Gloplug for when reboiler cycles off	2015	VOC	DHY-1	VOC- 98%	Engineering Estimate

[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 shal be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	1.90	8.32	9.30	40.70	4.58	19.96	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-2	1.90	8.32	9.30	40.70	4.58	19.96	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-3	1.90	8.32	9.30	40.70	4.58	19.96	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-4	1.90	8.32	9.30	40.70	4.58	19.96	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-5	1.90	8.32	9.30	40.70	4.58	19.96	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-6	1.90	8.32	9.30	40.70	4.58	19.96	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
HTR-1	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
HTR-2	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
HTR-3	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
SEP-1	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
SEP-2	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
SEP-3	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
REB-1	0.107	0.468	0.090	0.393	0.006	0.026	0.050	0.220	0.008	0.036	0.008	0.036	0.008	0.036	-	-		
DHY-1	-	-	-	-	10.11	44.28	-	-	-	-	-	-	-	-	0.000	0.000		
LOAD	-	-	-	-	65.39	4.10	-	-	-	-	-	-	-	-	0.001	3.6E-05		
TK-1	-	-	-	-	2110	8983	-	-	-	-	-	-	-	-	1.48	6.37		
TK-2	-	-	-	-	2110	8983	-	-	-	-	-	-	-	-	1.48	6.37		
TK-3	-	-	-	-	2110	8983	-	-	-	-	-	-	-	-	1.48	6.37		
TK-4	-	-	-	-	2110	8983	-	-	-	-	-	-	-	-	1.48	6.37		
PW-1	-	-	-	-	15.85	68.62	-	-	-	-	-	-	-	-	0.071	0.279		
PW-2	-	-	-	-	15.85	68.62	-	-	-	-	-	-	-	-	0.071	0.279		
PW-3	-	-	-	-	15.85	68.62	-	-	-	-	-	-	-	-	0.071	0.279		
PW-4	-	-	-	-	15.85	68.62	-	-	-	-	-	-	-	-	0.071	0.279		
PW-5	-	-	-	-	15.85	68.62	-	-	-	-	-	-	-	-	0.071	0.279		
TK-S1	-	-	-	-	6.05	26.48	-	-	-	-	-	-	-	-	0.019	0.085		
FLARE	45.43	2.45	180.9	9.74	186.3	10.03	0.355	1.55	-	-	-	-	-	-	0.004	1.9E-04		
SITE-SSM	-	-	-	-	345.8	2.98	-	-	-	-	-	-	-	-	0.017	1.4E-04		
SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-		
FUG	-	-	-	-	5.32	23.32	-	-	-	-	-	-	-	-	1.5E-04	6.7E-04		
Totals	59.51	64.09	239.0	263.8	9165	36515	4.65	20.38	0.803	3.54	0.803	3.54	0.803	3.54	6.31	26.98		

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	1.90	8.32	0.798	3.49	2.18	9.58	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-2	1.90	8.32	0.798	3.49	2.18	9.58	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-3	1.90	8.32	0.798	3.49	2.18	9.58	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-4	1.90	8.32	0.798	3.49	2.18	9.58	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-5	1.90	8.32	0.798	3.49	2.18	9.58	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
ENG-6	1.90	8.32	0.798	3.49	2.18	9.58	0.507	2.22	0.100	0.441	0.100	0.441	0.100	0.441	-	-		
HTR-1	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
HTR-2	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
HTR-3	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
SEP-1	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
SEP-2	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
SEP-3	0.428	1.88	0.360	1.58	0.024	0.103	0.201	0.881	0.033	0.143	0.033	0.143	0.033	0.143	-	-		
REB-1	0.107	0.468	0.090	0.393	0.006	0.026	0.050	0.220	0.008	0.036	0.008	0.036	0.008	0.036	-	-		
DHY-1	-	-	-	-	0.134	0.587	-	-	-	-	-	-	-	-	0.000	0.000		
LOAD	-	-	-	-	65.39	4.10	-	-	-	-	-	-	-	-	0.001	3.6E-05		
TK-1 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
TK-2 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
TK-3 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
TK-4 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
PW-1 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
PW-2 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
PW-3 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
PW-4 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
PW-5 (VRUs)	-	-	-	-	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000		
TK-S1 (VRU3)	-	-	-	-	0.302	1.32	-	-	-	-	-	-	-	-	0.001	0.004		
FLARE	45.43	2.45	180.9	9.74	186.3	10.03	0.355	1.55	-	-	-	-	-	-	0.004	1.9E-04		
SITE-SSM	-	-	-	-	345.8	2.98	-	-	-	-	-	-	-	-	0.017	1.4E-04		
SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-		
FUG	-	-	-	-	5.32	23.32	-	-	-	-	-	-	-	-	1.5E-04	6.7E-04		
Totals	59.51	64.09	188.0	40.53	616.4	110.4	4.65	20.38	0.803	3.54	0.803	3.54	0.803	3.54	0.022	0.005		

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	0	0	0	0	0	10.0	0	0	0	0	0	0	0	0	0	0	0	0

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

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

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

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

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

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

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
ENG-1	ENG-1	V	No	20	1012	138.0	123.50	10.5%	98.6	1.33
ENG-2	ENG-2	V	No	20	1012	138.0	123.50	10.5%	98.6	1.33
ENG-3	ENG-3	V	No	20	1012	138.0	123.50	10.5%	98.6	1.33
ENG-4	ENG-4	V	No	20	1012	138.0	123.50	10.5%	98.6	1.33
ENG-5	ENG-5	V	No	20	1012	138.0	123.50	10.5%	98.6	1.33
ENG-6	ENG-6	V	No	20	1012	138.0	123.50	10.5%	98.6	1.33
HTR-1	HTR-1	V	No	20	500	13.22	11.58	16.5%	14.5	1.50
HTR-2	HTR-2	V	No	20	500	13.22	11.58	16.5%	14.5	1.50
HTR-3	HTR-3	V	No	20	500	13.22	11.58	16.5%	14.5	1.50
SEP-1	SEP-1	V	No	20	500	13.22	11.58	16.5%	14.5	1.50
SEP-2	SEP-2	V	No	20	500	13.22	11.58	16.5%	14.5	1.50
SEP-3	SEP-3	V	No	20	500	13.22	11.58	16.5%	14.5	1.50
REB-1	REB-1	V	No	20	500	3.28	2.90	16.5%	8.15	1.00
DHY-1	DHY-1	V	No	5	212	N/A	N/A	N/A	N/A	N/A
LOAD	LOAD	V	No	3	Amb	N/A	N/A	N/A	N/A	N/A
VRUs	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	V	No	20	Amb	N/A	N/A	N/A	N/A	N/A
TK-S1 (VRU3)	TK-S1	V	No	24	Amb	N/A	N/A	N/A	N/A	N/A
FLARE	FLARE	V	No	20	1832	56	56	N/A	9.24 for FLARE or 637.2 for SSMFLARE	0.33
FUG	FUG	V	No	3	Amb	N/A	N/A	N/A	N/A	N/A

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

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

Stack No.	Unit No.(s)	Total HAPs		Benzene ■ HAP or □ TAP		Toluene ■ HAP or □ TAP		Ethylbenzene ■ HAP or □ TAP		Xylene ■ HAP or □ TAP		n-Hexane ■ HAP or □ TAP		Formaldehyde ■ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	ENG-1	0.303	1.33	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23				
ENG-2	ENG-2	0.303	1.33	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23				
ENG-3	ENG-3	0.303	1.33	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23				
ENG-4	ENG-4	0.303	1.33	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.28	1.23				
ENG-5	ENG-5	0.303	1.33	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23				
ENG-6	ENG-6	0.303	1.33	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23				
HTR-1	HTR-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
HTR-2	HTR-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
HTR-3	HTR-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
SEP-1	SEP-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
SEP-2	SEP-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
SEP-3	SEP-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
REB-1	REB-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
DHY-1	DHY-1	0.008	0.035	0.002	0.008	0.002	0.011	3.3E-04	0.001	0.002	0.007	0.002	0.008	-	-				
LOAD	LOAD	1.35	0.084	0.06	0.004	0.072	0.005	0.008	0.001	0.025	1.6E-03	1.177	0.074	-	-				
VRUs	TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-				
TK-VRU3	TK-S1	0.025	0.108	0.008	0.033	0.001	0.003	0.001	0.006	2.5E-04	0.001	0.015	0.065	-	-				
FLARE	FLARE	13.51	0.727	2.75	0.148	1.29	0.069	0.055	0.003	0.167	0.009	9.25	0.498	-	-				
SITE-SSM	SITE-SSM	11.65	0.098	0.716	0.006	1.25	0.010	0.159	0.001	0.977	0.008	8.55	0.072	-	-				
SSM	SSM	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
FUG	FUG	0.199	0.870	0.010	0.043	0.028	0.122	0.008	0.035	0.037	0.162	0.116	0.508	-	-				
Totals:		28.56	9.88	3.58	0.363	2.66	0.328	0.234	0.057	1.22	0.238	19.18	1.51	1.69	7.38				

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
ENG-1	Natural gas	Sweet field gas	1,647 Btu/scf	6.1 Mscf/hr	54 MMscf/yr	0.001 mol %	0
ENG-2	Natural gas	Sweet field gas	1,647 Btu/scf	6.1 Mscf/hr	54 MMscf/yr	0.001 mol %	0
ENG-3	Natural gas	Sweet field gas	1,647 Btu/scf	6.1 Mscf/hr	54 MMscf/yr	0.001 mol %	0
ENG-4	Natural gas	Sweet field gas	1,647 Btu/scf	6.1 Mscf/hr	54 MMscf/yr	0.001 mol %	0
ENG-5	Natural gas	Sweet field gas	1,647 Btu/scf	6.1 Mscf/hr	54 MMscf/yr	0.001 mol %	0
ENG-6	Natural gas	Sweet field gas	1,647 Btu/scf	6.1 Mscf/hr	54 MMscf/yr	0.001 mol %	0
HTR-1	Natural gas	Sweet field gas	1,647 Btu/scf	2.4 Mscf/hr	21 MMscf/yr	0.001 mol %	0
HTR-2	Natural gas	Sweet field gas	1,647 Btu/scf	2.4 Mscf/hr	21 MMscf/yr	0.001 mol %	0
HTR-3	Natural gas	Sweet field gas	1,647 Btu/scf	2.4 Mscf/hr	21 MMscf/yr	0.001 mol %	0
SEP-1	Natural gas	Sweet field gas	1,647 Btu/scf	2.4 Mscf/hr	21 MMscf/yr	0.001 mol %	0
SEP-2	Natural gas	Sweet field gas	1,647 Btu/scf	2.4 Mscf/hr	21 MMscf/yr	0.001 mol %	0
SEP-3	Natural gas	Sweet field gas	1,647 Btu/scf	2.4 Mscf/hr	21 MMscf/yr	0.001 mol %	0
REB-1	Natural gas	Sweet field gas	1,647 Btu/scf	0.62 Mscf/hr	21 MMscf/yr	0.001 mol %	0
FLARE	Natural gas	Sweet field gas	1,641 Btu/scf	0.57 Mscf/hr	4 MMscf/yr	0.001 mol %	0

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
TK-1	40400312	Condensate	Mixed Hydrocarbons	7.1	50.00	66.3	9.12	95.0	14.01
TK-2	40400312	Condensate	Mixed Hydrocarbons	7.1	50.00	66.3	9.12	95.0	14.01
TK-3	40400312	Condensate	Mixed Hydrocarbons	7.1	50.00	66.3	9.12	95.0	14.01
TK-4	40400312	Condensate	Mixed Hydrocarbons	7.1	50.00	66.3	9.12	95.0	14.01
PW-1	40400315	Produced Water	Water and Mixed Hydrocarbons	8.3	50.00	66.3	9.12	95.0	14.01
PW-2	40400315	Produced Water	Water and Mixed Hydrocarbons	8.3	50.00	66.3	9.12	95.0	14.01
PW-3	40400315	Produced Water	Water and Mixed Hydrocarbons	8.3	50.00	66.3	9.12	95.0	14.01
PW-4	40400315	Produced Water	Water and Mixed Hydrocarbons	8.3	50.00	66.3	9.12	95.0	14.01
PW-5	40400315	Produced Water	Water and Mixed Hydrocarbons	8.3	50.00	66.3	9.12	95.0	14.01
TK-S1	40400315	Slop Water	Water and Mixed Hydrocarbons	8.3	50.00	66.3	9.12	95.0	14.01

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			
TK-1	2015	Condensate		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	86,231,250	2777
TK-2	2015	Condensate		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	86,231,250	2777
TK-3	2015	Condensate		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	86,231,250	2777
TK-4	2020	Condensate		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	86,231,250	2777
PW-1	2015	Produced Water		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	185,493,000	5973
PW-2	2015	Produced Water		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	185,493,000	5973
PW-3	2015	Produced Water		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	185,493,000	5973
PW-4	2015	Produced Water		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	185,493,000	5973
PW-5	2015	Produced Water		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	185,493,000	5973
TK-S1	2015	Slop Water		FX	807	128	4.72	3.86	Green, Dark	Green, Dark	Average	1,533,000	49.4

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

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Field Gas	Field Gas	Gas	75 MMscfd	Condensate	Mixed Hydrocarbons	L	22,500 bbl/day
				Produced Water	Water and Mixed Hydrocarbons	L	60,500 bbl/day

Table 2-N: CEM Equipment

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

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
Not Applicable									

Table 2-O: Parametric Emissions Measurement Equipment

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
Not Applicable								

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
	mass GHG															
	CO_2e															
	mass GHG					**NOT APPLICABLE**										
	CO_2e															
Total	**mass GHG**															
	CO_2e															

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

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

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

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

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

Section 3

Application Summary

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

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

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

The Salado Draw 19 CTB and CS is currently authorized under NSR Permit No. 6019-M7. In this revision application, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values.

The Salado Draw 19 CTB and CS is an oil production facility that is designed to remove water and hydrocarbon liquids from natural gas produced in the surrounding area, and to compress the gas into a pipeline for delivery to a processing plant.

The proposed facility consists of 6 engines, 3 heater treaters, 3 heated production separators, 1 dehydration unit and associated condenser, reboiler, and glow plug when the reboiler cycles off, 4 condensate storage tanks, 5 water storage tanks, a flash gas compressor, 1 slop tank, water/slop loading, a flare, a VRU system with redundant capacity at the tank battery, and a single VRU at the compressor station for the slop tank. Fugitive emissions for this equipment are also represented at this site.

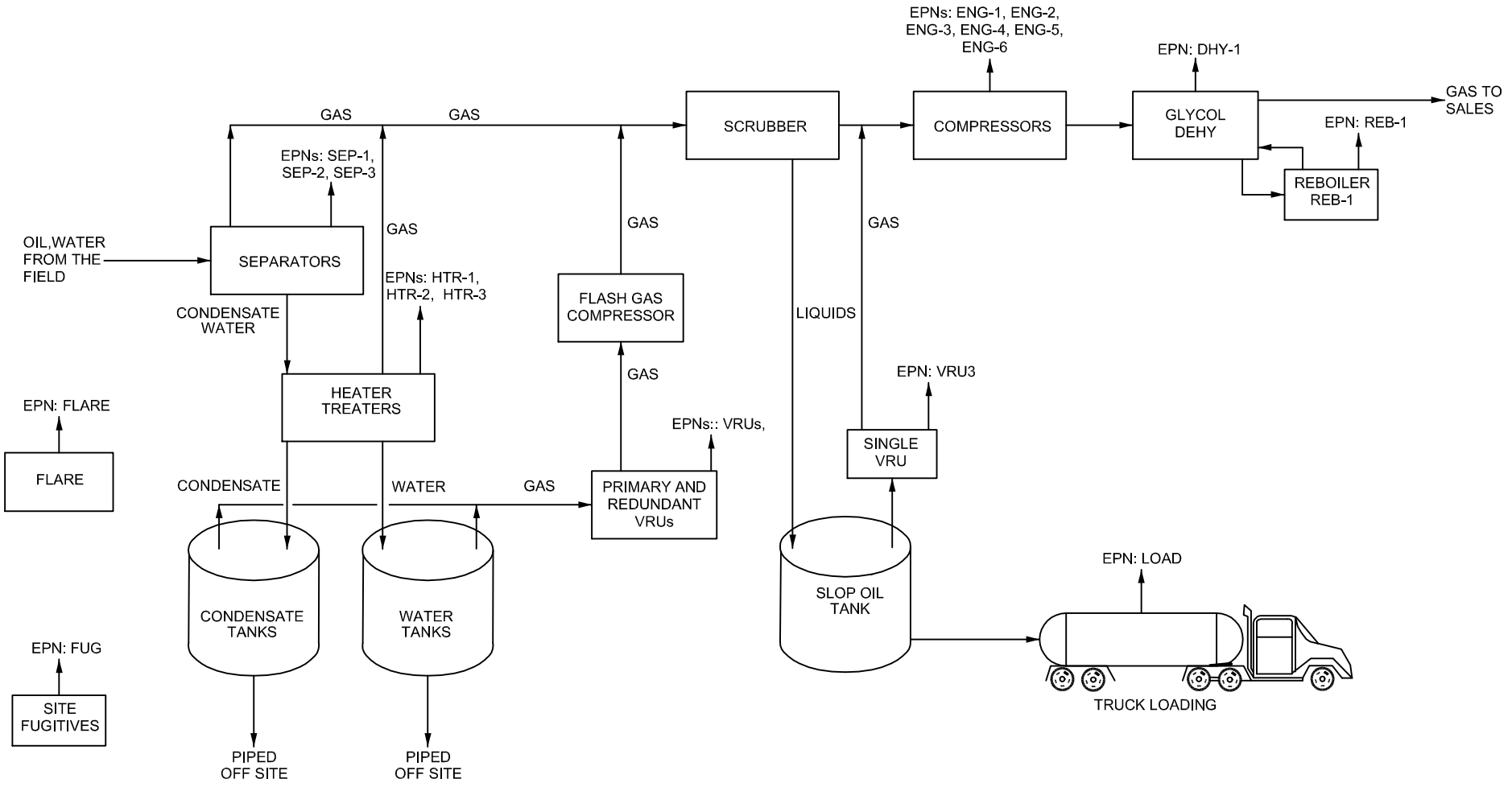
Startup, Shutdown, and Maintenance (SSM) emissions are accounted for via individual calculations for SSM flaring, dehydrator blowdowns, VRU blowdowns, and compressor blowdowns. An additional 10.0 tpy VOC is included as allowed by the NMED SSM Guidance.

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.

SALADO DRAW 19 CTB AND CS
PROCESS FLOW DIAGRAM



WAID ENVIRONMENTAL

CHEVRON U.S.A. INC.

SALADO DRAW 19 CTB AND CS

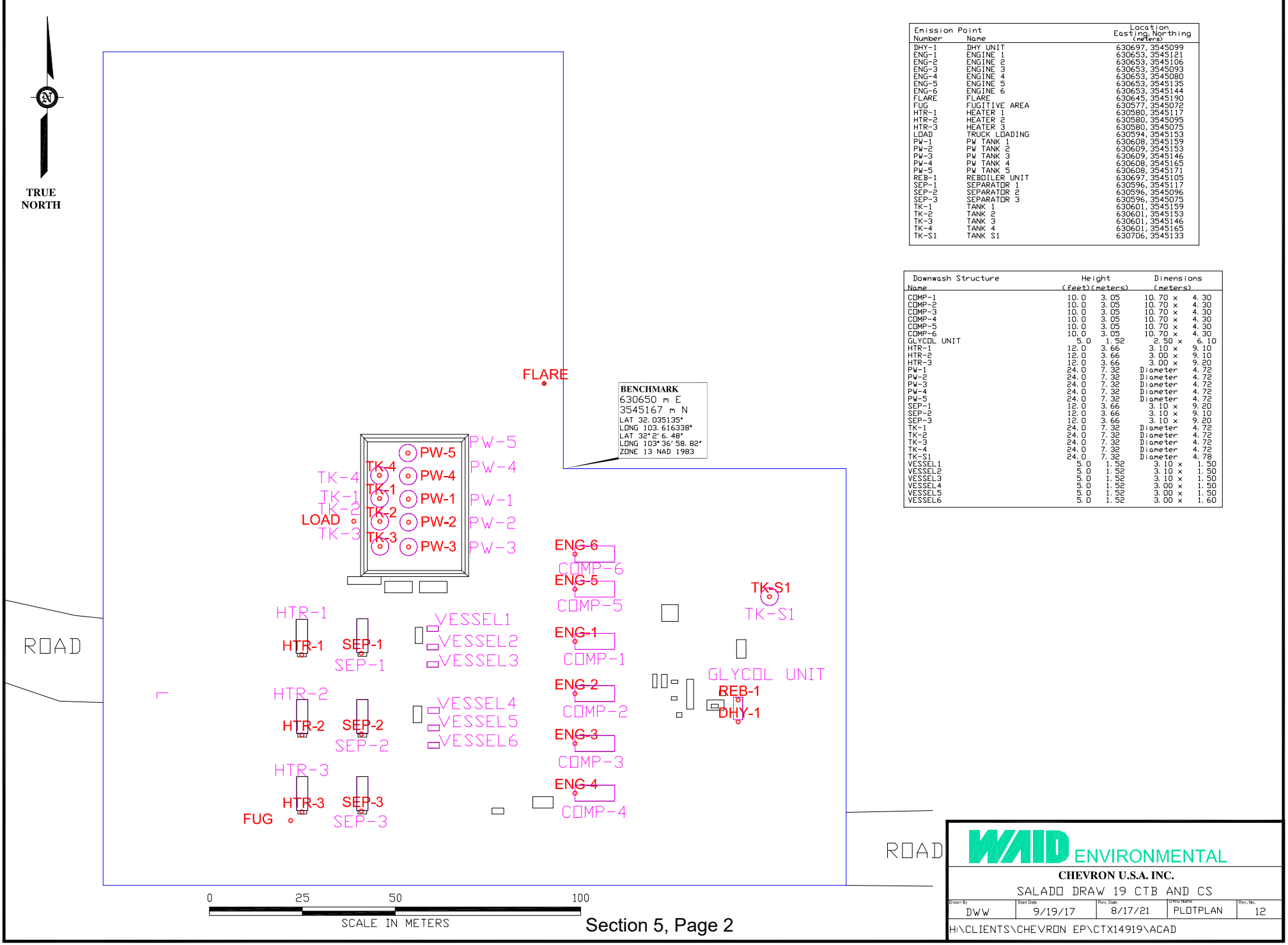
Drawn By	Start Date	Rev. Date	Dwg. Name	Rev. No.
DWW	8/16/21	8/16/21	FLOW	1

H:\CLIENTS\CHEVRON EP\CTX14919\ACAD

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.



Emission Point Number	Name	Location Easting,Northing (meters)
DHY-1	DHY UNIT	630697, 3545099
ENG-1	ENGINE 1	630653, 3545121
ENG-2	ENGINE 2	630653, 3545106
ENG-3	ENGINE 3	630653, 3545093
ENG-4	ENGINE 4	630653, 3545080
ENG-5	ENGINE 5	630653, 3545135
ENG-6	ENGINE 6	630653, 3545144
FLARE	FLARE	630645, 3545190
FUG	FUGITIVE AREA	630577, 3545072
HTR-1	HEATER 1	630580, 3545117
HTR-2	HEATER 2	630580, 3545095
HTR-3	HEATER 3	630580, 3545075
LOAD	TRUCK LOADING	630594, 3545153
PW-1	PW TANK 1	630608, 3545159
PW-2	PW TANK 2	630609, 3545153
PW-3	PW TANK 3	630609, 3545146
PW-4	PW TANK 4	630608, 3545165
PW-5	PW TANK 5	630608, 3545171
REB-1	REBOILER UNIT	630697, 3545105
SEP-1	SEPARATOR 1	630596, 3545117
SEP-2	SEPARATOR 2	630596, 3545096
SEP-3	SEPARATOR 3	630596, 3545075
TK-1	TANK 1	630601, 3545159
TK-2	TANK 2	630601, 3545153
TK-3	TANK 3	630601, 3545146
TK-4	TANK 4	630601, 3545165
TK-S1	TANK S1	630706, 3545133

Downwash Structure Name	Height (feet)	Height (meters)	Dimensions (meters)
COMP-1	10.0	3.05	10.70 x 4.30
COMP-2	10.0	3.05	10.70 x 4.30
COMP-3	10.0	3.05	10.70 x 4.30
COMP-4	10.0	3.05	10.70 x 4.30
COMP-5	10.0	3.05	10.70 x 4.30
COMP-6	10.0	3.05	10.70 x 4.30
GLYCOL UNIT	5.0	1.52	2.50 x 6.10
HTR-1	12.0	3.66	3.10 x 9.10
HTR-2	12.0	3.66	3.00 x 9.10
HTR-3	12.0	3.66	3.00 x 9.20
PW-1	24.0	7.32	Diameter 4.72
PW-2	24.0	7.32	Diameter 4.72
PW-3	24.0	7.32	Diameter 4.72
PW-4	24.0	7.32	Diameter 4.72
PW-5	24.0	7.32	Diameter 4.72
SEP-1	12.0	3.66	3.10 x 9.20
SEP-2	12.0	3.66	3.10 x 9.10
SEP-3	12.0	3.66	3.10 x 9.20
TK-1	24.0	7.32	Diameter 4.72
TK-2	24.0	7.32	Diameter 4.72
TK-3	24.0	7.32	Diameter 4.72
TK-4	24.0	7.32	Diameter 4.72
TK-S1	24.0	7.32	Diameter 4.78
VESSEL1	5.0	1.52	3.10 x 1.50
VESSEL2	5.0	1.52	3.10 x 1.50
VESSEL3	5.0	1.52	3.10 x 1.50
VESSEL4	5.0	1.52	3.00 x 1.50
VESSEL5	5.0	1.52	3.00 x 1.50
VESSEL6	5.0	1.52	3.00 x 1.60

WAID ENVIRONMENTAL

CHEVRON U.S.A. INC.

SALADO DRAW 19 CTB AND CS

Drawn By	Start Date	Rev. Date	DWG Name	Rev. No.
DWW	9/19/17	8/17/21	PLOTPLAN	12

H:\CLIENTS\CHEVRON EP\CTX14919\ACAD

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

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

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

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

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

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

Compressor Engines (EPNs: ENG-1, -2, -3, -4, -5, -6)
The Caterpillar G3516B LE engines are rated at 1380 hp and are equipped with oxidative catalysts. The NOx, CO, NMNEHC and HCHO uncontrolled emission factors and catalyst housing information is from the DCL manufacture specifications sheet in Attachment G. The catalyst is comprised of 2 elements. A 25% safety factor was added to the NOx, CO, and HCHO controlled emission factors. There was no safety factor added to the VOC emission factor. Other emission factors (PM, n-Hexane, Benzene, Toluene, Ethylbenzene, Xylene) are from AP-42, Table 3.2-2 (July 2000). Field gas is used for fuel.

Heater Treaters, Heated Production Separators, and Reboiler (EPNs: HTR-1, -2, -3, SEP-1, -2, -3, REB-1)
Emissions from the heaters/reboiler are estimated using factors from AP-42, Chapter 1.4 for natural gas combustion. Sweet gas is used for fuel.

Dehydration Unit (EPNs: DHY-1)
The glycol dehydration unit vent emissions are calculated using the GRI-GLYCalc™ program, with an 80% control credit applied for the regenerator emissions routed to the condenser and an additional 98% control credit applied for the emissions then routed to the firebox of the reboiler equipped with a glow plug. The total control credit is 99.6%. A control credit of 98% is applied to the flash tank vent emissions routed to the firebox of the reboiler equipped with a glowplug. The dehydration unit has a throughput of 35 MMscf/day.

Fugitives (EPN: FUG)
Fugitive emissions were estimated based on the TCEQ technical guidance document for “Equipment Fugitive Leaks” dated October 2000. The Oil and Gas Production Operations equipment leak emission factors approved by the TCEQ were used in the emissions estimations. The calculations consider each type of service and the corresponding projected source count. Speciations were determined using site-specific and representative analyses.

Flare (EPN: FLARE)
The emission rates from the flare are based on the emission factors from the TCEQ Technical Guidance Package for Flares and Vapor Oxidizers dated October 2000. 98% destruction efficiency is assumed for the VOC and H2S emissions. The SO2 emissions are based on a material balance. The flare is smokeless, so no PM emissions are expected. Flows to the flare include pilot/purge gas, predictable startup and shutdown emissions resulting from power outages, operations at associated facilities that affect operations at the facility, or compressor shutdowns associated with the operations or maintenance conditions.

Truck Loading (EPN: LOAD)
Liquids from the compressor station slop tank are loaded into trucks using submerged fill. Maximum hourly emission rates are based on filling one truck (200-bbl each) in one hour. Annual emission rates are based on the annual throughput average of 5 bbl/day. Emission rates are calculated according to the AP-42 Section 5.2 (dated June 2008) methodology. A VOC content of 100% is conservatively assumed for the loading emissions.

Storage Vessels (EPNs: VRUs, VRU3)
Annual working and standing emission rates from the condensate, water, and slop tanks are based on the EPA’s AP-42 Section 7.1. Flash emissions are calculated using the gas oil ratio (GOR) calculated from a ProMax simulation. The color of the tanks are dark green, therefore a solar absorptance of 0.90 was used. Hourly oil tank filling emissions are calculated using equations from AP-42, Section 7.1. The actual vapor pressure and throughput through each tank may vary, but the total authorized emission rates from the tanks combined will not be exceeded. Emissions from the condensate and water tanks at the tank battery are speciated using a ProMax backblend and are routed through a common vent line to the primary and redundant vapor recovery units (VRUs).

The annual throughput for the slop tank liquids from the compressor station is expected to be an average of 5 bbl/day. Slop tank emissions at the compressor station are speciated using a ProMax backblend and will be routed to a single VRU (VRU3).

Startup, Shutdown, and Maintenance (SSM) (EPNs: SITE-SSM, SSM)

Startup, Shutdown, and Maintenance (SSM) emissions are accounted for via individual calculations for SSM flaring, dehydrator blowdowns, VRU blowdowns, and compressor blowdowns (EPN SITE-SSM). An additional 10.0 tpy VOC buffer is included as allowed by the NMED SSM Guidance (EPN SSM).

MAXIMUM EMISSIONS (UNDER NORMAL OPERATING SCENARIO)*

FIN	EPN	Description	VOC (includes Formaldehyde)		CO		NO_x		SO_2		PM		Total HAP		H_2S	
			lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	ENG-1	CAT G3516B LE	4.58	19.96	9.30	40.70	1.90	8.32	0.507	2.22	0.100	0.441	1.18	5.16	-	-
ENG-2	ENG-2	CAT G3516B LE	4.58	19.96	9.30	40.70	1.90	8.32	0.507	2.22	0.100	0.441	1.18	5.16	-	-
ENG-3	ENG-3	CAT G3516B LE	4.58	19.96	9.30	40.70	1.90	8.32	0.507	2.22	0.100	0.441	1.18	5.16	-	-
ENG-4	ENG-4	CAT G3516B LE	4.58	19.96	9.30	40.70	1.90	8.32	0.507	2.22	0.100	0.441	1.18	5.16	-	-
ENG-5	ENG-5	CAT G3516B LE	4.58	19.96	9.30	40.70	1.90	8.32	0.507	2.22	0.100	0.441	1.18	5.16	-	-
ENG-6	ENG-6	CAT G3516B LE	4.58	19.96	9.30	40.70	1.90	8.32	0.507	2.22	0.100	0.441	1.18	5.16	-	-
HTR-1	HTR-1	Heater Treater	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
HTR-2	HTR-2	Heater Treater	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
HTR-3	HTR-3	Heater Treater	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
SEP-1	SEP-1	Heated Production Separator	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
SEP-2	SEP-2	Heated Production Separator	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
SEP-3	SEP-3	Heated Production Separator	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
REB-1	REB-1	TEG Reboiler	0.006	0.026	0.090	0.393	0.107	0.468	0.050	0.220	0.008	0.036	-	-	-	-
DHY-1	DHY-1	TEG Dehydrator	10.11	44.28	-	-	-	-	-	-	-	-	1.62	7.09	0.000	0.000
LOAD	LOAD	Truck Loading	65.39	4.10	-	-	-	-	-	-	-	-	1.35	0.084	0.001	3.6E-05
TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VRUs[1]	Primary and Redundant Vapor Recovery Units	8518	36273	-	-	-	-	-	-	-	-	216.6	927.1	6.27	26.89
TK-S1	TK-S1	Slop Tank	6.05	26.48	-	-	-	-	-	-	-	-	0.216	0.947	0.019	0.085
FLARE	FLARE	Flare Pilot, Purge, Predictable SSM	186.3	10.03	180.9	9.74	45.43	2.45	0.355	1.55	-	-	13.51	0.727	0.004	1.9E-04
SITE-SSM	SITE-SSM	Startup, Shutdown, and Maintenance Emissions	345.8	2.98	-	-	-	-	-	-	-	-	11.65	0.098	0.017	1.4E-04
SSM	SSM	Startup, Shutdown, and Maintenance Emissions	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-
FUG	FUG	Fugitives	5.32	23.32	-	-	-	-	-	-	-	-	0.199	0.870	1.5E-04	6.7E-04
		TOTALS	**9165**	**36515**	**239.0**	**263.8**	**59.51**	**64.09**	**4.65**	**20.38**	**0.803**	**3.54**	**252.2**	**967.8**	**6.31**	**26.98**

* Maximum Emissions are the emissions at maximum capacity and prior to (in the absense of) polution control, emission-reducing process equipment, or any other emission reduction.

1. Primary and Redundant VRUs

HAP EMISSION RATE SUMMARY

Unit ID		Description	Benzene		Toluene		Ethylbenzene		Xylene		n-Hexane		Formaldehyde		TOTAL	
			(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)
ENG-1	ENG-1	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.049	1.16	5.06	1.18	5.16
ENG-2	ENG-2	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.049	1.16	5.06	1.18	5.16
ENG-3	ENG-3	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.049	1.16	5.06	1.18	5.16
ENG-4	ENG-4	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.049	1.16	5.06	1.18	5.16
ENG-5	ENG-5	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.049	1.16	5.06	1.18	5.16
ENG-6	ENG-6	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.049	1.16	5.06	1.18	5.16
HTR-1	HTR-1	Heater Treater	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
HTR-2	HTR-2	Heater Treater	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
HTR-3	HTR-3	Heater Treater	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
SEP-1	SEP-1	Heated Production Separator	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
SEP-2	SEP-2	Heated Production Separator	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
SEP-3	SEP-3	Heated Production Separator	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
REB-1	REB-1	TEG Reboiler	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
DHY-1	DHY-1	TEG Dehydrator	0.416	1.82	0.561	2.46	0.078	0.343	0.409	1.79	0.156	0.682	-	-	1.62	7.09
LOAD	LOAD	Truck Loading	0.062	0.004	0.072	0.005	0.008	0.001	0.025	0.002	1.18	0.074	-	-	1.35	0.084
TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VRUs[1]	Primary and Redundant Vapor Recovery Units	178.7	764.1	14.00	60.27	15.85	68.26	1.76	7.60	98.47	423.0	-	-	308.8	1323
TK-S1	TK-S1	Slop Tank	0.153	0.668	0.012	0.055	0.027	0.117	0.005	0.022	0.296	1.29	-	-	0.492	2.16
FLARE	FLARE	Flare Pilot, Purge, Predictable SSM	2.75	0.148	1.29	0.069	0.055	0.003	0.167	0.009	9.25	0.498	-	-	13.51	0.727
SITE-SSM	SITE-SSM	Startup, Shutdown, and Maintenance Emissions	0.716	0.006	1.25	0.010	0.159	0.001	0.977	0.008	8.55	0.072	-	-	11.65	0.098
SSM	SSM	Startup, Shutdown, and Maintenance Emissions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	FUG	Fugitives	0.010	0.043	0.028	0.122	0.008	0.035	0.037	0.162	0.116	0.508	-	-	0.199	0.870
		TOTALS	**182.8**	**766.9**	**17.23**	**63.10**	**16.19**	**68.77**	**3.40**	**9.64**	**118.1**	**426.5**	**6.96**	**30.36**	**344.7**	**1365**

1. Primary and Redundant VRUs

ALLOWABLE EMISSIONS

FIN	EPN	Description	VOC (includes Formaldehyde)		CO		NO_x		SO_2		PM		Total HAP		H_2S	
			lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	ENG-1	CAT G3516B LE	2.18	9.58	0.798	3.49	1.90	8.32	0.507	2.22	0.100	0.441	0.303	1.33	-	-
ENG-2	ENG-2	CAT G3516B LE	2.18	9.58	0.798	3.49	1.90	8.32	0.507	2.22	0.100	0.441	0.303	1.33	-	-
ENG-3	ENG-3	CAT G3516B LE	2.18	9.58	0.798	3.49	1.90	8.32	0.507	2.22	0.100	0.441	0.303	1.33	-	-
ENG-4	ENG-4	CAT G3516B LE	2.18	9.58	0.798	3.49	1.90	8.32	0.507	2.22	0.100	0.441	0.303	1.33	-	-
ENG-5	ENG-5	CAT G3516B LE	2.18	9.58	0.798	3.49	1.90	8.32	0.507	2.22	0.100	0.441	0.303	1.33	-	-
ENG-6	ENG-6	CAT G3516B LE	2.18	9.58	0.798	3.49	1.90	8.32	0.507	2.22	0.100	0.441	0.303	1.33	-	-
HTR-1	HTR-1	Heater Treater	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
HTR-2	HTR-2	Heater Treater	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
HTR-3	HTR-3	Heater Treater	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
SEP-1	SEP-1	Heated Production Separator	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
SEP-2	SEP-2	Heated Production Separator	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
SEP-3	SEP-3	Heated Production Separator	0.024	0.103	0.360	1.58	0.428	1.88	0.201	0.881	0.033	0.143	-	-	-	-
REB-1	REB-1	TEG Reboiler	0.006	0.026	0.090	0.393	0.107	0.468	0.050	0.220	0.008	0.036	-	-	-	-
DHY-1	DHY-1	TEG Dehydrator	0.134	0.587	-	-	-	-	-	-	-	-	0.008	0.035	0.000	0.000
LOAD	LOAD	Truck Loading	65.39	4.10	-	-	-	-	-	-	-	-	1.35	0.084	0.001	3.6E-05
TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VRUs[1]	Primary and Redundant Vapor Recovery Units	0.000	0.000	-	-	-	-	-	-	-	-	0.000	0.000	0.000	0.000
TK-S1	VRU3	Slop Tank to Single VRU3	0.302	1.32	-	-	-	-	-	-	-	-	0.011	0.047	0.001	0.004
FLARE	FLARE	Flare Pilot, Purge, Predictable SSM	186.3	10.03	180.9	9.74	45.43	2.45	0.355	1.55	-	-	13.51	0.727	0.004	1.9E-04
SITE-SSM	SITE-SSM	Startup, Shutdown, and Maintenance Emissions	345.8	2.98	-	-	-	-	-	-	-	-	11.65	0.098	0.017	1.4E-04
SSM	SSM	Startup, Shutdown, and Maintenance Emissions	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-
FUG	FUG	Fugitives	5.32	23.32	-	-	-	-	-	-	-	-	0.199	0.870	1.5E-04	6.7E-04
		TOTALS	**616.4**	**110.4**	**188.0**	**40.53**	**59.51**	**64.09**	**4.65**	**20.38**	**0.803**	**3.54**	**28.55**	**9.82**	**0.022**	**0.005**

1. Primary and Redundant VRUs

HAP EMISSION RATE SUMMARY

Unit ID	EPN	Description	Benzene		Toluene		Ethylbenzene		Xylene		n-Hexane		Formaldehyde		TOTAL	
			(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)
ENG-1	ENG-1	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23	0.303	1.33
ENG-2	ENG-2	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23	0.303	1.33
ENG-3	ENG-3	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23	0.303	1.33
ENG-4	ENG-4	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23	0.303	1.33
ENG-5	ENG-5	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23	0.303	1.33
ENG-6	ENG-6	CAT G3516B LE	0.005	0.020	0.004	0.018	4.0E-04	0.002	0.002	0.008	0.011	0.048	0.281	1.23	0.303	1.33
HTR-1	HTR-1	Heater Treater	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
HTR-2	HTR-2	Heater Treater	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
HTR-3	HTR-3	Heater Treater	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
SEP-1	SEP-1	Heated Production Separator	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
SEP-2	SEP-2	Heated Production Separator	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
SEP-3	SEP-3	Heated Production Separator	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
REB-1	REB-1	TEG Reboiler	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.000
DHY-1	DHY-1	TEG Dehydrator	0.002	0.008	0.002	0.011	0.000	0.001	0.002	0.007	0.002	0.008	-	-	0.008	0.035
LOAD	LOAD	Truck Loading	0.062	0.004	0.072	0.005	0.008	0.001	0.025	0.002	1.177	0.074	-	-	1.35	0.084
TK-1, TK-2, TK-3, TK-4, PW-1, PW-2, PW-3, PW-4, PW-5	VRUs[1]	Primary and Redundant Vapor Recovery Units	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-	0.000	0.000
TK-S1	VRU3	Slop Tank to Single VRU3	0.008	0.033	0.001	0.003	0.001	0.006	2.5E-04	0.001	0.015	0.065	-	-	0.025	0.108
FLARE	FLARE	Flare Pilot, Purge, Predictable SSM	2.75	0.148	1.29	0.069	0.055	0.003	0.167	0.009	9.25	0.498	-	-	13.51	0.727
SITE-SSM	SITE-SSM	Startup, Shutdown, and Maintenance Emissions	0.716	0.006	1.25	0.010	0.159	0.001	0.977	0.008	8.55	0.072	-	-	11.65	0.098
SSM	SSM	Startup, Shutdown, and Maintenance Emissions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	FUG	Fugitives	0.010	0.043	0.028	0.122	0.008	0.035	0.037	0.162	0.116	0.508	-	-	0.199	0.870
		TOTALS	**3.58**	**0.363**	**2.66**	**0.328**	**0.234**	**0.057**	**1.22**	**0.24**	**19.18**	**1.51**	**1.69**	**7.38**	**28.56**	**9.88**

1. Primary and Redundant VRUs

FUGITIVE EMISSION RATE CALCULATIONS

EPN:	FUG
Operating schedule (hr/yr):	8760

Fugitive Emission Calculations:

Emission Source		Source Count	Uncontrolled Emission Factor * (lb/hr-source)	Control Factor	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
Valves:	gas	569	0.00992	0%	5.64	24.70
	light oil	397	0.0055	0%	2.18	9.55
	heavy oil	0	0.0000185	0%	0.000	0.000
	Water/Light Oil	576	0.000216	0%	0.124	0.543
Flanges	gas	976	0.00086	0%	0.839	3.67
	light oil	666	0.000243	0%	0.162	0.710
	heavy oil	0	0.00000086	0%	0.000	0.000
	Water/Light Oil	807	0.0000062	0%	0.005	0.022
Connectors	gas	1410	0.00086	0%	1.21	5.30
	light oil	759	0.000243	0%	0.184	0.806
	heavy oil	0	0.00000086	0%	0.000	0.000
	Water/Light Oil	978	0.0000062	0%	0.006	0.027
Open-ended Lines:	gas	0	0.00441	0%	0.000	0.000
	light oil	0	0.00309	0%	0.000	0.000
	heavy oil	0	0.000309	0%	0.000	0.000
	Water/Light Oil	0	0.0006	0%	0.000	0.000
Pumps:	light oil	1	0.02866	0%	0.029	0.126
	heavy oil	0	0.00113	0%	0.000	0.000
	Water/Light Oil	5	0.000053	0%	2.7E-04	0.001
Other:	gas	53	0.0194	0%	1.03	4.51
	light oil	0	0.0165	0%	0.000	0.000
	heavy oil	0	0.0000683	0%	0.000	0.000
	Water/Light Oil	0	0.0309	0%	0.000	0.000

Sample Calculations:

Gas Valve Emissions = (569 valves)(0.00992 lb/hr-source)(1 - 0)
= 5.64 lb/hr

Gas Valve Annual Emissions = (5.64 lb/hr)(8760 hr/yr)(1 ton/2000 lb)
= 24.7 tons/yr

* The emission factors are from the TCEQ's 2000 "Equipment Leak Fugitives" for Oil and Gas Production Operations.

FUGITIVE EMISSION RATE SPECIATION

Gas Speciation

Component	Weight Percent	Hourly Emissions (lb/hr)	Annual Emissions (tons/yr)
Hydrogen Sulfide	0.001%	1.3E-04	5.5E-04
Nitrogen	1.524%	0.133	0.582
Carbon Dioxide	3.029%	0.264	1.16
Methane	48.984%	4.27	18.71
Ethane	16.008%	1.40	6.11
Propane	12.968%	1.13	4.95
i-Butane	2.280%	0.199	0.871
n-Butane	5.963%	0.520	2.28
i-Pentane	1.700%	0.148	0.649
n-Pentane	1.998%	0.174	0.763
n-Hexane	0.752%	0.066	0.287
Benzene	0.063%	0.005	0.024
Toluene	0.110%	0.010	0.042
Ethylbenzene	0.014%	0.001	0.005
Xylene	0.086%	0.007	0.033
Total	**100.0%**	**8.72**	**38.19**
Total HAP	**1.03%**	**0.089**	**0.391**
Total VOC	**30.5%**	**2.66**	**11.63**

From Salado Draw 19 CTB Final, K-740A Flash Gas Compressor No. 3 Date Sampled: 07/20/2021. H2S conservatively estimated to be 0.001%.

Light Oil Speciation

Component	Weight Percent	Hourly Emissions (lb/hr)	Annual Emissions (tons/yr)
Hydrogen Sulfide (H2S)	0.001%	2.6E-05	1.1E-04
Propane	1.36%	0.035	0.152
i-Butane	0.53%	0.013	0.059
n-Butane	2.02%	0.052	0.226
i-Pentane	1.29%	0.033	0.144
n-Pentane	2.00%	0.051	0.223
Hexanes	1.98%	0.051	0.222
Heptanes	6.24%	0.159	0.698
Octanes plus	79.71%	2.04	8.92
n-Hexane	1.87%	0.048	0.210
Benzene	0.16%	0.004	0.018
Toluene	0.68%	0.017	0.076
Ethylbenzene	0.25%	0.006	0.028
Xylene	1.10%	0.028	0.123
Other	0.82%	0.021	0.091
Total HAP	**4.06%**	**0.104**	**0.454**
Total VOC	**99.2%**	**2.53**	**11.10**

From Salado Draw 19 CTB Final Train 3 Inlet Separator Hydrocarbon Liquid, Date Sampled 07/20/2021. H2S conservatively estimated to be 0.001%.

Water/Light Oil Speciation

Component	Weight Percent	Hourly Emissions (lb/hr)	Annual Emissions (tons/yr)
Hydrogen Sulfide (H2S)	0.001%	1.4E-06	5.9E-06
Propane	1.356%	0.002	0.008
i-Butane	0.527%	0.001	0.003
n-Butane	2.022%	0.003	0.012
i-Pentane	1.291%	0.002	0.008
n-Pentane	1.995%	0.003	0.012
Hexanes	1.980%	0.003	0.012
Heptanes	6.241%	0.008	0.037
Octanes plus	79.709%	0.108	0.472
n-Hexane	1.873%	0.003	0.011
Benzene	0.161%	2.2E-04	0.001
Toluene	0.682%	0.001	0.004
Ethylbenzene	0.249%	3.4E-04	0.001
Xylene	1.095%	0.001	0.006
Other	0.816%	0.001	0.005
Total HAP	**4.06%**	**0.005**	**0.024**
Total VOC	**100%**	**0.135**	**0.593**

From Salado Draw 19 CTB Final Train 3 Inlet Separator Hydrocarbon Liquid, Date Sampled 07/20/2021. H2S conservatively estimated to be 0.001%.

