1200 17th Street
Suite 750
Denver, CO 80202
PH: 303.626.8290

April 22, 2022

Mr. Ted Schooley
Air Permits Program Manager
Air Quality Bureau
New Mexico Environment Department
525 Camino De los Marquez, Suite 1
Santa Fe, New Mexico 87505

Re: New Source Review (NSR) Construction Permit Application
3 Bear Delaware Operating – NM, LLC
Aztec Compressor Station
AI #38082
Current Authorization: GCP Construction Permit #7496-M2
Lea County, NM

Dear Mr. Schooley,

3Bear Delaware Operating – NM, LLC (3Bear) submits the enclosed application for issuance of a New Source Review (NSR) Construction Permit to allow for expansion of its existing Aztec Compressor Station.

The facility currently operates under General Construction Permit (GCP) No. 7496M2.

If you have any questions regarding this submittal, please contact me at (303) 862-3966 or lklein@3BearLLC.com. Thank you for your attention to this matter.

Sincerely,

Elisabeth Klein
Director, EHS Regulatory Compliance
3 Bear Delaware Operating – NM, LLC
1200 17th Street, Suite 750
Denver, CO 80202
Office: (303) 862-3966

3 Bear Delaware Operating - NM, LLC
1200 17th Street, Suite 750
Denver CO 80202-1620
303-862-3951

Operating Account

WELLS FARGO BANK NA

11-24
1210

Check No	Check Date	Check Amount
0000042978	4/20/2022	**********$500.00

Void After 90 Days

PAY *Five Hundred Dollars and Zero Cents*

TO THE ORDER OF
NMED
NEW MEXICO ENVIRONMENT DEPARTMENT
525 CAMINO DE LOS MARQUEZ, SUITE 1
SANTA FE NM 87505

Security features included. Details on back.

⑈0000042978⑈ ⑆121000248⑆ 4128466042⑈

^PLEASE DETACH AT PERFORATION ABOVE^

^PLEASE DETACH AT PERFORATION ABOVE^

3 Bear Delaware Operating - NM, LLC
1200 17th Street, Suite 750
Denver CO 80202-1620
303-862-3951

3Bear Energy

Check Number: 0000042978

Invoice #	Inv. Date	Description	Amount	Discount	Net Amount
NMED-CR-04192022	4/19/2022	Air Quality Permit Application Fee Aztec NSR	$500.00	$0.00	$500.00

0909	←Payee	Check Date: 4/20/2022	Check Amount →	500.00

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.: 0000042978 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.): 38082	Updating Permit/NOI #: 7496M2
1	Facility Name: Aztec Compressor Station	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits): 211111	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): From the intersection of NM-176 W/ Ave O in Eunice, NM, head west on NM-176 W for 28.3 miles. Turn Left (Southerly) onto unmarked road for 0.6 miles. At the fork in the road, take the left hand side, and continue (Southeasterly) for 2.8 miles. Turn Right (Southerly) for 0.4 miles. The facility location will be on the right.		
2	Plant Operator Company Name: 3Bear Delaware Operating – NM, LLC	Phone/Fax: (303) 626-8290	

a	Plant Operator Address: 1200 17th St. Suite 750, Denver, CO 80202	
b	Plant Operator's New Mexico Corporate ID or Tax ID: 5501695	
3	Plant Owner(s) name(s): 3Bear Delaware Operating – NM, LLC	Phone/Fax: (303) 626-8290
a	Plant Owner(s) Mailing Address(s): 1200 17th St. Suite 750, Denver, CO 80202	
4	Bill To (Company): 3Bear Delaware Operating – NM, LLC	Phone/Fax: (303) 626-8290
a	Mailing Address: 1200 17th St. Suite 750, Denver, CO 80202	E-mail: info@3bearllc.com
5	☐ Preparer: ☑ Consultant: Barr Engineering	Phone/Fax: (800) 632-2277
a	Mailing Address: 225 E 16th Ave, Suite 500, Denver, CO 80203	E-mail: LMarquez@barr.com
6	Plant Operator Contact: Matthew Jui	Phone/Fax: (720) 271-1557
a	Address: 1200 17th St. Suite 750, Denver, CO 80202	E-mail: mjui@3bearllc.com
7	Air Permit Contact: Liz Klein	Title: Director, EHS Regulatory Compliance
a	E-mail: lklein@3bearllc.com	Phone/Fax: (303) 862-3966
b	Mailing Address: 1200 17th St. Suite 750, Denver, CO 80202	
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:
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☑ Yes ☐ No	If yes, the register No. is: 7496M2

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: 2.1 MMscf/hr (avg)	Daily: 50 MMscf/d	Annually: 18,250 MMscf/yr
b	Proposed	Hourly: 5.8 MMscf/hr (avg)	Daily: 140 MMscf/d	Annually: 51,100 MMscf/yr
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			

a	Current	Hourly: 2.1 MMscf/hr (avg)	Daily: 50 MMscf/d	Annually: 18,250 MMscf/yr
b	Proposed	Hourly: 5.8 MMscf/hr (avg)	Daily: 140 MMscf/d	Annually: 51,100 MMscf/yr

Section 1-D: Facility Location Information

1	Section: 8	Range: 33E	Township: 21S	County: Lea	Elevation (ft): 3,871
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 632110			UTM N (in meters, to nearest 10 meters): 3595440	
b	**AND** Latitude (deg., min., sec.): 32° 29' 18.10" N			Longitude (deg., min., sec.): 103° 35' 37.93" W	
3	Name and zip code of nearest New Mexico town: Monument, 88240				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From the intersection of NM-176 W/ Ave O in Eunice, NM, head west on NM-176 W for 28.3 miles. Turn Left (Southerly) onto unmarked road for 0.6 miles. At the fork in the road, take the left hand side, and continue (Southeasterly) for 2.8 miles. Turn Right (Southerly) for 0.4 miles. The facility location will be on the right.				
5	The facility is 21.3 (distance) miles SW (direction) of Monument (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				
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: Texas - 54.3 km				
9	Name nearest Class I area: Carlsbad Cavern National Park				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 80 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: 17,620 m				
12	Method(s) used to delineate the Restricted Area: "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8,760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start:	☐AM ☐PM	End:	☐AM ☐PM		
3	Month and year of anticipated start of construction: 9/2022					
4	Month and year of anticipated construction completion: ~12/2023					
5	Month and year of anticipated startup of new or modified facility: Upon approval of NSR Construction Permit ~12/2023					

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: ____Xcel_____ 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 Liz Klein

Email lklein@3bearllc.com

Phone number (303) 862-3966

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	Compressor Engine	Caterpillar	G3516	N6E00550	1380 hp	1380 hp	1/10/2018 2/8/2019	Oxidation Catalyst ENG-1	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-2	Compressor Engine	Caterpillar	G3516	N6W01362	1380 hp	1380 hp	5/10/2019 11/1/2019	Oxidation Catalyst ENG-2	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-3	Compressor Engine	Caterpillar	G3516	N6W01227	1380 hp	1380 hp	2/12/2019 11/22/2019	Oxidation Catalyst ENG