TOTAL FUGITIVE EMISSIONS

Component		Hourly Emissions (lb/hr)	Annual Emissions (tons/yr)
Total H2S	-	**1.5E-04**	**6.7E-04**
n-Hexane	-	**0.116**	**0.508**
Benzene	-	**0.010**	**0.043**
Toluene	-	**0.028**	**0.122**
Ethylbenzene	-	**0.008**	**0.035**
Xylene	-	**0.037**	**0.162**
Total HAP	-	**0.199**	**0.870**
Total VOC	-	**5.32**	**23.32**

EMISSION ESTIMATES FOR FLARE

Pilot/Sweep Flare Flows, EPN: FLARE

Flare Control Efficiency: 98%
Standard Gas Volume: 385 scf/lb-mol
Pilot/Sweep Gas Flow Rate: 570 scf/hr
SSM Gas Molecular Weight: 23.5 lb/lb-mol
SSM Gas Flow Rate: 34.8 lb/hr

Component*	Pilot/Sweep Gas lb/hr	Pilot/Sweep Gas ton/yr	Total Stream Wt%
Hydrogen Sulfide	3.6E-04	0.002	0.001%
Nitrogen	0.170	0.744	0.489%
Carbon Dioxide	1.90	8.31	5.46%
Methane	8.21	35.97	23.63%
Ethane	5.52	24.16	15.87%
Propane	5.86	25.68	16.87%
IsoButane	1.21	5.30	3.48%
N-Butane	3.47	15.19	9.98%
IsoPentane	1.50	6.56	4.31%
N-Pentane	1.98	8.66	5.69%
n-Hexane	0.942	4.13	2.71%
Benzene	0.280	1.23	0.806%
Toluene	0.131	0.574	0.377%
Ethylbenzene	0.006	0.024	0.016%
Xylene	0.017	0.075	0.049%
Total	**34.76**	**152.2**	**100.0%**
Total VOC	**18.96**	**83.05**	**54.56%**
Total H2S	**3.6E-04**	**0.002**	**0.001%**
Total HAP	**1.38**	**6.03**	**3.96%**

* BTEX HAPs are conservatively assumed equal to n-hexane

Component	MW lb/lb-mol	LHV Btu/scf	Total Emissions to Flare scf/hr	scf/yr	MMBtu/hr	MMBtu/yr	Total Emissions from Flare lb/hr	ton/yr
Hydrogen Sulfide	34.08	637	0.004	35.7	2.6E-06	0.023	7.2E-06	3.2E-05
Nitrogen	28.01	0	2.34	20500	0	0	0.003	0.015
Carbon Dioxide	44.01	0	16.60	145000	0	0	0.038	0.166
Methane	16.04	909	197	1730000	0.179	1570	0.164	0.719
Ethane	30.07	1618	70.6	619000	0.114	1000	0.110	0.483
Propane	44.1	2316	51.2	448000	0.119	1040	0.117	0.514
IsoButane	58.12	3011	8.02	70200	0.024	211	0.024	0.106
N-Butane	58.12	3011	23.00	201000	0.069	605	0.069	0.304
IsoPentane	72.15	3707	8.00	70000	0.030	259	0.030	0.131
N-Pentane	72.15	3707	10.50	92400	0.039	343	0.040	0.173
n-Hexane	86.18	4404	4.21	36900	0.019	163.0	0.019	0.083
Benzene	78.11	3591	1.38	12100	0.005	43.5	0.006	0.025
Toluene	92.14	4274	0.55	4800	0.002	20.5	0.003	0.011
Ethylbenzene	106.17	4971	0.02	177	0.000	0.9	1.1E-04	4.9E-04
Xylene	106.17	4957	0.06	541	0.000	2.7	3.4E-04	0.001
Total	--	**1641**	**408**	**3580154**	**0.67**	**5873**	**0.695**	**3.04**
Total VOC	--	--	--	--	--	--	**0.379**	**1.661**
Total H2S	--	--	--	--	--	--	**7.2E-06**	**3.2E-05**
Total HAP	--	--	--	--	--	--	**0.028**	**0.121**

Component	Emission Factor		Emissions from Flare lb/hr	ton/yr
NOx	0.138	lb/MMBtu*	0.092	0.405
CO	0.5496	lb/MMBtu*	0.368	1.61
SO2	Material balance		0.001	0.003

* Most conservative of the high- or low-Btu emission factors for non-steam assisted flares from TCEQ's October 2000 "Flares and Vapor Oxidizers" guidance document.

Flare Parameters

LHV of Flared Gas	1641	**Btu/scf**
Flared Gas Flow Rate	408.3	**scf/hr**
Flared Gas Vapor Molecular Weight	32.77	**lb/lb-mol**
H2S in Flared Gas	3.6E-04	**lb/hr**

Flare Heat Release

[(1641 Btu/scf)(408scfh)]
= 670,109 Btu/hr

Q_{SO2} = 0.53 * 10^5 * SO_2 emission rate in lb/hr
38.28166 Btu/hr

Is the heat release greater than or equal to Q_{SO2}? Yes

Flare Height = **20 ft**

Flare Tip Velocity

Flare Tip Diameter	1.5	**inch**
Flare Tip Area	0.012	**sq ft**
Flared Gas Flow Rate	408	**scfh**
Velocity	9.24	**fps**

EMISSION ESTIMATES FOR FLARE

Predictable SS Flare Flows, EPN: FLARE

Flare Control Efficiency:	98%	
Standard Gas Volume:	385	scf/lb-mol
SSM Gas Flow Rate:	200000	scf/hr
SSM Gas Molecular Weight:	32.8	lb/lb-mol
SSM Gas Flow Rate:	17038	lb/hr
Number of Hours SSM:	90	hours per year

Component	SSM Gas Rate lb/hr	SSM Gas Rate ton/yr	Total Stream Wt%
Hydrogen Sulfide	0.177	0.008	0.001%
Nitrogen	83.32	3.75	0.489%
Carbon Dioxide	929.6	41.83	5.46%
Methane	4026	181.15	23.63%
Ethane	2704	121.69	15.87%
Propane	2874	129.34	16.87%
IsoButane	593.3	26.70	3.48%
N-Butane	1700	76.49	9.98%
IsoPentane	734.5	33.05	4.31%
N-Pentane	968.8	43.60	5.69%
n-Hexane	461.7	20.78	2.71%
Benzene	137.3	6.18	0.806%
Toluene	64.23	2.89	0.377%
Ethylbenzene	2.73	0.123	0.016%
Xylene	8.35	0.376	0.049%
Total	**17038**	**767**	**100.0**
Total VOC	**9295**	**418.3**	**54.56**
Total H2S	**0.177**	**0.008**	**0.001**
Total HAP	**674**	**30.3**	**3.96**

* BTEX HAPs are conservatively assumed equal to n-hexane

Component	MW lb/lb-mol	LHV Btu/scf	Total Emissions to Flare scf/hr	scf/yr	MMBtu/hr	MMBtu/yr	Total Emissions from Flare lb/hr	ton/yr
Hydrogen Sulfide	34.08	637	2.00	180.0	1.3E-03	0.115	0.004	1.6E-04
Nitrogen	28.01	0	1150	103000	0	0	1.67	0.075
Carbon Dioxide	44.01	0	8130	732000	0	0	18.59	0.837
Methane	16.04	909	96600	8700000	87.80	7910	80.51	3.62
Ethane	30.07	1618	34600	3120000	56.00	5050	54.09	2.43
Propane	44.1	2316	25100	2260000	58.10	5230	57.49	2.59
IsoButane	58.12	3011	3930	354000	11.80	1070	11.87	0.534
N-Butane	58.12	3011	11300	1010000	34.00	3040	33.99	1.530
IsoPentane	72.15	3707	3920.0	353000	14.50	1310	14.69	0.661
N-Pentane	72.15	3707	5170.0	465000	19.20	1720	19.38	0.872
n-Hexane	86.18	4404	2060	186000	9.07	819	9.23	0.416
Benzene	78.11	3591	677	60900	2.43	219.0	2.75	0.124
Toluene	92.14	4274	268	24200	1.15	103.0	1.28	0.058
Ethylbenzene	106.17	4971	10	890	0.05	4.4	0.055	0.002
Xylene	106.17	4957	30	2720	0.15	13.5	0.167	0.008
Total	--	**1641**	**200197**	**18023890**	**328.55**	**29579**	**340.8**	**15.33**
Total VOC	--	--	--	--	--	--	**185.9**	**8.37**
Total H2S	--	--	--	--	--	--	**0.004**	**1.6E-04**
Total HAP	--	--	--	--	--	--	**13.49**	**0.607**

Component	Emission Factor		Emissions from Flare lb/hr	ton/yr
NOx	0.138	lb/MMBtu*	45.34	2.04
CO	0.5496	lb/MMBtu*	180.6	8.13
SO2	Material balance		0.354	1.55

* Most conservative of the high- or low-Btu emission factors for non-steam assisted flares from TCEQ's October 2000 "Flares and Vapor Oxidizers" guidance document.

Flare Parameters

LHV of Flared Gas	1641	**Btu/scf**
Flared Gas Flow Rate	200197	**scf/hr**
Flared Gas Vapor Molecular Weight	32.8	**lb/lb-mol**
H2S in Flared Gas	0.177	**lb/hr**

Flare Heat Release

[(1641 Btu/scf)(200200scfh)]
= 328,550,470 Btu/hr

Q_{SO2} = 0.53 * 10^5 * SO_2 emission rate in lb/hr
18766 Btu/hr

Is the heat release greater than or equal to Q_{SO2}? Yes

Flare Height = **20 ft**

Flare Tip Velocity

Flare Tip Diameter	4	**inch**
Flare Tip Area	0.087	**sq ft**
Flared Gas Flow Rate	200197	**scfh**
Velocity	637.25	**fps**

Engine Emissions Calculator
CAT G3516B LE, EPN ENG-1 thru ENG-6

INPUT DATA

Engine Manufacturer and Model No.	CAT G3516B LE (Uncontrolled)
Facility Identification Number (FIN)	ENG-1 thru ENG-6
Emission Point Number (EPN)	ENG-1 thru ENG-6
Control Identification Number (CIN)	
UTM Zone	
UTM Easting (m)	
UTM Northing (m)	

ENGINE DATA

Design Horsepower (hp)	1380
Operating Horsepower (hp)	1380
Fuel Consumption (Btu/hp-hr)	7301
Stack Diameter (ft)	1.33
Stack Height (ft)	20
Exit Temperature °F	1012
Operating Schedule (hr/yr)	8760
Engine Type (2 cycle or 4 cycle)	4 cycle
Rich or Lean Burn (rich/lean)	Lean
NO_x Catalytic Converter (yes/no)	No
Oxidative Catalytic Converter (CO, VOC, Formaldehyde Control) (yes/no)	Yes

EMISSION FACTORS

Source of Emission Factors			
Emission Factor Basis (% load)	100		
NO_x Emission Factor (g/hp-hr)	0.63		
CO Emission Factor (g/hp-hr)	3.06		
VOC Emission Factor (g/hp-hr)	1.12		
SO_2 Emission Factor (gr total sulfur/100 scf fuel gas)	29		
PM Emission Factor (g/hp-hr)	0.033		
n-Hexane Emission Factor (g/hp-hr)	0.004		
Formaldehyde Emission Factor (g/hp-hr)	0.380		
Benzene Emission Factor (g/hp-hr)	0.002		
Toluene Emission Factor (g/hp-hr)	0.001		
Ethylbenzene Emission Factor (g/hp-hr)	0.0001		
Xylene Emission Factor (g/hp-hr)	0.0006		

PROCESS AIR DATA

Air-to-Fuel Ratio (lb/lb)	24

If no air-to-fuel ratio is entered, the calculated stoichiometric air-to-fuel ratio will be used in the calculations.

FUEL GAS BASIS

Basis of Heating Value Specified for Firing Capacity (LHV/HHV):	LHV

(LHV - Lower Heating Value, HHV - Higher Heating Value)

MISCELLANEOUS BASIS

Horsepower (hp) is the same as brake horsepower (bhp).
All calculations are based on the standard conditions of 60°F and 1 atm.

NOTES

CO, VOC, and Formaldehyde emission factors are from the Gas Engine Rating Pro engine spec sheet.
NOx is from the Gas Engine Rating Pro engine spec sheet and adds a 25% safety factor. VOC emission factor does not include Formaldehyde.
The PM, n-Hexane, Benzene, Toluene, Ethylbenzene, and Xylene emission factors are from AP-42, Table 3.2-2, July 2000.
Example calculation:
PM factor from AP-42, Table 3.2-2 for filterable condition [(.0000771+.00991 lb/MMBtu)*(7301 Btu/hp-hr)*(454 g/lb)/(10^6) = 0.033 g/hp-hr]
Benzene factor from AP-42, Table 3.2-2 for filterable+cond. [(0.00044 lb/MMBtu)*(7301 Btu/hp-hr)*(454 g/lb)/(10^6) = 0.002 g/hp-hr]
SO2 emission factor conservatively estimated as 29 gr/100 dscf.

INPUT DATA CONTINUED (CAT G3516B LE, EPN ENG-1 thru ENG-6)

NATURAL GAS FIRING FUEL DATA

Fuel Gas Composition				Pure Component Data			Fuel Gas Component Data		
			(A)	(B)	(C)	(D)	(A) X (B)	(A) X (C)	(A) X (D)
			Mole	Molecular Weight	HHV *	LHV *	lb/lb-mol	Btu (HHV) per scf	Btu (LHV) per scf
Formula	Name	Mole %	Fraction	(lb/lb-mol)	(Btu/scf)	(Btu/scf)	Fuel Gas	Fuel Gas	Fuel Gas
CH4	Methane	48.24	0.4824	16.04	1012	911	7.74	488.19	439.47
C2H6	Ethane	17.29	0.1729	30.07	1773	1622	5.20	306.55	280.44
C3H8	Propane	12.53	0.1253	44.09	2524	2322	5.52	316.26	290.95
C4H10	n-Butane	5.62	0.0562	58.12	3271	3018	3.27	183.83	169.61
i-C4H10	Isobutane	1.96	0.0196	58.12	3261	3009	1.14	63.92	58.98
n-C5H12	n-Pentane	2.58	0.0258	72.15	4020	3717	1.86	103.72	95.90
i-C5H12	Isopentane	1.96	0.0196	72.15	4011	3708	1.41	78.62	72.68
C6H14	n-Hexane	2.91	0.0291	86.17	4768	4415	2.51	138.75	128.48
C7H16	n-Heptane	1.79	0.0179	100.20	5503	5100	1.79	98.50	91.29
C6H6	Benzene	0.34	0.0034	78.11	3752	3601	0.27	12.76	12.24
C7H8	Toluene	0.13	0.0013	92.13	4486	4285	0.12	5.83	5.57
C8H10	Xylene	0.02	0.0002	106.16	5230	4980	0.02	1.05	1.00
H2S	Hydrogen Sulfide	0.001	0.00001	34.08	646	595	0.0003	0.01	0.01
N2	Nitrogen	0.57	0.0057	28.01	0	0	0.16	0.00	0.00
CO2	Carbon Dioxide	4.06	0.0406	44.01	0	0	1.79	0.00	0.00
TOTAL		100.	1.				32.8	1798	1647

From Salado Draw 19 CTB Final, K-740A Flash Gas Compressor No. 3 Date Sampled: 07/20/2021. H2S conservatively estimated to be 0.001%.

* HHV/LHV data are from *Steam, Its Generation and Use* (Babcock & Wilcox, 1972); HHV/LHV data for C7H16 are from Engineering *Data Book* (Gas Processors Suppliers Association, Ninth Edition, as revised 1979).

FUEL FLOW RATE CALCULATIONS

Using the fuel gas molecular weight of 32.80 lb/lb-mol and a heating value of 1646.62 Btu/scf (based on LHV), the fuel flow rate is calculated as follows:

$$\text{Fuel Flow} = \frac{(1380\ \text{hp})(7301\ \text{Btu/hp-hr})(32.8\ \text{lb/lb-mol})}{(379\ \text{scf fuel/lb-mol})(1646.62\ \text{Btu/scf fuel})} = 530\ \text{lb fuel/hr}$$

$$= \frac{(530\ \text{lb fuel/hr})}{(32.8\ \text{lb fuel/lb-mol})} = 16.2\ \text{lbmol/hr}$$

$$= \frac{(530\ \text{lb fuel/hr})(379\ \text{scf/lb-mol})}{(32.8\ \text{lb fuel/lb-mol})} = 6120\ \text{scf/hr}$$

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

STOICHIOMETRIC CALCULATIONS

Assuming complete combustion, the combustion products are determined as follows:

Fuel Composition and Flow Rate				Stoichiometric Oxygen Requirement		Stoichiometric Carbon Dioxide Production		Stoichiometric Water Production	
Formula	Mole %	(A) Mole Fraction	(B)* Flow Rate lb-mol/hr	(C) lb-mol/ lb-mol fuel	(B) X (C) lb-mol/hr	(D) lb-mol/ lb-mol fuel	(B) X (D) lb-mol/hr	(E) lb-mol/ lb-mol fuel	(B) X (E) lb-mol/hr
CH4	48.24	0.4824	7.815	2.0	15.630	1.0	7.815	2.0	15.630
C2H6	17.29	0.1729	2.801	3.5	9.804	2.0	5.602	3.0	8.403
C3H8	12.53	0.1253	2.030	5.0	10.150	3.0	6.090	4.0	8.120
C4H10	5.62	0.0562	0.910	6.5	5.915	4.0	3.640	5.0	4.550
i-C4H10	1.96	0.0196	0.318	6.5	2.067	4.0	1.272	5.0	1.590
n-C5H12	2.58	0.0258	0.418	8.0	3.344	5.0	2.090	6.0	2.508
i-C5H12	1.96	0.0196	0.318	8.0	2.544	5.0	1.590	6.0	1.908
C5H12	0.00	0.0000	0.000	8.0	0.000	5.0	0.000	6.0	0.000
C6H14	2.91	0.0291	0.471	9.5	4.475	6.0	2.826	7.0	3.297
C7H16	1.79	0.0179	0.290	11.0	3.190	7.0	2.030	8.0	2.320
C6H6	0.34	0.0034	0.055	7.5	0.413	6.0	0.330	3.0	0.165
C7H8	0.13	0.0013	0.021	9.0	0.189	7.0	0.147	4.0	0.084
C8H10	0.02	0.0002	0.003	10.5	0.032	8.0	0.024	5.0	0.015
H2S	0.001	0.00001	0.0002	1.5	0.0002	0.0	0.000	1.0	0.0002
N2	0.57	0.0057	0.092	0.0	0.000	0.0	0.000	0.0	0.000
CO2	4.06	0.0406	0.658	0.0	0.000	0.0	0.000	0.0	0.000
TOTAL	100.00	1.0000	16.2		57.75		33.5		48.6

* (B) = (A) X (16.2 lb-mol/hr)

Sample calculation for CH4 fuel flow rate:

CH4 Fuel Flow Rate = (16.2 lb-mol fuel/hr)(0.4824 lb-mol CH4/lb-mol fuel) = 7.81 lb-mol/hr

The stoichiometric air-to-fuel ratio can be determined as follows:

$$\text{Air/Fuel (by weight)} = \frac{(57.75 \text{ lb-mol } O_2/\text{hr})(29 \text{ lb/lb-mol air})}{(16.2 \text{ lb-mol fuel/hr})(0.21 \text{ lb-mol } O_2/\text{lb-mol air})(32.8 \text{ lb/lb-mol fuel})} = 15 \text{ lb air/ lb fuel}$$

The air-to-fuel ratio data supplied by the manufacturer will be used in the remaining calculations unless the calculated stoichiometric air-to-fuel ratio is higher. If the calculated stoichiometric air-to-fuel ratio is higher, it will be used in the remaining calculations.

Air Flow (Total) = (530 lb/hr fuel) (24 lb air/lb fuel) = 12700 lb/hr air

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

EXHAUST FLOW CALCULATION

From the total fuel combustion products (with excess air), the total exhaust flow rate is determined to be:

N2 Flow (In/Out) = $\frac{(12700 \text{ lb/hr air})(0.79 \text{ lb-mol N2/lb-mol air})}{(29 \text{ lb/lb-mol air})}$ = 346 lb-mol N2/hr

O2 Flow (In) = $\frac{(12700 \text{ lb/hr air})\ (0.21 \text{ lb-mol O2/lb-mol air})}{(29 \text{ lb/lb-mol air})}$ = 92 lb-mol O2/hr

O2 Flow (Out) = (92 lb-mol/hr O2) - (57.75 lb-mol/hr O2) = 34.2 lb-mol O2/hr

Exhaust Components	From Air (lb-mol/hr)	From Fuel (lb-mol/hr)	From Combustion (lb-mol/hr)	Total (lb-mol/hr)	(A) Mole Fraction Wet Basis	(B) Component MW (lb/lb-mol)	(A) X (B) Exhaust MW (lb/lb-mol)	Mole Fraction Dry Basis
Nitrogen	346.00	0.092	0.00	346.09	0.747	28.01	20.92	0.835
Oxygen	92.00	0.000	- 57.75	34.25	0.074	32.00	2.37	0.083
Carbon Dioxide	0.00	0.658	33.46	34.11	0.074	44.01	3.26	0.082
Water	0.00	0.000	48.59	48.59	0.105	18.02	1.89	0.000
TOTAL				463.0	1.000		28.4	1.000

Total Flow = (463.04 lb-mol/hr) (28.44 lb/lb-mol) = 13200 lb/hr

Exhaust Flow = $\frac{(463.04 \text{ lb-mol/hr})(379 \text{ scf/lb-mol})(1472°R \text{ (actual)})}{(60 \text{ min/hr})\ (520°R \text{ (standard)})}$ = 8280 acfm @ 1,012°F

STACK EXIT VELOCITY CALCULATION

Area of Stack = $\frac{\pi D^2}{4}$ = $\frac{(3.1416)(1.33 \text{ ft})^2}{4}$ = 1.4 ft²

Stack Velocity = $\frac{(8280 \text{ ft}^3/\text{min})}{(1.4 \text{ ft}^2)\ (60 \text{ sec/min})}$ = 98.6 ft/sec

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

EMISSION RATE CALCULATIONS

The short-term emission rates are based on a combination of the emission factor and corresponding load that provides the peak emission rate. The long-term emission rates are based on the emission factors for 100% load.

	Short-Term		Long-Term	
Component	Factors	Basis	Factors	Basis
NOx	0.625 g/hp-hr	100 % load	0.625 g/hp-hr	100 % load
CO	3.06 g/hp-hr	100 % load	3.06 g/hp-hr	100 % load
VOC	1.12 g/hp-hr	100 % load	1.12 g/hp-hr	100 % load
SO2	29 gr S/100 scf	100 % load	29 gr S/100 scf	100 % load
PM	0.033 g/hp-hr	100 % load	0.033 g/hp-hr	100 % load
n-Hexane	0.00368 g/hp-hr	100 % load	0.00368 g/hp-hr	100 % load
Formaldehyde	0.38 g/hp-hr	100 % load	0.38 g/hp-hr	100 % load
Benzene	0.0015 g/hp-hr	100 % load	0.0015 g/hp-hr	100 % load
Toluene	0.00135 g/hp-hr	100 % load	0.00135 g/hp-hr	100 % load
Ethylbenzene	0.0001316 g/hp-hr	100 % load	0.0001316 g/hp-hr	100 % load
Xylene	0.00061 g/hp-hr	100 % load	0.00061 g/hp-hr	100 % load

The following emission rate calculations are based on the operating hp data.

NOx :

Short-term = $\frac{(1380\ hp)(0.625\ g\ NOx/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 1.9 lb/hr

Long-term = $\frac{(1380\ hp)(0.625\ g\ NOx/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 8.32 tons/yr

CO:

Short-term = $\frac{(1380\ hp)(3.06\ g\ CO/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 9.3 lb/hr

Long-term = $\frac{(1380\ hp)(3.06\ g\ CO/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 40.7 tons/yr

VOC:

Short-term = $\frac{(1380\ hp)(1.12\ g\ VOC/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 3.4 lb/hr

Long-term = $\frac{(1380\ hp)(1.12\ g\ VOC/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 14.9 tons/yr

SO2 : Based on SO2 emission factor

Short-term = $\frac{(29\ gr\ S/100\ scf)(2\ lb\ SO2/lb\ S)(6120\ scf/hr\ fuel)}{(7{,}000\ gr/lb)}$ = 0.507 lb/hr

Long-term = $\frac{(0.507\ lb/hr\ SO2)(8760\ hr/yr)}{(2{,}000\ lb/ton)}$ = 2.22 tons/yr

SO2: Based on H2S content in fuel

Short-term = $\frac{(0.000162\ lb\text{-}mol/hr\ H2S)(34.08\ lb/lb\text{-}mol\ H2S)(64.1\ lb/lb\text{-}mol\ SO2)}{(34.08\ lb/lb\text{-}mol\ H2S)(1\ lb\text{-}mol\ H2S/1\ lb\text{-}mol\ SO2)}$ = 0.0104 lb/hr

Long-term = $\frac{(0.0104\ lb/hr\ SO2)(8760\ hr/yr)}{(2{,}000\ lb/ton)}$ = 0.0456 ton/yr

Since the emission estimates from the SO2 emission factor are greater, they will represent the SO2 emission rates from this source.

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

EMISSION RATE CALCULATIONS CONTINUED

PM :

Short-term = $\frac{(1380\ hp)(0.033\ g\ PM/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 0.1 lb/hr

Long-term = $\frac{(1380\ hp)(0.033\ g\ PM/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 0.441 ton/yr

n-Hexane :

Short-term = $\frac{1380\ hp \mid 0.00368\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g}{100\%}$ = 0.0112 lb/hr

Long-term = $\frac{1380\ hp \mid 0.00368\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g \mid ton/2000\ lb \mid 8760\ hr/yr}{100\%}$ = 0.049 ton/yr

Formaldehyde :

Short-term = $\frac{(1380\ hp)(0.38\ g\ formaldehyde/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 1.16 lb/hr

Long-term = $\frac{(1380\ hp)(0.38\ g\ formaldehyde/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 5.06 tons/yr

Benzene :

Short-term = $\frac{1380\ hp \mid 0.0015\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g}{100\%}$ = 0.0046 lb/hr

Long-term = $\frac{1380\ hp \mid 0.0015\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g \mid ton/2000\ lb \mid 8760\ hr/yr}{100\%}$ = 0.02 ton/yr

Toluene :

Short-term = $\frac{1380\ hp \mid 0.00135\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g}{100\%}$ = 0.0041 lb/hr

Long-term = $\frac{1380\ hp \mid 0.00135\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g \mid ton/2000\ lb \mid 8760\ hr/yr}{100\%}$ = 0.018 ton/yr

Ethylbenzene :

Short-term = $\frac{1380\ hp \mid 0.0001316\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g}{100\%}$ = 0.0004 lb/hr

Long-term = $\frac{1380\ hp \mid 0.0001316\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g \mid ton/2000\ lb \mid 8760\ hr/yr}{100\%}$ = 0.00175 ton/yr

Xylene :

Short-term = $\frac{1380\ hp \mid 0.00061\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g}{100\%}$ = 0.00185 lb/hr

Long-term = $\frac{1380\ hp \mid 0.00061\ g/hp\text{-}hr \mid 100\%\ load \mid lb/454\ g \mid ton/2000\ lb \mid 8760\ hr/yr}{100\%}$ = 0.00812 ton/yr

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

METRIC EMISSION RATES AND STACK PARAMETERS FOR USE IN AIR DISPERSION MODELING

SUMMARY OF EMISSION RATES AND STACK PARAMETERS

	Short-term Emission Rates		Long-term Emission Rates	
Component	(lb/hr)	(g/s)	(tons/yr)	(g/s)
NOx	1.90	0.240	8.32	0.240
NO2	0.76	0.096	3.33	0.096
CO	9.30	1.17	40.7	1.17
VOC	3.40	0.429	14.9	0.429
SO2	0.507	0.0639	2.22	0.064

SAMPLE CALCULATIONS FOR NOx

Short-term = (1.9 lb NOx/hr) (454 g/lb) / (3,600 sec/hr) = 0.24 g/s NOx

Long-term = (8.32 tons/yr) (2,000 lb/ton) (454 g/lb) / (8,760 hr/yr) (3,600 sec/hr) = 0.24 g/s NOx

SAMPLE CALCULATIONS FOR NO2
The NOx/NO2 ratio is from §106.512.

Short-term = (1.9 lb NOx/hr) (454 g/lb)(0.4 g NO2/g NOx) / (3,600 sec/hr) = 0.0958 g/s NO2

Long-term = (8.32 tons NOx/yr)(2,000 lb/ton) (454 g/lb) (0.4 g NO2/g NOx) / (8,760 hr/yr) (3,600 sec/hr) = 0.0959 g/s NO2

CONVERSION CALCULATIONS TO METRIC

Stack Height = (20 ft)(0.3048 m/ft) = 6.1 m

Stack Diameter = (1.33333333333333 ft)(0.3048 m/ft) = 0.406 m

Stack Exit Vel. = (98.6 ft/sec) (0.3048 m/ft) = 30.1 m/s

Stack Exit Temp. = (1012 - 32)°F (1 ΔK/1 Δ°C) / 1.8°F/°C + 273.16 K = 818 K

PROPERTIES USED IN EMISSIONS INVENTORIES

Engine Design Capacity = (1380 hp)(7301 Btu/hp-hr) / (1,000,000/MM) = 10.10 MM Btu/hr

Annual Process Rate = (6120 scf/hr) (8760 hr/yr) / (1,000,000/MM) = 53.6 MM scf/yr

Percentage of Max. Emissions Potential = (1380 hp-operating) (8760 hr/yr-operating) (100%) / (1380 hp-design) (8760 hr/yr-potential) = 100 %

Engine Emissions Calculator
CAT G3516B LE, EPN ENG-1 thru ENG-6

INPUT DATA

Engine Manufacturer and Model No.	CAT G3516B LE	Controlled, 2 elements
Facility Identification Number (FIN)	ENG-1 thru ENG-6	
Emission Point Number (EPN)	ENG-1 thru ENG-6	
Control Identification Number (CIN)		
UTM Zone		
UTM Easting (m)		
UTM Northing (m)		

ENGINE DATA

Design Horsepower (hp)	1380
Operating Horsepower (hp)	1380
Fuel Consumption (Btu/hp-hr)	7301
Stack Diameter (ft)	1.33
Stack Height (ft)	20
Exit Temperature °F	1012
Operating Schedule (hr/yr)	8760
Engine Type (2 cycle or 4 cycle)	4 cycle
Rich or Lean Burn (rich/lean)	Lean
NO_x Catalytic Converter (yes/no)	No
Oxidative Catalytic Converter (CO, VOC, Formaldehyde Control) (yes/no)	Yes

EMISSION FACTORS

Source of Emission Factors			
Emission Factor Basis (% load)	100		
NO_x Emission Factor (g/hp-hr)	0.63		
CO Emission Factor (g/hp-hr)	0.26		
VOC Emission Factor (g/hp-hr)	0.62		
SO_2 Emission Factor (gr total sulfur/100 scf fuel gas)	29		
PM Emission Factor (g/hp-hr)	0.033		
n-Hexane Emission Factor (g/hp-hr)	0.004		
Formaldehyde Emission Factor (g/hp-hr)	0.093		
Benzene Emission Factor (g/hp-hr)	0.002		
Toluene Emission Factor (g/hp-hr)	0.001		
Ethylbenzene Emission Factor (g/hp-hr)	0.0001		
Xylene Emission Factor (g/hp-hr)	0.0006		

PROCESS AIR DATA

Air-to-Fuel Ratio (lb/lb): 24

If no air-to-fuel ratio is entered, the calculated stoichiometric air-to-fuel ratio will be used in the calculations.

FUEL GAS BASIS

Basis of Heating Value Specified for Firing Capacity (LHV/HHV): LHV

(LHV - Lower Heating Value, HHV - Higher Heating Value)

MISCELLANEOUS BASIS

Horsepower (hp) is the same as brake horsepower (bhp).
All calculations are based on the standard conditions of 60°F and 1 atm.

NOTES

NO_X, CO, VOC and HCHO emission factors are expected post-catalyst (2 elements) performance.
The safety factor added for NOx, CO, and HCHO is 25%. No safety factor was added for VOC.
The post-control emission factors meet the NSPS JJJJ emission factor requirements.
VOC emission factor does not include formaldehyde.
The PM, n-Hexane, Benzene, Toluene, Ethylbenzene, and Xylene emission factors are from AP-42, Table 3.2-2, July 2000.
Example calculation:
PM factor from AP-42, Table 3.2-2 for filterable condition [(.0000771+.00991 lb/MMBtu)*(7301 Btu/hp-hr)*(454 g/lb)/(10^6) = 0.033 g/hp-hr]
Benzene factor from AP-42, Table 3.2-2 for filterable+cond. [(0.00044 lb/MMBtu)*(1012 Btu/hp-hr)*(454 g/lb)/(10^6) = 0.002 g/hp-hr]
SO2 emission factor conservatively estimated as 29 gr/100 dscf.

INPUT DATA CONTINUED (CAT G3516B LE, EPN ENG-1 thru ENG-6)

NATURAL GAS FIRING FUEL DATA

Fuel Gas Composition				Pure Component Data			Fuel Gas Component Data		
Formula	Name	Mole %	(A) Mole Fraction	(B) Molecular Weight (lb/lb-mol)	(C) HHV * (Btu/scf)	(D) LHV * (Btu/scf)	(A) X (B) lb/lb-mol Fuel Gas	(A) X (C) Btu (HHV) per scf Fuel Gas	(A) X (D) Btu (LHV) per scf Fuel Gas
CH4	Methane	48.24	0.4824	16.04	1012	911	7.74	488.19	439.47
C2H6	Ethane	17.29	0.1729	30.07	1773	1622	5.20	306.55	280.44
C3H8	Propane	12.53	0.1253	44.09	2524	2322	5.52	316.26	290.95
C4H10	n-Butane	5.62	0.0562	58.12	3271	3018	3.27	183.83	169.61
i-C4H10	Isobutane	1.96	0.0196	58.12	3261	3009	1.14	63.92	58.98
n-C5H12	n-Pentane	2.58	0.0258	72.15	4020	3717	1.86	103.72	95.90
i-C5H12	Isopentane	1.96	0.0196	72.15	4011	3708	1.41	78.62	72.68
C6H14	n-Hexane	2.91	0.0291	86.17	4768	4415	2.51	138.75	128.48
C7H16	n-Heptane	1.79	0.0179	100.20	5503	5100	1.79	98.50	91.29
C6H6	Benzene	0.34	0.0034	78.11	3752	3601	0.27	12.76	12.24
C7H8	Toluene	0.13	0.0013	92.13	4486	4285	0.12	5.83	5.57
C8H10	Xylene	0.02	0.0002	106.16	5230	4980	0.02	1.05	1.00
H2S	Hydrogen Sulfide	0.001	0.00001	34.08	646	595	0.0003	0.01	0.01
N2	Nitrogen	0.57	0.0057	28.01	0	0	0.16	0.00	0.00
CO2	Carbon Dioxide	4.06	0.0406	44.01	0	0	1.79	0.00	0.00
TOTAL		100.	1.				32.8	1798	1647

From Salado Draw 19 CTB Final, K-740A Flash Gas Compressor No. 3 Date Sampled: 07/20/2021. H2S conservatively estimated to be 0.001%.
* HHV/LHV data are from *Steam, Its Generation and Use* (Babcock & Wilcox, 1972); HHV/LHV data for C7H16 are from Engineering *Data Book* (Gas Processors Suppliers Association, Ninth Edition, as revised 1979).

FUEL FLOW RATE CALCULATIONS

Using the fuel gas molecular weight of 32.80 lb/lb-mol and a heating value of 1646.62 Btu/scf (based on LHV), the fuel flow rate is calculated as follows:

$$\text{Fuel Flow} = \frac{(1380\ \text{hp})(7301\ \text{Btu/hp-hr})(32.8\ \text{lb/lb-mol})}{(379\ \text{scf fuel/lb-mol})(1646.62\ \text{Btu/scf fuel})} = 530\ \text{lb fuel/hr}$$

$$= \frac{(530\ \text{lb fuel/hr})}{(32.8\ \text{lb fuel/lb-mol})} = 16.2\ \text{lbmol/hr}$$

$$= \frac{(530\ \text{lb fuel/hr})(379\ \text{scf/lb-mol})}{(32.8\ \text{lb fuel/lb-mol})} = 6120\ \text{scf/hr}$$

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

STOICHIOMETRIC CALCULATIONS

Assuming complete combustion, the combustion products are determined as follows:

Fuel Composition and Flow Rate				Stoichiometric Oxygen Requirement		Stoichiometric Carbon Dioxide Production		Stoichiometric Water Production	
Formula	Mole %	(A) Mole Fraction	(B)* Flow Rate lb-mol/hr	(C) lb-mol/ lb-mol fuel	(B) X (C) lb-mol/hr	(D) lb-mol/ lb-mol fuel	(B) X (D) lb-mol/hr	(E) lb-mol/ lb-mol fuel	(B) X (E) lb-mol/hr
CH4	48.24	0.4824	7.815	2.0	15.630	1.0	7.815	2.0	15.630
C2H6	17.29	0.1729	2.801	3.5	9.804	2.0	5.602	3.0	8.403
C3H8	12.53	0.1253	2.030	5.0	10.150	3.0	6.090	4.0	8.120
C4H10	5.62	0.0562	0.910	6.5	5.915	4.0	3.640	5.0	4.550
i-C4H10	1.96	0.0196	0.318	6.5	2.067	4.0	1.272	5.0	1.590
n-C5H12	2.58	0.0258	0.418	8.0	3.344	5.0	2.090	6.0	2.508
i-C5H12	1.96	0.0196	0.318	8.0	2.544	5.0	1.590	6.0	1.908
C5H12	0.00	0.0000	0.000	8.0	0.000	5.0	0.000	6.0	0.000
C6H14	2.91	0.0291	0.471	9.5	4.475	6.0	2.826	7.0	3.297
C7H16	1.79	0.0179	0.290	11.0	3.190	7.0	2.030	8.0	2.320
C6H6	0.34	0.0034	0.055	7.5	0.413	6.0	0.330	3.0	0.165
C7H8	0.13	0.0013	0.021	9.0	0.189	7.0	0.147	4.0	0.084
C8H10	0.02	0.0002	0.003	10.5	0.032	8.0	0.024	5.0	0.015
H2S	0.001	0.00001	0.0002	1.5	0.0002	0.0	0.000	1.0	0.0002
N2	0.57	0.0057	0.092	0.0	0.000	0.0	0.000	0.0	0.000
CO2	4.06	0.0406	0.658	0.0	0.000	0.0	0.000	0.0	0.000
TOTAL	100.00	1.0000	16.2		57.75		33.5		48.6

* (B) = (A) X (16.2 lb-mol/hr)

Sample calculation for CH4 fuel flow rate:

CH4 Fuel Flow Rate = (16.2 lb-mol fuel/hr)(0.4824 lb-mol CH4/lb-mol fuel) = 7.81 lb-mol/hr

The stoichiometric air-to-fuel ratio can be determined as follows:

$$\text{Air/Fuel (by weight)} = \frac{(57.75 \text{ lb-mol } O_2/\text{hr})(29 \text{ lb/lb-mol air})}{(16.2 \text{ lb-mol fuel/hr})(0.21 \text{ lb-mol } O_2/\text{lb-mol air})(32.8 \text{ lb/lb-mol fuel})} = 15 \text{ lb air/ lb fuel}$$

The air-to-fuel ratio data supplied by the manufacturer will be used in the remaining calculations unless the calculated stoichiometric air-to-fuel ratio is higher. If the calculated stoichiometric air-to-fuel ratio is higher, it will be used in the remaining calculations.

Air Flow (Total) = (530 lb/hr fuel) (24 lb air/lb fuel) = 12700 lb/hr air

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

EXHAUST FLOW CALCULATION

From the total fuel combustion products (with excess air), the total exhaust flow rate is determined to be:

N2 Flow (In/Out) = $\frac{(12700 \text{ lb/hr air})(0.79 \text{ lb-mol N2/lb-mol air})}{(29 \text{ lb/lb-mol air})}$ = 346 lb-mol N2/hr

O2 Flow (In) = $\frac{(12700 \text{ lb/hr air})\ (0.21 \text{ lb-mol O2/lb-mol air})}{(29 \text{ lb/lb-mol air})}$ = 92 lb-mol O2/hr

O2 Flow (Out) = (92 lb-mol/hr O2) - (57.75 lb-mol/hr O2) = 34.2 lb-mol O2/hr

Exhaust Components	From Air (lb-mol/hr)	From Fuel (lb-mol/hr)	From Combustion (lb-mol/hr)	Total (lb-mol/hr)	(A) Mole Fraction Wet Basis	(B) Component MW (lb/lb-mol)	(A) X (B) Exhaust MW (lb/lb-mol)	Mole Fraction Dry Basis
Nitrogen	346.00	0.092	0.00	346.09	0.747	28.01	20.92	0.835
Oxygen	92.00	0.000	- 57.75	34.25	0.074	32.00	2.37	0.083
Carbon Dioxide	0.00	0.658	33.46	34.11	0.074	44.01	3.26	0.082
Water	0.00	0.000	48.59	48.59	0.105	18.02	1.89	0.000
TOTAL				463.0	1.000		28.4	1.000

Total Flow = (463.04 lb-mol/hr) (28.44 lb/lb-mol) = 13200 lb/hr

Exhaust Flow = $\frac{(463.04 \text{ lb-mol/hr})(379 \text{ scf/lb-mol})(1472°R \text{ (actual)})}{(60 \text{ min/hr})\ (520°R \text{ (standard)})}$ = 8280 acfm @ 1,012°F

STACK EXIT VELOCITY CALCULATION

Area of Stack = $\frac{\pi D^2}{4}$ = $\frac{(3.1416)(1.33 \text{ ft})^2}{4}$ = 1.4 ft²

Stack Velocity = $\frac{(8280 \text{ ft}^3/\text{min})}{(1.4 \text{ ft}^2)\ (60 \text{ sec/min})}$ = 98.6 ft/sec

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

EMISSION RATE CALCULATIONS

The short-term emission rates are based on a combination of the emission factor and corresponding load that provides the peak emission rate. The long-term emission rates are based on the emission factors for 100% load.

	Short-Term		Long-Term	
Component	Factors	Basis	Factors	Basis
NOx	0.625 g/hp-hr	100 % load	0.625 g/hp-hr	100 % load
CO	0.2625 g/hp-hr	100 % load	0.2625 g/hp-hr	100 % load
VOC	0.62 g/hp-hr	100 % load	0.62 g/hp-hr	100 % load
SO2	29 gr S/100 scf	100 % load	29 gr S/100 scf	100 % load
PM	0.033 g/hp-hr	100 % load	0.033 g/hp-hr	100 % load
Formaldehyde	0.0925 g/hp-hr	100 % load	0.0925 g/hp-hr	100 % load
Benzene	0.0015 g/hp-hr	100 % load	0.0015 g/hp-hr	100 % load
Toluene	0.00135 g/hp-hr	100 % load	0.00135 g/hp-hr	100 % load
Ethylbenzene	0.0001316 g/hp-hr	100 % load	0.0001316 g/hp-hr	100 % load
Xylene	0.00061 g/hp-hr	100 % load	0.00061 g/hp-hr	100 % load

The following emission rate calculations are based on the operating hp data.

NOx :

Short-term = $\frac{(1380\ hp)(0.625\ g\ NOx/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 1.9 lb/hr

Long-term = $\frac{(1380\ hp)(0.625\ g\ NOx/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 8.32 tons/yr

CO:

Short-term = $\frac{(1380\ hp)(0.2625\ g\ CO/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 0.798 lb/hr

Long-term = $\frac{(1380\ hp)(0.2625\ g\ CO/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 3.49 tons/yr

VOC:

Short-term = $\frac{(1380\ hp)(0.62\ g\ VOC/hp\text{-}hr)(100\%\ load)}{(100\%)(454\ g/lb)}$ = 1.88 lb/hr

Long-term = $\frac{(1380\ hp)(0.62\ g\ VOC/hp\text{-}hr)(100\%\ load)(8760\ hr/yr)}{(100\%)(454\ g/lb)(2{,}000\ lb/ton)}$ = 8.25 tons/yr

SO2 : Based on SO2 emission factor

Short-term = $\frac{(29\ gr\ S/100\ scf)(2\ lb\ SO2/lb\ S)(6120\ scf/hr\ fuel)}{(7{,}000\ gr/lb)}$ = 0.507 lb/hr

Long-term = $\frac{(0.507\ lb/hr\ SO2)(8760\ hr/yr)}{(2{,}000\ lb/ton)}$ = 2.22 tons/yr

SO2: Based on H2S content in fuel

Short-term = $\frac{(0.000162\ lb\text{-}mol/hr\ H2S)(34.08\ lb/lb\text{-}mol\ H2S)(64.1\ lb/lb\text{-}mol\ SO2)}{(34.08\ lb/lb\text{-}mol\ H2S)(1\ lb\text{-}mol\ H2S/1\ lb\text{-}mol\ SO2)}$ = 0.0104 lb/hr

Long-term = $\frac{(0.0104\ lb/hr\ SO2)(8760\ hr/yr)}{(2{,}000\ lb/ton)}$ = 0.0456 ton/yr

Since the emission estimates from the SO2 emission factor are greater, they will represent the SO2 emission rates from this source.

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

EMISSION RATE CALCULATIONS CONTINUED

PM :

Short-term = (1380 hp) (0.033 g PM/hp-hr) (100% load) / (100%) (454 g/lb) = 0.1 lb/hr

Long-term = (1380 hp) (0.033 g PM/hp-hr) (100% load) (8760 hr/yr) / (100%) (454 g/lb)(2,000 lb/ton) = 0.441 ton/yr

n-Hexane :

Short-term = 1380 hp × 0.0036 g / hp-hr × 100 % load / 100 % × lb / 454 g = 0.0109 lb/hr

Long-term = 1380 hp × 0.0036 g / hp-hr × 100 % load / 100 % × lb / 454 g × ton / 2000 lb × 8760 hr / yr = 0.0479 ton/yr

Formaldehyde :

Short-term = (1380 hp) (0.0925 g formaldehyde/hp-hr) (100% load) / (100%) (454 g/lb) = 0.281 lb/hr

Long-term = (1380 hp)(0.0925 g formaldehyde/hp-hr)(100% load)(8760 hr/yr) / (100%) (454 g/lb)(2,000 lb/ton) = 1.23 tons/yr

Benzene :

Short-term = 1380 hp × 0.0015 g / hp-hr × 100 % load / 100 % × lb / 454 g = 0.0046 lb/hr

Long-term = 1380 hp × 0.0015 g / hp-hr × 100 % load / 100 % × lb / 454 g × ton / 2000 lb × 8760 hr / yr = 0.02 ton/yr

Toluene :

Short-term = 1380 hp × 0.00135 g / hp-hr × 100 % load / 100 % × lb / 454 g = 0.0041 lb/hr

Long-term = 1380 hp × 0.00135 g / hp-hr × 100 % load / 100 % × lb / 454 g × ton / 2000 lb × 8760 hr / yr = 0.018 ton/yr

Ethylbenzene :

Short-term = 1380 hp × 0.0001316 g / hp-hr × 100 % load / 100 % × lb / 454 g = 0.0004 lb/hr

Long-term = 1380 hp × 0.0001316 g / hp-hr × 100 % load / 100 % × lb / 454 g × ton / 2000 lb × 8760 hr / yr = 0.00175 ton/yr

Xylene :

Short-term = 1380 hp × 0.00061 g / hp-hr × 100 % load / 100 % × lb / 454 g = 0.00185 lb/hr

Long-term = 1380 hp × 0.00061 g / hp-hr × 100 % load / 100 % × lb / 454 g × ton / 2000 lb × 8760 hr / yr = 0.00812 ton/yr

ENGINE CALCULATIONS (CAT G3516B LE, EPN ENG-1 thru ENG-6)

METRIC EMISSION RATES AND STACK PARAMETERS FOR USE IN AIR DISPERSION MODELING

SUMMARY OF EMISSION RATES AND STACK PARAMETERS

	Short-term Emission Rates		Long-term Emission Rates	
Component	(lb/hr)	(g/s)	(tons/yr)	(g/s)
NOx	1.90	0.240	8.32	0.240
NO2	0.76	0.096	3.33	0.096
CO	0.80	0.101	3.49	0.100
VOC	1.88	0.237	8.25	0.238
SO2	0.51	0.0639	2.22	0.064

SAMPLE CALCULATIONS FOR NOx

Short-term = $\frac{(1.9 \text{ lb NOx/hr})(454 \text{ g/lb})}{(3{,}600 \text{ sec/hr})}$ = 0.24 g/s NOx

Long-term = $\frac{(8.32 \text{ tons/yr})(2{,}000 \text{ lb/ton})(454 \text{ g/lb})}{(8{,}760 \text{ hr/yr})(3{,}600 \text{ sec/hr})}$ = 0.24 g/s NOx

SAMPLE CALCULATIONS FOR NO2
The NOx/NO2 ratio is from §106.512.

Short-term = $\frac{(1.9 \text{ lb NOx/hr})(454 \text{ g/lb})(0.4 \text{ g NO2/g NOx})}{(3{,}600 \text{ sec/hr})}$ = 0.0958 g/s NO2

Long-term = $\frac{(8.32 \text{ tons NOx/yr})(2{,}000 \text{ lb/ton})(454 \text{ g/lb})(0.4 \text{ g NO2/g NOx})}{(8{,}760 \text{ hr/yr})(3{,}600 \text{ sec/hr})}$ = 0.0959 g/s NO2

CONVERSION CALCULATIONS TO METRIC

Stack Height = (20 ft)(0.3048 m/ft) = 6.1 m

Stack Diameter = (1.33333333333333 ft)(0.3048 m/ft) = 0.406 m

Stack Exit Vel. = (98.6 ft/sec) (0.3048 m/ft) = 30.1 m/s

Stack Exit Temp. = $\frac{(1012 - 32)°F\ (1\ \Delta K/1\ \Delta °C)}{1.8°F/°C}$ + 273.16 K = 818 K

PROPERTIES USED IN EMISSIONS INVENTORIES

Engine Design Capacity = $\frac{(1380 \text{ hp})(7301 \text{ Btu/hp-hr})}{(1{,}000{,}000/\text{MM})}$ = 10.10 MM Btu/hr

Annual Process Rate = $\frac{(6120 \text{ scf/hr})(8760 \text{ hr/yr})}{(1{,}000{,}000/\text{MM})}$ = 53.6 MM scf/yr

Percentage of Max. Emissions Potential = $\frac{(1380 \text{ hp-operating})(8760 \text{ hr/yr-operating})(100\%)}{(1380 \text{ hp-design})(8760 \text{ hr/yr-potential})}$ = 100 %

Gas Combustion Emissions Calculator

Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3

INPUT DATA

Combustion Unit Description:	Heaters (Heater Treaters and Heated Production Separators)
Facility Identification Number (FIN):	HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3
Emission Point Number (EPN):	HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3
Control Identification Number (CIN):	
UTM Zone:	
UTM Easting (m):	
UTM Northing (m):	

COMBUSTION UNIT DATA

Fuel Gas Firing Capacity, MM Btu/hr:	4
Basis of Heating Value Specified for Firing Capacity (LHV or HHV):	LHV
Excess Air, % (default to 10% if unknown):	10
Stack Exit Temperature, °F:	500
Stack Diameter, ft:	1.5
Stack Height, ft:	20
Annual Operating Schedule, hr/yr (default to 8760 hr/yr if unknown):	8760
Average Firing Rate, % (as percent of firing capacity; default to 100% if unknown):	100
Ambient Temperature, °F (default to 80°F if unknown):	80
Barometric Pressure, psia (default to 14.7 psia if unknown):	14.7
Relative Humidity, % (default to 60% if unknown):	60

EMISSION FACTORS

ENTER ONLY ONE EMISSION FACTOR FOR EACH POLLUTANT FOR EACH TERM
If multiple factors are entered for a pollutant, the leftmost nonzero factor will be used in emission calculations

Short-Term Emission Factors

Pollutant	Formula	lb/MM Btu (HHV)	lb/MM Btu (LHV)	ppmvd in Stack Gas @ 5 % O2	lb/hr	Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Grains per 100 dscf Stack Gas	lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Weight % VOC in TOC
Sulfur Dioxide	SO2					29			
Nitrogen Oxides	NOx							100	
Particulate Matter	PM							7.6	
Carbon Monoxide	CO							84	
Total Organics	TOC								
Volatile Organics	VOC							5.5	

Long-Term Emission Factors

Pollutant	Formula	lb/MM Btu (HHV)	lb/MM Btu (LHV)	ppmvd in Stack Gas @ 5 % O2	lb/hr	Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Grains per 100 dscf Stack Gas	lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Weight % VOC in TOC
Sulfur Dioxide	SO2					29			
Nitrogen Oxides	NOx							100	
Particulate Matter	PM							7.6	
Carbon Monoxide	CO							84	
Total Organics	TOC								
Volatile Organics	VOC							5.5	

Note: When entering values in ppmvd for nitrogen oxides and volatile organics, the subsequent calculations presume molecular weights of 46.01 for nitrogen oxides (NO2) and 44.09 for volatile organics (C3H8). The molecular weight for VOC can be changed on Rows 127 and 128. Also, note that the factors in terms of scf presume standard conditions of 1 atm and 60°F. These standard conditions are presumed throughout the calculations

EMISSION FACTOR BASIS

Pollutant	Formula	Source of Short-Term Emission Factors	Source of Long-Term Emission Factors
Sulfur Dioxide	SO2	Sweet gas threshold	Sweet gas threshold
Nitrogen Oxides	NOx	Table 1.4-1, AP-42 (July 1998)	Table 1.4-1, AP-42 (July 1998)
Particulate Matter	PM	Table 1.4-2, AP-42 (July 1998)	Table 1.4-2, AP-42 (July 1998)
Carbon Monoxide	CO	Table 1.4-1, AP-42 (July 1998)	Table 1.4-1, AP-42 (July 1998)
Total Organics	TOC		
Volatile Organics	VOC	Table 1.4-2, AP-42 (July 1998)	Table 1.4-2, AP-42 (July 1998)

Volatile Organics Calculated-As Basis

Compound:	C3H8	(CH4, C2H6, C3H8, etc.)
Molecular Weight	44.09	(lb / lb-mol)

INPUT DATA CONTINUED (Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3)

FUEL DATA

Fuel Gas Composition				Pure Component Data			Fuel Gas Component Data		
Formula	Name	Mole %	(A) Mole Fraction	(B) Molecular Weight (lb/lb-mol)	(C) HHV * (Btu/scf)	(D) LHV * (Btu/scf)	(A) X (B) lb/lb-mol Fuel Gas	(A) X (C) Btu (HHV) per scf Fuel Gas	(A) X (D) Btu (LHV) per scf Fuel Gas
CH4	Methane	48.24	0.4824	16.04	1012	911	7.74	488.19	439.47
C2H6	Ethane	17.29	0.1729	30.07	1773	1622	5.20	306.55	280.44
C3H8	Propane	12.53	0.1253	44.09	2524	2322	5.52	316.26	290.95
C4H10	n-Butane	5.62	0.0562	58.12	3271	3018	3.27	183.83	169.61
i-C4H10	Isobutane	1.96	0.0196	58.12	3261	3009	1.14	63.92	58.98
n-C5H12	n-Pentane	2.58	0.0258	72.15	4020	3717	1.86	103.72	95.90
i-C5H12	Isopentane	1.96	0.0196	72.15	4011	3708	1.41	78.62	72.68
C6H14	n-Hexane	2.91	0.0291	86.17	4768	4415	2.51	138.75	128.48
C7H16	n-Heptane	1.79	0.0179	100.20	5503	5100	1.79	98.50	91.29
C6H6	Benzene	0.34	0.0034	78.11	3752	3601	0.27	12.76	12.24
C7H8	Toluene	0.13	0.0013	92.13	4486	4285	0.12	5.83	5.57
C8H10	Xylene	0.02	0.0002	106.16	5230	4980	0.02	1.05	1.00
H2S	Hydrogen Sulfide	0.001	0.00001	34.08	646	595	0.0003	0.01	0.01
N2	Nitrogen	0.57	0.0057	28.01	0	0	0.16	0.00	0.00
CO2	Carbon Dioxide	4.06	0.0406	44.01	0	0	1.79	0.00	0.00
TOTAL		100.	1.				32.8	1798.	1647.

* HHV/LHV data are from *Steam, Its Generation and Use* (Babcock & Wilcox, 1972); HHV/LHV data for C7H16 are from Engineering *Data Book* (Gas Processors Suppliers Association, Ninth Edition, as revised 1979).

NOTES

GAS COMBUSTION CALCULATIONS (Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3)

FUEL FLOW RATE CALCULATIONS

	LHV	HHV
Fuel Gas Firing Capacity, MM Btu/hr:	4	4.4

(4 MM Btu/hr) (1,000,000 Btu/MM Btu) (1 scf/1647 Btu) (lb-mol/379 scf) = 6.41 lb-mol/hr
(6.41 lb-mol/hr) (32.8 lb/lb-mol) = 210 lb/hr
(6.41 lb-mol/hr) (379 scf/lb-mol) = 2430 scfh @ 60°F
(2430 scfh) (hr/60 min) = 40.5 scfm @ 60°F
(2430 scfh) (100% - 0% dscf) / (100% scf) = 2430 dscfh @ 60°F
(6.41 lb-mol/hr) (387 scf @ 70°F/lb-mol) = 2480 scfh @ 70°F
(2480 scfh) (hr/60 min) = 41.3 scfm @ 70°F

STOICHIOMETRIC CALCULATIONS

Assuming complete combustion, the combustion products are determined as follows:

Fuel Composition and Flow Rate				Stoichiometric Oxygen Requirement		Stoichiometric Carbon Dioxide Production		Stoichiometric Water Production	
Formula	Mole %	(A) Mole Fraction	(B)* Flow Rate lb-mol/hr	(C) lb-mol/ lb-mol fuel	(B) X (C) lb-mol/hr	(D) lb-mol/ lb-mol fuel	(B) X (D) lb-mol/hr	(E) lb-mol/ lb-mol fuel	(B) X (E) lb-mol/hr
CH4	48.24	0.4824	3.092	2.0	6.184	1.0	3.092	2.0	6.184
C2H6	17.29	0.1729	1.108	3.5	3.878	2.0	2.216	3.0	3.324
C3H8	12.53	0.1253	0.803	5.0	4.015	3.0	2.409	4.0	3.212
C4H10	5.62	0.0562	0.360	6.5	2.340	4.0	1.440	5.0	1.800
i-C4H10	1.96	0.0196	0.126	6.5	0.819	4.0	0.504	5.0	0.630
n-C5H12	2.58	0.0258	0.165	8.0	1.320	5.0	0.825	6.0	0.990
i-C5H12	1.96	0.0196	0.126	8.0	1.008	5.0	0.630	6.0	0.756
C5H12	0.00	0.0000	0.000	8.0	0.000	5.0	0.000	6.0	0.000
C6H14	2.91	0.0291	0.187	9.5	1.777	6.0	1.122	7.0	1.309
C7H16	1.79	0.0179	0.115	11.0	1.265	7.0	0.805	8.0	0.920
C2H4	0.00	0.0000	0.000	3.0	0.000	2.0	0.000	2.0	0.000
C3H6	0.00	0.0000	0.000	4.5	0.000	3.0	0.000	3.0	0.000
C4H8	0.00	0.0000	0.000	6.0	0.000	4.0	0.000	4.0	0.000
i-C4H8	0.00	0.0000	0.000	6.0	0.000	4.0	0.000	4.0	0.000
C5H10	0.00	0.0000	0.000	7.5	0.000	5.0	0.000	5.0	0.000
C6H6	0.34	0.0034	0.022	7.5	0.165	6.0	0.132	3.0	0.066
C7H8	0.13	0.0013	0.008	9.0	0.072	7.0	0.056	4.0	0.032
C8H10	0.02	0.0002	0.001	10.5	0.011	8.0	0.008	5.0	0.005
H2S	0.001	0.00001	0.0001	1.5	0.0001	1.0 (SO2)	0.0001	1.0	0.0001
N2	0.57	0.0057	0.037	0.0	0.000	0.0	0.000	0.0	0.000
CO2	4.06	0.0406	0.260	0.0	0.000	0.0	0.000	0.0	0.000
TOTAL	100.00	1.0000	6.41		22.9		13.2		19.2

* (B) = (A) X (6.41 lb-mol/hr)
Note that for the molar calculations, SO2 is grouped with CO2. This will have a negligible impact on MW and other calculations.

GAS COMBUSTION CALCULATIONS (Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3)

AIR SUPPLY CALCULATION

Oxygen in Supplied Air: (22.9 lb-mol stoichiometric O2/hr) (1.1) = 25.2 lb-mol total O2/hr
= (25.2 lb-mol O2/hr) (32.00 lb/lb-mol) = 806 lb O2/hr

Nitrogen in Supplied Air: (25.2 lb-mol O2/hr) (3.76 lb-mol N2/lb-mol O2 in air) = 94.8 lb-mol total N2/hr
= (94.8 lb-mol N2/hr) (28.01 lb/lb-mol) = 2660 lb N2/hr

Bone-dry (BD) Supplied Air: (25.2 lb-mol O2/hr) + (94.8 lb-mol N2/hr) = 120 lb-mol BD air/hr
= (806 lb O2/hr) + (2660 lb N2/hr) = 3470 lb BD air/hr

Moisture in Supplied Air: (3470 lb BD air/hr) (0.0132 lb water/lb BD air) = 45.8 lb water/hr
= (45.8 lb water/hr) (lb-mol water/18.02 lb water) = 2.54 lb-mol water/hr

Note: The specific humidity of 0.0132 lb water/lb BD air was determined from the relative humidity (60%), the atmospheric pressure (14.7 psia), the ambient temperature (80°F), and a DIPPR correlation of water vapor pressure data.

Total Air: (25.2 lb-mol O2/hr) + (94.8 lb-mol N2/hr) + (2.54 lb-mol water/hr) = 123 lb-mol/hr
= (806 lb O2/hr) + (2660 lb N2/hr) + (45.8 lb water/hr) = 3510 lb/hr
= (123 lb-mol/hr) (379 scf/lb-mol) (hr/60 min) = 777 scfm @ 60°F
= (123 lb-mol/hr) (387 scf @ 70°F/lb-mol) (hr/60 min) = 793 scfm @ 70°F

EXHAUST FLOW CALCULATION

Exhaust Components	From Air (lb-mol/hr)	From Fuel (lb-mol/hr)	From Combustion (lb-mol/hr)	Total (lb-mol/hr)	(A) Mole Fraction Wet Basis	(B) Component MW (lb/lb-mol)	(A) X (B) Exhaust MW (lb/lb-mol)	Mole Fraction Dry Basis
Nitrogen	94.80	0.037	0.000	94.84	0.718	28.01	20.11	0.860
Oxygen	25.20	0.000	-22.900	2.30	0.017	32.00	0.54	0.021
Carbon Dioxide	0.00	0.260	13.200	13.46	0.102	44.01	4.49	0.122
Water	2.54	0.000	19.200	21.74	0.165	18.02	2.97	0.000
TOTAL				132.	1.00		28.1	1.00

Exhaust gas flow rate = 132 lb-mol/hr
= (132 lb-mol/hr) (28.11 lb/lb-mol) = 3710 lb/hr
= (132 lb-mol/hr) (379 scf/lb-mol) (hr/60 min) = 834 scfm @ 60°F
= (132 lb-mol/hr) (387 scf @ 70°F/lb-mol) (hr/60 min) = 851 scfm @ 70°F
= (834 scfm) [(500 + 460)°R] acf / [(60 + 460)°R] scf = 1540 acfm @ 500°F
= (132 total lb-mol/hr) - (21.74 water lb-mol/hr) = 110 lb-mol/hr dry
= (110 lb-mol/hr dry) (379 scf/lb-mol) (hr/60 min) = 695 scfm (dry) @ 60°F

STACK EXIT VELOCITY CALCULATION

Stack Cross-sectional Area = pi D^2 / 4 = (3.1416) (1.5 ft)² / 4 = 1.77 ft²

Stack Exit Velocity = (1540 acfm) (min/60 sec) / (1.77 ft²) = 14.5 ft/sec
= (14.5 ft/sec) (0.3048 m/ft) = 4.42 m/sec

GAS COMBUSTION CALCULATIONS (Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3)

SHORT-TERM EMISSION RATE CALCULATIONS

SO2: (29 grains sulfur/100 dscf fuel) (lb/7000 grains) (2 lb SO2/lb sulfur) (100 dscf fuel/100 scf fuel)
(scf fuel/1647 Btu) (4 MM Btu/hr) = 0.201231676641513 lb/hr

NOx: (100 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr) = 0.428347058823529 lb/hr

PM: (7.6 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr) = 0.0325543764705882 lb/hr

CO: (84 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr) = 0.359811529411765 lb/hr

VOC: (5.5 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr) = 0.0235590882352941 lb/hr

LONG-TERM EMISSION RATE CALCULATIONS

SO2: (29 grains sulfur/100 dscf fuel) (lb/7000 grains) (2 lb SO2/lb sulfur) (100 dscf fuel/100 scf fuel)
(scf fuel/1647 Btu) (4 MM Btu/hr) (8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.881394743689826 tons/yr

NOx: (100 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr)
(8760 hr/yr) (100% firing rate) (ton/2000 lb) = 1.87616011764706 tons/yr

PM: (7.6 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr)
(8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.142588168941176 tons/yr

CO: (84 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr)
(8760 hr/yr) (100% firing rate) (ton/2000 lb) = 1.57597449882353 tons/yr

VOC: (5.5 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (2430 scf fuel/hr)
(8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.103188806470588 tons/yr

POLLUTANT CONCENTRATIONS (BASED ON SHORT-TERM EMISSION FACTORS

		(B)		Pollutant Concentration			
	(A)	Molecular Weight	(A) / (B)	Mole	Dry Mole		
Pollutant	lb/hr	lb/lb-mol	lb-mol/hr	Comp., %	Comp., %	ppmv	ppmvd
SO2	0.20123	64.06	0.00314	0.00238	0.00285	23.8	28.5
NOx	0.42835	46.01	0.00931	0.00705	0.00846	70.5	84.6
PM	0.03255	NA	NA	NA	NA	NA	NA
CO	0.35981	28.01	0.0128	0.0097	0.0116	97.	116.
VOC	0.02356	44.09	0.000534	0.000405	0.000485	4.05	4.85

Sample Calculations for NOx: (0.428347058823529 lb/hr) / (46.01 lb/lb-mol) = 0.00931 lb-mol/hr
(0.00931 lb-mol/hr) / (132 lb-mol/hr exhaust gas) (100%) = 0.00705% mole composition
(0.00931 lb-mol/hr) / (110 lb-mol/hr dry exhaust gas) (100%) = 0.00846% mole composition (dry)

Note that the molecular weight for NOx is that of NO2, and the molecular weight for VOC is that of C3H8. The resultant compositions are thus in terms of NOx as NO2 and VOC as C3H8.

GAS COMBUSTION CALCULATIONS (Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3)

SUMMARY OF EMISSION RATES AND CONVERSION TO METRIC UNITS

Pollutant	Short-term Emission Rate (lb/hr)	Short-term Emission Rate (g/sec)	Long-term Emission Rate (tons/yr)	Long-term Emission Rate (g/sec)
SO2	0.2012317	0.0254	0.8813947	0.0254
NOx	0.4283471	0.054	1.8761601	0.054
PM	0.0325544	0.00411	0.1425882	0.00411
CO	0.3598115	0.0454	1.5759745	0.0454
VOC	0.0235591	0.00297	0.1031888	0.00297

Sample Calculations for NOx: (0.428347058823529 lb/hr) (454 g/lb) (hr/3600 sec) = 0.054 g/sec
(1.87616011764706 tons/yr) (2000 lb/ton) (454 g/lb) (yr/8760 hr) (hr/3600 sec) = 0.054 g/sec

CONVERSION OF STACK PARAMETERS TO METRIC UNITS

Stack Height = 20 ft = (20 ft) (0.3048 m/ft) = 6.1 m

Stack Diameter = 1.5 ft = (1.5 ft) (0.3048 m/ft) = 0.457 m

Stack Exit Velocity = (14.5 ft/sec) (0.3048 m/ft) = 4.42 m/sec

Stack Exit Temperature = 500°F = (500 - 32) / 1.8 = 260°C = 260 + 273.16 = 533 K

PROPERTIES USED IN EMISSIONS INVENTORIES

Annual Process Rate: (2430 scf/hr) (MM scf/1,000,000 scf) (8760 hr/yr) (100% firing rate) = 21.3 MMscf/yr

Percentage of Maximum Emissions Potential: (8760 hr/yr) (yr/8760 hr) (100% firing rate) = 100.0%

Gas Combustion Emissions Calculator: Summary Report

Heaters (Heater Treaters and Heated Production Separators), EPN HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3

COMBUSTION UNIT DATA

Combustion Unit Description:	Heaters (Heater Treaters and Heated Production Separators)	
Facility Identification Number (FIN):	HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3	
Emission Point Number (EPN):	HTR-1, HTR-2, HTR-3, SEP-1, SEP-2, SEP-3	
Control Identification Number (CIN):		
Fuel Gas Firing Capacity, MM Btu/hr:	4	
Basis of Heating Value Specified for Firing Capacity (LHV or HHV):	LHV	
Average Fuel Heating Value (LHV):	1647	
Excess Air, % (default to 10% if unknown):	10	
Annual Operating Schedule, hr/yr (default to 8760 hr/yr if unknown):	8760	
Average Firing Rate, % (as percent of firing capacity; default to 100% if unknown):	100	
Ambient Temperature, °F (default to 80°F if unknown):	80	
Barometric Pressure, psia (default to 14.7 psia if unknown):	14.7	
Relative Humidity, % (default to 60% if unknown):	60	
UTM Zone:		
UTM Easting (m):		
UTM Northing (m):		
Stack Diameter:	1.5 ft	(0.457 m)
Stack Height:	20 ft	(6.1 m)
Stack Exit Temperature:	500° F	(533 K)
Stack Exit Velocity:	14.5 ft/sec	(4.42 m/sec)

SHORT-TERM EMISSIONS DATA

Pollutant	Short-Term Emission Factor	Source of Short-Term Emission Factor	Short-term Emission Rate (lb/hr)	(g/sec)
SO2	29 Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Sweet gas threshold	0.201231677	0.0254
NOx	100 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	0.428347059	0.054
PM	7.6 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.032554376	0.00411
CO	84 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	0.359811529	0.0454
TOC	None		-	-
VOC	5.5 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.023559088	0.00297

LONG-TERM EMISSIONS DATA

Pollutant	Long-Term Emission Factor	Source of Long-Term Emission Factor	Long-Term Emission Rate (ton/yr)	(g/sec)
SO2	29 Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Sweet gas threshold	0.881394744	0.0254
NOx	100 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	1.876160118	0.054
PM	7.6 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.142588169	0.00411
CO	84 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	1.575974499	0.0454
TOC	None		-	-
VOC	5.5 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.103188806	0.00297

Gas Combustion Emissions Calculator

TEG Reboiler, EPN REB-1

INPUT DATA

Combustion Unit Description:	TEG Reboiler
Facility Identification Number (FIN):	REB-1
Emission Point Number (EPN):	REB-1
Control Identification Number (CIN):	
UTM Zone:	
UTM Easting (m):	
UTM Northing (m):	

COMBUSTION UNIT DATA

Fuel Gas Firing Capacity, MM Btu/hr:	1
Basis of Heating Value Specified for Firing Capacity (LHV or HHV):	LHV
Excess Air, % (default to 10% if unknown):	10
Stack Exit Temperature, °F:	500
Stack Diameter, ft:	1
Stack Height, ft:	20
Annual Operating Schedule, hr/yr (default to 8760 hr/yr if unknown):	8760
Average Firing Rate, % (as percent of firing capacity; default to 100% if unknown):	100
Ambient Temperature, °F (default to 80°F if unknown):	80
Barometric Pressure, psia (default to 14.7 psia if unknown):	14.7
Relative Humidity, % (default to 60% if unknown):	60

EMISSION FACTORS

ENTER ONLY ONE EMISSION FACTOR FOR EACH POLLUTANT FOR EACH TERM

If multiple factors are entered for a pollutant, the leftmost nonzero factor will be used in emission calculations.

Short-Term Emission Factors

Pollutant	Formula	lb/MM Btu (HHV)	lb/MM Btu (LHV)	ppmvd in Stack Gas @ 5 % O2	lb/hr	Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Grains per 100 dscf Stack Gas	lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Weight % VOC in TOC
Sulfur Dioxide	SO2					29			
Nitrogen Oxides	NOx							100	
Particulate Matter	PM							7.6	
Carbon Monoxide	CO							84	
Total Organics	TOC								
Volatile Organics	VOC							5.5	

Long-Term Emission Factors

Pollutant	Formula	lb/MM Btu (HHV)	lb/MM Btu (LHV)	ppmvd in Stack Gas @ 5 % O2	lb/hr	Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Grains per 100 dscf Stack Gas	lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Weight % VOC in TOC
Sulfur Dioxide	SO2					29			
Nitrogen Oxides	NOx							100	
Particulate Matter	PM							7.6	
Carbon Monoxide	CO							84	
Total Organics	TOC								
Volatile Organics	VOC							5.5	

Note: When entering values in ppmvd for nitrogen oxides and volatile organics, the subsequent calculations presume molecular weights of 46.01 for nitrogen oxides (NO2) and 44.09 for volatile organics (C3H8). The molecular weight for VOC can be changed on Rows 127 and 128. Also, note that the factors in terms of scf presume standard conditions of 1 atm and 60°F. These standard conditions are presumed throughout the calculations

EMISSION FACTOR BASIS

Pollutant	Formula	Source of Short-Term Emission Factors	Source of Long-Term Emission Factors
Sulfur Dioxide	SO2	Sweet gas threshold	Sweet gas threshold
Nitrogen Oxides	NOx	Table 1.4-1, AP-42 (July 1998)	Table 1.4-1, AP-42 (July 1998)
Particulate Matter	PM	Table 1.4-2, AP-42 (July 1998)	Table 1.4-2, AP-42 (July 1998)
Carbon Monoxide	CO	Table 1.4-1, AP-42 (July 1998)	Table 1.4-1, AP-42 (July 1998)
Total Organics	TOC		
Volatile Organics	VOC	Table 1.4-2, AP-42 (July 1998)	Table 1.4-2, AP-42 (July 1998)

Volatile Organics Calculated-As Basis

Compound: C3H8 (CH4, C2H6, C3H8, etc.)

Molecular Weight 44.09 (lb / lb-mol)

INPUT DATA CONTINUED (TEG Reboiler, EPN REB-1)

FUEL DATA

Fuel Gas Composition				Pure Component Data			Fuel Gas Component Data		
Formula	Name	Mole %	(A) Mole Fraction	(B) Molecular Weight (lb/lb-mol)	(C) HHV * (Btu/scf)	(D) LHV * (Btu/scf)	(A) X (B) lb/lb-mol Fuel Gas	(A) X (C) Btu (HHV) per scf Fuel Gas	(A) X (D) Btu (LHV) per scf Fuel Gas
CH4	Methane	48.24	0.4824	16.04	1012	911	7.74	488.19	439.47
C2H6	Ethane	17.29	0.1729	30.07	1773	1622	5.20	306.55	280.44
C3H8	Propane	12.53	0.1253	44.09	2524	2322	5.52	316.26	290.95
C4H10	n-Butane	5.62	0.0562	58.12	3271	3018	3.27	183.83	169.61
i-C4H10	Isobutane	1.96	0.0196	58.12	3261	3009	1.14	63.92	58.98
n-C5H12	n-Pentane	2.58	0.0258	72.15	4020	3717	1.86	103.72	95.90
i-C5H12	Isopentane	1.96	0.0196	72.15	4011	3708	1.41	78.62	72.68
C5H12	Neopentane	0.00	0.0000	72.15	3994	3692	0.00	0.00	0.00
C6H14	n-Hexane	2.91	0.0291	86.17	4768	4415	2.51	138.75	128.48
C7H16	n-Heptane	1.79	0.0179	100.20	5503	5100	1.79	98.50	91.29
C6H6	Benzene	0.34	0.0034	78.11	3752	3601	0.27	12.76	12.24
C7H8	Toluene	0.13	0.0013	92.13	4486	4285	0.12	5.83	5.57
C8H10	Xylene	0.02	0.0002	106.16	5230	4980	0.02	1.05	1.00
N2	Nitrogen	0.57	0.0057	28.01	0	0	0.16	0.00	0.00
CO2	Carbon Dioxide	4.06	0.0406	44.01	0	0	1.79	0.00	0.00
TOTAL		100.0	1.				32.8	1798.	1647.

* HHV/LHV data are from *Steam, Its Generation and Use* (Babcock & Wilcox, 1972); HHV/LHV data for C7H16 are from Engineering *Data Book* (Gas Processors Suppliers Association, Ninth Edition, as revised 1979).

NOTES

GAS COMBUSTION CALCULATIONS (TEG Reboiler, EPN REB-1)

FUEL FLOW RATE CALCULATIONS

	LHV	HHV
Fuel Gas Firing Capacity, MM Btu/hr:	1	1.1

(1 MM Btu/hr) (1,000,000 Btu/MM Btu) (1 scf/1647 Btu) (lb-mol/379 scf) = 1.6 lb-mol/hr
(1.6 lb-mol/hr) (32.8 lb/lb-mol) = 52.5 lb/hr
(1.6 lb-mol/hr) (379 scf/lb-mol) = 606 scfh @ 60°F
(606 scfh) (hr/60 min) = 10.1 scfm @ 60°F
(606 scfh) (100% - 0% dscf) / (100% scf) = 606 dscfh @ 60°F
(1.6 lb-mol/hr) (387 scf @ 70°F/lb-mol) = 619 scfh @ 70°F
(619 scfh) (hr/60 min) = 10.3 scfm @ 70°F

STOICHIOMETRIC CALCULATIONS

Assuming complete combustion, the combustion products are determined as follows:

Fuel Composition and Flow Rate				Stoichiometric Oxygen Requirement		Stoichiometric Carbon Dioxide Production		Stoichiometric Water Production	
Formula	Mole %	(A) Mole Fraction	(B)* Flow Rate lb-mol/hr	(C) lb-mol/ lb-mol fuel	(B) X (C) lb-mol/hr	(D) lb-mol/ lb-mol fuel	(B) X (D) lb-mol/hr	(E) lb-mol/ lb-mol fuel	(B) X (E) lb-mol/hr
CH4	48.24	0.4824	0.772	2.0	1.544	1.0	0.772	2.0	1.544
C2H6	17.29	0.1729	0.277	3.5	0.970	2.0	0.554	3.0	0.831
C3H8	12.53	0.1253	0.200	5.0	1.000	3.0	0.600	4.0	0.800
C4H10	5.62	0.0562	0.090	6.5	0.585	4.0	0.360	5.0	0.450
i-C4H10	1.96	0.0196	0.031	6.5	0.202	4.0	0.124	5.0	0.155
n-C5H12	2.58	0.0258	0.041	8.0	0.328	5.0	0.205	6.0	0.246
i-C5H12	1.96	0.0196	0.031	8.0	0.248	5.0	0.155	6.0	0.186
C5H12	0.00	0.0000	0.000	8.0	0.000	5.0	0.000	6.0	0.000
C6H14	2.91	0.0291	0.047	9.5	0.447	6.0	0.282	7.0	0.329
C7H16	1.79	0.0179	0.029	11.0	0.319	7.0	0.203	8.0	0.232
C2H4	0.00	0.0000	0.000	3.0	0.000	2.0	0.000	2.0	0.000
C3H6	0.00	0.0000	0.000	4.5	0.000	3.0	0.000	3.0	0.000
C4H8	0.00	0.0000	0.000	6.0	0.000	4.0	0.000	4.0	0.000
i-C4H8	0.00	0.0000	0.000	6.0	0.000	4.0	0.000	4.0	0.000
C5H10	0.00	0.0000	0.000	7.5	0.000	5.0	0.000	5.0	0.000
C6H6	0.34	0.0034	0.005	7.5	0.038	6.0	0.030	3.0	0.015
C7H8	0.13	0.0013	0.002	9.0	0.018	7.0	0.014	4.0	0.008
C8H10	0.02	0.0002	0.000	10.5	0.000	8.0	0.000	5.0	0.000
C2H2	0.00	0.0000	0.000	2.5	0.000	2.0	0.000	1.0	0.000
C10H8	0.00	0.0000	0.000	12.0	0.000	10.0	0.000	4.0	0.000
CH3OH	0.00	0.0000	0.000	1.5	0.000	1.0	0.000	2.0	0.000
C2H5OH	0.00	0.0000	0.000	3.0	0.000	2.0	0.000	3.0	0.000
H2S	0.00	0.0000	0.000	1.5	0.000	1.0 (SO2)	0.000	1.0	0.000
H2O	0.00	0.0000	0.000	0.0	0.000	0.0	0.000	0.0	0.000
H2	0.00	0.0000	0.000	0.5	0.000	0.0	0.000	1.0	0.000
O2	0.00	0.0000	0.000	- 1.0	0.000	0.0	0.000	0.0	0.000
N2	0.57	0.0057	0.009	0.0	0.000	0.0	0.000	0.0	0.000
CO	0.00	0.0000	0.000	0.5	0.000	1.0	0.000	0.0	0.000
CO2	4.06	0.0406	0.065	0.0	0.000	0.0	0.000	0.0	0.000
TOTAL	100.00	1.0000	1.6		5.7		3.3		4.8

* (B) = (A) X (1.6 lb-mol/hr)
Note that for the molar calculations, SO2 is grouped with CO2. This will have a negligible impact on MW and other calculations.

GAS COMBUSTION CALCULATIONS (TEG Reboiler, EPN REB-1)

AIR SUPPLY CALCULATION

Oxygen in Supplied Air: (5.7 lb-mol stoichiometric O2/hr) (1.1) = 6.27 lb-mol total O2/hr
= (6.27 lb-mol O2/hr) (32.00 lb/lb-mol) = 201 lb O2/hr

Nitrogen in Supplied Air: (6.27 lb-mol O2/hr) (3.76 lb-mol N2/lb-mol O2 in air) = 23.6 lb-mol total N2/hr
= (23.6 lb-mol N2/hr) (28.01 lb/lb-mol) = 661 lb N2/hr

Bone-dry (BD) Supplied Air: (6.27 lb-mol O2/hr) + (23.6 lb-mol N2/hr) = 29.9 lb-mol BD air/hr
= (201 lb O2/hr) + (661 lb N2/hr) = 862 lb BD air/hr

Moisture in Supplied Air: (862 lb BD air/hr) (0.0132 lb water/lb BD air) = 11.4 lb water/hr
= (11.4 lb water/hr) (lb-mol water/18.02 lb water) = 0.633 lb-mol water/hr

Note: The specific humidity of 0.0132 lb water/lb BD air was determined from the relative humidity (60%), the atmospheric pressure (14.7 psia), the ambient temperature (80°F), and a DIPPR correlation of water vapor pressure data.

Total Air: (6.27 lb-mol O2/hr) + (23.6 lb-mol N2/hr) + (0.633 lb-mol water/hr) = 30.5 lb-mol/hr
= (201 lb O2/hr) + (661 lb N2/hr) + (11.4 lb water/hr) = 873 lb/hr
= (30.5 lb-mol/hr) (379 scf/lb-mol) (hr/60 min) = 193 scfm @ 60°F
= (30.5 lb-mol/hr) (387 scf @ 70°F/lb-mol) (hr/60 min) = 197 scfm @ 70°F

EXHAUST FLOW CALCULATION

Exhaust Components	From Air (lb-mol/hr)	From Fuel (lb-mol/hr)	From Combustion (lb-mol/hr)	Total (lb-mol/hr)	(A) Mole Fraction Wet Basis	(B) Component MW (lb/lb-mol)	(A) X (B) Exhaust MW (lb/lb-mol)	Mole Fraction Dry Basis
Nitrogen	23.60	0.009	0.000	23.61	0.715	28.01	20.03	0.856
Oxygen	6.27	0.000	-5.700	0.57	0.017	32.00	0.54	0.021
Carbon Dioxide	0.00	0.065	3.300	3.37	0.102	44.01	4.49	0.122
Water	0.63	0.000	4.800	5.43	0.165	18.02	2.97	0.000
TOTAL				33.	1.00		28.	1.00

Exhaust gas flow rate = 33 lb-mol/hr
= (33 lb-mol/hr) (28.03 lb/lb-mol) = 925 lb/hr
= (33 lb-mol/hr) (379 scf/lb-mol) (hr/60 min) = 208 scfm @ 60°F
= (33 lb-mol/hr) (387 scf @ 70°F/lb-mol) (hr/60 min) = 213 scfm @ 70°F
= (208 scfm) [(500 + 460)°R] acf / [(60 + 460)°R] scf = 384 acfm @ 500°F
= (33 total lb-mol/hr) - (5.43 water lb-mol/hr) = 27.6 lb-mol/hr dry
= (27.6 lb-mol/hr dry) (379 scf/lb-mol) (hr/60 min) = 174 scfm (dry) @ 60°F

STACK EXIT VELOCITY CALCULATION

Stack Cross-sectional Area = pi D^2 / 4 = (3.1416) (1 ft)² / 4 = 0.785 ft²

Stack Exit Velocity = (384 acfm) (min/60 sec) / (0.785 ft²) = 8.15 ft/sec
= (8.15 ft/sec) (0.3048 m/ft) = 2.48 m/sec

GAS COMBUSTION CALCULATIONS (TEG Reboiler, EPN REB-1)

SHORT-TERM EMISSION RATE CALCULATIONS

SO2: (29 grains sulfur/100 dscf fuel) (lb/7000 grains) (2 lb SO2/lb sulfur) (100 dscf fuel/100 scf fuel) (scf fuel/1647 Btu) (1 MM Btu/hr) = 0.0503079191603782 lb/hr

NOx: (100 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) = 0.106822352941176 lb/hr

PM: (7.6 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) = 0.00811849882352941 lb/hr

CO: (84 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) = 0.0897307764705882 lb/hr

VOC: (5.5 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) = 0.00587522941176471 lb/hr

LONG-TERM EMISSION RATE CALCULATIONS

SO2: (29 grains sulfur/100 dscf fuel) (lb/7000 grains) (2 lb SO2/lb sulfur) (100 dscf fuel/100 scf fuel) (scf fuel/1647 Btu) (1 MM Btu/hr) (8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.220348685922456 tons/yr

NOx: (100 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) (8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.467881905882353 tons/yr

PM: (7.6 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) (8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.0355590248470588 tons/yr

CO: (84 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) (8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.393020800941176 tons/yr

VOC: (5.5 lb/MMscf AP-42 fuel) (scf AP-42 fuel/1020 Btu) (1798 Btu/scf fuel) (606 scf fuel/hr) (8760 hr/yr) (100% firing rate) (ton/2000 lb) = 0.0257335048235294 tons/yr

POLLUTANT CONCENTRATIONS (BASED ON SHORT-TERM EMISSION FACTORS)

		(B)		Pollutant Concentration			
	(A)	Molecular Weight	(A) / (B)	Mole	Dry Mole		
Pollutant	lb/hr	lb/lb-mol	lb-mol/hr	Comp., %	Comp., %	ppmv	ppmvd
SO2	0.05031	64.06	0.000785	0.00238	0.00284	23.8	28.4
NOx	0.10682	46.01	0.00232	0.00703	0.00841	70.3	84.1
PM	0.00812	NA	NA	NA	NA	NA	NA
CO	0.08973	28.01	0.0032	0.0097	0.0116	97.	116.
VOC	0.00588	44.09	0.000133	0.000403	0.000482	4.03	4.82

Sample Calculations for NOx: (0.106822352941176 lb/hr) / (46.01 lb/lb-mol) = 0.00232 lb-mol/hr
(0.00232 lb-mol/hr) / (33 lb-mol/hr exhaust gas) (100%) = 0.00703% mole composition
(0.00232 lb-mol/hr) / (27.6 lb-mol/hr dry exhaust gas) (100%) = 0.00841% mole composition (dry)

Note that the molecular weight for NOx is that of NO2, and the molecular weight for VOC is that of C3H8. The resultant compositions are thus in terms of NOx as NO2 and VOC as C3H8.

GAS COMBUSTION CALCULATIONS (TEG Reboiler, EPN REB-1)

SUMMARY OF EMISSION RATES AND CONVERSION TO METRIC UNITS

Pollutant	Short-term Emission Rate (lb/hr)	Short-term Emission Rate (g/sec)	Long-term Emission Rate (tons/yr)	Long-term Emission Rate (g/sec)
SO2	0.0503079	0.00634	0.2203487	0.00634
NOx	0.1068224	0.0135	0.4678819	0.0135
PM	0.0081185	0.00102	0.035559	0.00102
CO	0.0897308	0.0113	0.3930208	0.0113
VOC	0.0058752	0.000741	0.0257335	0.000741

Sample Calculations for NOx: (0.107 lb/hr) (454 g/lb) (hr/3600 sec) = 0.0135 g/sec
(0.467881905882353 tons/yr) (2000 lb/ton) (454 g/lb) (yr/8760 hr) (hr/3600 sec) = 0.0135 g/sec

CONVERSION OF STACK PARAMETERS TO METRIC UNITS

Stack Height = 20 ft = (20 ft) (0.3048 m/ft) = 6.1 m

Stack Diameter = 1 ft = (1 ft) (0.3048 m/ft) = 0.305 m

Stack Exit Velocity = (8.15 ft/sec) (0.3048 m/ft) = 2.48 m/sec

Stack Exit Temperature = 500°F = (500 - 32) / 1.8 = 260°C = 260 + 273.16 = 533 K

PROPERTIES USED IN EMISSIONS INVENTORIES

Annual Process Rate: (606 scf/hr) (MM scf/1,000,000 scf) (8760 hr/yr) (100% firing rate) = 5.31 MMscf/yr

Percentage of Maximum Emissions Potential: (8760 hr/yr) (yr/8760 hr) (100% firing rate) = 100.0%

Gas Combustion Emissions Calculator: Summary Report

TEG Reboiler, EPN REB-1

COMBUSTION UNIT DATA

Combustion Unit Description:	TEG Reboiler	
Facility Identification Number (FIN):	REB-1	
Emission Point Number (EPN):	REB-1	
Control Identification Number (CIN):		
Fuel Gas Firing Capacity, MM Btu/hr:	1	
Basis of Heating Value Specified for Firing Capacity (LHV or HHV):	LHV	
Average Fuel Heating Value (LHV):	1647	
Excess Air, % (default to 10% if unknown):	10	
Annual Operating Schedule, hr/yr (default to 8760 hr/yr if unknown):	8760	
Average Firing Rate, % (as percent of firing capacity; default to 100% if unknown):	100	
Ambient Temperature, °F (default to 80°F if unknown):	80	
Barometric Pressure, psia (default to 14.7 psia if unknown):	14.7	
Relative Humidity, % (default to 60% if unknown):	60	
UTM Zone:		
UTM Easting (m):		
UTM Northing (m):		
Stack Diameter:	1 ft	(0.305 m)
Stack Height:	20 ft	(6.1 m)
Stack Exit Temperature:	500° F	(533 K)
Stack Exit Velocity:	8.15 ft/sec	(2.48 m/sec)

SHORT-TERM EMISSIONS DATA

Pollutant	Short-Term Emission Factor	Source of Short-Term Emission Factor	Short-term Emission Rate (lb/hr)	(g/sec)
SO2	29 Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Sweet gas threshold	0.050307919	0.00634
NOx	100 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	0.106822353	0.0135
PM	7.6 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.008118499	0.00102
CO	84 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	0.089730776	0.0113
TOC	None		-	-
VOC	5.5 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.005875229	0.000741

LONG-TERM EMISSIONS DATA

Pollutant	Long-Term Emission Factor	Source of Long-Term Emission Factor	Long-Term Emission Rate (ton/yr)	(g/sec)
SO2	29 Grains Sulfur per 100 dscf Fuel Gas @ 1647 Btu/scf (LHV)	Sweet gas threshold	0.220348686	0.00634
NOx	100 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	0.467881906	0.0135
PM	7.6 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.035559025	0.00102
CO	84 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-1, AP-42 (July 1998)	0.393020801	0.0113
TOC	None		-	-
VOC	5.5 lb/MM scf AP-42 Fuel Gas @ 1020 Btu/scf (HHV)	Table 1.4-2, AP-42 (July 1998)	0.025733505	0.000741

EMISSION ESTIMATE FOR GLYCOL SYSTEMS

The glycol still vent is routed through the condenser, reboiler, and glow plug for a total control efficiency of 99.6%. A control credit of 98% is applied to the flash tank vent emissions routed to the firebox of the reboiler equipped with a glowplug.

TEG Still Vent

Processing capacity: 35 MMSCFD
Total Conrol Efficiency: 99.6%

Component	Uncontrolled Hourly Emissions lb/hr	Uncontrolled Annual Emissions ton/yr	Controlled Hourly Emissions lb/hr	Controlled Annual Emissions ton/yr
Hydrogen Sulfide	0.000	0.000	0.000	0.000
Methane	0.114	0.497	4.5E-04	0.002
Ethane	0.235	1.031	0.001	0.004
Propane	0.757	3.315	0.003	0.013
IsoButane	0.171	0.750	0.001	0.003
N-Butane	0.638	2.793	0.003	0.011
IsoPentane	0.125	0.549	0.001	0.002
N-Pentane	0.191	0.836	0.001	0.003
Other Hexanes	0.384	1.681	0.002	0.007
Heptanes	0.185	0.809	0.001	0.003
Octanes+	0.290	1.271	0.001	0.005
n-Hexane	0.081	0.353	3.2E-04	0.001
Benzene	0.406	1.776	0.002	0.007
Toluene	0.551	2.411	0.002	0.010
Ethylbenzene	0.077	0.339	0.000	0.001
Xylene	0.406	1.778	0.002	0.007
TOTAL	**4.6091**	**20.1884**	**0.018**	**0.08**
TOTAL VOC	**4.26**	**18.66**	**0.017**	**0.07**
TOTAL HAP	**1.52**	**6.66**	**0.006**	**0.03**

Uncontrolled emissions based on CS GLYCalc simulation.

Flash Tank Vent

Processing capacity: 35 MMSCFD

Total control efficiency: 98.0%

Component	Uncontrolled Hourly Emissions lb/hr	Uncontrolled Annual Emissions ton/yr	Post-Control Hourly Emissions lb/hr	Post-Control Annual Emissions ton/yr
Hydrogen Sulfide	0.0000	0.0000	0.000	0.000
Methane	4.0872	17.9018	0.082	0.358
Ethane	2.9450	12.8990	0.059	0.258
Propane	3.0872	13.5219	0.062	0.270
Isobutane	0.4908	2.1496	0.010	0.043
n-Butane	1.3728	6.0128	0.027	0.120
Isopentane	0.2475	1.0841	0.005	0.022
n-Pentane	0.2995	1.3118	0.006	0.026
n-Hexane	0.0750	0.3287	0.002	0.007
Other Hexanes	0.1436	0.6288	0.003	0.013
Heptanes	0.0860	0.3768	0.002	0.008
Benzene	0.0108	0.0472	2.2E-04	0.001
Toluene	0.0101	0.0443	2.0E-04	0.001
Ethylbenzene	0.0009	0.0038	1.8E-05	7.6E-05
Xylenes	0.0028	0.0123	5.6E-05	2.5E-04
C8+ Heavies	0.0216	0.0946	4.3E-04	0.002
TOTAL	**12.8808**	**56.4175**	**0.258**	**1.128**
TOTAL VOC	**5.8486**	**25.6167**	**0.117**	**0.512**
TOTAL HAP	**0.0996**	**0.4363**	**0.002**	**0.009**

Uncontrolled emissions based on CTB GLYCalc simulation

EMISSION ESTIMATE FOR ATMOSPHERIC LOADING OPERATIONS

EMISSION FACTOR EQUATION

$$L = \frac{12.46\ S\ P\ M}{T}$$

(AP-42, Fifth Edition, Equation 5.2-1, January 1995)

where: L = Loading loss (lb/1000 gal liquid loaded)
M = Vapor molecular weight of liquid loaded (lb/lb-mol)
P = True vapor pressure of liquid loaded (psia)
T = Temperature of bulk liquid loaded (°R)
S = Saturation factor (1.45 for splash loading, 1 for vapor-balanced loading, 0.6 for submerged from Table 5.2-1)

HOURLY EMISSIONS ESTIMATES

EPN	Loading Vessel	Liquid Loaded	Type of Loading	Saturation Factor, S	Max. Temp. (°F)	Max. Temp. (°R)	Mol. Wt. (lb/lb-mol)	Vapor Pressure [1] (psia)	Loading Loss (lb/1000 gal)	VOC Content (%)	Capture Efficiency (%)	Maximum Loading Rate [2] (gal/hr)	Uncontrolled Loading Emissions (lb/hr)	Uncontrolled Loading HAPs Emissions [4] (lb/hr)	Uncontrolled Loading H_2S Emissions [5] (lb/hr)
LOAD	Truck	Slop	submerged	0.6	95.0	555	50	14.01	9.43	100	0	8400	79.24	1.30	0.025
												Total	79.24	1.30	0.025

ANNUAL EMISSIONS ESTIMATES

EPN	Loading Vessel	Liquid Loaded	Type of Loading	Saturation Factor, S	Average Temp. (°F)	Average Temp. (°R)	Mol. Wt. (lb/lb-mol)	Vapor Pressure [1] (psia)	Loading Loss (lb/1000 gal)	VOC Content (%)	Capture Efficiency (%)	Annual Loading Rate [3] (gal/yr)	Uncontrolled Loading Emissions (tons/yr)	Uncontrolled Loading HAPs Emissions (tons/yr)[4]	Uncontrolled Loading H_2S Emissions [5] (tons/yr)
LOAD	Truck	Slop	submerged	0.6	66.3	526	50	9.12	6.48	100	0	1533000	4.970	0.084	1.6E-03
												Total	4.970	0.084	1.6E-03

SAMPLE CALCULATIONS:

Condensate Annual Emissions

$$\text{Loading loss (annual basis)} = \frac{(12.46)\ (0.6)\ (9.12\ \text{psia})\ (50\ \text{lb/lb-mol})}{(526\ °\text{R})} = 6.48\ \text{lb/1000 gal condensate loaded}$$

Loading estimates = (Loading loss emission factor) (Annual loading rate) (VOC Content) / 100
= (6.48 lb/1000 gal) (1533000 gal/yr) (100%) / 100% = 9930 lb/yr
= 4.97 tons/yr

NOTES:

(1) Values for RVP=6.18 from Stock Tank Analysis.
(2) The hourly loading rate is based on loading one **200** -bbl slop truck in one hour.
(3) The annual loading rate of slop is based on **100** -bbl slop/day.
(4) HAPs emissions based on speciation From ProMax Oil Tank Breathing Losses using CTB Analyses
(5) H2S emissions based on speciation From ProMax Oil Tank Breathing Losses using CTB Analyses

Speciated Loading Emissions

Component	Weight %	lb/hr	tpy
Hydrogen Sulfide (H2S)	0.001	5.8E-04	3.6E-05
Nitrogen (N2)	0.000	2.3E-04	1.4E-05
Carbon Dioxide (CO2)	0.709	0.562	0.035
Methane (CH4)	0.634	0.503	0.032
Ethane (C2H6)	16.13	12.78	0.802
Propane (C3H8)	36.10	28.60	1.794
IsoButane (i-C4H10)	7.94	6.29	0.395
N-Butane (n-C4H10)	21.52	17.05	1.069
IsoPentane (i-C5H12)	5.38	4.27	0.268
N-Pentane (n-C5H12)	6.60	5.23	0.328
Other Hexanes	1.02	0.81	0.051
Heptanes (less BTEX)	1.62	1.28	0.080
Octanes+	0.654	0.519	0.033
n-Hexane (n-C6H14)	1.49	1.18	0.074
Benzene (C6H6)	0.079	0.062	3.9E-03
Toluene (C7H8)	0.091	0.072	4.5E-03
Ethylbenzene (C8H10)	0.010	0.008	5.1E-04
Xylenes (C8H10)	0.032	0.025	1.6E-03
Water (H2O)	1.4E-04	1.1E-04	7.1E-06
TOTAL	**100.0**	**79.24**	**4.970**
TOTAL VOC	**82.5**	**65.39**	**4.101**
TOTAL HAP	**1.70**	**1.35**	**0.084**

From ProMax Oil Tank Breathing Losses using CTB Analyses

EMISSION ESTIMATES FOR CONDENSATE STORAGE TANKS

Description: Condensate Storage Tanks Condensate Throughput: **22500** bbl/day

Primary and Redundant VRU Capture efficiency: **100%**

Number of Tanks: **4**

Emission Rates

FIN	EPN	Description	Throughput bbl/day	Working & Standing Losses lb/hr	Working & Standing Losses tpy	Flash Losses lb/hr	Flash Losses tpy	Pre-VRU Reduction Emissions lb/hr	Pre-VRU Reduction Emissions tpy	Post-VRU Reduction Emissions lb/hr	Post-VRU Reduction Emissions tpy
TK-1	VRU	Condensate Storage	5625	155.4	372.9	2370	10380	2525	10753	0.000	0.000
TK-2	VRU	Condensate Storage	5625	155.4	372.9	2370	10380	2525	10753	0.000	0.000
TK-3	VRU	Condensate Storage	5625	155.4	372.9	2370	10380	2525	10753	0.000	0.000
TK-4	VRU	Condensate Storage	5625	155.4	372.9	2370	10380	2525	10753	0.000	0.000
TOTAL				**622.0**	**1492**	**9479**	**41500**	**10100**	**43000**	**0.000**	**0.000**

Notes:

Condensate tanks are arranged in parallel.

Speciated Condensate Tank Emissions

Component	Condensate Tank W&S Emissions Weight %	Condensate Tank W&S Emissions lb/hr	Condensate Tank W&S Emissions tpy	Condensate Tank Flash Emissions Weight %	Condensate Tank Flash Emissions lb/hr	Condensate Tank Flash Emissions tpy	Pre-VRU Reduction Emissions lb/hr	Pre-VRU Reduction Emissions tpy	Post-VRU Reduction Emissions lb/hr	Post-VRU Reduction Emissions tpy
Hydrogen Sulfide (H2S)	0.001	0.005	0.011	0.001	0.069	0.303	0.074	0.314	0.000	0.000
Nitrogen (N2)	2.9E-04	0.002	0.004	0.005	0.45	1.97	0.452	1.97	0.000	0.000
Carbon Dioxide (CO2)	0.709	4.41	10.58	0.877	83.11	364	87.52	374.4	0.000	0.000
Methane (CH4)	0.634	3.94	9.46	2.33	221.0	968	224.9	977.0	0.000	0.000
Ethane (C2H6)	16.13	100.3	240.7	12.94	1226	5368	1327	5609	0.000	0.000
Propane (C3H8)	36.10	224.5	538.6	33.09	3137	13733	3361	14272	0.000	0.000
IsoButane (i-C4H10)	7.94	49.39	118.5	8.16	773.6	3387	823.0	3506	0.000	0.000
N-Butane (n-C4H10)	21.52	133.8	321.0	22.46	2129	9320	2263	9641	0.000	0.000
IsoPentane (i-C5H12)	5.38	33.48	80.31	5.86	555.1	2430	588.6	2511	0.000	0.000
N-Pentane (n-C5H12)	6.60	41.06	98.50	7.34	695.8	3046	736.9	3145	0.000	0.000
Other Hexanes	1.02	6.33	15.18	1.46	138.2	604.9	144.5	620.1	0.000	0.000
Heptanes (less BTEX)	1.62	10.06	24.14	2.09	198.5	869.2	208.6	893.4	0.000	0.000
Octanes+	0.654	4.07	9.76	0.995	94.35	413.1	98.42	422.8	0.000	0.000
n-Hexane (n-C6H14)	1.49	9.242	22.17	1.79	169.21	740.8	178.5	763.0	0.000	0.000
Benzene (C6H6)	0.079	0.490	1.18	0.137	12.96	56.73	13.45	57.90	0.000	0.000
Toluene (C7H8)	0.091	0.565	1.36	0.155	14.70	64.37	15.27	65.72	0.000	0.000
Ethylbenzene (C8H10)	0.010	0.064	0.152	0.017	1.64	7.17	1.70	7.32	0.000	0.000
Xylenes (C8H10)	0.032	0.198	0.474	0.060	5.72	25.02	5.91	25.50	0.000	0.000
Water (H2O)	1.4E-04	0.001	0.002	0.240	22.71	99.41	22.71	99.41	0.000	0.000
TOTAL	**100.0**	**622.0**	**1492**	**100.0**	**9479**	**41500**	**10101**	**42992**	**0.000**	**0.000**
TOTAL VOC	**82.5**	**513.3**	**1231**	**83.61**	**7926**	**34699**	**8439**	**35930**	**0.000**	**0.000**
TOTAL HAP	**1.70**	**10.56**	**25.33**	**2.15**	**204.22**	**894.10**	**214.78**	**919.43**	**0.000**	**0.000**

From ProMax Oil Tank Breathing Losses using CTB Analyses

From ProMax Oil Tank Flash Losses using CTB Analyses

EMISSION ESTIMATE FOR CONDENSATE TANK FLASH

Flash Losses per Tank

GOR	**82.07**	**scf/bbl**
Mol Weight	**46.69**	**lb/lb-mol**

Condensate Storage Tank Flash Emissions		
Throughput	**5625**	**bbl/day**
	461656	**scf/day**
	19236	**scf/hr**
Total Hourly Flash Loss	**2370**	**lb/hr**
Total Annual Flash Loss	**10380**	**tpy**

Throughput (scf/day) = (82.072 scf/bbl) * (5625 bbl/day) = (461656 scf/day)
Total Hourly Flash Loss = (19200 scf/hr) / (379 scf/lbmol) * (46.693 lb/lbmol) = (2369.9 lb/hr)

Flash Gas Speciation

Component	**Weight %**	**Condensate Tank Flash**	
		Hourly Emissions (lb/hr)	**Annual Emissions (tpy)**
Hydrogen Sulfide (H2S)	**0.001**	0.017	0.076
Nitrogen (N2)	**0.005**	0.112	0.493
Carbon Dioxide (CO2)	**0.877**	20.78	91.01
Methane (CH4)	**2.331**	55.25	242.0
Ethane (C2H6)	**12.936**	306.6	1343
Propane (C3H8)	**33.092**	784.2	3435
IsoButane (i-C4H10)	**8.162**	193.4	847.2
N-Butane (n-C4H10)	**22.459**	532.2	2331
IsoPentane (i-C5H12)	**5.856**	138.8	607.9
N-Pentane (n-C5H12)	**7.341**	174.0	762.0
Other Hexanes	**1.458**	34.54	151.3
Heptanes (C7H16)	**2.095**	49.64	217.4
Octanes +	**0.995**	23.59	103.3
n-Hexane (n-C6H14)	**1.785**	42.30	185.3
Benzene (C6H6)	**0.137**	3.24	14.19
Toluene (C7H8)	**0.155**	3.68	16.10
Ethylbenzene (C8H10)	**0.017**	0.409	1.79
Xylenes (C8H10)	**0.060**	1.43	6.26
Water (H2O)	**0.240**	5.68	24.86
TOTAL	100.0	2370	10380
TOTAL HAP	2.15	51.06	223.6
TOTAL VOC	83.6	1981	8679

From ProMax Oil Tank Flash

W&S EMISSION ESTIMATE FOR TK-1 thru TK-4

Tank FIN	TK-1 thru TK-4	
Description	Condensate Tank	
Days per year	365	days/year

Tank Parameters

Material Stored	Crude Oil	
Flash in vessel (Yes/No)	Yes	
Vapor Balanced Loading (Yes/No)	No	*Yes = truck loading vapors are vented to tank.*
Tank Max/Min levels client specified (Yes/No)	No	
Annual sum of liquid level increases client specified (Yes/No)	No	
Tanks construction	Welded	
Insulated Tank (Yes/No)	No	
Heated Tank (Yes/No)	No	
Tank Diameter (D)	15.5	ft
Tank Shell Height (Hs)	24	ft
Maximum Liquid Height (Hlx)	23	ft
Minimum Liquid Height (Hln)	1	ft
Annual Sum of the Increases in Liquid Level (ΣHqi)	61085	ft/yr
Roof Type	Cone	
Cone Roof Slope (Sr)	0.0625	ft/ft
Roof Paint Color	Green, Dark	
Roof Paint Condition	Average	
Tank Roof Surface Solar Absorptance (αr)	0.9	dimensionless (AP-42 Table 7.1-6)
Shell Paint Color	Green, Dark	
Shell Paint Condition	Average	
Tank Shell Surface Solar Absorptance (αs)	0.9	dimensionless (AP-42 Table 7.1-6)
Breather Vent Pressure Setting (PBp)	0.03	psig
Breather Vent Vacuum Setting (PBV)	-0.03	psig
Vent Setting Correction Factor (Kb)	1.00	dimensionless

Stored Material Properties

Vapor Molecular Weight (Mv)	50	lb/lb-mol
API Gravity (API)	50.73	° API
Reid Vapor Pressure (RVP)	10.780	psi
Working Loss Product Factor (Kp)	0.75	dimensionless

Environment Properties - (AP-42, CH. 7 - Table 7.1-7)

Met Data Location	Roswell, NM	
Met Data Period	Annual Average	
Average Daily Max Ambient Temperature	75.8	°F
Average Daily Min Ambient Temperature	47.6	°F
Solar Insolation (I)	1722	Btu/ft² d
Atmospheric Pressure (Pa)	12.88	psia

Operational Parameters

Actual Throughput (BBL/day)	5625	BBL/day
Actual Throughput (BBL/year)	2053125	BBL/year
Actual Throughput (Gal/year)	86231250	Gal/year
Max Fill Rate (FRm) (BBL/hr)	235	BBL/hr

Constants

Universal Gas Constant (R)	10.731	psia ft³/lb-mol °R

Standing and Working Loss Calculations

Average Daily Max Ambient Temperature (Tax)	535.5	°R
Average Daily Min Ambient Temperature (Tan)	507.3	°R
Shell Radius (Rs)	7.75	ft
Liquid Height (Hl)	11.5	ft
Roof Height (Hr)	0.484	ft
Roof Outage (Hro)	0.161	ft
Vapor Space Outage (Hvo)	12.7	ft
Vapor Space Volume (Vv)	2389	ft^3
Net Working Loss Throughput (Vq)	11526244	ft^3/year
Tank Shell Height to Tank Diameter (Hs/D)	1.55	dimensionless
Average Daily Ambient Temperature (Taa)	521.4	°R
Liquid Bulk Temperature (Tb)	526.0	°R
Average Daily Liquid Surface Temperature (Tla)	530.1	°R
Daily Max Liquid Surface Temperature (Tlx)	542.1	°R
Daily Min Liquid Surface Temperature (Tln)	518.1	°R
Average Vapor Temperature (Tv)	534.1	°R
Vapor Pressure at TLA (Pva)	9.73	psia
Vapor Pressure at TLX (Pvx)	11.7	psia
Vapor Pressure at TLN (Pvn)	8.04	psia
Vapor Pressure at Tb	9.13	psia
Vapor Density (Wv)	0.085	lb/ft^3
Average Daily Ambient Temperature Range (dTa)	28.2	°R
Average Daily Vapor Temperature Range (dTv)	48.0	°R
Average Daily Vapor Pressure Range (dPv)	3.63	psia
Breather Vent Pressure Range (dPb)	0.060	psia
Vapor Space Expansion Factor (Ke)	1.22	per day
Vented Vapor Saturation Factor (Ks)	0.133	dimensionless
Standing Losses (Ls)	12031	lb/year
Turnovers per Period (N)	2777	turnovers/year
Turnover Factor (Kn)	1.00	dimensionless
Working Losses (Lw)	733768	lb/year
Total Routine Losses (Lt)	745800	lb/year
Max Hourly Working Loss (lb/hr)	**155**	**lb/hr**
Uncontrolled Annual total (Lt - tons/year)	**373**	**tpy**

Sample Calculations

From AP-42 Chapter 7.1 Organic Liquid Storage Tanks (11/2019)

Standing Loss

$L_s = 365(V_v)(W_v)(K_e)(K_s)$ Equation (1-2)

$= 365 \text{ days/year } (2389 \text{ ft}^3)(0.085 \text{ lb/ft}^3)\ (1.22/\text{day})(0.133)$

$= 12000 \text{ lb/year}$

$V_v = [(\pi/4)D^2](H_{vo})$ Equation (1-3)

$= [(\pi/4)(15.5 \text{ ft})^2](12.66 \text{ ft})$

$V_v = 2389 \text{ ft}^3$

$H_{vo} = H_s - H_l + H_{ro}$ Equation (1-16)

$= 24 \text{ ft} - 11.5 \text{ ft} + 0.161 \text{ ft}$

$H_{vo} = 12.66 \text{ ft}$

If cone roof, $H_{ro} = 1/3(H_r)$ Equation (1-17)

If dome roof, $H_{ro} = 0.137(R_s)$ Equation (1-19)

$H_{ro} = 1/3(H_r)$

$= 1/3(0.484 \text{ ft})$

$H_{ro} = 0.161 \text{ ft}$

If cone roof, $H_r = (S_r)(R_s)$ Equation (1-18)

If dome roof, $H_r = 0.268(R_s)$ Equation (1-20)

$H_r = (S_r)(R_s)$

$= (0.0625 \text{ ft/ft})*[(15.5 \text{ ft})/2]$

$H_r = 0.484 \text{ ft}$

$R_s = D/2$

$= (15.5 \text{ ft})/2$

$R_s = 7.75 \text{ ft}$

$W_v = [(M_v)(P_{va})]/[(R)(T_v)]$ Equation (1-22)

$= [(50 \text{ lb/lb-mol})(9.73 \text{ psia})]/[(10.731 \text{ psia ft}^3/\text{lb-mol °R})(534.1 \text{ °R})]$

$W_v = 0.085 \text{ lb/ft}^3$

$P_{va} = \exp\{[2799/(T_{la} + 459.7) - 2.227]\log_{10}(RVP) - (7261/(T_{la} + 459.7) + 12.82\}$ Equation (Figure 7.1-13b)

$= \exp\{[2799/(530.1°R) - 2.227]\log(10.78 \text{ psia}) - (7261/(530.1°R) + 12.82\}$

$P_{va} = 9.73 \text{ psia}$

$T_{la} = [0.5 - (0.8/(4.4*(H_s/D) + 3.8))]*T_{aa}$ Equation (1-27)

$+ [0.5 + (0.8/(4.4*(H_s/D) + 3.8))]*T_b$

$+ [0.021*(\alpha r)*(I) + 0.013*(H_s/D)*(\alpha s)*(I)]/[4.4*(H_s/D) + 3.8]$

$= [0.5 - (0.8/(4.4*(1.55) + 3.8))]*521.4°R$

$+ [0.5 + (0.8/(4.4*(1.55) + 3.8))]*526°R$

$+ 0.021*(0.9)*(1722 \text{ Btu/ft}^2 \text{ d}) + 0.013*(1.55)*(0.9)*(1722 \text{ Btu/ft}^2 \text{ d})]/[4.4*(1.55) + 3.8]$

$T_{la} = 530.1°R$

$H_s/D = 24 \text{ ft} / 15.5 \text{ ft}$

$H_s/D = 1.55$

$T_{aa} = (T_{ax} + T_{an})/2$ Equation (1-30)

$= (535.5°R + 507.3°R)/2$

$= 521.4°R$

$T_b = T_{aa} + 0.003*(\alpha s)*(I)$ Equation (1-31)

$= 521.4°R + 0.003*(0.9)*(1722 \text{ Btu/ft}^2 \text{ d})$

$= 526°R$

$T_v = \{[2.2*(H_s/D) + 1.1]*T_{aa} + 0.8*T_b$ Equation (1-32)

$+ 0.021*(\alpha r)*(I) + 0.013*(H_s/D)*(\alpha s)*(I)\}/[2.2*(H_s/D) + 1.9]$

$= \{[2.2*(1.55) + 1.1]*521.4°R + 0.8*526°R$

$+ 0.021*(0.9)*(1722 \text{ Btu/ft}^2 \text{ d}) + 0.013*(1.55)*(0.9)*(1722 \text{ Btu/ft}^2 \text{ d})\}/[2.2*(1.55) + 1.9]$

$T_v = 534.1°R$

Sample Calculations (continued)

Ke = (dTv/Tla) + [(dPv - dPb)]/[(Pa - Pva)] Equation (1-5)

= (48°R)/(530.1°R) + [(3.63 psia - 0.06 psia)/(12.9 - 9.73 psia)]

Ke = 1.22

dTv = [1 - (0.8/(2.2*(Hs/D) + 1.9))]*dTa + [0.042*(αr)*(I) + 0.026*(Hs/D)*(αs)*(I)]/[2.2*(Hs/D) + 1.9] Equation (1-6)

= [1 - (0.8/(2.2*(1.55) + 1.9))]*28.2°R

+ [0.042*(0.9)*(1722 Btu/ft² d)

+ 0.026*(1.55)*(0.9)*(1722 Btu/ft² d)]/[2.2*(1.55) + 1.9]

dTv = 48°R

dTa = Tax - Tan Equation (1-11)

dTa = 535.5°R - 507.3°R

dTa = 28.2°R

dPv = Pvx - Pvn Equation (1-9)

= 11.67 psia - 8.04 psia

dPv = 3.63 psia

Pvx = exp{[2799/(Tlx + 459.7) - 2.227]$\log_{10}$(RVP) - (7261/(Tlx + 459.7) + 12.82} Equation (Figure 7.1-13b)

= exp{[(2799/542.1°R) - 2.227]log(10.78) - (7261/542.1°R) + 12.82}

Pvx = 11.67 psia

Pvn = exp{[2799/(Tln + 459.7) - 2.227]log10(RVP) - (7261/(Tln + 459.7) + 12.82} Equation (Figure 7.1-13b)

= exp{[(2799/518.1°R) - 2.227]log(10.78) - (7261/518.1°R) + 12.82}

Pvn = 8.04 psia

dPb = PBp - PBv Equation (1-10)

= 0.03 psig - (-0.03 psig)

dPb = 0.06 psia

Ks = 1/[1 + (0.053)(Pva)(Hvo)] Equation (1-21)

= 1/[1 + (0.053)(9.73 psia)(12.66 ft)]

Ks = 0.133

Working Loss

Lw = (Vq)(Kn)(Kp)(Wv)(Kb) Equation (1-35)

= (11526243.75 ft³/year)(1)(0.75)(0.085 lb/ft³)(1)

Lw = 733800 lb/year

Vq = (ΣHqi)(π/4)D^2 Equation (1-38)

= (61100 ft/yr)(π/4)*(15.5 ft)²

Vq = 11526200 ft³/year

If turnovers > 36, Kn = (180 + N)/6N Equation (1-35)

If turnovers ≤ 36 or flash occurs in the vessel, Kn = 1 Equation (1-35)

Kn = 1

N = ΣHqi / (Hlx - Hln) Equation (1-36)

= (61100 ft/yr)/(23 ft - 1 ft)

N = 2780 turnovers/year

ΣHqi = (5.614 Q) / ((π/4) D^2) Equation (1-37) or provided by client

= (5.614 ft3/bbl)*(2053125 BBL/year)/((π/4)*(15.5ft)^2)

ΣHqi = 61100 ft/yr

Kp = 0.75 Equation (1-35)

Kb = 1.00 Equation (1-37)

Total Working and Standing Losses

Lt = Ls + Lw Equation (1-1)

= 12000 lb/year + 733800 lb/year

= 745800 lb/year

= 373 tpy

Maximum Hourly Working Loss - Pvx based on 95°F or Tlx, whichever is greater

Lmax = {(Mv)(Pvx)/[(R)(95+459.7))]}(5.614)(FRm)(Kn)(Kp), where Kn = 1 and Kp = 1 for worst case

= {(50 lb/lbmol)(14.03 psia)/[(10.731 psia ft³/lb-mol °R)(95+459.7)°R)]}(5.614 ft3/bbl)(235 bbl/hr)(1)(1)

Lmax = 155 lb/hr

EMISSION ESTIMATES FOR WATER STORAGE TANKS

Description: Water Storage Tanks
Primary and Redundant VRU Capture efficiency: **100%**
Number of Tanks: **5**

Prodcued Water Throughput: **60500** bbl/day

Emission Rates

FIN	EPN	Description	Throughput	Working & Standing Losses		Flash Losses		Pre-VRU Reduction Emissions		Post-VRU Reduction Emissions	
			bbl/day	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
PW-1	VRU	Water Storage	12100	334.0	1059	49.65	217.5	383.7	1276	0.000	0.000
PW-2	VRU	Water Storage	12100	334.0	1059	49.65	217.5	383.7	1276	0.000	0.000
PW-3	VRU	Water Storage	12100	334.0	1059	49.65	217.5	383.7	1276	0.000	0.000
PW-4	VRU	Water Storage	12100	334.0	1059	49.65	217.5	383.7	1276	0.000	0.000
PW-5	VRU	Water Storage	12100	334.0	1059	49.65	217.5	383.7	1276	0.000	0.000
TOTAL				**1670**	**5293**	**248.3**	**1087.4**	**1918**	**6380**	**0.000**	**0.000**

Speciated Water Tank Emissions

Component	Water Tank W&S Emissions			Water Tank Flash Emissions			Pre-VRU Reduction Emissions		Post-VRU Reduction Emissions	
	Weight %	lb/hr	tpy	Weight %	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Hydrogen Sulfide (H2S)	0.002	0.028	0.089	0.001	0.003	0.013	0.031	0.102	0.000	0.000
Nitrogen (N2)	0.003	0.047	0.149	0.172	0.426	1.87	0.473	2.01	0.000	0.000
Carbon Dioxide (CO2)	18.33	306.1	970.1	16.06	39.87	174.6	346.0	1145	0.000	0.000
Methane (CH4)	1.156	19.31	61.20	25.43	63.14	276.6	82.45	337.8	0.000	0.000
Ethane (C2H6)	1.308	21.84	69.21	24.99	62.04	271.7	83.88	340.9	0.000	0.000
Propane (C3H8)	0.164	2.74	8.67	18.31	45.45	199.1	48.19	207.7	0.000	0.000
IsoButane (i-C4H10)	0.004	0.072	0.227	2.02	5.02	22.01	5.10	22.24	0.000	0.000
N-Butane (n-C4H10)	0.014	0.227	0.718	6.90	17.13	75.01	17.35	75.73	0.000	0.000
IsoPentane (i-C5H12)	0.001	0.009	0.029	1.08	2.67	11.71	2.68	11.74	0.000	0.000
N-Pentane (n-C5H12)	0.000	0.002	0.006	0.680	1.69	7.40	1.69	7.40	0.000	0.000
Other Hexanes	0.000	0.005	0.016	0.840	2.09	9.13	2.09	9.15	0.000	0.000
Heptanes (less BTEX)	0.000	5.3E-05	1.7E-04	0.116	0.289	1.27	0.289	1.27	0.000	0.000
Octanes+	0.000	2.1E-07	6.6E-07	0.018	0.045	0.195	0.045	0.195	0.000	0.000
n-Hexane (n-C6H14)	0.000	5.1E-05	1.6E-04	0.099	0.245	1.07	0.245	1.07	0.000	0.000
Benzene (C6H6)	0.003	0.045	0.141	0.205	0.508	2.23	0.553	2.37	0.000	0.000
Toluene (C7H8)	0.001	0.011	0.035	0.230	0.572	2.51	0.583	2.54	0.000	0.000
Ethylbenzene (C8H10)	0.000	3.4E-04	0.001	0.025	0.063	0.274	0.063	0.275	0.000	0.000
Xylenes (C8H10)	0.000	0.128	0.407	0.091	0.225	0.986	0.354	1.39	0.000	0.000
Water (H2O)	79.017	131968	418200	2.73	6.78	29.71	131975	418229	0.000	0.000
TOTAL	**100.0**	**132318**	**419311**	**100.0**	**248.3**	**1087**	**132567**	**420398**	**0.000**	**0.000**
TOTAL VOC	**0.2**	**3.23**	**10.25**	**30.61**	**76.00**	**332.9**	**79.23**	**343.1**	**0.000**	**0.000**
TOTAL HAP	**0.00**	**0.185**	**0.585**	**0.650**	**1.61**	**7.06**	**1.80**	**7.65**	**0.000**	**0.000**

From ProMax Water Tank Flash Losses using CTB Analyses
From ProMax Water Tank Breathing Losses using CTB Analyses

EMISSION ESTIMATE FOR WATER TANK FLASH

Flash Losses per Tank

GOR	**0.799**	**scf/bbl**
Mol Weight	**46.69**	**lb/lb-mol**

Water Throughput	**12100**	**bbl/day**
	9672	**scf/day**
	403	**scf/hr**
Hourly Flash Loss	**50**	**lb/hr**
Annual Flash Loss	**217**	**tpy**

Throughput (scf/day) = (0.799 scf/bbl) * (12100 bbl/day) = (9672 scf/day)
Total Hourly Flash Loss = (403 scf/hr) / (379 scf/lbmol) * (46.693 lb/lbmol) = (49.7 lb/hr)

Flash Gas Speciation

Component	Weight %	Water Flash	
		Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Hydrogen Sulfide (H2S)	0.001	6.0E-04	0.003
Nitrogen (N2)	0.172	0.085	0.373
Carbon Dioxide (CO2)	16.06	7.97	34.93
Methane (CH4)	25.43	12.63	55.31
Ethane (C2H6)	24.99	12.41	54.35
Propane (C3H8)	18.31	9.09	39.81
IsoButane (i-C4H10)	2.02	1.00	4.40
N-Butane (n-C4H10)	6.90	3.43	15.00
IsoPentane (i-C5H12)	1.08	0.535	2.34
N-Pentane (n-C5H12)	0.680	0.338	1.48
Other Hexanes	0.840	0.417	1.83
Heptanes (C7H16)	0.116	0.058	0.253
Octanes +	0.018	0.009	0.039
n-Hexane (n-C6H14)	0.099	0.049	0.214
Benzene (C6H6)	0.205	0.102	0.445
Toluene (C7H8)	0.230	0.114	0.501
Ethylbenzene (C8H10)	0.025	0.013	0.055
Xylenes (C8H10)	0.091	0.045	0.197
Water (H2O)	2.73	1.36	5.94
TOTAL	100.0	49.65	217.5
TOTAL HAP	0.650	0.323	1.41
TOTAL VOC	30.61	15.20	66.57

From ProMax Water Tank Flash Losses using CTB Analyses

W&S EMISSION ESTIMATE FOR PW-1 thru PW-5

Tank FIN	PW-1 thru PW-5	
Description	Produced Water Tank	
Days per year	365	days/year

Tank Parameters

Material Stored	Produced Water	
Flash in vessel (Yes/No)	Yes	
Vapor Balanced Loading (Yes/No)	No	*Yes = truck loading vapors are vented to tank.*
Tank Max/Min levels client specified (Yes/No)	No	
Annual sum of liquid level increases client specified (Yes/No)	No	
Tanks construction	Welded	
Insulated Tank (Yes/No)	No	
Heated Tank (Yes/No)	No	
Tank Diameter (D)	15.5	ft
Tank Shell Height (Hs)	24	ft
Maximum Liquid Height (Hlx)	23	ft
Minimum Liquid Height (Hln)	1	ft
Annual Sum of the Increases in Liquid Level (ΣHqi)	131401	ft/yr
Roof Type	Cone	
Cone Roof Slope (Sr)	0.0625	ft/ft
Roof Paint Color	Green, Dark	
Roof Paint Condition	Average	
Tank Roof Surface Solar Absorptance (αr)	0.9	dimensionless (AP-42 Table 7.1-6)
Shell Paint Color	Green, Dark	
Shell Paint Condition	Average	
Tank Shell Surface Solar Absorptance (αs)	0.9	dimensionless (AP-42 Table 7.1-6)
Breather Vent Pressure Setting (PBp)	0.03	psig
Breather Vent Vacuum Setting (PBV)	-0.03	psig
Vent Setting Correction Factor (Kb)	1.00	dimensionless

Stored Material Properties

Vapor Molecular Weight (Mv)	50	lb/lb-mol
API Gravity (API)	50.73	° API
Reid Vapor Pressure (RVP)	10.780	psi
Working Loss Product Factor (Kp)	1	dimensionless

Environment Properties - (AP-42, CH. 7 - Table 7.1-7)

Met Data Location	Roswell, NM	
Met Data Period	Annual Average	
Average Daily Max Ambient Temperature	75.8	°F
Average Daily Min Ambient Temperature	47.6	°F
Solar Insolation (I)	1722	Btu/ft² d
Atmospheric Pressure (Pa)	12.88	psia

Operational Parameters

Actual Throughput (BBL/day)	12100	BBL/day
Actual Throughput (BBL/year)	4416500	BBL/year
Actual Throughput (Gal/year)	185493000	Gal/year
Max Fill Rate (FRm) (BBL/hr)	505	BBL/hr

Constants

Universal Gas Constant (R)	10.731	psia ft³/lb-mol °R

Standing and Working Loss Calculations

Average Daily Max Ambient Temperature (Tax)	535.5	°R
Average Daily Min Ambient Temperature (Tan)	507.3	°R
Shell Radius (Rs)	7.75	ft
Liquid Height (Hl)	11.5	ft
Roof Height (Hr)	0.484	ft
Roof Outage (Hro)	0.161	ft
Vapor Space Outage (Hvo)	12.7	ft
Vapor Space Volume (Vv)	2389	ft^3
Net Working Loss Throughput (Vq)	24794231	ft^3/year
Tank Shell Height to Tank Diameter (Hs/D)	1.55	dimensionless
Average Daily Ambient Temperature (Taa)	521.4	°R
Liquid Bulk Temperature (Tb)	526.0	°R
Average Daily Liquid Surface Temperature (Tla)	530.1	°R
Daily Max Liquid Surface Temperature (Tlx)	542.1	°R
Daily Min Liquid Surface Temperature (Tln)	518.1	°R
Average Vapor Temperature (Tv)	534.1	°R
Vapor Pressure at TLA (Pva)	9.73	psia
Vapor Pressure at TLX (Pvx)	11.7	psia
Vapor Pressure at TLN (Pvn)	8.04	psia
Vapor Pressure at Tb	9.13	psia
Vapor Density (Wv)	0.085	lb/ft^3
Average Daily Ambient Temperature Range (dTa)	28.2	°R
Average Daily Vapor Temperature Range (dTv)	48.0	°R
Average Daily Vapor Pressure Range (dPv)	3.63	psia
Breather Vent Pressure Range (dPb)	0.060	psia
Vapor Space Expansion Factor (Ke)	1.22	per day
Vented Vapor Saturation Factor (Ks)	0.133	dimensionless
Standing Losses (Ls)	12031	lb/year
Turnovers per Period (N)	5973	turnovers/year
Turnover Factor (Kn)	1.00	dimensionless
Working Losses (Lw)	2104554	lb/year
Total Routine Losses (Lt)	2117000	lb/year
Max Hourly Working Loss (lb/hr)	**334**	**lb/hr**
Uncontrolled Annual total (Lt - tons/year)	**1059**	**tpy**

EMISSION ESTIMATES FOR SLOP TANK

Description: Slop Storage Tanks
VRU Capture efficiency: 95%
Number of Tanks: 1

Emission Rate

FIN	EPN	Description	Throughput bbl/day	Working & Standing Losses lb/hr	Working & Standing Losses tpy	Flash Losses lb/hr	Flash Losses tpy	Total Emissions lb/hr	Total Emissions tpy
TK-S1	TK-S1	Water Storage	100.0	0.033	0.147	19.80	86.71	19.83	86.86
TOTAL				**0.033**	**0.147**	**19.80**	**86.71**	**19.83**	**86.86**

W&S Emissions from the slop tank assumed to be 1% of the emissions calculated based on condensate properties.
Flash emissions based on 1% of the emissions calculated based on condensate properties.

Speciated Water Tank Emissions

Component	SlopTank W&S Emissions Weight %	SlopTank W&S Emissions lb/hr	SlopTank W&S Emissions tpy	Slop Tank Flash Emissions Weight %	Slop Tank Flash Emissions lb/hr	Slop Tank Flash Emissions tpy	Pre-VRU Reduction Emissions lb/hr	Pre-VRU Reduction Emissions tpy	Post-VRU Reduction Emissions lb/hr	Post-VRU Reduction Emissions tpy
Hydrogen Sulfide (H2S)	0.001	3.6E-07	1.6E-06	0.001	0.000	0.001	0.000	0.001	0.000	0.000
Nitrogen (N2)	0.139	0.000	0.000	1.51	0.30	1.3	0.30	1.3	0.01	0.07
Carbon Dioxide (CO2)	3.47	0.001	0.005	2.97	0.59	2.6	0.59	2.6	0.03	0.13
Methane (CH4)	20.15	0.007	0.030	48.52	9.6	42	9.6	42	0.48	2.1
Ethane (C2H6)	30.55	0.010	0.04	16.36	3.2	14	3.2	14	0.16	0.71
Propane (C3H8)	22.86	0.008	0.03	13.62	2.7	12	2.7	12	0.14	0.59
IsoButane (i-C4H10)	3.46	0.001	0.005	2.30	0.46	2.0	0.46	2.0	0.02	0.10
N-Butane (n-C4H10)	8.68	0.003	0.013	5.90	1.2	5.1	1.2	5.1	0.06	0.26
IsoPentane (i-C5H12)	2.25	0.001	0.003	1.58	0.31	1.4	0.31	1.4	0.02	0.07
N-Pentane (n-C5H12)	2.97	0.001	0.004	2.15	0.42	1.9	0.43	1.9	0.02	0.09
Other Hexanes	0.778	0.000	0.001	0.710	0.14	0.62	0.14	0.62	0.007	0.03
Heptanes (less BTEX)	1.94	0.001	0.003	1.630	0.32	1.41	0.32	1.42	0.016	0.07
Octanes+	1.50	0.000	0.002	1.491	0.30	1.29	0.30	1.29	0.015	0.06
n-Hexane (n-C6H14)	0.971	0.000	0.001	0.769	0.15	0.67	0.15	0.67	0.008	0.03
Benzene (C6H6)	0.058	1.9E-05	0.000	0.063	0.012	0.05	0.012	0.05	0.001	0.003
Toluene (C7H8)	0.125	4.1E-05	0.000	0.135	0.03	0.12	0.03	0.12	0.001	0.006
Ethylbenzene (C8H10)	0.024	7.9E-06	0.000	0.025	0.005	0.02	0.005	0.02	0.000	0.001
Xylenes (C8H10)	0.082	2.7E-05	0.000	0.098	0.02	0.08	0.02	0.09	0.001	0.004
Water (H2O)	1.8E-04	6.0E-08	2.7E-07	0.175	0.03	0.15	0.03	0.15	0.002	0.008
TOTAL	**100.0**	**0.033**	**0.147**	**100.0**	**20**	**87**	**20**	**87**	**0.99**	**4.3**
TOTAL VOC	**45.7**	**0.015**	**0.067**	**30.46**	**6.0**	**26**	**6.0**	**26**	**0.30**	**1.3**
TOTAL HAP	**1.260**	**0.000**	**0.002**	**1.090**	**0.22**	**0.95**	**0.22**	**0.95**	**0.011**	**0.05**

From ProMax Slop Tank Flash Losses using CTB Analyses
From ProMax Slop Tank Breathing Losses using CTB Analyses

EMISSION ESTIMATE FOR SLOP TANK FLASH

Flash Losses per Tank

GOR	**76.61**	**scf/bbl**
Mol Weight	**23.51**	**lb/lb-mol**

Flash emissions based on 1% of the emissions calculated based on condensate properties.

Throughput	**100.0**	**bbl/day**
	7661	**scf/day**
	319	**scf/hr**
Total Hourly Flash Loss	**20**	**lb/hr**
Total Annual Flash Loss	**87**	**tpy**

Throughput (scf/day) = (76.61 scf/bbl) * (100 bbl/day) = (7661 scf/day)
Total Hourly Flash Loss = (319 scf/hr) / (379 scf/lbmol) * (23.51 lb/lbmol) = (19.8 lb/hr)

Flash Gas Speciation

Component	Weight %	Slop Tank Flash	
		Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Hydrogen Sulfide (H2S)	**0.001**	0.03	0.13
Nitrogen (N2)	**1.506**	0.30	1.3
Carbon Dioxide (CO2)	**2.975**	0.59	2.6
Methane (CH4)	**48.522**	9.6	42
Ethane (C2H6)	**16.361**	3.2	14
Propane (C3H8)	**13.618**	2.7	12
IsoButane (i-C4H10)	**2.299**	0.46	2.0
N-Butane (n-C4H10)	**5.898**	1.2	5.1
IsoPentane (i-C5H12)	**1.579**	0.31	1.4
N-Pentane (n-C5H12)	**2.146**	0.42	1.9
Other Hexanes	**0.710**	0.14	0.62
Heptanes (C7H16)	**1.630**	0.32	1.41
Octanes +	**1.491**	0.30	1.29
n-Hexane (n-C6H14)	**0.769**	0.15	0.67
Benzene (C6H6)	**0.063**	0.012	0.05
Toluene (C7H8)	**0.135**	0.03	0.12
Ethylbenzene (C8H10)	**0.025**	0.005	0.02
Xylenes (C8H10)	**0.098**	0.02	0.08
Water (H2O)	**0.175**	0.03	0.15
TOTAL	100.0	20	87
TOTAL HAP	1.09	0.22	0.95
TOTAL VOC	30.5	6.0	26

From ProMax Slop Tank Flash

W&S EMISSION ESTIMATE FOR TK-S1

Tank FIN	TK-S1	
Description	Slop Tank	
Days per year	365	days/year

Tank Parameters

Material Stored	Produced Water	
Flash in vessel (Yes/No)	Yes	
Vapor Balanced Loading (Yes/No)	No	*Yes = truck loading vapors are vented to tank.*
Tank Max/Min levels client specified (Yes/No)	No	
Annual sum of liquid level increases client specified (Yes/No)	No	
Tanks construction	Welded	
Insulated Tank (Yes/No)	No	
Heated Tank (Yes/No)	No	
Tank Diameter (D)	15.5	ft
Tank Shell Height (Hs)	24	ft
Maximum Liquid Height (Hlx)	23	ft
Minimum Liquid Height (Hln)	1	ft
Annual Sum of the Increases in Liquid Level (ΣHqi)	1086	ft/yr
Roof Type	Cone	
Cone Roof Slope (Sr)	0.0625	ft/ft
Roof Paint Color	Green, Dark	
Roof Paint Condition	Average	
Tank Roof Surface Solar Absorptance (αr)	0.9	dimensionless (AP-42 Table 7.1-6)
Shell Paint Color	Green, Dark	
Shell Paint Condition	Average	
Tank Shell Surface Solar Absorptance (αs)	0.9	dimensionless (AP-42 Table 7.1-6)
Breather Vent Pressure Setting (PBp)	0.03	psig
Breather Vent Vacuum Setting (PBV)	-0.03	psig
Vent Setting Correction Factor (Kb)	1.00	dimensionless

Stored Material Properties

Vapor Molecular Weight (Mv)	50	lb/lb-mol
API Gravity (API)	50.73	° API
Reid Vapor Pressure (RVP)	10.780	psi
Working Loss Product Factor (Kp)	1	dimensionless

Environment Properties - (AP-42, CH. 7 - Table 7.1-7)

Met Data Location	Roswell, NM	
Met Data Period	Annual Average	
Average Daily Max Ambient Temperature	75.8	°F
Average Daily Min Ambient Temperature	47.6	°F
Solar Insolation (I)	1722	Btu/ft² d
Atmospheric Pressure (Pa)	12.88	psia

Operational Parameters

Actual Throughput (BBL/day)	100	BBL/day
Actual Throughput (BBL/year)	36500	BBL/year
Actual Throughput (Gal/year)	1533000	Gal/year
Max Fill Rate (FRm) (BBL/hr)	5	BBL/hr

Constants

Universal Gas Constant (R)	10.731	psia ft³/lb-mol °R

Standing and Working Loss Calculations

Average Daily Max Ambient Temperature (Tax)	535.5	°R
Average Daily Min Ambient Temperature (Tan)	507.3	°R
Shell Radius (Rs)	7.75	ft
Liquid Height (Hl)	11.5	ft
Roof Height (Hr)	0.484	ft
Roof Outage (Hro)	0.161	ft
Vapor Space Outage (Hvo)	12.7	ft
Vapor Space Volume (Vv)	2389	ft^3
Net Working Loss Throughput (Vq)	204911	ft^3/year
Tank Shell Height to Tank Diameter (Hs/D)	1.55	dimensionless
Average Daily Ambient Temperature (Taa)	521.4	°R
Liquid Bulk Temperature (Tb)	526.0	°R
Average Daily Liquid Surface Temperature (Tla)	530.1	°R
Daily Max Liquid Surface Temperature (Tlx)	542.1	°R
Daily Min Liquid Surface Temperature (Tln)	518.1	°R
Average Vapor Temperature (Tv)	534.1	°R
Vapor Pressure at TLA (Pva)	9.73	psia
Vapor Pressure at TLX (Pvx)	11.7	psia
Vapor Pressure at TLN (Pvn)	8.04	psia
Vapor Pressure at Tb	9.13	psia
Vapor Density (Wv)	0.085	lb/ft^3
Average Daily Ambient Temperature Range (dTa)	28.2	°R
Average Daily Vapor Temperature Range (dTv)	48.0	°R
Average Daily Vapor Pressure Range (dPv)	3.63	psia
Breather Vent Pressure Range (dPb)	0.060	psia
Vapor Space Expansion Factor (Ke)	1.22	per day
Vented Vapor Saturation Factor (Ks)	0.133	dimensionless
Standing Losses (Ls)	12031	lb/year
Turnovers per Period (N)	49.4	turnovers/year
Turnover Factor (Kn)	1.00	dimensionless
Working Losses (Lw)	17393	lb/year
Total Routine Losses (Lt)	29420	lb/year
Max Hourly Working Loss (lb/hr)	**3.31**	**lb/hr**
Uncontrolled Annual total (Lt - tons/year)	**14.7**	**tpy**

W&S Emissions from the slop tank assumed to be 1% of the emissions calculated based on condensate properties.

Max Hourly Working Loss (lb/hr)	**0.033**	**lb/hr**
Pre-VRU Reduction Annual total (tons/year)	**0.147**	**tpy**

STARTUP, SHUTDOWN, AND MAINTENANCE EMISSIONS

Summary of SSM Emissions

EPN SITE-SSM

	VOC		H2S		Benzene		Toluene		Ethylbenzene		Xylene		n-Hexane		Total HAP	
Activity	**lb/hr***	**tpy**	**lb/hr***	**tpy**	**lb/hr***	**tpy**	**lb/hr***	**tpy**	**lb/hr***	**tpy**	**lb/hr***	**tpy**	**lb/hr***	**tpy**	**lb/hr***	**tpy**
Dehydrator Blowdowns	345.8	1.04	0.017	5.0E-05	0.716	0.002	1.25	0.004	0.159	4.8E-04	0.977	0.003	8.55	0.026	11.65	0.035
VRU Blowdowns	7.09	0.128	9.8E-05	1.8E-06	0.005	8.3E-05	0.005	8.2E-05	4.4E-04	7.9E-06	0.001	2.5E-05	0.079	0.001	0.090	0.002
Compressor Blowdowns	86.44	1.82	0.004	8.7E-05	0.179	0.004	0.312	0.007	0.040	0.001	0.244	0.005	2.14	0.045	2.91	0.061
SSM Total	**345.8**	**2.98**	**0.017**	**1.4E-04**	**0.716**	**0.006**	**1.25**	**0.010**	**0.159**	**0.001**	**0.977**	**0.008**	**8.55**	**0.072**	**11.65**	**0.098**

*The lb/hr values have not been summed. These activities do not occur simultaneously; therefore, summing these values for the purpose of demonstrating short-term emission limits is inappropriate. Instead, the highest lb/hr value is given as the total.

Glycol Dehydration Unit Blowdowns

Accounts for depressuring process vessels and equipment for maintenance.

Calculation Inputs

Piping Allowance:	10%			
Volume (cu.ft.):	829			
Pressure (psig):	1000	Atmospheric Pressure:	14.7	psia
Temperature (°F):	80	Temperature:	540	°R
R Value (psia-cu.ft./lb-mol/R):	10.732			
Event Duration:	3	hrs		
Events per Year:	2			
Natural Gas MW:	23.5	lb/lb-mol		

Calculation

n = P*V/(R*T)

Natural Gas Vented, n:	145.2	lb-mol/activity
Natural Gas Vented:	3409	lb/activity
	1136	lb/hr
	3.41	ton/yr

EPN: SITE-MSS

Component	Composition* (wt %)	Max Hourly Rate (lb/hr)	Annual Rate (ton/yr)
Hydrogen Sulfide	0.001	0.017	5.0E-05
Nitrogen	1.52	17.30	0.052
Carbon Dioxide	3.03	34.4	0.103
Methane	48.98	557.0	1.67
Ethane	16.01	182.0	0.546
Propane	12.97	147.0	0.442
IsoButane	2.28	25.90	0.078
N-Butane	5.96	67.80	0.203
IsoPentane	1.70	19.30	0.058
N-Pentane	2.00	22.70	0.068
n-Hexane	0.752	8.55	0.026
Benzene	0.063	0.716	0.002
Toluene	0.110	1.25	0.004
Ethylbenzene	0.014	0.159	0.000
Xylene	0.086	0.977	0.003
Total	**100.0**	**1140**	**3.41**
Total VOC	**30.46**	**345.8**	**1.04**
Total H2S	**0.001**	**0.017**	**5.0E-05**
Total HAP	**1.03**	**11.7**	**0.035**

*Composition from Inlet Gas Speciation

*Assumed Hexanes Plus = n-hexane for HAPs. BTEX HAPs are also conservatively assumed equal to n-hexane. For this reason, % totals will not equal 100%.

VRU Blowdowns

Accounts for depressuring compressor and associated equipment for maintenance.

Number of VRUs:	3	
Physical blowdown Volume:	10	ft^3
Piping/Restart Allowance:	20%	
R Value:	10.732	psia-cu.ft./lb-mol/°R
Event Duration:	1	hr or less
Events per Compressor:	12	(monthly)
Events per Year:	36	

Total Piping and Equipment Volume for One Compressor =	12	ft^3
Temperature =	80	°F
Starting Pressure =	80	psig
=	95	psia
Atmospheric pressure =	14.7	psia
R value =	10.732	psia-ft^3/lbmol-R
Standard gas volume =	379.5	scf/lbmol

Moles of gas (n) = P*V / (R*T) = (94.7 psia) (12 ft3) / [(10.73159 psia-ft3/lbmol-R) (540 R)]

Moles of gas (n) =	0.20	lbmol
Standard Gas Volume =	(0.196 lbmol) (379.5 scf/lbmol)	
=	74	scf

Vapor MW: 50

Calculated Emission Rates

Natural Gas Vented, n:	0.196	lb-mol/activity
Natural Gas Vented:	9.80	lb/activity
	9.80	lb/hr
	0.176	ton/yr

EPN: SITE-MSS

Component	Composition* (wt %)	Max Hourly Rate (lb/hr)	Annual Rate (ton/yr)
Hydrogen Sulfide	0.001	9.8E-05	1.8E-06
Carbon Dioxide	0.755	0.074	0.001
Methane	1.85	0.181	0.003
Ethane	25.12	2.46	0.044
Propane	38.33	3.76	0.068
IsoButane	6.40	0.627	0.011
N-Butane	17.33	1.70	0.031
IsoPentane	3.49	0.342	0.006
N-Pentane	4.22	0.413	0.007
Other Hexanes	0.566	0.056	0.001
Heptanes	0.751	0.074	0.001
Octanes +	0.264	0.026	0.000
n-Hexane	0.807	0.079	0.001
Benzene	0.047	0.005	8.3E-05
Toluene	0.046	0.005	8.2E-05
Ethylbenzene	0.005	4.4E-04	7.9E-06
Xylene	0.014	0.001	2.5E-05
Total	**100.0**	**9.80**	**0.176**
Total VOC	**72.27**	**7.09**	**0.128**
Total H2S	**0.001**	**9.8E-05**	**1.8E-06**
Total HAP	**0.919**	**0.090**	**0.002**

*Composition from Oil Tank Breathing Vapor Speciation

Compressor Blowdowns

Accounts for depressuring compressor and associated equipment for maintenance.

Compressor Type:	CAT G3516B LE	
Number of Compressors:	6	
Physical blowdown Volume:	3896	ft^3
Piping/Restart Allowance:	20%	
R Value:	10.732	psia-cu.ft./lb-mol/°R
Event Duration:	1	hr or less
Events per Compressor:	7	
Events per Year:	42	

Total Piping and Equipment Volume for One Compressor =	4,675	ft^3
Temperature =	68	°F
Starting Pressure =	0	psig
=	15	psia
Atmospheric pressure =	14.7	psia
R value =	10.732	psia-ft^3/lbmol-R
Standard gas volume =	379.5	scf/lbmol

Moles of gas (n) = P*V / (R*T) = (14.7 psia) (4675 ft3) / [(10.73159 psia-ft3/lbmol-R) (528 R)]

Moles of gas (n) =	12.10	lbmol
Standard Gas Volume =	(12.1 lbmol) (379.5 scf/lbmol)	
=	4592	scf

Vapor MW: 23.5 lb/lb-mol

Calculated Emission Rates

Natural Gas Vented, n:	12.100	lb-mol/activity
Natural Gas Vented:	284.1	lb/activity
	284.1	lb/hr
	5.965	ton/yr

EPN: SITE-MSS

Component	Vapor Weight %*	Max Hourly Rate (lb/hr)	Annual Rate (ton/yr)
Hydrogen Sulfide	0.001	0.004	8.7E-05
Carbon Dioxide	3.03	8.60	0.181
Methane	48.98	139.0	2.92
Ethane	16.01	45.50	0.955
Propane	12.97	36.80	0.774
IsoButane	2.28	6.48	0.136
N-Butane	5.96	16.90	0.356
IsoPentane	1.70	4.83	0.101
N-Pentane	2.00	5.68	0.119
n-Hexane	0.752	2.14	0.045
Benzene	0.063	0.179	0.004
Toluene	0.110	0.312	0.007
Ethylbenzene	0.014	0.040	0.001
Xylene	0.086	0.244	0.005
Total	**100.0**	**283.9**	**5.96**
Total VOC	**30.46**	**86.44**	**1.82**
Total H2S	**0.001**	**0.004**	**8.7E-05**
Total HAP	**1.03**	**2.91**	**0.061**

*Composition from Inlet Gas Speciation

*Assumed Hexanes Plus = n-hexane for HAPs. BTEX HAPs are also conservatively assumed equal to n-hexane. For this reason, % totals will not equal 100%.

Mass Fraction Conversion
Inlet Gas

Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	1.279	28.01	0.3582	1.524
Carbon Dioxide (CO2)	1.618	44.01	0.7121	3.029
Methane (CH4)	71.779	16.04	11.5132	48.984
Ethane (C2H6)	12.515	30.07	3.7632	16.008
Propane (C3H8)	6.913	44.09	3.0479	12.968
IsoButane (i-C4H10)	0.922	58.12	0.5359	2.280
N-Butane (n-C4H10)	2.411	58.12	1.4013	5.963
IsoPentane (i-C5H12)	0.554	72.15	0.3997	1.700
N-Pentane (n-C5H12)	0.651	72.15	0.4697	1.998
Other Hexanes	0.375	86.17	0.3231	1.365
Heptanes+ (less BTEX)	0.709	100.2	0.7104	3.156
n-Hexane (n-C6H14)	0.205	86.17	0.1766	0.752
Benzene (C6H6)	0.019	78.11	0.0148	0.063
Toluene (C7H8)	0.028	92.14	0.0258	0.110
Ethylbenzene (C8H10)	0.003	106.17	0.0032	0.014
Xylenes (C8H10)	0.019	106.17	0.0202	0.086
TOTAL	100.0		23.5	100.0

From Salado Draw 19 CTB Final, Train 3 Inlet Separator Date Sampled: 07/20/2021. H2S conservatively estimated to be 0.001%.

Total HC	95.447
Total VOC	30.455
Total HAP	1.025

Mass Fraction Conversion
Light Oil Fugitives

Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.022
Nitrogen (N2)	0.032	28.01	0.0090	0.006
Carbon Dioxide (CO2)	0.096	44.01	0.0422	0.029
Methane (CH4)	2.436	16.04	0.3907	0.273
Ethane (C2H6)	2.419	30.07	0.7274	0.508
Propane (C3H8)	4.404	44.09	1.9417	1.356
IsoButane (i-C4H10)	1.299	58.12	0.7550	0.527
N-Butane (n-C4H10)	4.962	58.12	2.8839	2.022
IsoPentane (i-C5H12)	2.562	72.15	1.8485	1.291
N-Pentane (n-C5H12)	3.959	72.15	2.8564	1.995
Other Hexanes	3.29	86.17	2.8350	1.98
Heptanes (less BTEX)	9.543	100.2	9.5620	6.241
Octanes+	58.718	114.23	67.0729	79.709
n-Hexane (n-C6H14)	3.112	86.17	2.6816	1.873
Benzene (C6H6)	0.295	78.11	0.2304	0.161
Toluene (C7H8)	1.06	92.14	0.9767	0.682
Ethylbenzene (C8H10)	0.336	106.17	0.3567	0.249
Xylenes (C8H10)	1.477	106.17	1.5681	1.095
TOTAL	100.0		96.7	100.0

From Salado Draw 19 CTB Final Train 3 Inlet Separator Hydrocarbon Liquid, Date Sampled 07/20/2021. H2S conservatively estimated to be 0.001%.

Total HC	99.689
Total VOC	99.181
Total HAP	4.060

Mass Fraction Conversion
Fuel Gas for Heater and Reboiler, Pilot Fuel

Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	0.572	28.01	0.1602	0.489
Carbon Dioxide (CO2)	4.060	44.01	1.7868	5.456
Methane (CH4)	48.240	16.04	7.7376	23.627
Ethane (C2H6)	17.288	30.07	5.1984	15.872
Propane (C3H8)	12.530	44.09	5.5244	16.870
IsoButane (i-C4H10)	1.962	58.12	1.1403	3.482
N-Butane (n-C4H10)	5.617	58.12	3.2646	9.976
IsoPentane (i-C5H12)	1.957	72.15	1.4120	4.311
N-Pentane (n-C5H12)	2.581	72.15	1.8622	5.686
Other Hexanes	1.877	86.17	1.6174	4.911
Heptanes+ (less BTEX)	1.794	100.2	1.7976	5.362
n-Hexane (n-C6H14)	1.030	86.17	0.8875	2.710
Benzene (C6H6)	0.338	78.11	0.2640	0.806
Toluene (C7H8)	0.134	92.14	0.1235	0.377
Ethylbenzene (C8H10)	0.005	106.17	0.0053	0.016
Xylenes (C8H10)	0.015	106.17	0.0159	0.049
TOTAL	100.0		32.8	100.0

From Salado Draw 19 CTB Final, K-740A Flash Gas Compressor No. 3 Date Sampled: 07/20/2021. H2S conservatively estimated to be 0.001%.

Total HC	94.055
Total VOC	54.556
Total HAP	3.958

Mass Fraction Conversion
Oil Flash Gas for CTB tanks
(TK-1, TK-2, TK-3, TK-4)
Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	0.008	28.01	0.0022	0.005
Carbon Dioxide (CO2)	0.931	44.01	0.4099	0.877
Methane (CH4)	6.794	16.04	1.0898	2.331
Ethane (C2H6)	20.114	30.07	6.0482	12.936
Propane (C3H8)	35.087	44.09	15.4699	33.092
IsoButane (i-C4H10)	6.565	58.12	3.8157	8.162
N-Butane (n-C4H10)	18.061	58.12	10.4971	22.459
IsoPentane (i-C5H12)	3.795	72.15	2.7381	5.856
N-Pentane (n-C5H12)	4.678	72.15	3.3750	7.341
Other Hexanes	0.810	86.17	0.6977	1.458
Heptanes (less BTEX)	0.971	100.2	0.9729	2.095
Octanes+	0.400	114.23	0.4573	0.995
n-Hexane (n-C6H14)	0.968	86.17	0.8345	1.785
Benzene (C6H6)	0.082	78.11	0.0639	0.137
Toluene (C7H8)	0.079	92.14	0.0725	0.155
Ethylbenzene (C8H10)	0.008	106.17	0.0081	0.017
Xylenes (C8H10)	0.027	106.17	0.0282	0.060
Water (H2O)	0.622	18.015	0.1120	0.240
TOTAL	100.0		46.7	100.0

From ProMax Oil Tank Flash Losses using CTB Analyses

Total HC	98.879
Total VOC	83.612
Total HAP	2.154

Mass Fraction Conversion
Oil Tank Breathing Losses for CTB tanks
(TK-1, TK-2, TK-3, TK-4)
Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	0.000	28.01	0.0001	0.000
Carbon Dioxide (CO2)	0.755	44.01	0.3321	0.709
Methane (CH4)	1.851	16.04	0.2969	0.634
Ethane (C2H6)	25.122	30.07	7.5542	16.132
Propane (C3H8)	38.331	44.09	16.9002	36.096
IsoButane (i-C4H10)	6.397	58.12	3.7179	7.940
N-Butane (n-C4H10)	17.330	58.12	10.0722	21.516
IsoPentane (i-C5H12)	3.493	72.15	2.5205	5.383
N-Pentane (n-C5H12)	4.219	72.15	3.0439	6.602
Other Hexanes	0.566	86.17	0.4878	1.017
Heptanes (less BTEX)	0.751	100.2	0.7524	1.618
Octanes+	0.264	114.23	0.3018	0.654
n-Hexane (n-C6H14)	0.807	86.17	0.6957	1.486
Benzene (C6H6)	0.047	78.11	0.0369	0.079
Toluene (C7H8)	0.046	92.14	0.0426	0.091
Ethylbenzene (C8H10)	0.005	106.17	0.0048	0.010
Xylenes (C8H10)	0.014	106.17	0.0149	0.032
Water (H2O)	0.000	18.015	0.0001	0.000
TOTAL	100.0		46.8	100.0

From ProMax Oil Tank Breathing Losses using CTB Analyses

Total HC	99.290
Total VOC	82.524

Total HAP 1.698

Mass Fraction Conversion
Water Flash Gas for CTB tanks
(PW-1, PW-2, PW-3, PW-4, PW-5)
Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	0.173	28.01	0.0483	0.172
Carbon Dioxide (CO2)	10.279	44.01	4.5235	16.061
Methane (CH4)	44.650	16.04	7.1618	25.433
Ethane (C2H6)	23.407	30.07	7.0384	24.990
Propane (C3H8)	11.693	44.09	5.1555	18.308
IsoButane (i-C4H10)	0.981	58.12	0.5700	2.024
N-Butane (n-C4H10)	3.342	58.12	1.9426	6.899
IsoPentane (i-C5H12)	0.420	72.15	0.3033	1.077
N-Pentane (n-C5H12)	0.259	72.15	0.1866	0.680
Other Hexanes	0.281	86.17	0.2422	0.840
Heptanes (less BTEX)	0.033	100.2	0.0328	0.116
Octanes+	0.004	114.23	0.0049	0.018
n-Hexane (n-C6H14)	0.032	86.17	0.0278	0.099
Benzene (C6H6)	0.074	78.11	0.0577	0.205
Toluene (C7H8)	0.070	92.14	0.0649	0.230
Ethylbenzene (C8H10)	0.007	106.17	0.0071	0.025
Xylenes (C8H10)	0.024	106.17	0.0255	0.091
Water (H2O)	4.271	18.015	0.7694	2.732
TOTAL	100.0		28.2	100.0

From ProMax Water Tank Flash Losses using CTB Analyses

Total HC 81.035
Total VOC 30.611
Total HAP 0.650

Mass Fraction Conversion
Water Tank Breathing Losses for CTB tanks
(PW-1, PW-2, PW-3, PW-4, PW-5)
Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.002
Nitrogen (N2)	0.002	28.01	0.0006	0.003
Carbon Dioxide (CO2)	8.461	44.01	3.7237	18.330
Methane (CH4)	1.464	16.04	0.2349	1.156
Ethane (C2H6)	0.883	30.07	0.2657	1.308
Propane (C3H8)	0.075	44.09	0.0333	0.164
IsoButane (i-C4H10)	0.001	58.12	0.0009	0.004
N-Butane (n-C4H10)	0.005	58.12	0.0028	0.014
IsoPentane (i-C5H12)	0.000	72.15	0.0001	0.001
N-Pentane (n-C5H12)	0.000	72.15	0.0000	0.000
Other Hexanes	0.000	86.17	0.0001	0.000
Heptanes (less BTEX)	0.000	100.2	0.0000	0.000
Octanes+	0.000	114.23	0.0000	0.000
n-Hexane (n-C6H14)	0.000	86.17	0.0000	0.000
Benzene (C6H6)	0.001	78.11	0.0005	0.003
Toluene (C7H8)	0.000	92.14	0.0001	0.001
Ethylbenzene (C8H10)	0.000	106.17	0.0000	0.000
Xylenes (C8H10)	0.000	106.17	0.0000	0.000
Water (H2O)	89.106	18.015	16.0523	79.017
TOTAL	100.0		20.3	100.0

From ProMax Water Tank Breathing Losses using CTB Analyses

Total HC	2.650
Total VOC	0.186
Total HAP	0.003

Mass Fraction Conversion
Slop Flash Gas for Slop Tank
(TK-S1)
Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	1.264	28.01	0.3542	1.506
Carbon Dioxide (CO2)	1.590	44.01	0.6998	2.975
Methane (CH4)	71.163	16.04	11.4144	48.522
Ethane (C2H6)	12.802	30.07	3.8496	16.361
Propane (C3H8)	7.266	44.09	3.2035	13.618
IsoButane (i-C4H10)	0.931	58.12	0.5409	2.299
N-Butane (n-C4H10)	2.387	58.12	1.3872	5.898
IsoPentane (i-C5H12)	0.515	72.15	0.3716	1.579
N-Pentane (n-C5H12)	0.685	72.15	0.4944	2.146
Other Hexanes	0.198	86.17	0.1710	0.710
Heptanes (less BTEX)	0.380	100.2	0.3812	1.630
Octanes+	0.299	114.23	0.3418	1.491
n-Hexane (n-C6H14)	0.210	86.17	0.1809	0.769
Benzene (C6H6)	0.019	78.11	0.0148	0.063
Toluene (C7H8)	0.034	92.14	0.0317	0.135
Ethylbenzene (C8H10)	0.006	106.17	0.0060	0.025
Xylenes (C8H10)	0.022	106.17	0.0231	0.098
Water (H2O)	0.228	18.015	0.0411	0.175
TOTAL	100.0		23.5	100.0

From ProMax Slop Tank Flash Losses using CTB Analyses

Total HC	95.345
Total VOC	30.462
Total HAP	1.090

Mass Fraction Conversion
Slop Tank Breathing Losses
(TK-S1)
Basis: 1 lb-mol

Component	Mol %	MW	Mol Frac * MW (lb/lb-mol)	Weight %
Hydrogen Sulfide (H2S)	0.001	34.08	0.0003	0.001
Nitrogen (N2)	0.155	28.01	0.0433	0.139
Carbon Dioxide (CO2)	2.454	44.01	1.0802	3.468
Methane (CH4)	39.131	16.04	6.2766	20.154
Ethane (C2H6)	31.644	30.07	9.5153	30.547
Propane (C3H8)	16.151	44.09	7.1208	22.864
IsoButane (i-C4H10)	1.852	58.12	1.0764	3.456
N-Butane (n-C4H10)	4.650	58.12	2.7025	8.678
IsoPentane (i-C5H12)	0.970	72.15	0.6998	2.247
N-Pentane (n-C5H12)	1.258	72.15	0.9077	2.970
Other Hexanes	0.288	86.17	0.2481	0.778
Heptanes (less BTEX)	0.600	100.2	0.6008	1.942
Octanes+	0.399	114.23	0.4563	1.498
n-Hexane (n-C6H14)	0.351	86.17	0.3024	0.971
Benzene (C6H6)	0.023	78.11	0.0180	0.058
Toluene (C7H8)	0.042	92.14	0.0391	0.125
Ethylbenzene (C8H10)	0.007	106.17	0.0074	0.024
Xylenes (C8H10)	0.024	106.17	0.0256	0.082
Water (H2O)	0.000	18.015	0.0001	0.000
TOTAL	100.0		31.1	100.0

From ProMax Slop Tank Breathing Losses using CTB Analyses

Total HC	96.393
Total VOC	45.692
Total HAP	1.260

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

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 most current version of AP-42 Section 7.1 (dated June 2020) is used to calculate storage tank emissions. This section of AP-42 is not included here except page 3-11, which contained Equation 3-29 used to calculate short term condensate emissions during filling.

The most current version of AP-42 Tables 1.4-1 and 1.4-2 (dated July 1998) are used to calculate natural gas combustion emissions and are attached.

The most current version of AP-42 Section 5.2 (dated July 2008) is used to calculate loading VOC emissions.

The flare combustion emission factors are calculated using Table 4 from TCEQ's "Flares and Vapor Oxidizers Guidance" dated October 2000.

VOC emissions from equipment leak fugitives are calculated using emission factors from the TCEQ document "Emissions Factors for Equipment Leak Fugitive Components" dated January 2008.

The site-specific analyses and ProMax simulation results are included.

Engine and catalyst specification sheets are included.

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Salado Draw 19 (DHY-1)
File Name: H:\Clients\Chevron EP\CTX14919-NSR Permit 6109M7 Rev-Salado Draw 19\Salado Draw 19 CTB.ddf
Date: August 26, 2021

DESCRIPTION:

Description: 35 MMscf/day maximum throughput

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 150.00 deg. F
Pressure: 1200.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	1.6183
Nitrogen	1.2910
Methane	72.5713
Ethane	12.9511
Propane	7.1550
Isobutane	0.8666
n-Butane	2.1329
Isopentane	0.3890
n-Pentane	0.4209
n-Hexane	0.0911
Cyclohexane	0.0680
Other Hexanes	0.0476
Heptanes	0.0867
Methylcyclohexane	0.0050
2,2,4-Trimethylpentane	0.0053
Benzene	0.0078
Toluene	0.0080
Ethylbenzene	0.0009
Xylenes	0.0034
C8+ Heavies	0.0491

DRY GAS:

Flow Rate: 35.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.0 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Vented to atmosphere
Temperature: 115.0 deg. F
Pressure: 30.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Salado Draw 19 (DHY-1)
File Name: H:\Clients\Chevron EP\CTX14919-NSR Permit 6109M7 Rev-Salado Draw 19\Salado Draw 19 CTB.ddf
Date: August 26, 2021

DESCRIPTION:

Description: 35 MMscf/day maximum throughput

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1135	2.725	0.4973
Ethane	0.2354	5.649	1.0309
Propane	0.7567	18.162	3.3146
Isobutane	0.1712	4.109	0.7499
n-Butane	0.6377	15.304	2.7930
Isopentane	0.1253	3.006	0.5486
n-Pentane	0.1907	4.578	0.8355
n-Hexane	0.0807	1.936	0.3533
Cyclohexane	0.3542	8.502	1.5515
Other Hexanes	0.0296	0.709	0.1295
Heptanes	0.1564	3.753	0.6849
Methylcyclohexane	0.0283	0.679	0.1239
2,2,4-Trimethylpentane	0.0035	0.085	0.0155
Benzene	0.4055	9.733	1.7762
Toluene	0.5505	13.211	2.4110
Ethylbenzene	0.0774	1.859	0.3392
Xylenes	0.4059	9.743	1.7781
C8+ Heavies	0.2866	6.879	1.2555
Total Emissions	4.6092	110.621	20.1883
Total Hydrocarbon Emissions	4.6092	110.621	20.1883
Total VOC Emissions	4.2603	102.247	18.6601
Total HAP Emissions	1.5236	36.566	6.6732
Total BTEX Emissions	1.4394	34.545	6.3045

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	4.0872	98.092	17.9018
Ethane	2.9450	70.680	12.8990
Propane	3.0872	74.092	13.5219
Isobutane	0.4908	11.779	2.1496
n-Butane	1.3728	32.947	6.0128
Isopentane	0.2475	5.940	1.0841
n-Pentane	0.2995	7.188	1.3118
n-Hexane	0.0750	1.801	0.3287
Cyclohexane	0.1067	2.560	0.4672
Other Hexanes	0.0369	0.885	0.1616

Heptanes	0.0793	1.903	0.3473
Methylcyclohexane	0.0067	0.161	0.0295
2,2,4-Trimethylpentane	0.0037	0.089	0.0163
Benzene	0.0108	0.259	0.0472
Toluene	0.0101	0.243	0.0443
Ethylbenzene	0.0009	0.021	0.0038
Xylenes	0.0028	0.067	0.0123
C8+ Heavies	0.0179	0.429	0.0783
Total Emissions	12.8806	309.135	56.4172
Total Hydrocarbon Emissions	12.8806	309.135	56.4172
Total VOC Emissions	5.8485	140.364	25.6164
Total HAP Emissions	0.1033	2.480	0.4525
Total BTEX Emissions	0.0246	0.590	0.1076

EQUIPMENT REPORTS:

ABSORBER

Calculated Absorber Stages:	6.91	
Specified Dry Gas Dew Point:	7.00	lbs. H2O/MMSCF
Temperature:	150.0	deg. F
Pressure:	1200.0	psig
Dry Gas Flow Rate:	35.0000	MMSCF/day
Glycol Losses with Dry Gas:	8.6625	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	189.76	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	0.68	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.67%	96.33%
Carbon Dioxide	99.90%	0.10%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.97%	0.03%
Isobutane	99.97%	0.03%
n-Butane	99.96%	0.04%
Isopentane	99.97%	0.03%
n-Pentane	99.96%	0.04%
n-Hexane	99.95%	0.05%
Cyclohexane	99.79%	0.21%
Other Hexanes	99.96%	0.04%
Heptanes	99.93%	0.07%
Methylcyclohexane	99.81%	0.19%
2,2,4-Trimethylpentane	99.97%	0.03%
Benzene	98.22%	1.78%
Toluene	98.03%	1.97%
Ethylbenzene	97.93%	2.07%
Xylenes	97.07%	2.93%
C8+ Heavies	99.91%	0.09%

FLASH TANK

Flash Control: Vented to atmosphere
Flash Temperature: 115.0 deg. F
Flash Pressure: 30.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	28.59%	71.41%
Nitrogen	2.28%	97.72%
Methane	2.70%	97.30%
Ethane	7.40%	92.60%
Propane	19.69%	80.31%
Isobutane	25.86%	74.14%
n-Butane	31.72%	68.28%
Isopentane	33.93%	66.07%
n-Pentane	39.21%	60.79%
n-Hexane	52.05%	47.95%
Cyclohexane	77.60%	22.40%
Other Hexanes	45.04%	54.96%
Heptanes	66.52%	33.48%
Methylcyclohexane	81.56%	18.44%
2,2,4-Trimethylpentane	49.51%	50.49%
Benzene	97.54%	2.46%
Toluene	98.34%	1.66%
Ethylbenzene	99.01%	0.99%
Xylenes	99.40%	0.60%
C8+ Heavies	94.83%	5.17%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	8.65%	91.35%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.47%	98.53%
n-Pentane	1.28%	98.72%
n-Hexane	0.96%	99.04%
Cyclohexane	4.12%	95.88%
Other Hexanes	2.22%	97.78%
Heptanes	0.75%	99.25%
Methylcyclohexane	4.90%	95.10%
2,2,4-Trimethylpentane	3.03%	96.97%
Benzene	5.13%	94.87%
Toluene	8.03%	91.97%
Ethylbenzene	10.50%	89.50%
Xylenes	12.96%	87.04%

C8+ Heavies	12.65%	87.35%

STREAM REPORTS:

WET GAS STREAM

Temperature: 150.00 deg. F
Pressure: 1214.70 psia
Flow Rate: 1.46e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.00e-001	2.78e+002
Carbon Dioxide	1.62e+000	2.74e+003
Nitrogen	1.29e+000	1.39e+003
Methane	7.24e+001	4.48e+004
Ethane	1.29e+001	1.50e+004
Propane	7.14e+000	1.22e+004
Isobutane	8.65e-001	1.94e+003
n-Butane	2.13e+000	4.78e+003
Isopentane	3.88e-001	1.08e+003
n-Pentane	4.20e-001	1.17e+003
n-Hexane	9.09e-002	3.02e+002
Cyclohexane	6.79e-002	2.21e+002
Other Hexanes	4.75e-002	1.58e+002
Heptanes	8.65e-002	3.35e+002
Methylcyclohexane	4.95e-003	1.87e+001
2,2,4-Trimethylpentane	5.29e-003	2.33e+001
Benzene	7.75e-003	2.34e+001
Toluene	7.99e-003	2.84e+001
Ethylbenzene	9.24e-004	3.79e+000
Xylenes	3.40e-003	1.39e+001
C8+ Heavies	4.90e-002	3.22e+002
Total Components	100.00	8.68e+004

DRY GAS STREAM

Temperature: 150.00 deg. F
Pressure: 1214.70 psia
Flow Rate: 1.46e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.47e-002	1.02e+001
Carbon Dioxide	1.62e+000	2.74e+003
Nitrogen	1.29e+000	1.39e+003
Methane	7.27e+001	4.48e+004
Ethane	1.30e+001	1.50e+004
Propane	7.17e+000	1.22e+004
Isobutane	8.68e-001	1.94e+003
n-Butane	2.14e+000	4.77e+003
Isopentane	3.90e-001	1.08e+003
n-Pentane	4.22e-001	1.17e+003

n-Hexane	9.12e-002	3.02e+002
Cyclohexane	6.80e-002	2.20e+002
Other Hexanes	4.77e-002	1.58e+002
Heptanes	8.68e-002	3.34e+002
Methylcyclohexane	4.96e-003	1.87e+001
2,2,4-Trimethylpentane	5.31e-003	2.33e+001
Benzene	7.65e-003	2.30e+001
Toluene	7.86e-003	2.78e+001
Ethylbenzene	9.09e-004	3.71e+000
Xylenes	3.31e-003	1.35e+001
C8+ Heavies	4.91e-002	3.22e+002
Total Components	100.00	8.66e+004

LEAN GLYCOL STREAM

Temperature: 150.00 deg. F
Flow Rate: 3.00e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.66e+003
Water	1.50e+000	2.53e+001
Carbon Dioxide	1.55e-011	2.61e-010
Nitrogen	8.76e-013	1.48e-011
Methane	8.36e-018	1.41e-016
Ethane	8.89e-008	1.50e-006
Propane	9.26e-009	1.56e-007
Isobutane	1.18e-009	1.99e-008
n-Butane	2.95e-009	4.99e-008
Isopentane	1.11e-004	1.87e-003
n-Pentane	1.46e-004	2.46e-003
n-Hexane	4.63e-005	7.83e-004
Cyclohexane	9.02e-004	1.52e-002
Other Hexanes	3.97e-005	6.71e-004
Heptanes	7.01e-005	1.18e-003
Methylcyclohexane	8.64e-005	1.46e-003
2,2,4-Trimethylpentane	6.53e-006	1.10e-004
Benzene	1.30e-003	2.19e-002
Toluene	2.85e-003	4.81e-002
Ethylbenzene	5.38e-004	9.09e-003
Xylenes	3.58e-003	6.05e-002
C8+ Heavies	2.46e-003	4.15e-002
Total Components	100.00	1.69e+003

RICH GLYCOL STREAM

Temperature: 150.00 deg. F
Pressure: 1214.70 psia
Flow Rate: 3.57e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	8.41e+001	1.66e+003
Water	1.49e+001	2.93e+002
Carbon Dioxide	1.32e-001	2.61e+000

Nitrogen	7.49e-003	1.48e-001
Methane	2.13e-001	4.20e+000
Ethane	1.61e-001	3.18e+000
Propane	1.95e-001	3.84e+000
Isobutane	3.36e-002	6.62e-001
n-Butane	1.02e-001	2.01e+000
Isopentane	1.90e-002	3.75e-001
n-Pentane	2.50e-002	4.93e-001
n-Hexane	7.93e-003	1.56e-001
Cyclohexane	2.41e-002	4.76e-001
Other Hexanes	3.40e-003	6.71e-002
Heptanes	1.20e-002	2.37e-001
Methylcyclohexane	1.85e-003	3.65e-002
2,2,4-Trimethylpentane	3.73e-004	7.35e-003
Benzene	2.22e-002	4.38e-001
Toluene	3.09e-002	6.09e-001
Ethylbenzene	4.43e-003	8.74e-002
Xylenes	2.38e-002	4.69e-001
C8+ Heavies	1.75e-002	3.46e-001
Total Components	100.00	1.97e+003

FLASH TANK OFF GAS STREAM

Temperature: 115.00 deg. F
Pressure: 44.70 psia
Flow Rate: 1.97e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.21e+000	1.14e-001
Carbon Dioxide	8.15e+000	1.87e+000
Nitrogen	9.91e-001	1.44e-001
Methane	4.90e+001	4.09e+000
Ethane	1.88e+001	2.94e+000
Propane	1.35e+001	3.09e+000
Isobutane	1.62e+000	4.91e-001
n-Butane	4.54e+000	1.37e+000
Isopentane	6.60e-001	2.48e-001
n-Pentane	7.98e-001	2.99e-001
n-Hexane	1.67e-001	7.50e-002
Cyclohexane	2.44e-001	1.07e-001
Other Hexanes	8.23e-002	3.69e-002
Heptanes	1.52e-001	7.93e-002
Methylcyclohexane	1.32e-002	6.73e-003
2,2,4-Trimethylpentane	6.24e-003	3.71e-003
Benzene	2.65e-002	1.08e-002
Toluene	2.11e-002	1.01e-002
Ethylbenzene	1.57e-003	8.66e-004
Xylenes	5.09e-003	2.81e-003
C8+ Heavies	2.02e-002	1.79e-002
Total Components	100.00	1.50e+001

FLASH TANK GLYCOL STREAM

Temperature: 115.00 deg. F

Flow Rate: 3.53e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
TEG	8.48e+001	1.66e+003	847558.
Water	1.50e+001	2.93e+002	149599.
Carbon Dioxide	3.82e-002	7.47e-001	382.
Nitrogen	1.72e-004	3.37e-003	2.
Methane	5.80e-003	1.14e-001	58.
Ethane	1.20e-002	2.35e-001	120.
Propane	3.87e-002	7.57e-001	387.
Isobutane	8.74e-003	1.71e-001	87.
n-Butane	3.26e-002	6.38e-001	326.
Isopentane	6.49e-003	1.27e-001	65.
n-Pentane	9.87e-003	1.93e-001	99.
n-Hexane	4.16e-003	8.15e-002	42.
Cyclohexane	1.89e-002	3.69e-001	189.
Other Hexanes	1.54e-003	3.02e-002	15.
Heptanes	8.05e-003	1.58e-001	80.
Methylcyclohexane	1.52e-003	2.98e-002	15.
2,2,4-Trimethylpentane	1.86e-004	3.64e-003	2.
Benzene	2.18e-002	4.27e-001	218.
Toluene	3.06e-002	5.99e-001	306.
Ethylbenzene	4.42e-003	8.65e-002	44.
Xylenes	2.38e-002	4.66e-001	238.
C8+ Heavies	1.68e-002	3.28e-001	168.
Total Components	100.00	1.96e+003	1000000.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 5.67e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.94e+001	2.68e+002
Carbon Dioxide	1.14e-001	7.47e-001
Nitrogen	8.05e-004	3.37e-003
Methane	4.74e-002	1.14e-001
Ethane	5.24e-002	2.35e-001
Propane	1.15e-001	7.57e-001
Isobutane	1.97e-002	1.71e-001
n-Butane	7.34e-002	6.38e-001
Isopentane	1.16e-002	1.25e-001
n-Pentane	1.77e-002	1.91e-001
n-Hexane	6.26e-003	8.07e-002
Cyclohexane	2.82e-002	3.54e-001
Other Hexanes	2.29e-003	2.96e-002
Heptanes	1.04e-002	1.56e-001
Methylcyclohexane	1.93e-003	2.83e-002
2,2,4-Trimethylpentane	2.07e-004	3.53e-003
Benzene	3.47e-002	4.06e-001
Toluene	4.00e-002	5.50e-001
Ethylbenzene	4.88e-003	7.74e-002
Xylenes	2.56e-002	4.06e-001
C8+ Heavies	1.13e-002	2.87e-001

Total Components	100.00	2.73e+002

August 3, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Chevron North America Exploration and Production Company
6301 Deauville Blvd.
Midland, Texas 79706

Sample: Salado Draw 19 Compressor Station
VRU
Spot Gas Sampled @ 67 psig & 105 °F

Date Sampled: 07/20/2021 Job Number: 212289.011

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	1.655	
Carbon Dioxide	4.565	
Methane	71.646	
Ethane	11.212	3.071
Propane	6.108	1.723
Isobutane	0.790	0.265
n-Butane	1.988	0.642
2-2 Dimethylpropane	0.010	0.004
Isopentane	0.487	0.182
n-Pentane	0.560	0.208
Hexanes	0.450	0.190
Heptanes Plus	0.529	0.217
Totals	100.000	6.502

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.319	(Air=1)
Molecular Weight	95.72	
Gross Heating Value	5156	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.808	(Air=1)
Compressibility (Z)	0.9958	
Molecular Weight	23.30	
Gross Heating Value		
Dry Basis	1290	BTU/CF
Saturated Basis	1269	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: 0.126 Gr/100 CF, 2.0 PPMV or 0.0002 Mol%

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (14) LAT
Analyst: RG
Processor: KV
Cylinder ID: T-1260

Certified: FESCO, Ltd. - Alice, Texas

_____
Conan Pierce 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	1.655		1.990
Carbon Dioxide	4.565		8.622
Methane	71.646		49.326
Ethane	11.212	3.071	14.468
Propane	6.108	1.723	11.558
Isobutane	0.790	0.265	1.970
n-Butane	1.988	0.642	4.959
2,2 Dimethylpropane	0.010	0.004	0.031
Isopentane	0.487	0.182	1.508
n-Pentane	0.560	0.208	1.734
2,2 Dimethylbutane	0.005	0.002	0.018
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.043	0.018	0.159
2 Methylpentane	0.141	0.060	0.521
3 Methylpentane	0.079	0.033	0.292
n-Hexane	0.182	0.077	0.673
Methylcyclopentane	0.071	0.026	0.256
Benzene	0.037	0.011	0.124
Cyclohexane	0.073	0.025	0.264
2-Methylhexane	0.022	0.010	0.095
3-Methylhexane	0.027	0.013	0.116
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.064	0.029	0.272
n-Heptane	0.051	0.024	0.219
Methylcyclohexane	0.056	0.023	0.236
Toluene	0.037	0.013	0.146
Other C8's	0.051	0.024	0.241
n-Octane	0.013	0.007	0.064
Ethylbenzene	0.002	0.001	0.009
M & P Xylenes	0.006	0.002	0.027
O-Xylene	0.002	0.001	0.009
Other C9's	0.013	0.007	0.070
n-Nonane	0.002	0.001	0.011
Other C10's	0.002	0.001	0.012
n-Decane	0.000	0.000	0.000
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	6.502	100.000

Computed Real Characteristics of Total Sample		
Specific Gravity	0.808	(Air=1)
Compressibility (Z)	0.9958	
Molecular Weight	23.30	
Gross Heating Value		
Dry Basis	1290	BTU/CF
Saturated Basis	1269	BTU/CF

August 3, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Salado Draw 19 Compressor Station
VRU
Spot Gas Sampled @ 67 psig & 105 °F

Date Sampled: 07/20/2021 Job Number: 212289.011

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	4.565		8.622
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	1.655		1.990
Methane	71.646		49.326
Ethane	11.212	3.071	14.468
Propane	6.108	1.723	11.558
Isobutane	0.790	0.265	1.970
n-Butane	1.998	0.646	4.990
Isopentane	0.487	0.182	1.508
n-Pentane	0.560	0.208	1.734
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.182	0.077	0.673
Cyclohexane	0.073	0.025	0.264
Other C6's	0.268	0.113	0.990
Heptanes	0.235	0.102	0.958
Methylcyclohexane	0.056	0.023	0.236
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.037	0.011	0.124
Toluene	0.037	0.013	0.146
Ethylbenzene	0.002	0.001	0.009
Xylenes	0.008	0.003	0.036
Octanes Plus	0.081	0.040	0.398
Totals	100.000	6.502	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	3.975	(Air=1)
Molecular Weight	114.65	
Gross Heating Value	5987	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	0.808	(Air=1)
Compressibility (Z)	0.9958	
Molecular Weight	23.30	
Gross Heating Value		
Dry Basis	1290	BTU/CF
Saturated Basis	1269	BTU/CF

August 3, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Chevron North America Exploration and Production Company
6301 Deauville Blvd.
Midland, Texas 79706

Sample: Salado Draw 19 Compressor Station
Inlet Separator
Spot Gas Sampled @ 65 psig & 100 °F

Date Sampled: 07/20/2021 Job Number: 212289.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	1.886	
Carbon Dioxide	4.818	
Methane	71.899	
Ethane	10.812	2.961
Propane	5.918	1.670
Isobutane	0.777	0.260
n-Butane	1.937	0.625
2-2 Dimethylpropane	0.011	0.004
Isopentane	0.485	0.182
n-Pentane	0.524	0.195
Hexanes	0.416	0.175
Heptanes Plus	0.517	0.218
Totals	100.000	6.290

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.387	(Air=1)
Molecular Weight	97.69	
Gross Heating Value	5270	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.805	(Air=1)
Compressibility (Z)	0.9958	
Molecular Weight	23.22	
Gross Heating Value		
Dry Basis	1275	BTU/CF
Saturated Basis	1254	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: 0.126 Gr/100 CF, 2.0 PPMV or 0.0002 Mol%

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (14) LAT
Analyst: RG
Processor: KV
Cylinder ID: T-1813

Certified: FESCO, Ltd. - Alice, Texas

Conan Pierce 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	1.886		2.275
Carbon Dioxide	4.818		9.131
Methane	71.899		49.673
Ethane	10.812	2.961	14.001
Propane	5.918	1.670	11.238
Isobutane	0.777	0.260	1.945
n-Butane	1.937	0.625	4.848
2,2 Dimethylpropane	0.011	0.004	0.034
Isopentane	0.485	0.182	1.507
n-Pentane	0.524	0.195	1.628
2,2 Dimethylbutane	0.005	0.002	0.019
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.039	0.016	0.145
2 Methylpentane	0.131	0.056	0.486
3 Methylpentane	0.073	0.031	0.271
n-Hexane	0.168	0.071	0.623
Methylcyclopentane	0.065	0.024	0.236
Benzene	0.027	0.008	0.091
Cyclohexane	0.066	0.023	0.239
2-Methylhexane	0.022	0.010	0.095
3-Methylhexane	0.026	0.012	0.112
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.062	0.028	0.265
n-Heptane	0.050	0.024	0.216
Methylcyclohexane	0.054	0.022	0.228
Toluene	0.030	0.010	0.119
Other C8's	0.057	0.027	0.271
n-Octane	0.016	0.008	0.079
Ethylbenzene	0.002	0.001	0.009
M & P Xylenes	0.007	0.003	0.032
O-Xylene	0.002	0.001	0.009
Other C9's	0.019	0.010	0.103
n-Nonane	0.004	0.002	0.022
Other C10's	0.006	0.004	0.037
n-Decane	0.001	0.001	0.006
Undecanes (11)	0.001	0.001	0.007
Totals	100.000	6.290	100.000

Computed Real Characteristics of Total Sample		
Specific Gravity	0.805	(Air=1)
Compressibility (Z)	0.9958	
Molecular Weight	23.22	
Gross Heating Value		
Dry Basis	1275	BTU/CF
Saturated Basis	1254	BTU/CF

August 3, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Salado Draw 19 Compressor Station
Inlet Separator
Spot Gas Sampled @ 65 psig & 100 °F

Date Sampled: 07/20/2021 Job Number: 212289.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	4.818		9.131
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	1.886		2.275
Methane	71.899		49.673
Ethane	10.812	2.961	14.001
Propane	5.918	1.670	11.238
Isobutane	0.777	0.260	1.945
n-Butane	1.948	0.630	4.882
Isopentane	0.485	0.182	1.507
n-Pentane	0.524	0.195	1.628
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.168	0.071	0.623
Cyclohexane	0.066	0.023	0.239
Other C6's	0.248	0.105	0.921
Heptanes	0.225	0.097	0.924
Methylcyclohexane	0.054	0.022	0.228
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.027	0.008	0.091
Toluene	0.030	0.010	0.119
Ethylbenzene	0.002	0.001	0.009
Xylenes	0.009	0.004	0.041
Octanes Plus	0.104	0.053	0.525
Totals	100.000	6.290	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	4.056	(Air=1)
Molecular Weight	117.00	
Gross Heating Value	6150	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	0.805	(Air=1)
Compressibility (Z)	0.9958	
Molecular Weight	23.22	
Gross Heating Value		
Dry Basis	1275	BTU/CF
Saturated Basis	1254	BTU/CF

August 9, 2021

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: Chevron North America Exploration and Production Company
6301 Deauville Blvd.
Midland, Texas 79706

Sample: Salado Draw 19 Compressor Station
Inlet Separator Hydrocarbon Liquid
Sampled @ 65 psig & 100 °F

Date Sampled: 07/20/2021 Job Number: 212289.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.066	0.012	0.012
Carbon Dioxide	0.250	0.071	0.073
Methane	2.121	0.598	0.226
Ethane	1.874	0.833	0.375
Propane	3.429	1.571	1.006
Isobutane	1.025	0.558	0.396
n-Butane	3.832	2.009	1.482
2,2 Dimethylpropane	0.083	0.053	0.040
Isopentane	2.327	1.415	1.117
n-Pentane	3.473	2.094	1.668
2,2 Dimethylbutane	0.055	0.038	0.031
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.333	0.227	0.191
2 Methylpentane	1.943	1.341	1.114
3 Methylpentane	1.156	0.784	0.663
n-Hexane	3.244	2.218	1.860
Heptanes Plus	74.790	86.178	89.744
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.8246	(Water=1)
°API Gravity	40.09	@ 60°F
Molecular Weight	180.3	
Vapor Volume	14.15	CF/Gal
Weight	6.87	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.7919	(Water=1)
°API Gravity	47.19	@ 60°F
Molecular Weight	150.3	
Vapor Volume	16.31	CF/Gal
Weight	6.60	Lbs/Gal

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (14) L. Turner
Analyst: JL
Processor: ANBdjv
Cylinder ID: W-0332

Conan Pierce 361-661-7015

FESCO, Ltd. Job Number: 212289.002

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.250	0.071	0.073
Nitrogen	0.066	0.012	0.012
Methane	2.121	0.598	0.226
Ethane	1.874	0.833	0.375
Propane	3.429	1.571	1.006
Isobutane	1.025	0.558	0.396
n-Butane	3.915	2.062	1.522
Isopentane	2.327	1.415	1.117
n-Pentane	3.473	2.094	1.668
Other C-6's	3.486	2.390	1.999
Heptanes	9.695	6.739	6.101
Octanes	12.779	9.758	9.163
Nonanes	7.683	6.805	6.479
Decanes Plus	38.246	58.906	63.758
Benzene	0.532	0.247	0.276
Toluene	2.216	1.234	1.358
E-Benzene	0.847	0.543	0.598
Xylenes	2.118	1.360	1.496
n-Hexane	3.244	2.218	1.860
2,2,4 Trimethylpentane	0.676	0.584	0.514
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.7919	(Water=1)
°API Gravity	47.19	@ 60°F
Molecular Weight	150.3	
Vapor Volume	16.31	CF/Gal
Weight	6.60	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.8571	(Water=1)
Molecular Weight	250.5	

Characteristics of Atmospheric Sample:

°API Gravity	44.45	@ 60°F
Reid Vapor Pressure Equivalent (D-6377)	9.38	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-0332*	------
Pressure, PSIG	65	65	------
Skin Temperature, °F	100	100	------

* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.066	0.012	0.012
Carbon Dioxide	0.250	0.071	0.073
Methane	2.121	0.598	0.226
Ethane	1.874	0.833	0.375
Propane	3.429	1.571	1.006
Isobutane	1.025	0.558	0.396
n-Butane	3.832	2.009	1.482
2,2 Dimethylpropane	0.083	0.053	0.040
Isopentane	2.327	1.415	1.117
n-Pentane	3.473	2.094	1.668
2,2 Dimethylbutane	0.055	0.038	0.031
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.333	0.227	0.191
2 Methylpentane	1.943	1.341	1.114
3 Methylpentane	1.156	0.784	0.663
n-Hexane	3.244	2.218	1.860
Methylcyclopentane	1.410	0.830	0.790
Benzene	0.532	0.247	0.276
Cyclohexane	1.897	1.074	1.063
2-Methylhexane	0.917	0.709	0.611
3-Methylhexane	1.096	0.837	0.731
2,2,4 Trimethylpentane	0.676	0.584	0.514
Other C-7's	1.508	1.091	0.996
n-Heptane	2.867	2.199	1.911
Methylcyclohexane	3.488	2.332	2.279
Toluene	2.216	1.234	1.358
Other C-8's	6.679	5.202	4.899
n-Octane	2.612	2.225	1.985
E-Benzene	0.847	0.543	0.598
M & P Xylenes	1.586	1.023	1.120
O-Xylene	0.533	0.337	0.376
Other C-9's	5.822	5.064	4.891
n-Nonane	1.861	1.741	1.588
Other C-10's	5.885	5.626	5.533
n-decane	1.415	1.445	1.340
Undecanes(11)	5.139	5.040	5.027
Dodecanes(12)	3.270	3.465	3.504
Tridecanes(13)	2.941	3.341	3.425
Tetradecanes(14)	2.314	2.815	2.925
Pentadecanes(15)	1.916	2.497	2.626
Hexadecanes(16)	1.470	2.048	2.172
Heptadecanes(17)	1.282	1.888	2.021
Octadecanes(18)	1.188	1.842	1.983
Nonadecanes(19)	1.082	1.748	1.894
Eicosanes(20)	0.825	1.386	1.510
Heneicosanes(21)	0.700	1.237	1.356
Docosanes(22)	0.624	1.149	1.266
Tricosanes(23)	0.538	1.028	1.139
Tetracosanes(24)	0.480	0.949	1.057
Pentacosanes(25)	0.442	0.906	1.014
Hexacosanes(26)	0.410	0.872	0.980
Heptacosanes(27)	0.376	0.828	0.935
Octacosanes(28)	0.338	0.771	0.873
Nonacosanes(29)	0.323	0.760	0.864
Triacontanes(30)	0.299	0.725	0.826
Hentriacontanes Plus(31+)	4.988	16.540	19.485
Total	100.000	100.000	100.000

August 4, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Chevron North America Exploration and Production Company
6301 Deauville Blvd.
Midland, Texas 79706

Sample: Salado Draw 19 Central Tank Battery
K-740A Flash Gas Compressor No. 3
Spot Gas Sampled @ 115 psig & 191 °F

Date Sampled: 07/20/2021 Job Number: 212290.011

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.572	
Carbon Dioxide	4.060	
Methane	48.240	
Ethane	17.288	4.760
Propane	12.530	3.554
Isobutane	1.962	0.661
n-Butane	5.599	1.817
2-2 Dimethylpropane	0.018	0.007
Isopentane	1.957	0.737
n-Pentane	2.581	0.963
Hexanes	2.449	1.038
Heptanes Plus	2.744	1.096
Totals	100.000	14.635

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.240	(Air=1)
Molecular Weight	92.94	
Gross Heating Value	5008	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.142	(Air=1)
Compressibility (Z)	0.9905	
Molecular Weight	32.75	
Gross Heating Value		
Dry Basis	1846	BTU/CF
Saturated Basis	1814	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: 0.157 Gr/100 CF, 2.5 PPMV or 0.0003 Mol%

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (14) LAT
Analyst: RG
Processor: KV
Cylinder ID: T-0771

Certified: FESCO, Ltd. - Alice, Texas

Conan Pierce 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.572		0.489
Carbon Dioxide	4.060		5.456
Methane	48.240		23.627
Ethane	17.288	4.760	15.872
Propane	12.530	3.554	16.870
Isobutane	1.962	0.661	3.482
n-Butane	5.599	1.817	9.936
2,2 Dimethylpropane	0.018	0.007	0.040
Isopentane	1.957	0.737	4.311
n-Pentane	2.581	0.963	5.686
2,2 Dimethylbutane	0.022	0.009	0.058
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.226	0.095	0.595
2 Methylpentane	0.745	0.318	1.960
3 Methylpentane	0.426	0.179	1.121
n-Hexane	1.030	0.436	2.710
Methylcyclopentane	0.434	0.158	1.115
Benzene	0.338	0.097	0.806
Cyclohexane	0.458	0.160	1.177
2-Methylhexane	0.115	0.055	0.352
3-Methylhexane	0.135	0.064	0.413
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.336	0.151	1.018
n-Heptane	0.239	0.114	0.731
Methylcyclohexane	0.268	0.111	0.803
Toluene	0.134	0.046	0.377
Other C8's	0.181	0.087	0.609
n-Octane	0.038	0.020	0.133
Ethylbenzene	0.005	0.002	0.016
M & P Xylenes	0.012	0.005	0.039
O-Xylene	0.003	0.001	0.010
Other C9's	0.039	0.020	0.150
n-Nonane	0.004	0.002	0.016
Other C10's	0.005	0.003	0.022
n-Decane	0.000	0.000	0.000
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	14.635	100.000

Computed Real Characteristics of Total Sample		
Specific Gravity	1.142	(Air=1)
Compressibility (Z)	0.9905	
Molecular Weight	32.75	
Gross Heating Value		
Dry Basis	1846	BTU/CF
Saturated Basis	1814	BTU/CF

August 4, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Salado Draw 19 Central Tank Battery
K-740A Flash Gas Compressor No. 3
Spot Gas Sampled @ 115 psig & 191 °F

Date Sampled: 07/20/2021 Job Number: 212290.011

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	4.060		5.456
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	0.572		0.489
Methane	48.240		23.627
Ethane	17.288	4.760	15.872
Propane	12.530	3.554	16.870
Isobutane	1.962	0.661	3.482
n-Butane	5.617	1.824	9.976
Isopentane	1.957	0.737	4.311
n-Pentane	2.581	0.963	5.686
Cyclopentane	0.000	0.000	0.000
n-Hexane	1.030	0.436	2.710
Cyclohexane	0.458	0.160	1.177
Other C6's	1.419	0.602	3.734
Heptanes	1.259	0.541	3.629
Methylcyclohexane	0.268	0.111	0.803
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.338	0.097	0.806
Toluene	0.134	0.046	0.377
Ethylbenzene	0.005	0.002	0.016
Xylenes	0.015	0.006	0.049
Octanes Plus	0.267	0.132	0.930
Totals	100.000	14.635	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	3.973	(Air=1)
Molecular Weight	113.98	
Gross Heating Value	5927	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	1.142	(Air=1)
Compressibility (Z)	0.9905	
Molecular Weight	32.75	
Gross Heating Value		
Dry Basis	1846	BTU/CF
Saturated Basis	1814	BTU/CF

August 4, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Chevron North America Exploration and Production Company
6301 Deauville Blvd.
Midland, Texas 79706

Sample: Salado Draw 19 Central Tank Battery
Train 3 Inlet Separator
Spot Gas Sampled @ 103 psig & 108 °F

Date Sampled: 07/20/2021 Job Number: 212290.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	1.279	
Carbon Dioxide	1.618	
Methane	71.779	
Ethane	12.515	3.429
Propane	6.913	1.951
Isobutane	0.922	0.309
n-Butane	2.407	0.777
2-2 Dimethylpropane	0.004	0.002
Isopentane	0.554	0.208
n-Pentane	0.651	0.242
Hexanes	0.468	0.197
Heptanes Plus	0.890	0.389
Totals	100.000	7.504

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.507	(Air=1)
Molecular Weight	101.11	
Gross Heating Value	5457	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.815	(Air=1)
Compressibility (Z)	0.9954	
Molecular Weight	23.51	
Gross Heating Value		
Dry Basis	1384	BTU/CF
Saturated Basis	1360	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: 0.126 Gr/100 CF, 2.0 PPMV or 0.0002 Mol%

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (14) LAT
Analyst: RG
Processor: KV
Cylinder ID: T-4413

Certified: FESCO, Ltd. - Alice, Texas

_____
Conan Pierce 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	1.279		1.524
Carbon Dioxide	1.618		3.029
Methane	71.779		48.984
Ethane	12.515	3.429	16.008
Propane	6.913	1.951	12.968
Isobutane	0.922	0.309	2.280
n-Butane	2.407	0.777	5.951
2,2 Dimethylpropane	0.004	0.002	0.012
Isopentane	0.554	0.208	1.700
n-Pentane	0.651	0.242	1.998
2,2 Dimethylbutane	0.005	0.002	0.018
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.041	0.017	0.150
2 Methylpentane	0.142	0.060	0.521
3 Methylpentane	0.075	0.031	0.275
n-Hexane	0.205	0.086	0.752
Methylcyclopentane	0.083	0.030	0.297
Benzene	0.019	0.005	0.063
Cyclohexane	0.112	0.039	0.401
2-Methylhexane	0.029	0.014	0.124
3-Methylhexane	0.034	0.016	0.145
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.087	0.039	0.367
n-Heptane	0.086	0.041	0.367
Methylcyclohexane	0.119	0.049	0.497
Toluene	0.028	0.010	0.110
Other C8's	0.130	0.062	0.610
n-Octane	0.048	0.025	0.233
Ethylbenzene	0.003	0.001	0.014
M & P Xylenes	0.016	0.006	0.072
O-Xylene	0.003	0.001	0.014
Other C9's	0.063	0.033	0.338
n-Nonane	0.010	0.006	0.055
Other C10's	0.013	0.008	0.078
n-Decane	0.003	0.002	0.018
Undecanes (11)	0.004	0.003	0.027
Totals	100.000	7.504	100.000

Computed Real Characteristics of Total Sample		
Specific Gravity	0.815	(Air=1)
Compressibility (Z)	0.9954	
Molecular Weight	23.51	
Gross Heating Value		
Dry Basis	1384	BTU/CF
Saturated Basis	1360	BTU/CF

August 4, 2021

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Salado Draw 19 Central Tank Battery
Train 3 Inlet Separator
Spot Gas Sampled @ 103 psig & 108 °F

Date Sampled: 07/20/2021 Job Number: 212290.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	1.618		3.029
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	1.279		1.524
Methane	71.779		48.984
Ethane	12.515	3.429	16.008
Propane	6.913	1.951	12.968
Isobutane	0.922	0.309	2.280
n-Butane	2.411	0.779	5.963
Isopentane	0.554	0.208	1.700
n-Pentane	0.651	0.242	1.998
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.205	0.086	0.752
Cyclohexane	0.112	0.039	0.401
Other C6's	0.263	0.111	0.964
Heptanes	0.319	0.139	1.300
Methylcyclohexane	0.119	0.049	0.497
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.019	0.005	0.063
Toluene	0.028	0.010	0.110
Ethylbenzene	0.003	0.001	0.014
Xylenes	0.019	0.008	0.086
Octanes Plus	0.271	0.138	1.359
Totals	100.000	7.504	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	4.088	(Air=1)
Molecular Weight	117.84	
Gross Heating Value	6225	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	0.815	(Air=1)
Compressibility (Z)	0.9954	
Molecular Weight	23.51	
Gross Heating Value		
Dry Basis	1384	BTU/CF
Saturated Basis	1360	BTU/CF

August 9, 2021

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: Chevron North America Exploration and Production Company
6301 Deauville Blvd.
Midland, Texas 79706

Sample: Salado Draw 19 Central Tank Battery
Train 3 Inlet Separator Hydrocarbon Liquid
Sampled @ 103 psig & 108 °F

Date Sampled: 07/20/2021 Job Number: 212290.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.032	0.006	0.006
Carbon Dioxide	0.096	0.028	0.029
Methane	2.436	0.707	0.273
Ethane	2.419	1.107	0.508
Propane	4.404	2.077	1.356
Isobutane	1.299	0.727	0.527
n-Butane	4.889	2.638	1.985
2,2 Dimethylpropane	0.073	0.048	0.037
Isopentane	2.562	1.604	1.291
n-Pentane	3.959	2.456	1.995
2,2 Dimethylbutane	0.067	0.048	0.040
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.406	0.285	0.244
2 Methylpentane	1.836	1.304	1.105
3 Methylpentane	0.981	0.686	0.591
n-Hexane	3.112	2.190	1.873
Heptanes Plus	71.431	84.089	88.138
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.8139	(Water=1)
°API Gravity	42.36	@ 60°F
Molecular Weight	176.6	
Vapor Volume	14.26	CF/Gal
Weight	6.78	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.7765	(Water=1)
°API Gravity	50.73	@ 60°F
Molecular Weight	143.2	
Vapor Volume	16.78	CF/Gal
Weight	6.47	Lbs/Gal

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (14) L. Turner
Analyst: JL
Processor: ANBdjv
Cylinder ID: W-1747

Conan Pierce 361-661-7015

FESCO, Ltd. Job Number: 212290.002

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.096	0.028	0.029
Nitrogen	0.032	0.006	0.006
Methane	2.436	0.707	0.273
Ethane	2.419	1.107	0.508
Propane	4.404	2.077	1.356
Isobutane	1.299	0.727	0.527
n-Butane	4.962	2.686	2.022
Isopentane	2.562	1.604	1.291
n-Pentane	3.959	2.456	1.995
Other C-6's	3.290	2.322	1.980
Heptanes	9.543	6.723	6.241
Octanes	12.351	9.656	9.229
Nonanes	6.630	6.094	5.870
Decanes Plus	39.124	59.123	64.121
Benzene	0.295	0.141	0.161
Toluene	1.060	0.608	0.682
E-Benzene	0.336	0.222	0.249
Xylenes	1.477	0.976	1.095
n-Hexane	3.112	2.190	1.873
2,2,4 Trimethylpentane	0.613	0.546	0.489
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.7765	(Water=1)
°API Gravity	50.73	@ 60°F
Molecular Weight	143.2	
Vapor Volume	16.78	CF/Gal
Weight	6.47	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.8421	(Water=1)
Molecular Weight	234.6	

Characteristics of Atmospheric Sample:

°API Gravity	47.26	@ 60°F
Reid Vapor Pressure Equivalent (D-6377)	8.76	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-1747*	------
Pressure, PSIG	103	104	------
Probe Temperature, °F	108	108	------

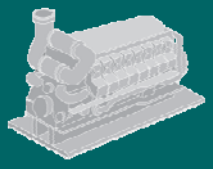
* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.032	0.006	0.006
Carbon Dioxide	0.096	0.028	0.029
Methane	2.436	0.707	0.273
Ethane	2.419	1.107	0.508
Propane	4.404	2.077	1.356
Isobutane	1.299	0.727	0.527
n-Butane	4.889	2.638	1.985
2,2 Dimethylpropane	0.073	0.048	0.037
Isopentane	2.562	1.604	1.291
n-Pentane	3.959	2.456	1.995
2,2 Dimethylbutane	0.067	0.048	0.040
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.406	0.285	0.244
2 Methylpentane	1.836	1.304	1.105
3 Methylpentane	0.981	0.686	0.591
n-Hexane	3.112	2.190	1.873
Methylcyclopentane	1.426	0.863	0.838
Benzene	0.295	0.141	0.161
Cyclohexane	2.396	1.396	1.409
2-Methylhexane	0.757	0.602	0.530
3-Methylhexane	0.890	0.699	0.623
2,2,4 Trimethylpentane	0.613	0.546	0.489
Other C-7's	1.484	1.116	1.028
n-Heptane	2.591	2.046	1.813
Methylcyclohexane	4.091	2.815	2.806
Toluene	1.060	0.608	0.682
Other C-8's	5.999	4.858	4.618
n-Octane	2.261	1.983	1.804
E-Benzene	0.336	0.222	0.249
M & P Xylenes	1.131	0.751	0.838
O-Xylene	0.347	0.226	0.257
Other C-9's	4.968	4.494	4.381
n-Nonane	1.661	1.600	1.488
Other C-10's	4.882	4.852	4.818
n-decane	1.226	1.288	1.219
Undecanes(11)	4.886	4.982	5.017
Dodecanes(12)	3.562	3.924	4.006
Tridecanes(13)	3.513	4.149	4.294
Tetradecanes(14)	2.851	3.607	3.783
Pentadecanes(15)	2.426	3.288	3.491
Hexadecanes(16)	1.846	2.674	2.863
Heptadecanes(17)	1.584	2.425	2.622
Octadecanes(18)	1.447	2.334	2.538
Nonadecanes(19)	1.250	2.099	2.296
Eicosanes(20)	0.981	1.713	1.884
Heneicosanes(21)	0.828	1.521	1.683
Docosanes(22)	0.728	1.395	1.552
Tricosanes(23)	0.616	1.222	1.368
Tetracosanes(24)	0.527	1.084	1.218
Pentacosanes(25)	0.458	0.978	1.104
Hexacosanes(26)	0.413	0.913	1.036
Heptacosanes(27)	0.368	0.843	0.960
Octacosanes(28)	0.318	0.754	0.862
Nonacosanes(29)	0.273	0.668	0.767
Triacontanes(30)	0.232	0.585	0.673
Hentriacontanes Plus(31+)	3.911	11.825	14.068
Total	100.000	100.000	100.000

EMISSION GUARANTEE

ENGINE DATA



Engine model	**CAT 3516B**
Power	1380hp
Fuel	HIGH BTU >6% Ethane
Exhaust Flow	14444lb/hr
Exhaust Temperature	1012F

CATALYST SYSTEM DATA

Catalyst Model	C3F1-01-4A3W-31
Catalyst Type	Oxidation- A Coat
Number of Elements	See Emission Requirements
Cell Density	300cpsi
Dimensions	24”x15”x3.5”

EMISSION REQUIREMENTS

Exhaust Gas Component	Engine Output (g/bhp-h)	Converter Output- 1 Elements (g/bhp-hr)	Converter Output- 2 Elements (g/bhp-hr)	Converter Output- 3 Elements (g/bhp-hr)
NOx	.5	NA	NA	NA
CO	3.05	.46	.21	.15
VOC	1.12	.73	.62	.50
CH2O	.38	.11	.08	.05

The catalyst model selection is based upon the reduction requirements above. Any variance in these requirements may affect the model required. These catalyst efficiencies are guaranteed at these levels at 8000 operating hours.

STANDARD TERMS AND CONDITIONS OF SALE – Revised January 2015

1. **Application**. These Standard Terms and Conditions apply to any sale of products, equipment, parts, materials and related services (the **"Products"**) by DCL America Inc. (**"DCL"**) to a DCL customer (the **"Customer"**) and acceptance of these Standard Terms and Conditions is an express condition of such a sale.
2. **Entire Agreement.** These Standard Terms and Conditions, the quotation (the **"DCL Quotation"**) and/or order confirmation (the **"DCL Order Confirmation"**) issued by DCL in respect of each supply of Products and any other document expressly incorporated by reference by DCL in a DCL Order Confirmation (collectively, the **"Agreement"**) constitute the entire agreement between DCL and the Customer regarding a sale of Products by DCL to the Customer and supersede all other discussions, proposals, negotiations, statements, representations, understandings and the like, whether written or oral. DCL rejects any differing or supplemental terms which may be printed or otherwise found in any purchase order or other document sent by the Customer, except as expressly accepted by DCL by the signature of an authorized representative. Unless otherwise specifically and expressly set forth in writing by a duly authorized representative of DCL, if there are inconsistencies in the documents constituting the Agreement, such documents shall take precedence in the following order: (i) these Standard Terms and Conditions, (ii) the DCL Order Confirmation, and (iii) the DCL Quotation or other contract document incorporated by reference by DCL in the DCL Order Confirmation. For purposes hereof, an "**Affiliate**" of DCL includes any entity directly or indirectly controlling, controlled by or under common control with DCL, where "control" of an entity means direct or indirect beneficial ownership of securities representing 20% or more of the votes attached to all outstanding securities of such entity.
3. **Terms of Payment.** Unless otherwise agreed by DCL in writing, DCL invoices for the Customer's purchase of Products are payable within thirty (30) days of the date of the invoice. Should payment of any amount owing to DCL under the Agreement not be made to DCL when due, such payment shall bear interest at the rate of one and one-half percent (1½%) per month or the maximum rate allowed by law, whichever is lower. The charging of such interest shall not be construed as obligating DCL to grant any extension of time in the terms of payment. No cash discount shall be available to the Customer. If prior to any delivery of Products, DCL has concern regarding timely payment of the purchase price because of a material adverse change in Customer's circumstances or otherwise, DCL may require payment of all or additional parts of the purchase price before shipment or delivery and/or DCL may require satisfactory security for the payment of the purchase price.
4. **Delivery Terms.** Each sale of Products shall be shipped in accordance with the IncoTerms 2000 specified in the DCL Quotation or DCL Order Confirmation. If shipping instructions are not so specified for any supply of Products, such supply shall be shipped ex works (IncoTerms 2000). Ex works deliveries of the Products are deemed complete upon release of the Products to the Customer's carrier at the applicable manufacturing facilities located in Concord, Ontario, Canada as specified by DCL in the DCL Quotation, the DCL Order Confirmation, or otherwise. If the Customer is unable or unwilling to accept physical delivery at the time specified, DCL may store or arrange for storage of Products at Customer's cost and the delivery of such Products shall be deemed complete as of the first day of storage.
5. **Taxes.** Unless otherwise expressly provided by DCL in a DCL Quotation or DCL Order Confirmation, or otherwise implicit in the IncoTerms 2000 specified for a particular supply, the price of the Products shall not include sales, use, excise, value added or any similar taxes, duties and other export/import charges, any inspection or testing fees or any other tax, fee, penalty or charge of any nature whatsoever imposed currently or in the future by any federal, state or other government authority, upon or with respect to the sale, purchase, delivery, storage, processing or use of any Product or upon payment to DCL, and all such taxes, fees and other charges shall be paid by Customer in addition to the price of the Products. In the event DCL is required to pay any such taxes, fees or other charge, Customer shall reimburse DCL therefor.
6. **Delivery Schedule.** Time for delivery of Products is approximate and starts to run on the latest of the date specified or confirmed in the DCL Order Confirmation, or the receipt by DCL of any advance payment, credit approval or any security for the balance of the purchase price, as applicable, each as may be requested by DCL. Unless otherwise specified or confirmed in a DCL Order Confirmation, DCL shall not be liable for losses of any kind incurred by the Customer for delays in or failure to deliver all or any part of the Products. Changes in the delivery schedules requested by the Customer must be in writing and received by DCL at least two (2) business days prior to the previously scheduled shipping date. DCL is under no obligation to accept any changes in delivery dates requested by the Customer.
7. **Title Retention.** Title or ownership of the Products shall not pass to the Customer, notwithstanding delivery thereof, but shall remain vested in DCL until the purchase price of the Products is paid in full. As security for the full payment of the purchase price of the Products, the Customer hereby grants to DCL, and DCL hereby reserves, a purchase money security interest and charge in the Products and in all substitutions, replacements and additions thereto and the proceeds thereof. Until such time of full payment, the Customer shall: (a) insure the Products against loss, damage or destruction for full replacement value; and (b) execute such additional documents as DCL requests for the confirmation or perfection of DCL's ownership or security interest and charge. Upon default by the Customer, and subject to applicable law, DCL may repossess and deal with the Products as it sees fit and retain all payments which have been made by the Customer on account of the purchase price as partial damages. Upon any such realization of security, the Customer shall remain liable for any deficiency in the purchase price and shall reimburse DCL for all costs and expenses, including reasonable legal fees, incurred in enforcing its rights. All rights and remedies of DCL are cumulative and in addition to those available at law or in equity.
8. **DCL Property.** All supplies, materials, tools, jigs, dyes, gauges, fixtures, molds, patterns, equipment and other items procured by DCL to perform the supply of Products under any Agreement shall be and shall remain the property of DCL under all circumstances, including, without limitation, reimbursement of DCL by the Customer for all or any portion of the cost of such items.
9. **Risk of Loss.** Unless otherwise specified or confirmed in the DCL Order Confirmation, the risk of loss or damage to the Products including any repaired or replaced items, and the responsibility for the payment of insurance premiums and freight passes to the Customer upon DCL's delivery of such Products to the Customer's carrier as provided in Section 4. No loss or damage to the Products or any portion thereof shall relieve the Customer from its obligations hereunder.
10. **Suitability**. Before using any Product, Customer shall determine the suitability of such Product for Customer's intended use. Customer shall assume all risk and liability whatsoever resulting from the use of the Products.
11. **Limited Warranties.** DCL warrants that each Product is free of defects in material and workmanship strictly in accordance with the terms and conditions of the limited warranty statement specified or confirmed in the applicable DCL Quotation or DCL Order Confirmation at the time of purchase (the **"Product Warranties"**). Additional copies of Product Warranties are available from DCL upon request.
12. **No Other Warranties**. THE LIMITED PRODUCT WARRANTIES REFERRED TO IN SECTION 11 ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES OR CONDITIONS IN RESPECT OF THE PRODUCTS, INCLUDING, WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OR ANY OTHER WARRANTIES ARISING BY OPERATION OF LAW, COURSE OF DEALING, TRADE USAGE, REPRESENTATION, STATEMENT OR OTHERWISE. THE REMEDIES PROVIDED IN THE APPLICABLE PRODUCT WARRANTY ARE THE CUSTOMER'S SOLE REMEDIES FOR ANY FAILURE OF DCL TO COMPLY WITH ITS WARRANTY OBLIGATIONS. Applicable law may not allow exclusions of implied warranties, so the above exclusions may not apply.

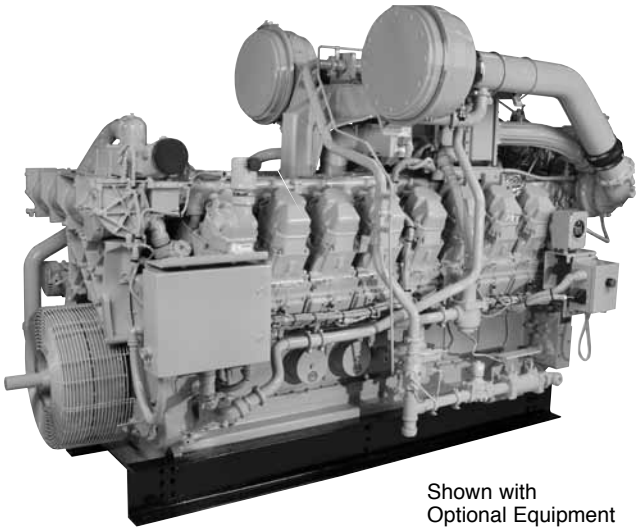
13. **Limitation of Liability**. NEITHER DCL NOR ITS AFFILIATES SHALL UNDER ANY CIRCUMSTANCE BE LIABLE TO ANYONE FOR DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, ANY LOST PROFITS AND LOST SAVINGS, HOWEVER CAUSED, WHETHER FOR BREACH OR REPUDIATION OF CONTRACT, TORT, BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE, WHETHER OR NOT DCL WAS ADVISED OF THE POSSIBILITY OF SUCH LOSSES OR DAMAGES. IN NO EVENT SHALL DCL BE LIABLE FOR THE COST OF PROCUREMENT OF SUBSTITUTE PRODUCTS. DCL'S MAXIMUM TOTAL CUMULATIVE LIABILITY FOR ANY REASON SHALL NOT EXCEED THE AGGREGATE PURCHASE PRICE FOR THE APPLICABLE PRODUCTS SUPPLIED UNDER THE AGREEMENT. THE FOREGOING LIMITATION OF LIABILITY SHALL APPLY TO THE FULLEST EXTENT PERMITTED BY LAW IN THE APPLICABLE JURISDICTION. CUSTOMER HAS ACCEPTED THE DISCLAIMER OF WARRANTIES IN SECTION 11 AND LIMITATION OF LIABILITY IN THIS SECTION 13 AS PART OF A BARGAIN WITH RESPECT TO THE PRICING OF THE PRODUCTS AND UNDERSTANDS THAT THE PRICING WOULD BE HIGHER IF DCL WERE REQUIRED TO BEAR LIABILITY IN EXCESS OF THAT STATED HEREIN. DCL neither assumes nor authorizes any person, firm or entity to assume for DCL any other additional liability or responsibility in connection with the Products, including any affirmation, representation, or warranty concerning the Products made by an agent, employee, or representative of DCL.
14. **Indemnification**. Customer shall defend, indemnify and hold harmless DCL and its Affiliates and their respective officers, directors, agents, employees, successors, assigns and other customers (collectively, the "**Indemnified Parties**") against any and all claims, demands, actions, suits, proceedings, damages, obligations, losses, liabilities and expenses (including all legal fees) and judgments of any nature whatsoever arising from or in connection with (a) the use, operation, storage, sale, processing, or other disposition of the Products sold to such Customer under the Agreement, or the action or inaction of Customer or, if applicable, its employees, customers, or agents, which may cause injuries or damage, and (b) any alleged intellectual property infringement arising out of Customer's use of the Products or incorporation of the Product(s) as components into any other product. DCL shall hold the benefit of this indemnity in trust for the Indemnified Parties other than DCL, who shall be entitled to enforce this indemnity to the same extent as if they were parties hereto.
15. **Intellectual Property**. Neither Customer, nor its affiliates (nor their respective successors, assigns, licensees or other transferees) shall enforce (or attempt or purport to enforce) against DCL or its affiliates, (sub)licensees, manufacturers, and distributors any existing or future patent that claims (or purports to claim) any or part of the Products or the use, design, manufacturing, layout and packaging thereof. This nonassertion covenant shall be a covenant that transfers with any sale, license or other disposition or grant of rights under the applicable patent rights.
16. **Re-sale of Products**. Without limiting the generality of anything set forth in the Agreement, in respect of any re-sale of the Products or sale of any product which incorporates a Product as a component, the Customer shall indemnify, defend and hold harmless DCL, its officers, directors, agents, employees, successors, assigns and other customers against any and all claims, actions, losses, liabilities and expenses (including all legal fees) or judgments arising from or in connection with a representation or warranty for the Products, including in their capacity or use as a component part of other products, made by the Customer, other than as limited by the applicable Product Warranties, or arising from an allegation of patent infringement relating to Customer's product(s) in which the Products are used as a component part.
17. **Survival.** All payment obligations, provisions for the limitation of or protection against liability of DCL and any other provision of an Agreement which by its nature are continuing shall survive the termination, cancellation or expiration of such Agreement.
18. **Permits.** The Customer shall obtain at its expense all licences, permits and approvals for the purchase, delivery, shipment, installation and use of any Products.
19. **Force Majeure.** DCL is excused from the timely performance of its obligations in the sale or other supply of Products if its performance is impeded or prevented by circumstances beyond its control (a **"Force Majeure Event"**) and DCL is taking all reasonable steps to mitigate the effect of the delay. Following the occurrence and the termination of a Force Majeure Event, DCL shall provide the Customer with written notice and reasonable particulars of the Force Majeure Event. Either party may terminate any Agreement affected by a Force Majeure Event if such circumstances continue for more than six (6) months. Upon and notwithstanding any such termination, the Customer shall pay DCL for that portion of the Products manufactured or delivered prior to the date of the abovementioned initial notice of the Force Majeure Event. Notwithstanding anything in this Section 19, the Customer shall extend any security granted for the payment of the purchase price of Products for a period equal to the delay caused by the Force Majeure Event.
20. **Governing Law.** The sale of the Products and this Agreement are governed by the laws of Delaware and the laws of United States applicable therein. Each of the parties irrevocably attorns to the exclusive jurisdiction of the courts of Delaware, provided that DCL shall not be prevented from seeking injunctions or other temporary relief or enforcing judgments of the courts of Delaware in another jurisdiction. The United Nations Convention on the International Sale of Goods is explicitly excluded from this Agreement.
21. **Confidential Information.** Customer shall not disclose proprietary or confidential business or technical information disclosed by DCL or related to any Products to any third parties and shall not use such information for its own benefit or for any purpose other than for the express purpose for which it was disclosed as set forth in writing by DCL at the time of disclosure.
22. **Assignment.** Customer may not assign all or any part of the Agreement for sale of Products without the prior consent of DCL. Any attempt at assignment shall be null and void unless made in conformity with this Section 22.
23. **Waiver, Amendment.** Any waiver, modification or amendment of the Agreement shall only be effective as against DCL if such waiver, modification or amendment is contained in a written instrument prepared or otherwise accepted in writing by DCL. A waiver or modification by DCL of any condition or obligation of Customer hereunder shall not be construed as a waiver or modification of any other condition or obligation and no waiver or modification by DCL granted on any one occasion shall be construed as applying to any other occasion.
24. **Suspension or Cancellation.** Subject to Section 19 hereof, no Agreement may be cancelled or suspended by the Customer without the express written consent of DCL, such consent to be granted in DCL's sole and unrestricted discretion and upon such terms, including the payment of all costs incurred and profits foregone, as DCL may require.
25. **Severability.** If a binding court determination is made that a provision of these Standard Terms and Conditions or any other document which forms the Agreement is unenforceable (in whole or in part), then such provision shall be void only to the extent that such determination requires, and the parties shall replace such void provision with one that is enforceable and valid and, to the greatest extent permitted by law, serves the intent and purpose of the void provision. No other provision shall be affected as a result thereof, and, accordingly, the remaining provisions shall remain in full force and effect as though such void, voidable or inoperative provision had not been contained herein.

CATERPILLAR®

G3516B LE Gas Petroleum Engine

1029 bkW (1380 bhp)
1400 rpm

0.5 g/bhp-hr NOx or 1.0 g/bhp-hr NOx (NTE)



Shown with Optional Equipment

CAT® ENGINE SPECIFICATIONS

V-16, 4-Stroke-Cycle

Bore	170 mm (6.7 in.)
Stroke	190 mm (7.5 in.)
Displacement	69.3 L (4230 cu. in.)
Aspiration	Turbocharged-2 Stage Aftercooled
Digital Engine Management	
Governor and Protection	Electronic (ADEM™ A3)
Combustion	Low Emission (Lean Burn)
Engine Weight, net dry (approx)	8401 kg (18,520 lb)
Power Density	8.2 kg/kW (13.4 lb/hp)
Power per Displacement	19.9 bhp/L
Total Cooling System Capacity	221.5 L (58.5 gal)
Jacket Water	204.4 L (54 gal)
SCAC	17 L (4.5 gal)
Lube Oil System (refill)	424 L (112 gal)
Oil Change Interval	1000 hour
Rotation (from flywheel end)	Counterclockwise
Flywheel and Flywheel Housing	SAE No. 00
Flywheel Teeth	183

FEATURES

Engine Design
- Built on G3500 LE proven reliability and durability
- Ability to burn a wide spectrum of gaseous fuels
- Robust diesel strength design prolongs life and lowers owning and operating costs
- Broad operating speed range at lower site air densities (high altitude/hot ambient temperatures)
- Higher power density improves fleet management
- Quality engine diagnostics
- Detonation-sensitive timing control for individual cylinders

Ultra Lean Burn Technology (ULB)
ULB technology uses an advanced control system, a better turbo match, improved air and fuel mixing, and a more sophisticated combustion recipe to provide:
- Lowest engine-out emissions
- Highest fuel efficiency
- Improved altitude and speed turndown
- Stable load acceptance and load rejection

Emissions
- Meets U.S. EPA Spark Ignited Stationary NSPS emissions for 2010
- Lean air/fuel mixture provides best available emissions and fuel efficiency for engines of this bore size

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

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

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

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

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

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

Cat parts and labor warranty

Preventive maintenance agreements available for repair-before-failure options

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

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

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

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

STANDARD EQUIPMENT

Air Inlet System
Axial flow air cleaners
Service indicator
Cleanable

Cooling System
Two-stage charge air cooling:
First stage — JW + OC + 1st stage AC
Second stage — 2nd stage AC
Engine cooling and charge air cooling thermostats

Exhaust System
Dry exhaust manifolds and turbocharger housings

Flywheels and Housings
SAE 00 flywheel
SAE 00 flywheel housing
SAE standard rotation

Fuel System
Electronic fuel metering valve
Requires 7-50 psig gas supply
Gas pressure regulator
Gas shutoff valve

Instrumentation
Remote-mounted Advisor control panel
Interconnect harness

Lube System
Top-mounted crankcase breathers
Oil cooler
Oil filter and oil sampling valve
Drain valve
Turbo oil accumulator
API B16.3 approved gas/air-driven pre-lube system

Torsional Vibration Analysis
Caterpillar provided
Required through first quarter 2010

Mounting
Rails

Control Panels
4" LCD Advisor display panel
Shipped loose

Starting System
90 psi TDI starter
150 psi TDI starter

Power Take-Offs
Front housing, two sided
Front lower LH accessory drive

Protection System — Display/Alarm/Shutdown
Low oil pressure
Oil filter differential pressure
High fuel or oil temperature
Engine oil to engine coolant
Differential temperature
High coolant temperature
Engine speed
Engine load
Battery voltage
Detonation
Manifold air temperature
Coolant JW inlet/outlet pressure
Left turbo inlet temperature
Right turbo inlet temperature
Cylinder port temperature

Protection System — Display Only
Service hours
Oxygen level

General
Paint — Cat yellow
Dual 23" vibration damper with guard
CSA Certification, Class 1 Division 2 Groups C and D

OPTIONAL EQUIPMENT

Air Inlet System
Rectangular air inlet adapter
Circular air inlet adapter

Charging System
Battery Charger 20 amp

Connections
Mechanical joint assembly
Inlet connection

Exhaust System
Flexible fittings available at first production build
Elbows and mufflers

Instrumentation
Optional interconnect harness

Lube System
Shipped with lube oil

Mounting System
Rails

Power Take-Offs
Front stub shaft

Literature
Options available

Packing

TECHNICAL DATA

G3516B LE Gas Petroleum Engine — 1400 rpm***

Fuel System		0.5 g NOx NTE Rating DM8800-03	1.0 g NOx NTE Rating DM8850-02
Engine Power			
@ 100% Load	bkW (bhp)	1029 (1380)	1029 (1380)
Engine Speed	rpm	**1400**	**1400**
Max Altitude @ Rated Torque and 38°C (100°F)	m (ft)	1219.2 (4000)	1828.8 (6000)
Speed Turndown @ Max Altitude, Rated Torque, and 38°C (100°F)	%	25	25
Aftercooler Temperature			
Stage 1 (JW)	°C (°F)	98.9 (210)	98.9 (210)
Stage 2 (SCAC)	°C (°F)	54 (130)	54 (130)
Emissions*			
NOx	g/bkW-hr (g/bhp-hr)	0.67 (0.50)	1.34 (1.00)
CO	g/bkW-hr (g/bhp-hr)	3.26 (2.43)	3.75 (2.80)
CO_2	g/bkW-hr (g/bhp-hr)	635 (474)	603 (449)
VOC**	g/bkW-hr (g/bhp-hr)	0.64 (0.48)	0.51 (0.38)
Fuel Consumption***			
@ 100% Load	MJ/bkW-hr (Btu/bhp-hr)	10.33 (7301)	9.97 (7050)
Heat Balance			
Heat Rejection to Jacket Water @ 100% Load			
JW	bkW (Btu/mn)	412.37 (23,451)	418.9 (23,820)
OC	bkW (Btu/mn)	78.2 (4449)	78.2 (4449)
Heat Rejection to Aftercooler @ 100% Load			
1st Stage AC	bkW (Btu/mn)	94.23 (5359)	78.55 (4467)
2nd Stage AC	bkW (Btu/mn)	176.7 (10,047)	157.9 (8984)
Heat Rejection to Exhaust @ 100% Load LHV to 25° C (77° F)	bkW (Btu/mn)	1098 (62,428)	1021.9 (58,113)
Heat Rejection to Atmosphere @ 100% Load	bkW (Btu/mn)	107.34 (6110)	107.34 (6110)
Exhaust System			
Exhaust Gas Flow Rate @ 100% Load	m^3/min (cfm)	258.4 (9126)	246.8 (8716)
Exhaust Stack Temperature @ 100% Load	°C (°F)	533.33 (992)	532.22 (990)
Intake System			
Air Inlet Flow Rate @ 100% Load	m^3/min (scfm)	88.52 (3126)	84.70 (2991)
Gas Pressure	kPag (psig)	48-345 (7-50)	48-345 (7-50)

*at 100% load and speed, all values are listed as not to exceed

**Volatile organic compounds as defined in U.S. EPA 40 CFR 60, subpart JJJJ

***ISO 3046/1

tion 7, Page 38

ambient air, heat gain to the bulk liquid from insolation is almost entirely through the tank shell; thus the liquid bulk temperature is not sensitive to H_S/D and may be calculated using the following equation:

$$T_B = T_{AA} + 0.003\ \alpha_S\ I \quad (1\text{-}31)$$

where:

T_B = liquid bulk temperature, °R
T_{AA} = average daily ambient temperature, °R, as calculated in Note 4
α_S = tank shell surface solar absorptance, dimensionless; see Table 7.1-6
I = average daily total insolation factor, Btu/(ft^2 day); see Table 7.1-7.

6. The average vapor temperature, T_V, for an uninsulated tank may be calculated using the following equation:

$$T_V = \frac{[2.2\ (H_S/D)+1.1]\ T_{AA} + 0.8\ T_B + 0.021 \alpha_R I + 0.013 (H_S/D) \alpha_S I}{2.2\ (H_S/D) + 1.9} \quad (1\text{-}32)$$

where:

H_S = tank shell height, ft
D = tank diameter, ft,
T_{AA} = average daily ambient temperature, °R
T_B = liquid bulk temperature, °R
α_R = tank roof surface solar absorptance, dimensionless
α_S = tank shell surface solar absorptance, dimensionless
I = average daily total insolation factor, Btu/(ft^2 day).

API assigns a default value of $H_s/D = 0.5$ and an assumption of $\alpha_R = \alpha_S$, resulting in the simplified equation shown below for an uninsulated tank:[22]

$$T_V = 0.7T_{AA} + 0.3T_B + 0.009\ \alpha\ I \quad (1\text{-}33)$$

where:

α = average tank surface solar absorptance, dimensionless

When the shell is insulated, but not the roof, the temperature equations are independent of H_s/D.

$$T_V = 0.6T_{AA} + 0.4T_B + 0.01\ \alpha_R\ I \quad (1\text{-}34)$$

When the tank shell and roof are fully insulated, the temperatures of the vapor space and the liquid surface are taken as equal to the temperature of the bulk liquid.

7.1.3.1.2 Working Loss

The fixed roof tank working loss, L_W, refers to the loss of stock vapors as a result of tank filling operations. Fixed roof tank working losses can be estimated from:

$$L_W = V_Q K_N K_P W_V K_B \quad \textbf{(1-35)}$$

where:

L_W = working loss, lb/yr

V_Q = net working loss throughput, ft^3/yr, see Note 1

K_N = working loss turnover (saturation) factor, dimensionless

for turnovers > 36, $K_N = (180 + N)/6N$

for turnovers ≤ 36, $K_N = 1$

for tanks that are vapor balanced and tanks in which flashing occurs, $K_N = 1$ regardless of the number of turnovers; further adjustment of K_N may be appropriate in the case of splash loading into a tank.

N = number of turnovers per year, dimensionless:

$$N = \Sigma H_{QI} / (H_{LX} - H_{LN}) \quad \textbf{(1-36)}$$

ΣH_{QI} = the annual sum of the increases in liquid level, ft/yr

If ΣH_{QI} is unknown, it can be estimated from pump utilization records. Over the course of a year, the sum of increases in liquid level, ΣH_{QI}, and the sum of decreases in liquid level, ΣH_{QD}, will be approximately the same. Alternatively, ΣH_{QI} may be approximated as follows:

$$\Sigma H_{QI} = (5.614\ Q) / ((\pi/4)\ D^2) \quad (1\text{-}37)$$

5.614 =the conversion of barrels to cubic feet, ft^3/bbl

Q = annual net throughput, bbl/yr

For horizontal tanks, use D_E (Equation 1-14) in place of D in Equation 1-37

H_{LX} = maximum liquid height, ft

If the maximum liquid height is unknown, for vertical tanks use one foot less than the shell height and for horizontal tanks use (π/4) D where D is the diameter of a vertical cross-section of the horizontal tank

H_{LN} = minimum liquid height, ft

If the minimum liquid height is unknown, for vertical tanks use 1 and for horizontal tanks use 0

K_P = working loss product factor, dimensionless

for crude oils, $K_P = 0.75$; adjustment of K_P may be appropriate in the case of splash loading into a tank

for all other organic liquids, $K_P = 1$

W_V = vapor density, lb/ft^3, see Equation 1-22

K_B = vent setting correction factor, dimensionless, see Note 2 for open vents and for a vent setting range up to ± 0.03 psig, $K_B = 1$

1. Net Working Loss Throughput.

The net working loss throughput, V_Q, is the volume associated with increases in the liquid level, and is calculated as follows:

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

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

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $lb/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_X emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_X emission factor.

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

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

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2×10^4 $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

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

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

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

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

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

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

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

where:

L_L = loading loss, pounds per 1000 gallons ($lb/10^3$ gal) of liquid loaded

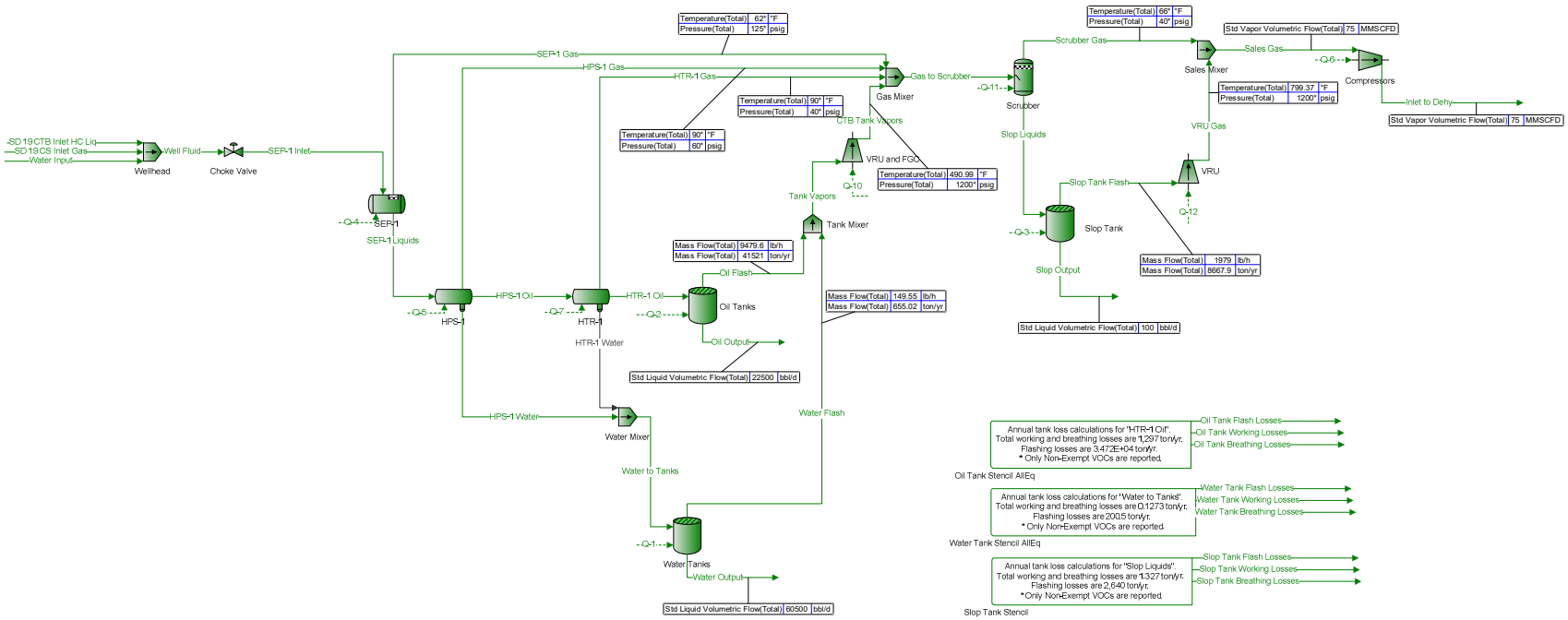
S = a saturation factor (see Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Section 7.1, "Organic Liquid Storage Tanks")
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")
T = temperature of bulk liquid loaded, °R (°F + 460)

Table II: Facility/Compound Specific Fugitive Emission Factors

Equipment/Service	Compound Specific See Section I for more information			Facility Specific[1]					
	Ethylene Oxide[2] w/LDAR	Phosgene[3] w/LDAR	Butadiene w/LDAR[4]	Petroleum Marketing Terminal[5, 6] w/28PET	Oil and Gas ProductionOperation[6]				Refinery[6]
					Gas	Heavy Oil < 20 API	Light Oil	Water/ Light Oil	
Valves					0.00992	0.0000185	0.0055	0.000216	
Gas/Vapor	0.000444	0.00000216	0.001105	0.0000287					0.059
Light Liquid	0.00055	0.00000199	0.00314	0.0000948					0.024
Heavy Liquid				0.0000948					0.00051
Pumps	0.042651	0.0000201	0.05634		0.00529	0.00113[7]	0.02866	0.000052	
Light Liquid				0.00119					0.251
Heavy Liquid				0.00119					0.046
Flanges/Connectors[11]	0.000555	0.00000011	0.000307		0.00086	0.00000086	0.000243	0.000006	0.00055
					0.00044	0.0000165	0.000463	0.000243	
Gas/Vapor				0.000092604					
Light Liquid				0.00001762					
Heavy Liquid				0.0000176					
Compressors	0.000767		0.000004		0.0194	0.0000683	0.0165	0.0309	1.399
Relief Valve	0.000165	0.0000162	0.02996		0.0194	0.0000683	0.0165	0.0309	0.35
Open-ended Lines[8]	0.001078	0.00000007	0.00012		0.00441	0.000309	0.00309	0.00055	0.0051
Sampling[9]	0.000088		0.00012						0.033
Other[10]					0.0194	0.0000683	0.0165	0.0309	
Gas/Vapor				0.000265					
Light/Heavy Liquid				0.000287					
Process Drains					0.0194	0.0000683	0.0165	0.0309	0.07

Endnotes Table II

1. **Factors give the total organic compound emission rate. Multiply by the weight percent of non-methane, non-ethane organics to get the VOC emission rate.**
2. **These emission factors require the use of the 28MID fugitive program. Monitoring must occur at a leak definition of 500 ppmv. No additional control credit can be applied to these factors except 28CNTQ and 28CNTA. Emission factors are from EOIC Fugitive Emission Study, summer 1988.**
3. **These emission factors require the use of the 28MID fugitive program. Monitoring must occur at a leak definition of 50 ppmv. No additional control credit can be applied to these factors. Emission factors are from Phosgene Panel Study, summer 1988.**
4. **These emission factors require the use of the 28MID fugitive program. Monitoring must occur at a leak definition of 100 ppmv. No additional control credit can be applied to these factors. Emission factors are from Randall, J. L., et al., Radian Corporation. Fugitive Emissions from the 1,3-butadiene Production Industry: A Field Study. Final Report. Prepared for the 1,3-Butadiene Panel for the Chemical Manufacturers Association. April 1989.**
5. **Control credit is included in the factor; no additional control credit can be applied to these factors. Monthly 28 PET inspection is required.**
6. **Factors are taken from EPA Document EPA-453/R-95-017, November 1995, pages 2-13, 2-14, and 2-15.**
7. **Heavy liquid oil – Pump factor was not derived during the API study. The factor is the SOCMI without C_2 Heavy Liquid – Pump factor with a 93% reduction credit for the physical inspection.**


SD 19 CTB Inlet HC Liq
SD 19 CS Inlet Gas
Water Input
Wellhead
Well Fluid
Choke Valve
SEP-1 Inlet
SEP-1
Q-4
SEP-1 Liquids
SEP-1 Gas
HPS-1 Gas
HTR-1 Gas
Gas to Scrubber
Gas Mixer
Temperature(Total) 62 °F
Pressure(Total) 125 psig
Temperature(Total) 90 °F
Pressure(Total) 40 psig
Temperature(Total) 90 °F
Pressure(Total) 60 psig
CTB Tank Vapors
VRU and FGC
Q-10
Temperature(Total) 490.99 °F
Pressure(Total) 1200 psig
Tank Vapors
Tank Mixer
Mass Flow(Total) 9479.6 lb/h
Mass Flow(Total) 41521 ton/yr
Oil Flash
HPS-1
Q-5
HPS-1 Oil
HTR-1
Q-7
HTR-1 Oil
Oil Tanks
Q-2
Oil Output
Mass Flow(Total) 149.55 lb/h
Mass Flow(Total) 655.02 ton/yr
Std Liquid Volumetric Flow(Total) 22500 bbl/d
HTR-1 Water
HPS-1 Water
Water Mixer
Water to Tanks
Water Flash
Q-1
Water Tanks
Water Output
Std Liquid Volumetric Flow(Total) 60500 bbl/d
Temperature(Total) 66 °F
Pressure(Total) 40 psig
Scrubber Gas
Scrubber
Q-11
Slop Liquids
Slop Tank
Q-3
Slop Output
Std Liquid Volumetric Flow(Total) 100 bbl/d
Std Vapor Volumetric Flow(Total) 75 MMSCFD
Sales Gas
Sales Mixer
Q-6
Compressors
Inlet to Dehy
Std Vapor Volumetric Flow(Total) 75 MMSCFD
Temperature(Total) 799.37 °F
Pressure(Total) 1200 psig
VRU Gas
VRU
Q-12
Slop Tank Flash
Mass Flow(Total) 1979 lb/h
Mass Flow(Total) 8667.9 ton/yr
Annual tank loss calculations for "HTR-1 Oil".
Total working and breathing losses are 1,297 ton/yr.
Flashing losses are 3.472E+04 ton/yr.
* Only Non-Exempt VOCs are reported.
Oil Tank Flash Losses
Oil Tank Working Losses
Oil Tank Breathing Losses
Oil Tank Stencil AllEq
Annual tank loss calculations for "Water to Tanks".
Total working and breathing losses are 0.1273 ton/yr.
Flashing losses are 200.5 ton/yr.
* Only Non-Exempt VOCs are reported.
Water Tank Flash Losses
Water Tank Working Losses
Water Tank Breathing Losses
Water Tank Stencil AllEq
Annual tank loss calculations for "Slop Liquids".
Total working and breathing losses are 1.327 ton/yr.
Flashing losses are 2,640 ton/yr.
* Only Non-Exempt VOCs are reported.
Slop Tank Flash Losses
Slop Tank Working Losses
Slop Tank Breathing Losses
Slop Tank Stencil

Process Streams		Oil Tank Breathing Losses	Oil Tank Flash Losses	Slop Tank Breathing Losses	Slop Tank Flash Losses	Water Tank Breathing Losses	Water Tank Flash Losses
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	--	--	--	--	--
	To Block:	--	--	--	--	--	--
Mole Fraction		%	%	%	%	%	%
Carbon Dioxide		0.754506*	0.931417*	2.45439*	1.59020*	8.46123*	10.2786*
Nitrogen		0.000479386*	0.00792094*	0.154743*	1.26448*	0.00203546*	0.172523*
Methane		1.85106*	6.79441*	39.1314*	71.1626*	1.46447*	44.6503*
Ethane		25.1222*	20.1139*	31.6441*	12.8022*	0.883461*	23.4070*
Propane		38.3314*	35.0873*	16.1508*	7.26594*	0.0754512*	11.6932*
Isobutane		6.39702*	6.56522*	1.85203*	0.930697*	0.00149998*	0.980739*
n-Butane		17.3125*	18.0420*	4.64514*	2.38436*	0.00474370*	3.34090*
2,2-Dimethylpropane		0.0176162*	0.0191825*	0.00470987*	0.00251243*	7.33949E-07*	0.00158409*
Isopentane		3.49342*	3.79506*	0.969921*	0.514983*	0.000155163*	0.420382*
n-Pentane		3.88061*	4.27074*	1.13321*	0.609667*	2.57167E-05*	0.222986*
2,2-Dimethylbutane		0.00922691*	0.0106011*	0.00294402*	0.00170047*	3.03432E-08*	0.000457289*
Cyclopentane		0*	0*	0*	0*	0*	0*
2,3-Dimethylbutane		0.0582518*	0.0683429*	0.0207491*	0.0122296*	8.32795E-07*	0.00676807*
2-Methylpentane		0.183055*	0.222104*	0.0672760*	0.0410136*	8.76690E-07*	0.0140139*
3-Methylpentane		0.0877310*	0.105982*	0.0339302*	0.0205847*	1.90839E-06*	0.0143362*
n-Hexane		0.807417*	0.968491*	0.350947*	0.209936*	7.20210E-07*	0.0322167*
Methylcyclopentane		0.0721709*	0.0950701*	0.0315373*	0.0206251*	3.20602E-06*	0.0197524*
Benzene		0.0472181*	0.0818180*	0.0230027*	0.0189530*	0.000694876*	0.0738146*
Cyclohexane		0.493883*	0.714674*	0.256361*	0.177841*	6.85697E-05*	0.261310*
2-Methylhexane		0.0126132*	0.0163261*	0.00830031*	0.00528887*	7.69243E-09*	0.000628701*
3-Methylhexane		0.0138705*	0.0173646*	0.00963634*	0.00593374*	1.04256E-08*	0.000774435*
2,2,4-Trimethylpentane		0.0414033*	0.0528254*	0.0320197*	0.0201002*	1.16900E-08*	0.00156607*
Heptane		0.646259*	0.834385*	0.521712*	0.330176*	9.34605E-08*	0.0197407*
Methylcyclohexane		0.0367844*	0.0500225*	0.0279806*	0.0189161*	5.25658E-07*	0.0100112*
Toluene		0.0462020*	0.0787019*	0.0423870*	0.0344585*	0.000146514*	0.0704423*
Octane		0.231419*	0.342946*	0.326297*	0.236485*	2.12598E-09*	0.00375027*
Ethylbenzene		0.00450316*	0.00760788*	0.00697665*	0.00562413*	3.94973E-06*	0.00668658*
o-Xylene		0.0140096*	0.0265554*	0.0240742*	0.0217191*	1.47226E-05*	0.0240498*
Nonane		0.0327750*	0.0572666*	0.0730295*	0.0625964*	7.55209E-11*	0.000535359*
Decanes Plus		3.30368E-05*	8.11866E-05*	0.000126285*	0.000143199*	7.38128E-14*	3.61064E-05*
Water		0.000373656*	0.621664*	0.000311551*	0.228049*	89.1060*	4.27091*
Mass Fraction		%	%	%	%	%	%
Carbon Dioxide		0.709125	0.876745	3.46774	2.97451	18.3297	16.0615
Nitrogen		0.000286791	0.00474598	0.139166	1.50556	0.00280674	0.171601
Methane		0.634170	2.33134	20.1536	48.5222	1.15645	25.4332
Ethane		16.1321	12.9359	30.5470	16.3615	1.30762	24.9904
Propane		36.0964	33.0924	22.8637	13.6177	0.163771	18.3078
Isobutane		7.94023	8.16158	3.45579	2.29916	0.00429144	2.02396
n-Butane		21.4890	22.4290	8.66757	5.89023	0.0135717	6.89466
2,2-Dimethylpropane		0.0271428	0.0296018	0.0109092	0.00770444	2.60657E-06	0.00405803
Isopentane		5.38261	5.85640	2.24658	1.57921	0.000551053	1.07691
n-Pentane		5.97919	6.59045	2.62481	1.86956	9.13313E-05	0.571233
2,2-Dimethylbutane		0.0169806	0.0195396	0.00814481	0.00622830	1.28712E-07	0.00139920
Cyclopentane		0	0	0	0	0	0
2,3-Dimethylbutane		0.107203	0.125968	0.0574035	0.0447934	3.53261E-06	0.0207088
2-Methylpentane		0.336883	0.409376	0.186123	0.150220	3.71881E-06	0.0428794
3-Methylpentane		0.161454	0.195343	0.0938697	0.0753956	8.09517E-06	0.0438656
n-Hexane		1.48592	1.78510	0.970913	0.768931	3.05504E-06	0.0985759
Methylcyclopentane		0.129712	0.171131	0.0852087	0.0737763	1.32814E-05	0.0590242
Benzene		0.0787661	0.136694	0.0576837	0.0629234	0.00267177	0.204723
Cyclohexane		0.887647	1.28645	0.692647	0.636141	0.000284060	0.780848
2-Methylhexane		0.0269907	0.0349898	0.0267010	0.0225246	3.79415E-08	0.00223680
3-Methylhexane		0.0296812	0.0372155	0.0309988	0.0252710	5.14223E-08	0.00275529
2,2,4-Trimethylpentane		0.101000	0.129063	0.117422	0.0975872	6.57298E-08	0.00635173
Heptane		1.38292	1.78824	1.67827	1.40617	4.60977E-07	0.0702336
Methylcyclohexane		0.0771308	0.105051	0.0881988	0.0789403	2.54055E-06	0.0349013
Toluene		0.0909108	0.155099	0.125380	0.134944	0.000664498	0.230452
Octane		0.564529	0.837883	1.19659	1.14814	1.19538E-08	0.0152105
Ethylbenzene		0.0102097	0.0172754	0.0237785	0.0253778	2.06406E-05	0.0252053
o-Xylene		0.0317628	0.0603000	0.0820519	0.0980035	7.69379E-05	0.0906567
Nonane		0.0897699	0.157094	0.300697	0.341226	4.76775E-10	0.00243796
Decanes Plus		0.000165516	0.000407376	0.000951123	0.00142786	8.52382E-13	0.000300759
Water		0.000143756	0.239541	0.000180188	0.174617	79.0174	2.73192
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Carbon Dioxide		0.0301335*	83.1120*	0.00492908*	58.8650*	0.0112708*	24.0197*
Nitrogen		1.21869E-05*	0.449900*	0.00197812*	29.7947*	1.72584E-06*	0.256627*
Methane		0.0269484*	221.002*	0.0286465*	960.246*	0.000711088*	38.0351*
Ethane		0.685515*	1226.28*	0.0434198*	323.791*	0.000804045*	37.3727*
Propane		1.53388*	3137.03*	0.0324986*	269.493*	0.000100701*	27.3791*
Isobutane		0.337411*	773.685*	0.00491209*	45.4999*	2.63877E-06*	3.02680*
n-Butane		0.913150*	2126.18*	0.0123202*	116.567*	8.34512E-06*	10.3109*
2,2-Dimethylpropane		0.00115340*	2.80613*	1.55065E-05*	0.152470*	1.60276E-09*	0.00606872*
Isopentane		0.228728*	555.164*	0.00319331*	31.2523*	3.38837E-07*	1.61050*
n-Pentane		0.254079*	624.749*	0.00373093*	36.9983*	5.61588E-08*	0.854271*
2,2-Dimethylbutane		0.000721572*	1.85228*	1.15771E-05*	0.123257*	7.91441E-11*	0.00209249*
Cyclopentane		0*	0*	0*	0*	0*	0*
2,3-Dimethylbutane		0.00455546*	11.9413*	8.15939E-05*	0.886453*	2.17217E-09*	0.0309697*
2-Methylpentane		0.0143155*	38.8072*	0.000264557*	2.97283*	2.28667E-09*	0.0641255*
3-Methylpentane		0.00686082*	18.5177*	0.000133427*	1.49206*	4.97765E-09*	0.0656004*
n-Hexane		0.0631424*	169.220*	0.00138006*	15.2170*	1.87852E-09*	0.147419*
Methylcyclopentane		0.00551195*	16.2226*	0.000121116*	1.46002*	8.16663E-09*	0.0882698*
Benzene		0.00334708*	12.9580*	8.19921E-05*	1.24524*	1.64285E-06*	0.306160*
Cyclohexane		0.0377196*	121.951*	0.000984535*	12.5891*	1.74666E-07*	1.16775*
2-Methylhexane		0.00114694*	3.31690*	3.79530E-05*	0.445757*	2.33299E-11*	0.00334510*
3-Methylhexane		0.00126127*	3.52788*	4.40620E-05*	0.500109*	3.16191E-11*	0.00412050*
2,2,4-Trimethylpentane		0.00429190*	12.2346*	0.000166904*	1.93123*	4.04167E-11*	0.00949893*
Heptane		0.0587656*	169.518*	0.00238551*	27.8279*	2.83451E-10*	0.105033*
Methylcyclohexane		0.00327759*	9.95838*	0.000125367*	1.56221*	1.56216E-09*	0.0521944*
Toluene		0.00386315*	14.7028*	0.000178217*	2.67052*	4.08594E-07*	0.344638*
Octane		0.0239891*	79.4280*	0.00170084*	22.7215*	7.35032E-12*	0.0227471*
Ethylbenzene		0.000433849*	1.63764*	3.37990E-05*	0.502223*	1.26917E-08*	0.0376942*
o-Xylene		0.00134973*	5.71620*	0.000116629*	1.93947*	4.73084E-08*	0.135576*
Nonane		0.00381467*	14.8919*	0.000427414*	6.75280*	2.93165E-13*	0.00364593*
Decanes Plus		7.03342E-06*	0.0386176*	1.35193E-06*	0.0282571*	5.24122E-16*	0.000449781*
Water		6.10877E-06*	22.7075*	2.56121E-07*	3.45564*	0.0485871*	4.08554*

Process Streams		Oil Tank Breathing Losses	Oil Tank Flash Losses	Slop Tank Breathing Losses	Slop Tank Flash Losses	Water Tank Breathing Losses	Water Tank Flash Losses
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	--	--	--	--	--
	To Block:	--	--	--	--	--	--
Property	Units						
Temperature	°F	82.3744	82.3744	82.3744	82.3744	82.3744	82.3744
Pressure	psia	20.9981	12.88	12.6537	255.739	0.615305	12.8800
Molecular Weight	lb/lbmol	46.8259	46.7538	31.1490	23.5278	20.3154	28.1639
Mass Flow	lb/h	4.24939	9479.61	0.142141	1978.98	0.0614891	149.549
Std Vapor Volumetric Flow	MMSCFD	0.000826504	1.84662	4.15604E-05	0.766063	2.75663E-05	0.0483608
Std Liquid Volumetric Flow	sgpm	0.0166875	36.7539	0.000680311	10.5725	0.000134399	0.699238
Specific Gravity		1.61678	1.61429	1.07549	0.812355	0.701438	0.972428
API Gravity							
Net Ideal Gas Heating Value	Btu/ft^3	2430.54	2415.03	1607.10	1225.72	29.5977	1233.43
Gross Ideal Gas Heating Value	Btu/ft^3	2639.47	2622.74	1756.33	1347.76	77.4011	1353.66

Process Streams		Oil Tank Breathing Losses	Oil Tank Flash Losses	Slop Tank Breathing Losses	Slop Tank Flash Losses	Water Tank Breathing Losses	Water Tank Flash Losses
Composition	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	--	--	--	--	--	--
	To Block:	--	--	--	--	--	--
Mole Fraction		%	%	%	%	%	%
Carbon Dioxide		0.754506	0.931417	2.45439	1.59020	8.46123	10.2786
Nitrogen		0.000479386	0.00792094	0.154743	1.26448	0.00203546	0.172523
Methane		1.85106	6.79441	39.1314	71.1626	1.46447	44.6503
Ethane		25.1222	20.1139	31.6441	12.8022	0.883461	23.4070
Propane		38.3314	35.0873	16.1508	7.26594	0.0754512	11.6932
Isobutane		6.39702	6.56522	1.85203	0.930697	0.00149998	0.980739
n-Butane		17.3125	18.0420	4.64514	2.38436	0.00474370	3.34090
2,2-Dimethylpropane		0.0176162	0.0191825	0.00470987	0.00251243	7.33949E-07	0.00158409
Isopentane		3.49342	3.79506	0.969921	0.514983	0.000155163	0.420382
n-Pentane		3.88061	4.27074	1.13321	0.609667	2.57167E-05	0.222986
2,2-Dimethylbutane		0.00922691	0.0106011	0.00294402	0.00170047	3.03432E-08	0.000457289
Cyclopentane		0	0	0	0	0	0
2,3-Dimethylbutane		0.0582518	0.0683429	0.0207491	0.0122296	8.32795E-07	0.00676807
2-Methylpentane		0.183055	0.222104	0.0672760	0.0410136	8.76690E-07	0.0140139
3-Methylpentane		0.0877310	0.105982	0.0339302	0.0205847	1.90839E-06	0.0143362
n-Hexane		0.807417	0.968491	0.350947	0.209936	7.20210E-07	0.0322167
Methylcyclopentane		0.0721709	0.0950701	0.0315373	0.0206251	3.20602E-06	0.0197524
Benzene		0.0472181	0.0818180	0.0230027	0.0189530	0.000694876	0.0738146
Cyclohexane		0.493883	0.714674	0.256361	0.177841	6.85697E-05	0.261310
2-Methylhexane		0.0126132	0.0163261	0.00830031	0.00528887	7.69243E-09	0.000628701
3-Methylhexane		0.0138705	0.0173646	0.00963634	0.00593374	1.04256E-08	0.000774435
2,2,4-Trimethylpentane		0.0414033	0.0528254	0.0320197	0.0201002	1.16900E-08	0.00156607
Heptane		0.646259	0.834385	0.521712	0.330176	9.34605E-08	0.0197407
Methylcyclohexane		0.0367844	0.0500225	0.0279806	0.0189161	5.25658E-07	0.0100112
Toluene		0.0462020	0.0787019	0.0423870	0.0344585	0.000146514	0.0704423
Octane		0.231419	0.342946	0.326297	0.236485	2.12598E-09	0.00375027
Ethylbenzene		0.00450316	0.00760788	0.00697665	0.00562413	3.94973E-06	0.00668658
o-Xylene		0.0140096	0.0265554	0.0240742	0.0217191	1.47226E-05	0.0240498
Nonane		0.0327750	0.0572666	0.0730295	0.0625984	7.55203E-11	0.000535359
Decanes Plus		3.30368E-05	8.11866E-05	0.000126285	0.000143199	7.38128E-14	3.61064E-05
Water		0.000373656	0.621664	0.000311551	0.228049	89.1060	4.27091
Mass Fraction		%	%	%	%	%	%
Carbon Dioxide		0.709125	0.876745	3.46774	2.97451	18.3297	16.0615
Nitrogen		0.000286791	0.00474598	0.139166	1.50556	0.00280674	0.171601
Methane		0.634170	2.33134	20.1536	48.5222	1.15645	25.4332
Ethane		16.1321	12.9359	30.5470	16.3615	1.30762	24.9904
Propane		36.0964	33.0924	22.8637	13.6177	0.163771	18.3078
Isobutane		7.94023	8.16158	3.45579	2.29916	0.00429144	2.02396
n-Butane		21.4890	22.4290	8.66757	5.89023	0.0135717	6.89466
2,2-Dimethylpropane		0.0271428	0.0296018	0.0109092	0.00770444	2.60657E-06	0.00405803
Isopentane		5.38261	5.85640	2.24658	1.57921	0.000551053	1.07691
n-Pentane		5.97919	6.59045	2.62481	1.86956	9.13313E-05	0.571233
2,2-Dimethylbutane		0.0169806	0.0195396	0.00814481	0.00622830	1.28712E-07	0.00139920
Cyclopentane		0	0	0	0	0	0
2,3-Dimethylbutane		0.107203	0.125968	0.0574035	0.0447934	3.53261E-06	0.0207088
2-Methylpentane		0.336883	0.409376	0.186123	0.150220	3.71881E-06	0.0428794
3-Methylpentane		0.161454	0.195343	0.0938697	0.0753956	8.09517E-06	0.0438656
n-Hexane		1.48592	1.78510	0.970913	0.768931	3.05504E-06	0.0985759
Methylcyclopentane		0.129712	0.171131	0.0852087	0.0737763	1.32814E-05	0.0590242
Benzene		0.0787661	0.136694	0.0576837	0.0629234	0.00267177	0.204723
Cyclohexane		0.887647	1.28645	0.692647	0.636141	0.000284060	0.780848
2-Methylhexane		0.0269907	0.0349898	0.0267010	0.0225246	3.79415E-08	0.00223680
3-Methylhexane		0.0296812	0.0372155	0.0309988	0.0252710	5.14223E-08	0.00275529
2,2,4-Trimethylpentane		0.101000	0.129063	0.117422	0.0975872	6.57298E-08	0.00635173
Heptane		1.38292	1.78824	1.67827	1.40617	4.60977E-07	0.0702336
Methylcyclohexane		0.0771308	0.105051	0.0881988	0.0789403	2.54055E-06	0.0349013
Toluene		0.0909108	0.155099	0.125380	0.134944	0.000664498	0.230452
Octane		0.564529	0.837883	1.19659	1.14814	1.19538E-08	0.0152105
Ethylbenzene		0.0102097	0.0172754	0.0237785	0.0253778	2.06406E-05	0.0252053
o-Xylene		0.0317628	0.0603000	0.0820519	0.0980035	7.69379E-05	0.0906567
Nonane		0.0897699	0.157094	0.300697	0.341226	4.76775E-10	0.00243796
Decanes Plus		0.000165516	0.000407376	0.000951123	0.00142786	8.52382E-13	0.000300759
Water		0.000143756	0.239541	0.000180188	0.174617	79.0174	2.73192
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Carbon Dioxide		0.0301335	83.1120	0.00492908	58.8650	0.0112708	24.0197
Nitrogen		1.21869E-05	0.449900	0.000197812	29.7947	1.72584E-06	0.256627
Methane		0.0269484	221.002	0.0286465	960.246	0.000711088	38.0351
Ethane		0.685515	1226.28	0.0434198	323.791	0.000804045	37.3727
Propane		1.53388	3137.03	0.0324986	269.493	0.000100701	27.3791
Isobutane		0.337411	773.685	0.00491209	45.4999	2.63877E-06	3.02680
n-Butane		0.913150	2126.18	0.0123202	116.567	8.34512E-06	10.3109
2,2-Dimethylpropane		0.00115340	2.80613	1.55065E-05	0.152470	1.60276E-09	0.00606872
Isopentane		0.228728	555.164	0.00319331	31.2523	3.38837E-07	1.61050
n-Pentane		0.254079	624.749	0.00373093	36.9983	5.61588E-08	0.854271
2,2-Dimethylbutane		0.000721572	1.85228	1.15771E-05	0.123257	7.91441E-11	0.00209249
Cyclopentane		0	0	0	0	0	0
2,3-Dimethylbutane		0.00455546	11.9413	8.15939E-05	0.886453	2.17217E-09	0.0309697
2-Methylpentane		0.0143155	38.8072	0.000264557	2.97283	2.28667E-09	0.0641255
3-Methylpentane		0.00686082	18.5177	0.000133427	1.49206	4.97765E-09	0.0656004
n-Hexane		0.0631424	169.220	0.00138006	15.2170	1.87852E-09	0.147419
Methylcyclopentane		0.00551195	16.2226	0.000121116	1.46002	8.16663E-09	0.0882698
Benzene		0.00334708	12.9580	8.19921E-05	1.24524	1.64285E-06	0.306160
Cyclohexane		0.0377196	121.951	0.000984535	12.5891	1.74666E-07	1.16775
2-Methylhexane		0.00114694	3.31690	3.79530E-05	0.445757	2.33299E-11	0.00334510
3-Methylhexane		0.00126127	3.52788	4.40620E-05	0.500109	3.16191E-11	0.00412050
2,2,4-Trimethylpentane		0.00429190	12.2346	0.000166904	1.93123	4.04167E-11	0.00949893
Heptane		0.0587656	169.518	0.00238551	27.8279	2.83451E-10	0.105033
Methylcyclohexane		0.00327759	9.95838	0.000125367	1.56221	1.56216E-09	0.0521944
Toluene		0.00386315	14.7028	0.00017217	2.67052	4.08594E-07	0.344638
Octane		0.0239891	79.4280	0.00170084	22.7215	7.35032E-12	0.0227471
Ethylbenzene		0.000433849	1.63764	3.37990E-05	0.502223	1.26917E-08	0.0376942
o-Xylene		0.00134973	5.71620	0.000116629	1.93947	4.73084E-08	0.135576
Nonane		0.00381467	14.8919	0.000427414	6.75280	2.93165E-13	0.00364593
Decanes Plus		7.03342E-06	0.0386176	1.35193E-06	0.0282571	5.24122E-16	0.000449781
Water		6.10877E-06	22.7075	2.56121E-07	3.45564	0.0485871	4.08554

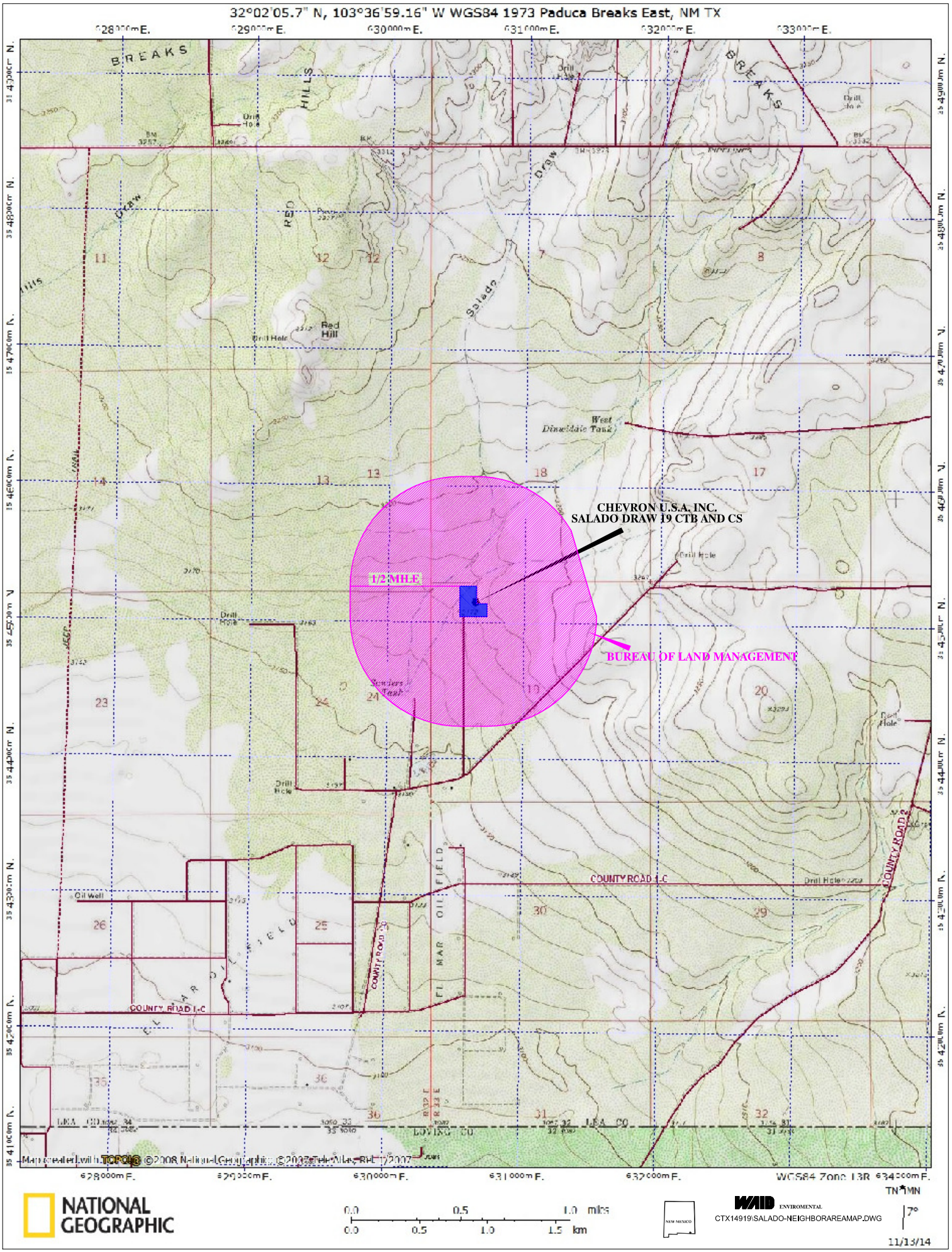
Process Streams		Oil Tank Breathing Losses	Oil Tank Flash Losses	Slop Tank Breathing Losses	Slop Tank Flash Losses	Water Tank Breathing Losses	Water Tank Flash Losses
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	--	--	--	--	--	--
	To Block:	--	--	--	--	--	--
Property	**Units**						
Temperature	°F	82.3744	82.3744	82.3744	82.3744	82.3744	82.3744
Pressure	psia	20.9981	12.88	12.6537	255.739	0.615305	12.8800
Molecular Weight	lb/lbmol	46.8259	46.7538	31.1490	23.5278	20.3154	28.1639
Mass Flow	lb/h	4.24939	9479.61	0.142141	1978.98	0.0614891	149.549
Std Vapor Volumetric Flow	MMSCFD	0.000826504	1.84662	4.15604E-05	0.766063	2.75663E-05	0.0483608
Std Liquid Volumetric Flow	sgpm	0.0166875	36.7539	0.000680311	10.5725	0.000134399	0.699238
Specific Gravity		1.61678	1.61429	1.07549	0.812355	0.701438	0.972428
API Gravity							
Net Ideal Gas Heating Value	Btu/ft^3	2430.54	2415.03	1607.10	1225.72	29.5977	1233.43
Gross Ideal Gas Heating Value	Btu/ft^3	2639.47	2622.74	1756.33	1347.76	77.4011	1353.66

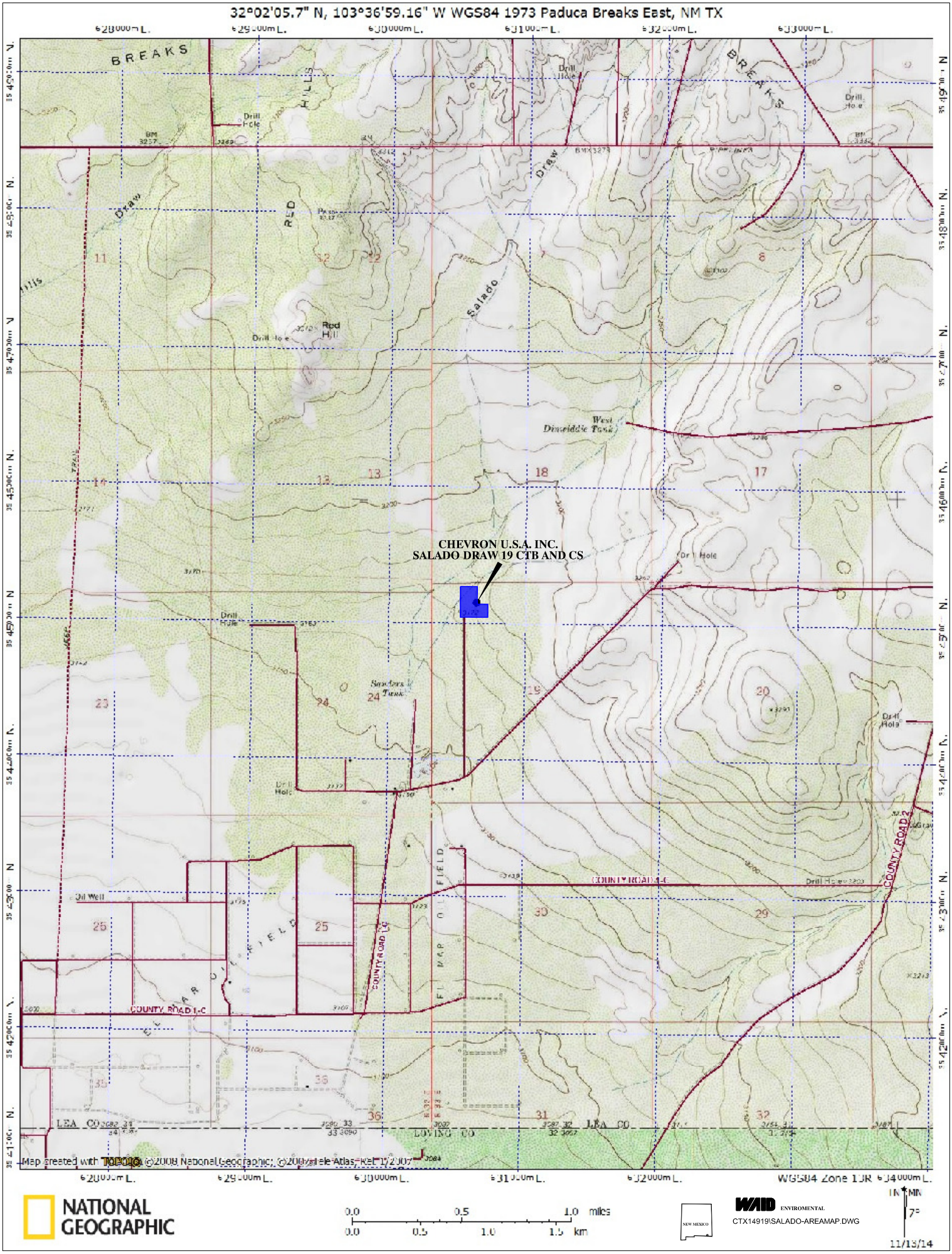
Section 8

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	


32°02'05.7" N, 103°36'59.16" W WGS84 1973 Paduca Breaks East, NM TX
CHEVRON U.S.A. INC.
SALADO DRAW 19 CTB AND CS
1/2 MILE
BUREAU OF LAND MANAGEMENT
COUNTY ROAD 1-C
COUNTY ROAD 1-C
COUNTY ROAD 19
COUNTY ROAD 2
FI MAR OIL FIELD
Red Hill
Salado Draw
West Dinwiddie Tank
Oil Well
Drill Hole
LEA CO
LOVING CO
NATIONAL GEOGRAPHIC
0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km
WGS84 Zone 13R
TN 7° MN
CTX14919\SALADO-NEIGHBORAREAMAP.DWG
11/13/14


32°02'05.7" N, 103°36'59.16" W WGS84 1973 Paduca Breaks East, NM TX
CHEVRON U.S.A. INC.
SALADO DRAW 19 CTB AND CS
BREAKS
RED HILLS
Salado Draw
Red Hill
West Dinwiddie Tank
Sanders Tank
COUNTY ROAD 1-C
COUNTY ROAD 2
LEA CO
LOVING CO
Map created with TOPO! ©2008 National Geographic, ©2007 Tele Atlas, Rel. 1/2007
NATIONAL GEOGRAPHIC
0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km
WGS84 Zone 13R
WAID ENVIROMENTAL
CTX14919\SALADO-AREAMAP.DWG
11/13/14

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.

---

(1) Notification of Property Owners with 0.5 miles of the site include:

Carlsbad Field Office – Send by CERTIFIED MAIL
Bureau of Land Management
620 E Greene St.
Carlsbad, NM 88220

(2) Notification of Municipalities, Counties, and Indian Tribes within 10 miles:

Mike Gallagher, Lea County Manager – Send by CERTIFIED MAIL
Lea County
100 North Main Ave., Suite 4
Lovington, NM, 88260
Phone: (575) 396-8601

Allen R. Davis, Eddy County Manager – Send by CERTIFIED MAIL
Eddy County
101 W Greene St., Suite 110
Carlsbad, NM 88220
Phone: (575) 887-9511

(3) Notification in the Newspaper

Hobbs News-Sun - Legal and Display Advertisement
https://www.hobbsnews.com/
Phone: (575) 391-5417
Name: Kayla Montoya
Email: ter1@hobbsnews.com

(4) Notifications: General Postings

a. Facility Entrance

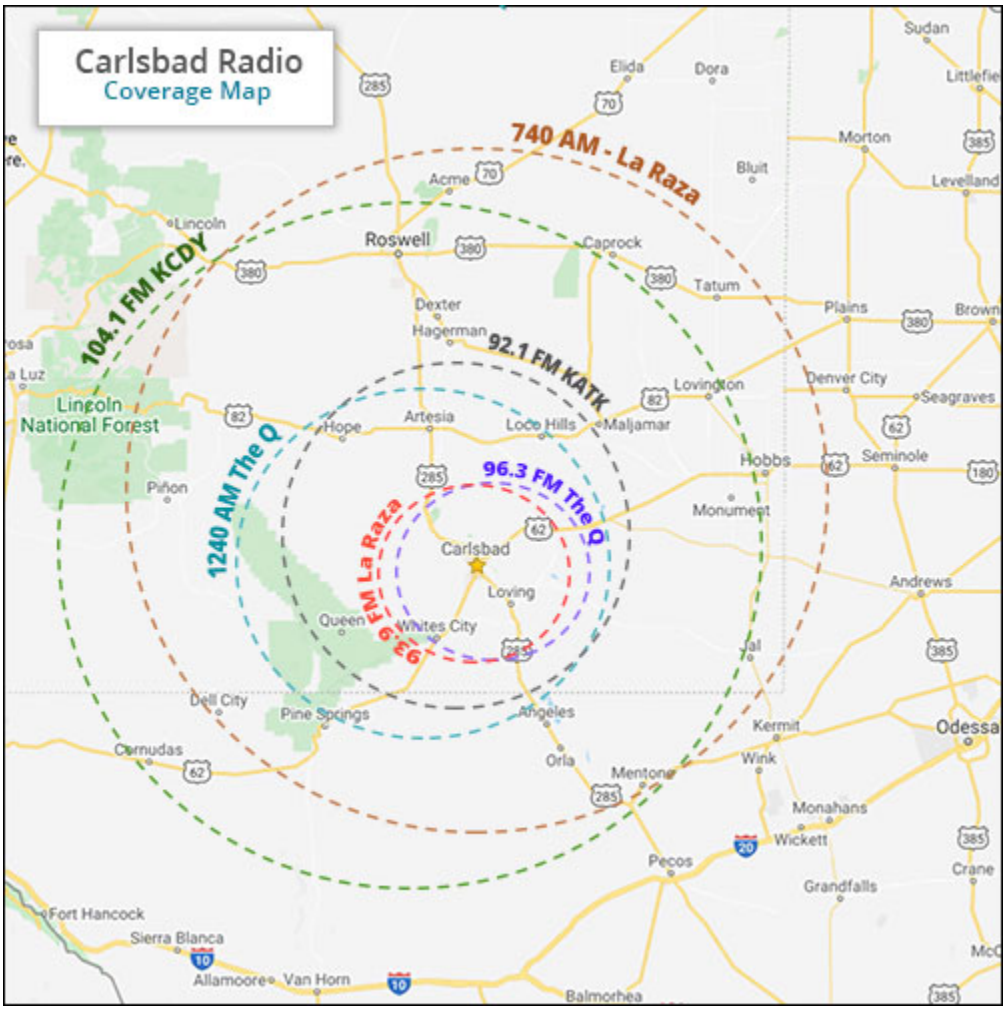
b. Site 1 (Public Library)
Woolworth Community Library – Send by FEDEX
100 E Utah Ave.
Jal NM, 88252
Phone: (575) 395-3268

c. Site 2 (City Hall)
Jal City Clerk – Send by FEDEX
Attn: Molly Sanchez
309 S Main St.
Jal, NM 88252
Phone: (575) 395-3340
msanchez@cityofjal.us

d. Site 3 (Post Office)
Jal Post Office – Send by FEDEX
Attn: Eric Barker
111 S 4th St.
Jal, NM 88252
Phone: (575) 395-3222
eric.barker@usps.gov

(5) Notification: Public Service Announcement

Carlsbad Radio Inc.
(575) 887-7563
Email: don@carlsbadradio.com, jerry@carlsbadradio.com, and traffic@carlsbadradio.com
Announcement will broadcast on four stations (104.1 FM, 92.1 FM, 1240 AM, 740 AM)
Carlsbad Radio Serves Lea County as well. See Coverage map below.



November 8, 2021

Carlsbad Field Office
Bureau of Land Management
620 E Greene St.
Carlsbad, NM 88220

Sent via Certified Mail
9414 8118 9956 0887 5146 82

Dear Bureau of Land Management:

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility known as, Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

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

Owners and operators of the facility include:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Sincerely,

Justin K. Mechell

Justin K. Mechell, P.E.
Senior Engineer

JKM/tp

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Carlsbad Field Office

In Transit

Thursday, November 11, 2021 12:30 AM

Tracking: 9414811899560887514682 ›

Create Return Label Email Tracking Info

Addresses

Shipped To: Carlsbad Field Office
Bureau of Land Management
620 E. Greene St.
Carlsbad, NM 88220

Shipped From: 78750

Return To: Waid Environmental
Waid Environmental
13785 Research Blvd, Suite 100
Austin, TX 78750

November 8, 2021

Mr. Mike Gallagher, Lea County Manager
Lea County
100 North Main Ave., Suite 4
Lovington, NM 88260

Sent via Certified
9414 8118 9956 0887 7077 18

Dear Mr. Gallagher:

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility known as, Salado Draw 19 CTB and CS, is latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

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

Owners and operators of the facility include:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

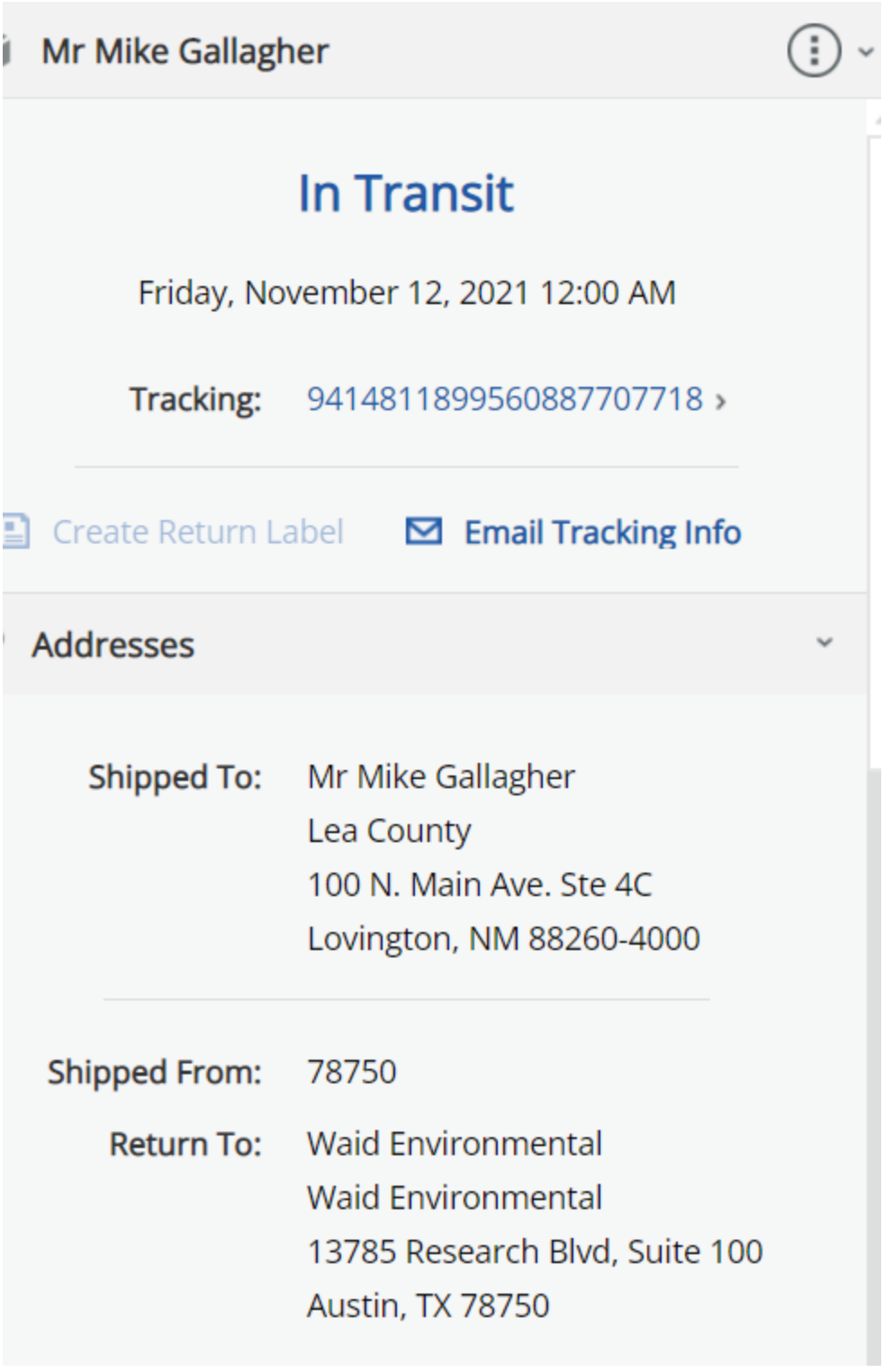
Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Sincerely,

Justin K. Mechell, P.E.
Senior Engineer

JKM/tvp

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.


Mr Mike Gallagher
In Transit
Friday, November 12, 2021 12:00 AM
Tracking: 9414811899560887707718 ›
Create Return Label
Email Tracking Info
Addresses
Shipped To: Mr Mike Gallagher
Lea County
100 N. Main Ave. Ste 4C
Lovington, NM 88260-4000
Shipped From: 78750
Return To: Waid Environmental
Waid Environmental
13785 Research Blvd, Suite 100
Austin, TX 78750

November 8, 2021

Mr. Allen R. Davis, Eddy County Manager
Eddy County
101 W Greene Street, Suite 110
Carlsbad, NM 88220

Sent via Certified Mail
9414 8118 9956 0887 1712 36

Dear Mr. Davis:

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility known as, Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

Owners and operators of the facility include:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

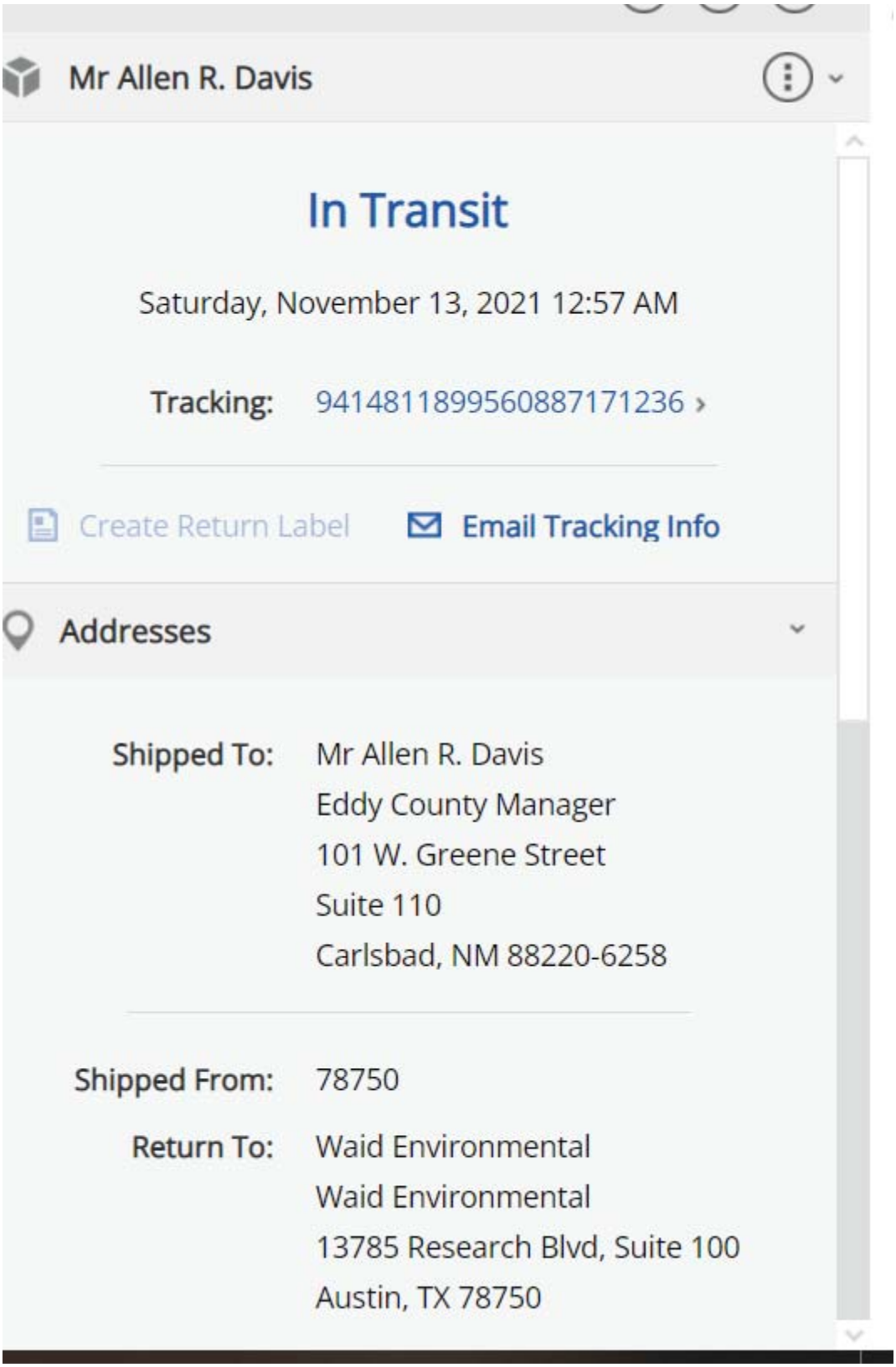
Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Sincerely,

Justin K. Mechell, P.E.
Senior Engineer

JKM/tvp

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.


Mr Allen R. Davis
In Transit
Saturday, November 13, 2021 12:57 AM
Tracking: 9414811899560887171236 ›
Create Return Label
Email Tracking Info
Addresses
Shipped To: Mr Allen R. Davis
Eddy County Manager
101 W. Greene Street
Suite 110
Carlsbad, NM 88220-6258
Shipped From: 78750
Return To: Waid Environmental
Waid Environmental
13785 Research Blvd, Suite 100
Austin, TX 78750

November 8, 2021

Woolworth Community Library
100 E Utah Ave.
Jal, NM 88252

Sent via Federal Express
7751 4639 2825

Dear Sir or Madam:

Waid Environmental recently contacted you to arrange the posting of a public notice for Chevron U.S.A. Inc. (enclosed). According to New Mexico air quality regulations, Chevron U.S.A. Inc. must announce its intent to apply to the New Mexico Environment Department for an air quality permit for the modification of a central tank battery and compressor station. One of the methods for notifying the public is the posting of Public Notices in publicly accessible and conspicuous places for public viewing.

This letter and notice has been sent by Federal Express that we may document this was completed. Thank you for your help in notifying the public.

Please post the enclosed Public Notice in a publicly accessible and conspicuous place for public viewing.

Sincerely,

Justin K. Mechell, P.E.
Senior Engineer

JKM/tvp

Enclosure

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

NOTICE

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

November 12, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775146392825

Delivery Information:			
Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	S.SILVER	**Delivery Location:**	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		JAL, NM,
		Delivery date:	Nov 9, 2021 15:52

Shipping Information:			
Tracking number:	775146392825	**Ship Date:**	Nov 8, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:	**Shipper:**
JAL, NM, US,	AUSTIN, TX, US,

Reference	CTX14919 and CTX14920

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

November 8, 2021

Ms. Molly Sanchez
Jal City Hall
309 N Main St.
Jal, NM 88252

Sent via Federal Express
7751 4644 8166

Dear Ms. Sanchez:

Waid Environmental recently contacted you to arrange the posting of a public notice for Chevron U.S.A. Inc. (enclosed). According to New Mexico air quality regulations, Chevron U.S.A. Inc. must announce its intent to apply to the New Mexico Environment Department for an air quality permit for the modification of a central tank battery and compressor station. One of the methods for notifying the public is the posting of Public Notices in publicly accessible and conspicuous places for public viewing.

This letter and notice have been sent by Federal Express so that we may document this was completed. Thank you for your help in notifying the public.

Please post the enclosed Public Notice in a publicly accessible and conspicuous place for public viewing.

Sincerely,

Justin K. Mechell, P.E.
Senior Engineer

JKM/tvp

Enclosure

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

NOTICE

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

November 12, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775146448166

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	S.SELENA	**Delivery Location:**	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		JAL, NM,
		Delivery date:	Nov 9, 2021 15:44

Shipping Information:

Tracking number:	775146448166	**Ship Date:**	Nov 8, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:	**Shipper:**
JAL, NM, US,	AUSTIN, TX, US,

Reference CTX14919 and CTX14920

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

November 8, 2021

Jal Post Office
111 S 4th Street
Jal, NM 88252

Sent via Federal Express
7751 4649 7999

Attn: Post Master

Waid Environmental recently contacted you to arrange the posting of a public notice for Chevron U.S.A. Inc. (enclosed). According to New Mexico air quality regulations, Chevron U.S.A. Inc. must announce its intent to apply to the New Mexico Environment Department for an air quality permit for the modification of a central tank battery and compressor station. One of the methods for notifying the public is the posting of Public Notices in publicly accessible and conspicuous places for public viewing.

This letter and notice has been sent by Federal Express so that we may document this was completed. Thank you for your help in notifying the public.

Please post the enclosed Public Notice in a publicly accessible and conspicuous place for public viewing.

Sincerely,

Justin K. Mechell

Justin K. Mechell, P.E.
Senior Engineer

JKM/tvp

Enclosure

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

NOTICE

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

November 12, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775146497999

Delivery Information:			
Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	F.FULFER	**Delivery Location:**	
Service type:	FedEx Priority Overnight		
Special Handling:	Deliver Weekday		JAL, NM,
		Delivery date:	Nov 9, 2021 15:47

Shipping Information:			
Tracking number:	775146497999	**Ship Date:**	Nov 8, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:	**Shipper:**
JAL, NM, US,	AUSTIN, TX, US,

Reference	CTX14919 and CTX14920

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

General Posting of Notices – Certification

I, Keaton Byars, the undersigned, certify that on November 9th, 2021, posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in Jal of Lea County, State of New Mexico on the following dates:

1. Facility entrance {11/9/21}
2. Woolworth Community Library {11/9/21}
3. Jal City Hall {11/9/21}
4. Jal Post Office {11/9/21}

Signed this 12 day of November, 2021.

Signature

11/12/2021
Date

Keaton Byars
Printed Name

HSE Specialist
Title

Submittal of Public Service Announcement – Certification

I, Keaton Byars, the undersigned, certify that on November 9th, 2021, submitted a public service announcement to Carlsbad Radio Inc. that serves the city of Jal, Lea County, New Mexico, in which the source is located and that Carlsbad Radio Inc. responded that it would air the announcement.

Signed this 12 day of November, 2021.

Keaton Byars
Signature

11/12/2021
Date

Keaton Byars
Printed Name

HSE Specialist
Title

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
November 16, 2021
and ending with the issue dated
November 16, 2021.

Publisher

Sworn and subscribed to before me this 16th day of November 2021.

Business Manager

My commission expires
January 29, 2023
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-23

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL NOTICE
November 16, 2021

NOTICE OF AIR QUALITY PERMIT APPLICATION

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM 10	0.924	4.07
PM 2.5	0.924	4.07
Sulfur Dioxide (SO2)	5.35	23.44
Nitrogen Oxides (NOx)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

970
rneys for Plaintiff
/s C. Cox, III
/S/ Lewis C. Cox, III
@heidellaw.com
5) 396-5305
5) 396-5303

67110132 00260693

TRACY POWELL
WAID ENVIRONMENTAL
13785 RESEARCH BLVD, STE 100
AUSTIN, TX 78750

071 TRUCK DRIVERS NEEDED

Hiring CDL-A Drivers and Mechanics
Apply in person.
Spinnaker Cementing Services
324 N Magnum
Industrial Road, Hobbs

Superior Hydrovac Solutions
HIRING
Full-time CDL drivers.
575-390-1577

Maclaskey Oilfield Service, a 45-year established business, is seeking **pump truck-vacuum truck drivers.**
• Must have Class A CDL with tanker endorsement.
• Prefer two years' driving experience
• Clean driving record
• Hazmat is a plus
We offer competitve wages, quarterly safety bonuses, Blue Cross Blue Shield insurance, 401(k)
Come by 5900 W. Carlsbad Hwy., Hobbs, NM.

McNabb Services now has Opportunities for Vacuum Truck Drivers!
Must have Class A CDL with Tanker Endorsement.
McNabb Services offers:
• Competitive Wages
• Safety Bonuses
• Medical, Dental and Vision Insurance

Drivers must have:
• Two years' experience (preferred)
• Clean driving record

Call 575.391.8282 for more information.

072 GENERAL HELP WANTED

Canyon Creek Healthcare

HIRING FOR ALL POSTITIONS
at
Canyon Creek Healthcare.
$3500 sign on bonus for nurses. Apply at
• Desert Springs Healthcare
1701 N. Turner
• White Sands Healthcare
5715 N. Lovington Hwy
• Lovington Healthcare
1600 W. Avenue I
• *Indeed.com.*

Baymont by Wyndham of Hobbs is hiring for full time housekeeping and housekeeping supervisor (with higher wage than housekeeping). Applicants should have flexible availability and a great work ethic. Please apply in person at the front desk.

072 GENERAL HELP WANTED

Lea County State Bank

Come work with us!

CIC Clerk I-
Offsite ITM
Major Duties: Provide daily maintenance for all bank ITMs daily.

Teller I
Major Duties: Deliver paying and receiving services to bank customers.

Apply online at www.onlinelcsb.com

On-the-job training provided along with great benefits!
NMLS #645361
EOE
M/F/D/V

Dirt Works Services is seeking **Laborers** with the potential to advance in the company. Must have valid driver's license. For more information go by 2630 W Marland between the hours of 7am and 9am.

In need of a pit man in oil bay location. Experience desired, also, a front sales person, with accessory, audio, and automotive experience. Apply in person at 3228 N. Grimes.

Janitorial Supervisor
for long term work in Eunice NM.
Heavy supervision experience required
Must be able to supervise multiple shifts
Experience in a commercial work environment
Fluent in English required
Bilingual a plus
Must pass background/ drug screen
email resumes to:
lethea.davis@bhienergy.com
800.225.1393 x1393
Fax 781.780.3588
EOE-females/ minorities/protected veterans/individuals with disabilities. BHI Energy is a federal contractor that requests priority referrals of protected veterans.

Mr. B's Trailer Sales is looking for a **RV tech.** Will train or experienced in RV parts**. Must have decent driving record and pass drug screen.** Bilingual is a plus. Come by 501 E. Marland and ask for application.

TO MUCH STUFF TAKING UP SPACE TURN YOUR JUNK INTO CASH CLASSIFIEDS WORK CALL 575-391-5414 575-391-5417

072 GENERAL HELP WANTED

Babe's Family Restaurant

Babe's Sports Page Restaurant and Bar
is hiring

• Servers
• Bartenders
• Hosts

Top pay for top performers. Apply in person any day after 11 a.m. Ask for Linda or Jackie.
575-392-2223

The News-Sun
Is seeking a full-time **GRAPHIC ARTIST**. Knowledge of Indesign and Photoshop a must. Knowledge of other programs such as Adobe Illustrator, WordPress, and other IT systems are desirable. This is primarily a daytime position, Monday-Friday, 9-5, responsible for building advertisements and news pages but will also entail some IT support work and other special projects. For more information, contact Cindy at the News-Sun 393-2123 or email *advertise@hobbsnews.com.*

087 GARAGE SALES

FREE STUFF FOR YOUR YARD SALE

It's the perfect season to have a Garage Sale!
For the very best results list your sale with the Hobbs News-Sun!
Advertisers receive FREE stickers & signs!

Saturday Sales will be featured in our ***Garage Sale Map!***
Call 575-391-5417 or 575-391-5414!

Deadline for weekend publication and map listing is Friday at 2:00 pm.

SALE

105 FURNITURE

Girls' cream bedroom set. Full bed, desk, shelves, dresser. $200. 575-942-0157

Subscribe today!
subscribe@hobbsnews.com
or 391-5448
Don't miss another day of news and shopping choices

CLASSIFIEDS
BUY • SELL • TRADE

105 FURNITURE

Oak, Grapevine motif bedroom suite (wood, not laminate), 4 poster bed, entertainment armoire (3 drawers), 2 night stands (3 drawers), dresser (9 drawers, 1 storage), mirror (3 segments). $2000. You must transport. 575-390-9086

106 MISCELLANEOUS

GO GO Elite Traveler, 3 wheel scooter for handicap, very clean and lightly used with new battery. Call 575-390-1106 or 575-605-4088

111 OIL & GAS LEASES

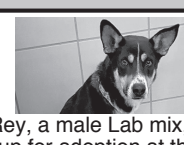
Water rights for sale
Lea County
Call 561-704-2121

TAKE A PEEK
Into the Classifieds

CONTACT US TODAY
classifieds@hobbsnews.com

TO MUCH STUFF TAKING UP SPACE TURN YOUR JUNK INTO CASH CLASSIFIEDS WORK CALL 575-391-5414 575-391-5417

121 PETS



Rey, a male Lab mix, is up for adoption at the Hobbs Animal Shelter, 702 N. Grimes. 397-9323.

123 FREE PETS

Free mixed puppies. 575-631-0644 or 575-602-5546

127 AUTOMOBILES FOR SALE

1984 Bronco for sale. Fifth wheel bed design. Call 575-318-9596

133 RVS & CAMPERS

2009 Four Winds Majestic. $35,000. Very good condition; runs great. Text 575-399-1033 for more info.

Support your hometown SHOP LOCAL

LEGAL LEGAL

LEGAL NOTICE
November 9, 16 and 23, 2021

IN THE FIFTH JUDICIAL DISTRICT COURT
STATE OF NEW MEXICO
COUNTY OF LEA

IN THE MATTER OF THE
LAST WILLS AND TESTAMENT

OF D-506-PB-2021-00117
William G. W. Shoobridge

NORMAN N. FRENKIEL, DECEASED;
GERALDINE FRENKIEL, DECEASED; AND
GEORGE ALLEN FRENKIEL, DECEASED.

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed Ancillary Personal Representative of these Estates. All persons having claims against this Estate are required to present their claims within four (4) months after the date of the first publication of this Notice or the claims will be forever barred. Claims must be presented either to the undersigned Ancillary Personal Representative at the offices of Heidel, Samberson, Cox & McMahon, Post Office Drawer 1599, Lovington, New Mexico 88260, or filed with the District Court.

DATED this 5th day of November, 2021.

/S/ Andrew L. Frenkiel
Andrew L. Frenkiel
Ancillary Personal Representative
c/o Heidel, Samberson, Cox & McMahon, LLC
P. O. Drawer 1599
Lovington, New Mexico 88260
(575) 396-5303
Attorneys for Ancillary Personal Representative

Lewis C. Cox, III
Heidel, Samberson, Cox & McMahon, LLC
311 North 1st Street
PO Drawer 1599
Lovington, New Mexico 88260
Tel: (575) 396-5303
Fax: (575) 396-5305
#37013

LEGAL LEGAL LEGAL

LEGAL NOTICE
October 26, November 2, 9 and 16, 2021

STATE OF NEW MEXICO
FIFTH JUDICIAL DISTRICT
LEA COUNTY

PFZ, LLC;

Plaintiff,

Vs. **CAUSE NO. D-506-CV-2021-00638**

SUSAN JEAN WEISS, KIMBERLY KAY OSMENT, and THU TRAN KA;

ROY W. CHANDLER, WILLIAM C. BELL, THE TRUST COMPANY OF OKLAHOMA, as CO-TRUSTEES of THE PAUL F. ZAHN REVOCABLE INTER VIVOS TRUST a/k/a THE PAUL F. ZAHN TRUST;

THE UNKNOWN HEIRS OF THE FOLLOWING DECEASED PERSONS: PAUL F. ZAHN, ROSEMARY ZAHN a/k/a ROSEMARY OSMENT a/k/a ROSEMARY HALL, PAUL FREDERICK ZAHN, MICHAEL LOUIS ZAHN, and JANICE OSMENT;

and,

ALL UNKNOWN CLAIMANTS OF INTEREST IN THE PREMISES ADVERSE TO THE PLAINTIFF;

Defendants.

SUMMONS AND NOTICE OF SUIT PENDING

TO: SUSAN JEAN WEISS, KIMBERLY KAY OSMENT, THU TRAN KA; ROY W. CHANDLER, as CO-TRUSTEES OF THE PAUL F. ZAHN REVOCABLE INTER VIVOS TRUST a/k/a THE PAUL F. ZAHN TRUST; and THE UNKOWN HEIRS OF THE FOLLOWING DECEASED PERSONS: PAUL F. ZAHN, ROSEMARY ZAHN a/k/a ROSEMARY OSMENT a/k/a ROSEMARY HALL, PAUL FREDERICK ZAHN, MICHAEL LOUIS ZAHN, and JANICE OSMENT

GREETINGS:

You and each of you are notified that there has been filed in the District Court of Lea County, New Mexico, the above entitled cause of action wherein PFZ, LLC, is the Plaintiff and you are Defendants. The objects and purposes of said suit are to quiet title to Plaintiff's interests in the following described lands located in Lea County, New Mexico:

Township 23 South, Range 33 East, N.M.P.M.

Section 20: All

containing 640.00 acres more or less under the terms of that certain oil and gas lease issued by the United States of America to James A. Booth, dated June 1, 1967, bearing New Mexico Serial No. 02386A and No. 094187, or any extensions or renewals thereof

All in Lea County, New Mexico as more particularly prayed for and set forth in the Complaint to Quiet Title on file in said cause.

You, and each of you, are further notified that unless you enter your appearance within thirty (30) days after the date of last publication pursuant to NMRA 1-004(B)(2) and file a responsive pleading or motion within such time, judgment by default may be rendered in said cause against each of you failing to appear and the Plaintiff will apply to the Court for the relief demanded in this Complaint to Quiet Title.

The name of Plaintiff's attorneys is Hinkle Shanor LLP (Andrew J. Cloutier and Melinda A. Branin), whose address is P. O. Box 10, Roswell, New Mexico 88202, and whose phone number is (575) 622-6510.

WITNESS my hand and Seal of the Court this 22nd day of October 2021.

NELDA CUELLAR
CLERK OF THE DISTRICT COURT

(SEAL)
By:Cory Hagedoorn
Deputy Clerk
#36974

LEGAL LEGAL LEGAL LEGAL

LEGAL NOTICE
November 16, 2021

NOTICE OF AIR QUALITY PERMIT APPLICATION

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and gas compression facility, Salado Draw 23 CS and TB. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility known as, Salado Draw 23 Compressor Station and Tank Battery, is latitude 32 deg, 2 min, 10.2 sec and longitude -103 deg, 38 min, 44 sec. From Jal, NM intersection of S 3rd St. and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto unnamed road and after 2.86 miles, the site will be on the left. The approximate location of this facility is 27.1 miles southwest of Jal, NM in Lea County.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 4 compressor engines, 6 heaters, 2 dehydration units and associated condenser, reboiler, and glowplug, 3 condensate storage tanks, 4 water storage tanks, 1 flash gas compressor, 2 slop tanks, water truck loading, a flare, and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Total Suspended Particulates (TSP)	0.824	3.63
PM 10	0.824	3.63
PM 2.5	0.824	3.63
Sulfur Dioxide (SO2)	3.57	15.62
Nitrogen Oxides (NOx)	29.71	58.00
Carbon Monoxide (CO)	74.42	38.29
Volatile Organic Compounds (VOC)	728.94	125.74
Total sum of all Hazardous Air Pollutants (HAPs)	33.64	7.78
Hydrogen Sulfide (H2S)	0.031	0.001
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd., N3203
Midland, TX 79706
(432) 687-7448

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

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

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

Attención
Este es un aviso de la Agencia de Calidad de Aire del Departamento de Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor de comunicarse con la oficina de Calidad de Aire al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.
Coordinator identified above or visit our website at https://www.env.nm.gov/NMED/EJ/index.html to learn how and where to file a complaint of discrimination.
#37030

LEGAL LEGAL LEGAL LEGAL

LEGAL NOTICE
November 16, 2021

NOTICE OF AIR QUALITY PERMIT APPLICATION

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM 10	0.924	4.07
PM 2.5	0.924	4.07
Sulfur Dioxide (SO2)	5.35	23.44
Nitrogen Oxides (NOx)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.
#37031

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
November 16, 2021
and ending with the issue dated
November 16, 2021.

Publisher

Sworn and subscribed to before me this 16th day of November 2021.

Business Manager

My commission expires
January 29, 2023
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-23

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

NOTICE OF AIR QUALITY PERMIT APPLICATI

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an ai for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128 NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed roa miles, the site will be on the left, The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations w due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation wer updated values. This modification will not alter the site throughput of the site. After the modification, the site compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 co tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single va at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

General information about air quality and the permitting process can be found at the Air Quality Bureau's w regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulat the "Permits" section of this web site.

Atención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the adminis

Source: Association of American Railroads

67110132 00260724

TRACY POWELL
WAID ENVIRONMENTAL
13785 RESEARCH BLVD, STE 100
AUSTIN, TX 78750

FOR THE RECORD

Sheriff's reports

Lea County Sheriff's Office activity for 11-13-21

- 85 calls for service.
- No accident reported.
- Five criminal incidents: intoxicated N. Grimes St. and W. Millen Dr., Hobbs; warrant service N. Grimes St. and W. Commanche Dr., Hobbs; recovered vehicle 800 block E. Sandcrest Dr., Hobbs; oilfield theft NM Hwy. 529 and Querecho Rd., Hobbs; trouble with subject 1900 block E. Stanolind Rd., Hobbs.

Lea County Sheriff's Office activity for 11-14-21

- 88 calls for service.
- No accidents reported.
- Three criminal incidents: found property 100 block W. Broadway St., Hobbs; oilfield theft NM Hwy. 529 and Querecho Rd., Hobbs; oilfield theft Plains Hwy. and Hale Rd., Lovington.

Arrests

- Three arrests.

Four misdemeanors – detox; attempt to commit a fourth-degree felony; larceny under $250; .failure to pay. One felony arrest.

Felony arrests:

■ Nicole Senyase, 33, of Hobbs, was arrested on Nov. 12 on a warrant for aggravated stalking, a fourth-degree felony.

Fire reports

Hobbs Fire Department activity for 11-13-21

- 31 calls for service.
- One fire incident: commercial fire 5400 block N. Lovington Hwy.
- 28 ambulance runs.
- Two non-emergency transports.

Hobbs Fire Department activity for 11-14-21

- 23 calls for service.
- Two fire incidents: dumpster fire 2000 block E. Clinton St.; structure fire 900 block N. Dalmont St.
- 19 ambulance runs.
- Two non-emergency transports.

Lovington Fire Department activity for 11-13-21

- Two calls for service.
- Two fire incidents: dumpster fire W. Parkway Dr. and S. 17th St.; grass fire S. NM Hwy. 206 and W. Hester Rd.
- One ambulance run.

Lovington Fire Department activity for 11-14-21

- Three calls for service.
- No fire incidents.
- Three ambulance runs.

Knowles Fire Department activity for 11-13-21

- One call for service.
- One fire incident: N. Lovington Hwy. and N Catching Rd.
- No ambulance runs.

Tatum Fire Department activity for 11-13-21

- One call for service.
- One fire incident: grass fire S. NM Hwy. 206 and W. Hester Rd.
- No ambulance runs.

Jal Fire Department activity for 11-14-21

- One call for service.
- One fire incident: vehicle fire Hwy. 128.
- No ambulance runs.

Police reports

Hobbs Police Department activity for 11-13-21

- 150 calls for service.
- Two accidents reported: without injury W. Bender Blvd. and N. Fowler St.; without injury E. Navajo Dr. And N. Dal Paso St.
- 14 criminal incidents: fraud 1300 block W. Joe Harvey Blvd.; criminal damage 2400 block N. Jefferson St.; stolen vehicle 800 block W. Bender Blvd.; fraud 1800 block N. Turner St.; subject on a bike W. Berry Dr. and N. Grimes St.; domestic 500 block E. Taos St.; breaking and entering 500 block E. Lea St.; warrant service 1300 block E. Main St.; found property 3800 block N. Lovington Hwy.; warrant service N. Dal Paso St. and E. Sandcrest Dr.; trouble with subject 100 block E. Corbett St.; unwanted subject 3800 block N. Lovington Hwy.; warrant service E. Bender Blvd. and N. Dal Paso St.; warrant service 1000 block W. Taylor St.

Hobbs Police Department activity for 11-14-21

- 118 calls for service.
- One accident reported: without injury N. Fowler St. and E. Sanger St.
- 15 criminal incidents: suspicious E. Llano Dr. and N. Jefferson St.; warrant service E. Humble St. and S. Selman St.; warrant service 600 block W. Berry Dr.; domestic 5400 block N. Lovington Hwy.; structure fire 900 block N. Dalmont St.; aggravated battery 1300 block E. Marland St.; shoplifting 700 block N. Dal Paso St.; lost or stolen 1200 block N. Turner St.; trouble with subject 4800 block N. Lovington Hwy.; battery 100 block E. Corbett St.; auto burglary 1000 block E. Green Acres Dr.; domestic 500 block E. Snyder St.; warrant service 300 block E. Castle Ave.; abandoned vehicle N. Ave B and E taylor St.; abandoned vehicle N. Lovington Hwy. and W. Gerry St.

Arrests

- 27 arrests

18 misdemeanors – two battery against a household member; unlawful use of a revoked license; fourteen failure to appear; failure to pay. 10 felony arrests.

Felony arrests:

■ Martin Guevara, 40, of Hobbs, was arrested on Nov. 14 and charged with fugitive from justice and possession of a controlled substance, both fourth-degree felonies; and display of plates, proof of insurance and drivers must be licensed, all misdemeanors.

■ Rubio Torres, 22, of Hobbs, was arrested on Nov. 13 and charged with failure to appear, a fourth-degree felony.

■ Desmond Edward, 33, of Hobbs, was arrested on Nov. 14 and charged with aggravated battery against a household member, a third-degree felony.

■ Henry Land, 22, of Hobbs, was arrested on Nov. 13 and charged with breaking and entering, a fourth-degree felony.

■ Valerie Diaz, 33, of Hobbs, was arrested on Nov. 13 and charged with breaking and entering, a fourth-degree felony.

■ Marshay Dale, 36, of Hobbs, was arrested on Nov. 13 and charged with aggravated battery against a household member, a third-degree felony.

■ Jason Underwood, 45, of Ninnekah, Oklahoma, was arrested on Nov. 13 and charged with failure to appear, a fourth-degree felony.

■ Dustin Harper, 36, of Hobbs, was arrested on Nov. 13 and charged with possession of a controlled substance, a fourth-degree felony; and criminal trespass, a misdemeanor.

■ Keeshon Cantu, 21, of Hobbs, was arrested on Nov. 12 and charged with burglary of a dwelling, a third-degree felony.

■ Frutoso Puente, 68, of Hobbs, was arrested on Nov. 12 and charged with criminal sexual penetration in the first degree, a first-degree felony.

Lovington Police Department activity for 11-13-21 through 11-14-21

- 92 calls for service.
- One accident: without injury Commercial St. and Ave D
- Six criminal incidents: warrant service 1400 block S. Commercial St.; unwanted subject 3500 block S. Main St.; warrant service 9th St and Ave R; stolen vehicle 1600 block W. Ave D; fraud 1000 block S. Main St.; trouble with subject 300 block W. Ave J.

Hobbs Accidents

Oct 9 – 7:39 p.m. at S. Dal Paso St.; drivers Kevin Adams, of Hobbs, and Lucia Ramon-Carrasco, of Odessa; Adams was cited for mandatory proof of financial responsibility, DWI and following too close.

Oct. 17 – 5:00 p.m. at S. Morris; an unknown driver collided with a parked car; no citations were given.

Oct. 26 – 9:41 a.m. at N. McKinley Dr.; an unknown driver and Cecilia Diaz, of Hobbs; Diaz was cited for carless driving and display of plates.

Nov. 1 – 5:11 p.m. at Yeso Dr.; drivers Marie Wadsworth, of Hobbs, and Amanda Florez, of Hobbs; Wadsworth was cited for limitations on backing.

Nov. 3 – 10:05 a.m. at W. Rojo Dr.; drivers Victoria Macias, of Roswell, and Frutoso Puente, of Hobbs; Macias was cited for failure to yield from private drive.

Nov. 7 – 12:49 p.m. at N. Turner St.; drivers Kimberly Williams, of Hobbs, and Hector Gonzalez Perez, of Hobbs; Williams was cited for vehicle entering stop or yield sign and Cano was cited for seat belts.

NOTICE OF AIR QUALITY PERMIT APPLICATION

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and gas compression facility, Salado Draw 23 CS and TB. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility known as, Salado Draw 23 Compressor Station and Tank Battery, is latitude 32 deg, 2 min, 10.2 sec and longitude -103 deg, 38 min, 44 sec. From Jal, NM intersection of S 3rd St. and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto unnamed road and after 2.86 miles, the site will be on the left. The approximate location of this facility is 27.1 miles southwest of Jal, NM in Lea County.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 4 compressor engines, 6 heaters, 2 dehydration units and associated condenser, reboiler, and glowplug, 3 condensate storage tanks, 4 water storage tanks, 1 flash gas compressor, 2 slop tanks, water truck loading, a flare, and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Total Suspended Particulates (TSP)	0.824	3.63
PM_{10}	0.824	3.63
$PM_{2.5}$	0.824	3.63
Sulfur Dioxide (SO_2)	3.57	15.62
Nitrogen Oxides (NO_x)	29.71	58.00
Carbon Monoxide (CO)	74.42	38.29
Volatile Organic Compounds (VOC)	728.94	125.74
Total sum of all Hazardous Air Pollutants (HAPs)	33.64	7.78
Hydrogen Sulfide (H_2S)	0.031	0.001
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd., N3203
Midland, TX 79706
(432) 687-7448

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

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

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

Attención
Este es un aviso de la Agencia de Calidad de Aire del Departamento de Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor de comunicarse con la oficina de Calidad de Aire al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.
Coordinator identified above or visit our website at https://www.env.nm.gov/NMED/EJ/index.html to learn how and where to file a complaint of discrimination.

NOTICE OF AIR QUALITY PERMIT APPLICATION

Chevron U.S.A. Inc. announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its central tank battery and compressor station, Salado Draw 19 CTB and CS. The expected date of application submittal to the Air Quality Bureau is November 12th, 2021.

The exact location for the proposed modifications to the facility, known as Salado Draw 19 CTB and CS, is at latitude 32 deg, 2 min, 5.7 sec and longitude -103 deg, 36 min, 59.2 sec. From Jal, NM intersection of S 3rd St and NM-128W, head west on NM-128W for 29.77 mi. Turn left on Orla Rd./J-1 and continue for 12.64 miles. Turn left onto an unnamed road and after 4.56 miles, the site will be on the left. The approximate location of this facility is 25.3 miles southwest of Jal, NM.

In the proposed modification, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. This modification will not alter the site throughput of the site. After the modification, the site will consist of 6 compressor engines, 3 heaters, 1 dehydration units and associated condenser, reboiler, and glowplug, 4 condensate storage tanks, 5 water storage tanks, 1 flash gas compressor, 1 slop tanks, water/slop truck loading, a flare, a single vapor recovery unit at the compressor station for the slop tank and a vapor recovery unit system with redundant capacity.

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

Pollutant:	Pounds per hour	Tons per year
Particulate Matter (PM)	0.924	4.07
PM_{10}	0.924	4.07
$PM_{2.5}$	0.924	4.07
Sulfur Dioxide (SO_2)	5.35	23.44
Nitrogen Oxides (NO_x)	68.45	73.70
Carbon Monoxide (CO)	216.17	46.61
Volatile Organic Compounds (VOC)	708.90	127.01
Total sum of all Hazardous Air Pollutants (HAPs)	32.83	11.29
Hydrogen Sulfide (H_2S)	0.025	0.006
Green House Gas Emissions as Total CO2e	N/A	<75,000

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

The owner and/or operator of the Facility is:

Chevron U.S.A. Inc.
Keaton Byars
HSE Specialist
6301 Deauville Blvd, N3203
Midland, TX 79706
(432) 687-7448

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

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

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

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 Salado Draw 19 CTB and CS is currently authorized under NSR Permit No. 6019-M7. In this revision application, gas analyses were updated, tank working and standing emissions calculations were updated and due to the updated gas analyses, the glycol dehydrator emissions estimation and the ProMax simulation were rerun with the updated values. Chevron is applying for a revision to the NSR construction permit (20.2.72.200 NMAC) for the Salado Draw 19 CTB and CS because potential emission rates for several pollutants are greater than 10 pounds per hour and 25 tons per year.

The Salado Draw 19 CTB and CS is an oil production facility that is designed to remove water and hydrocarbon liquids from natural gas produced in the surrounding area, and to compress the gas into a pipeline for delivery to a processing plant.

The proposed facility will consist of 6 engines, 3 heater treaters, 3 heated production separators, 1 dehydration unit and associated condenser, reboiler, and glow plug when the reboiler cycles off, 4 condensate storage tanks, 5 water storage tanks, a flash gas compressor, 1 slop tank, water/slop truck loading, a flare, a VRU system with redundant capacity at the tank battery, and a single VRU at the compressor station for the slop tank.

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)**:**

Salado Draw 19 CTB and CS

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 because they remain within the emission limits designated below. The "project" emissions listed below do only result from changes described in this permit application, thus no emissions from other revisions or modifications, past or future to this facility. Also, specifically discuss whether this project results in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

a. **NOx: <100 TPY**
b. **CO: <100 TPY**
c. **VOC: <100 TPY**
d. **SOx: <100 TPY**
e. **PM: <100 TPY**
f. **PM10: <100 TPY**
g. **PM2.5: <100 TPY**
h. **Fluorides: 0 TPY**
i. **Lead: 0 TPY**
j. **Sulfur compounds (listed in Table 2): <100 TPY**
k. **GHG: <75,000 TPY**

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

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

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered. **N/A – not an existing PSD major source.**

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

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

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

20.2.72.200 - APPLICATION FOR CONSTRUCTION, MODIFICATION, NSPS, AND NESHAP - PERMITS AND REVISIONS:

A. Permits must be obtained from the Department by:

(1) Any person constructing a stationary source which has a potential emission rate greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard. If the specified threshold in this subsection is exceeded for any one regulated air contaminant, all regulated air contaminants with National or New Mexico Ambient Air Quality Standards emitted are subject to permit review. Within this subsection, the potential emission rate for nitrogen dioxide shall be based on total oxides of nitrogen;
(2) Any person modifying a stationary source when all of the pollutant emitting activities at the entire facility, either prior to or following the modification, emit a regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard with a potential emission rate greater than 10 pounds per hour or 25 tons per year and the regulated air contaminant is emitted as a result of the modification. If the specified threshold in this subsection is exceeded for any one regulated air contaminant, all regulated air contaminants with National or New Mexico Ambient Air Quality Standards emitted by the modification are subject to permit review. Within this subsection, the potential emission rate for nitrogen dioxide shall be based on total oxides of nitrogen;
(3) Any person constructing or modifying any source or installing any equipment which is subject to 20.2.77 NMAC (New Source Performance Standards), 20.2.78 NMAC (Emission Standards for Hazardous Air Pollutants), or any other New Mexico Air Quality Control Regulation which contains emission limitations for any regulated air contaminant;
(4) For toxic air pollutants, see 20.2.72.400 NMAC - 20.2.72.499 NMAC;
(5) Any person constructing a stationary source which has a potential emission rate for lead greater than 5 tons per year or modifying a stationary source which either prior to or following the modification has a potential emission rate for lead greater than 5 tons per year; or
(6) Sources which are major sources of hazardous air pollutants by the definitions in 20.2.83 NMAC (Construction or Modification of Major Sources of Hazardous Air Pollutants).

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. is applying for a revised construction permit for the Salado Draw 19 CTB and CS because potential emission rates for several pollutants are greater than 10 pounds per hour and 25 tons per year.

B. Fugitive dust emissions from a coal mining operation shall not be subject to the requirements of Paragraph 1 of Subsection A of 20.2.72.200 NMAC. Note: New coal mining operations are required to have an approved air pollution control plan for fugitive dust emissions by the New Mexico Surface Coal Mining Commission.

Chevron U.S.A. Inc.

Does not apply. The Salado Draw 19 CTB and CS are not a coal mining operation.

C. Any source or modification meeting the applicability requirements of this Part, but which is a major stationary source or a major modification as defined in 20.2.74 NMAC, shall in addition be subject to 20.2.74 NMAC (Prevention of Significant Deterioration).

Chevron U.S.A. Inc.

Does not apply. The Salado Draw 19 CTB and CS are not a major stationary source.

D. Any source or modification meeting the applicability requirements of this Part but which is a major stationary source or a major modification as defined in 20.2.79 NMAC, shall in addition be subject to 20.2.79 NMAC (Permits - Nonattainment Areas).

Chevron U.S.A. Inc.

Does not apply. The Salado Draw 19 CTB and CS are not a major stationary source.

E. For all sources subject to this Part, applications for permits shall be filed prior to the commencement of the construction, modification or installation. Regardless of the anticipated commencement date, no construction, modification or installation shall begin prior to issuance of the permit.

Chevron U.S.A. Inc.

Commencement of construction, modification or installation of the Salado Draw 19 CTB and CS will follow requirements in 20.2.72.220.C.2 NMAC.

F. Temporary installations and portable stationary sources are subject to this Part.

Chevron U.S.A. Inc.

Does not apply. The Salado Draw 19 CTB and CS are not a temporary installation or portable stationary source.

G. If a source consists of more than one unit, a separate permit may be required for each unit which is not substantially interrelated with another unit. A common connection leading to ductwork, pollution control equipment or a single stack shall not, by itself, constitute a substantial interrelationship.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. acknowledges this provision.

H. Any source which previously did not require a permit because it was in existence before August 31, 1972 shall be subject to the requirements of this Part if operations cease for a period of five years or more and the source has a potential emission rate greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard.

Chevron U.S.A. Inc.

Does not apply. The Salado Draw 19 CTB and CS were not in existence before August 31, 1972.

I. Any source meeting the applicability requirements of this Part, but which is a major source of hazardous air pollutants, shall in addition be subject to 20.2.83 NMAC (Construction or Modification of Major Sources of Hazardous Air Pollutants). [11/30/95]

Chevron U.S.A. Inc.

Does not apply. The Salado Draw 19 CTB and CS are not a major source of hazardous air pollutants.

20.2.72.201 NEW SOURCE REVIEW COORDINATION: In cases where the new source review requirements of either 20.2.74 NMAC, 20.2.77 NMAC, 20.2.78 NMAC, 20.2.79 NMAC, or 20.2.83 NMAC (Construction or Modifications of Major Sources of Hazardous Air Pollutants) apply to a new stationary source or modification in addition to this Part, the following provisions apply:

A. Only one permit application shall be submitted. The applicant shall submit a sufficient number of copies to meet the requirement of the applicable Part which requires the most copies;

B. The application shall be ruled administratively complete when information required by all applicable Parts has been submitted;

C. Definitions and requirements of each applicable Part are applied separately and do not supersede each other; and

D. After the requirements of all applicable Parts are met, only one permit shall be issued. [11/30/95; A, 01/01/00]

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. acknowledges this section.

20.2.72.203 CONTENTS OF APPLICATIONS:

A. Any person seeking a permit under Subsection A of 20.2.72.200 NMAC shall do so by filing a written application with the Department. The applicant shall submit the number of copies of the permit application specified in the applicable application form. The items of this section, if requested on the applicable application form, are required before the Department may deem an application administratively complete. The items may be modified by the Department, as appropriate, for emergency permits processed under 20.2.72.215 NMAC. All applications shall, as required by the Department:

(1) Be filled out on the form(s) furnished by the Department;
(2) State the applicant's name and address, together with the names and addresses of all owners or operators of the source, and the applicant's state of incorporation or principal registration to do business;
(3) Provide all information, including all calculations and computations, to describe the specific chemical and physical nature and to estimate the maximum quantities of any regulated air contaminants the source will emit through routine operations after construction, modification or installation is completed, and estimate maximum potential emissions during malfunction, startup, shutdown. With respect to a toxic air pollutant as defined by Subsection H of 20.2.72.401 NMAC this requirement only applies when the toxic air pollutant is emitted in such a manner that a permit is required under the provisions of 20.2.72.400 NMAC - 20.2.72.499 NMAC;
(4) Contain a regulatory compliance discussion demonstrating compliance with each applicable air quality regulation, ambient air quality standard, prevention of significant deterioration increment, and provision of 20.2.72.400 NMAC - 20.2.72.499 NMAC. The discussion must include an analysis, which may require use of US EPA-approved air dispersion model(s), to (1) demonstrate that emissions from routine operations will not violate 20.2.72 NMAC September 6, 2006 8 any New Mexico or National Ambient Air Quality Standard or prevention of significant deterioration increment, and (2) if required by 20.2.72.400 NMAC - 20.2.72.499 NMAC, estimate ambient concentrations of toxic air pollutants.
(5) Provide a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup or shutdown;
(6) Include a topographical map, at least as detailed as the 7.5 minute Topographic Quadrangle map published by the United States Geological Survey, showing the exact location and geographical coordinates of the proposed construction, modification or installation of the source;
(7) Include a process flow sheet, including a material balance, and a site diagram of all components and locations of emissions to the atmosphere of the facility which would be involved in routine operations and emissions;
(8) Include a full description, including all calculations of controlled and uncontrolled emissions and the basis for all control efficiencies presented, of the equipment to be used for air pollution control, including a process flow sheet, or, if the Department so requires, layout and assembly drawings;

(9) Include a description of the equipment or methods proposed by the applicant to be used for emission measurement;
(10) State the maximum and standard operating schedules of the source after completion of construction, modification or installation or after permit revision in terms of which and how many hours per day, days per week, days per month and days per year;
(11) Contain such other specifically identified relevant information as the Department may reasonably require;
(12) Be notarized and signed under oath or affirmation by the operator, the owner or an authorized representative, certifying, to the best of his or her knowledge, the truth of all information in the application and addenda, if any;
(13) Contain payment of any fees which are specified in 20.2.75 NMAC (Construction Permit Fees) as payable at the time the application is submitted;
(14) Contain documentary proof of applicant's public notice, if applicable, as specified in Subsection B of 20.2.72.203 NMAC; and (15) At the sole discretion of the applicant, contain a request for accelerated review of the application.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met.

B. The applicant's public notice for technical permit revisions shall be as specified in Paragraph 6 of Subsection B of 20.2.72.219 NMAC. The applicant's public notice for a permit or significant permit revision shall be:
(1) Provided by certified mail, to the owners of record, as shown in the most recent property tax schedule, of all properties:
(a) Within one hundred (100) feet of the property on which the facility is located or proposed to be located, if the facility is or is proposed to be located in a Class A or Class H county or a municipality with a population of more than two thousand five hundred (2500) persons; or
(b) Within one-half (1/2) mile of the property on which the facility is located or is proposed to be located if the facility is or will be in a county or municipality other than those specified in Sub-paragraph (a) of Paragraph 1 of Subsection B of 20.2.72.203 NMAC;
(2) Provided by certified mail to all municipalities and counties in which the facility is or will be located and to all municipalities, Indian tribes, and counties within a ten (10) mile radius of the property on which the facility is proposed to be constructed or operated;
(3) Published once in a newspaper of general circulation in each county in which the property on which the facility is proposed to be constructed or operated is located. This notice shall appear in either the classified or legal advertisements section of the newspaper and at one other place in the newspaper calculated to give the general public the most effective notice and, when appropriate, shall be printed in both English and Spanish;
(4) Posted in at least four (4) publicly accessible and conspicuous places, including:
(a) The proposed or existing facility entrance on the property on which the facility is, or is proposed to be, located, until the permit or significant permit revision is issued or denied; and
(b) Three (3) locations commonly frequented by the general public, such as a nearby post office, public library, or city hall; and 20.2.72 NMAC September 6, 2006
(5) Submitted as a public service announcement to at least one radio or television station which serves the municipality or county in which the source is or is proposed to be located.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met for public notice.

C. The notice specified in Paragraphs 1 through 4 of Subsection B of 20.2.72.203 NMAC shall contain the following:

(1) The applicant's name and address, together with the names and addresses of all owners or operators of the facility or proposed facility;
(2) The actual or estimated date that the application was or will be submitted to the Department;
(3) The exact location of the facility or proposed facility;
(4) A description of the process or change for which a permit is sought, including an estimate of the maximum quantities of any regulated air contaminant the source will emit after proposed construction is complete or permit is issued;
(5) The maximum and standard operating schedules of the facility after completion of proposed construction or permit issuance; and
(6) The current address of the Department to which comments and inquiries may be directed.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met.

D. The public service announcement request specified in Paragraph 5 of Subsection B of 20.2.72.203 NMAC shall contain the following information about the facility or proposed facility:

(1) The name, location, and type of business;
(2) The name of the principal owner or operator;
(3) The type of process or change for which a permit is sought;
(4) Locations where the notices required under Paragraph 4 of Subsection B of 20.2.72.203 NMAC have been posted; and
(5) The address or telephone number at which comments and inquires may be directed to the Department.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met.

E. Changing, Supplementing or Correcting Applications:

(1) Prior to a final decision on an application, the applicant shall have a duty to promptly supplement and correct information submitted in the application. The duty to supplement shall include relevant information thereafter acquired or otherwise determined to be relevant.
(2) If, while processing an application, regardless of whether it has been determined to be administratively complete, the Department determines that additional information is necessary to evaluate or take final action on that application, it may request such information. The request shall be in writing, identify the additional information requested and the need for the additional information, and set a reasonable deadline for a response. The applicant shall submit the requested information in writing on or before the deadline set by the Department.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met.

20.2.72.212 PERMITTEE'S NOTIFICATION REQUIREMENTS TO DEPARTMENT: Any owner or operator subject to this Part shall notify the Department in writing of or provide the Department with:

A. Anticipated date of initial startup of a source not less than thirty (30) days prior to the date;
B. Actual date of initial startup of a source within fifteen (15) days after the startup date;
C. Any change of operators within fifteen (15) days of such change;
D. Any necessary update or correction no more than sixty (60) days after the operator knows or should have known of the condition necessitating the update or correction of the permit.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met.

20.2.72.213 STARTUP AND FOLLOWUP TESTING:
Within sixty (60) days after achieving the maximum production rate at which the source will be operated but not later than one hundred eighty (180) days after initial startup of the source, the owner or operator of the source may be required to conduct a performance test. The test method utilized shall be approved by the Department. Whenever the requirements of 40 CFR 60 or 61 apply, test methods must be utilized as specified in those regulations. The owner or operator shall notify the Department at least thirty (30) days prior to the test date and allow a representative of the Department to be present at the test. A written report of the results of the test shall be submitted to the Department by the owner or operator within thirty (30) days from the test date. This requirement may be reimposed on a source as necessary if inspections of the source indicate noncompliance with permit conditions subject to such testing, or the previous test showed noncompliance or was technically unsatisfactory. In such cases, the test requirement may be reimposed as frequently as necessary until compliance is achieved and testing is performed in a technically satisfactory manner. This testing requirement may be waived if the source is a member of a class subject to an exemption from this requirement pursuant to 20.2.72.214 NMAC, and has agreed to comply with, and its permit contains, enforceable design, operational and locational protocols set by the Department for the class of sources to which the source belongs.

Chevron U.S.A. Inc.

Chevron U.S.A. Inc. will ensure that these requirements are met.

Table for STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	Chevron U.S.A. Inc. will comply with the requirements of 20.2.1 NMAC.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	NMAAQS is applicable. Air dispersion modeling previously submitted demonstrates compliance with the NMAAQS.
20.2.7 NMAC	Excess Emissions	Yes	Facility	Chevron U.S.A. Inc. will comply with the requirements of 20.2.7 NMAC, in the event of excess emissions.
20.2.23 NMAC	Fugitive Dust Control	No	N/A	Does not apply. This is not an NOI application.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	None of the sources are affected because they each have a heat input of less than 1,000,000 million BTU per year.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	None of the sources are affected because they each have a heat input of less than 1,000,000 million BTU per year.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	Does not apply. The facility is not a natural gas plant.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	No	N/A	Does not apply. The facility is not a petroleum refinery or natural gas processing plant.
20.2.38 NMAC	Hydrocarbon Storage Facility			
20.2.38.109	Tank Storage Associated with Petroleum Production or Processing Facility	No	N/A	Does not apply. All storage tanks have a capacity of less than 20,000 gallons.
20.2.38.110	Tank Battery or Storage Facility – Within Municipality	No	N/A	Does not apply. The facility is not located within the corporate limits of any municipality.
20.2.38.111	Tank Battery or Storage Facility – Within Five Miles of Municipality of Twenty Thousand or More	No	N/A	Does not apply. The facility is not located within five miles of any municipality with a population of twenty thousand or more.
20.2.38.112	New Tank Battery – More than 65,000 Gallons Capacity	Yes	Applies to: TK-1 TK-2 TK-3 TK-4 Exempt: PW-1 PW-2 PW-3 PW-4 PW-5 TK-S1	The condensate storage tank emissions are reduced by the VRU system with redundant capacity at the tank battery and meet control requirements. There are no requirements for the water storage tanks or the slop tank.
20.2.38.113	New Tank Battery and the	No	N/A	Does not apply. The facility is located within the Pecos-Permian Interstate Air Quality Control Region.

STATE REGU-LATIONS 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.)
	Pecos-Permian Interstate Air Quality Control Region			
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	Does not apply. This site is not a sulfur recovery plant.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	ENG-1 ENG-2 ENG-3 ENG-4 ENG-5 ENG-6 HTR-1 HTR-2 HTR-3 SEP-1 SEP-2 SEP-3 REB-1 FLARE	Chevron U.S.A. Inc. does not expect visible emissions from the gas fired heaters, heated production separators, reboiler, flare, or engines to exceed an opacity of 20%.
20.2.70 NMAC	Operating Permits	No	N/A	Does not apply. This site is not a major source and is not part of any other source category subject to this regulation.
20.2.72 NMAC	Construction Permits	Yes	Facility	Chevron U.S.A. Inc. is applying for a construction permit for the Salado Draw 19 CTB and CS because the potential emission rates for several pollutants are greater than 10 pounds per hour and 25 tons per year.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	An emissions inventory report will be submitted upon request by NMED.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	A filing fee of $500 is being submitted according to 20.2.75.10.A NMAC. The filing fee will be applied to the total permit fee determined from 20.2.75.11 NMAC.
20.2.77 NMAC	New Source Performance	Yes	Applies to: ENG-1 EMG-2 ENG-3 ENG-4 ENG-5 ENG-6 FUG Exempt: TK-1 TK-2 TK-3 TK-4 PW-1 PW-2 PW-3 PW-4 PW-5 TK-S1	Chevron U.S.A. Inc. will comply with the applicable requirements by complying with NSPS JJJJ and NSPS OOOOa.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	There are no applicable NMAC 20.2.78 standards.
20.2.82 NMAC	MACT Standards for source categories of	Yes	ENG-1 ENG-2 ENG-3	Chevron U.S.A. Inc. will comply with the applicable requirements by complying with MACT HH and ZZZZ.

STATE REGU-LATIONS 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.)
	HAPS		ENG-4 ENG-5 ENG-6 DHY-1	

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

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	NAAQS is applicable. Previously submitted air dispersion modeling demonstrates compliance with the NAAQS.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Applies to: ENG-1 ENG-2 ENG-3 ENG-4 ENG-5 ENG-6 FUG Exempt: TK-1 TK-2 TK-3 TK-4 PW-1 PW-2 PW-3 PW-4 PW-5 TK-S1	Chevron U.S.A. Inc. will comply with the applicable general provisions of Subpart A.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	No	N/A	The storage vessels are not subject to NSPS 40 CFR 60, Subpart Kb because each has a capacity less than 10,000 bbl and is located prior to custody transfer.
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	No	Exempt: TK-1 TK-2 TK-3 TK-4 PW-1 PW-2 PW-3 PW-4 PW-5 TK-S1	The existing storage vessels on site were not subject to NSPS OOOO and continue to be unaffected facilities because there are no physical modifications being made. The new storage tanks were constructed after September 18, 2015, and therefore NSPS OOOO does not apply.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	August 23, 2011 and before September 18, 2015			
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Yes	Applies to: ENG-1 ENG-1 ENG-3 ENG-4 ENG-5 ENG-6 FUG Exempt: TK-1 TK-2 TK-3 TK-4 PW-1 PW-2 PW-3 PW-4 PW-5 TK-S1	The site is subject to NSPS OOOOa for the collection of fugitive emission components and the reciprocating compressors. The existing storage vessels onsite are not subject to NSPS OOOOa because there are no physical modifications being made to these existing tanks. The new storage tanks are potentially affected facilities under NSPS OOOOa; however, certified controlled emission rates are less than 6 tons per year per tank. Any pneumatic pumps are not affected facilities since they will not be gas driven.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	ENG-1 ENG-2 ENG-3 ENG-4 ENG-5 ENG-6	NSPS JJJJ is an applicable standard to the engines. Chevron U.S.A. Inc. will comply with the applicable provisions of Subpart JJJJ.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	There are no applicable NESHAP standards.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	ENG-1 ENG-2 ENG-3 ENG-4 ENG-5 ENG-6 DHY-1	Chevron U.S.A. Inc. will comply with the applicable general provisions of Subpart A. This subpart applies because MACT HH and ZZZZ apply.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	Yes	DHY-1	The dehydrators meet the requirements of MACT HH by emitting < 1 tpy benzene.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	ENG-1 ENG-2 ENG-3 ENG-4 ENG-5 ENG-6	Each engine meets the requirements of MACT ZZZZ by complying with NSPS JJJJ, per 63.6590(c)(1).

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.

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: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

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

There is one alternate operating scenario. Normally, flare emissions are from pilot/sweep gas combustion. During SSM activities, flaring of up to 200,000 scf/hr may occur.

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.	
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	X

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
■ No modeling is required.

Comparison to Determine Modeling Procedure

	Previously Authorized Emissions (lb/hr)	Proposed Allowed emissions (lb/hr)	Change (lb/hr)	Allowed change (lb/hr)	Meets Limit?
CO (All emissions from stack >= 20 ft)	191.2	188.0	-3.22	50.0	Yes
H2S (Pecos-Permian Basin) Area Sources	0.019	0.022	0.003	0.02	Yes
NO2 (All emissions from stack >= 20 ft)	60.3	59.51	-0.791	2.00	Yes
PM2.5 (All emissions from stack >= 20 ft)	0.803	0.803	0.000	0.30	Yes
PM10 (All emissions from stack >= 20 ft)	0.803	0.803	0.000	1.00	Yes
SO2 (All emissions from stack >= 20 ft)	4.96	4.65	-0.306	2.00	Yes
Reduced Sulfur	4.96	4.65	-0.306	0.033	Yes

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
ENG-1	Initial JJJJ Test	01/13/2016
ENG-1	Periodic JJJJ Test	12/22/2016
ENG-1	2018 Q3 NSR Engine Report- NSR B111E(3)	7/16/2018
ENG-2	Initial JJJJ Test	03/15/2016
ENG-2	Periodic JJJJ Test	12/22/2017
ENG-2	2018 Q3 NSR Engine Report- NSR B111E(3)	7/16/2018
ENG-3	Initial JJJJ Test	03/15/2017
ENG-3	Periodic JJJJ Test	12/22/2017
ENG-3	2018 Q3 NSR Engine Report- NSR B111E(3)	7/16/2018
ENG-4	2018 Q3 NSR Engine Report- NSR B111E(3)	7/16/2018
ENG-1	Periodic Quarterly	3/5/2019
ENG-1	Periodic Quarterly & NSPS JJJJ	6/10/2019
ENG-1	Periodic Quarterly	8/12/2019
ENG-2	Periodic Quarterly	3/5/2019
ENG-2	Periodic Quarterly & NSPS JJJJ	6/12/2019
ENG-2	Periodic Quarterly	8/12/2019
ENG-3	Periodic Quarterly	3/7/2019
ENG-3	Periodic Quarterly & NSPS JJJJ	6/13/2019
ENG-3	Periodic Quarterly	8/13/2019
ENG-4	Periodic Quarterly	3/7/2019
ENG-4	Periodic Quarterly & NSPS JJJJ	6/10/2019
ENG-4	Periodic Quarterly	8/12/2019

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.

No additional information is included.

Section 22: Certification

Company Name: Chevron U.S.A. Inc.

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

Signed this 12 day of November, 2021, upon my oath or affirmation, before a notary of the State of Texas.

Keaton Byars
*Signature

11/12/2021
Date

Keaton Byars
Printed Name

HSE Specialist
Title

Scribed and sworn before me on this 12 day of November, 2021.

My authorization as a notary of the State of Texas expires on the 25th day of Febwary, 2024.

Notary's Signature

11/12/2021
Date

Dulce Sarai Castaneda
Notary's Printed Name

DULCE SARAI CASTANEDA
Notary Public, State of Texas
Comm. Expires 02-25-2024
Notary ID 132375160

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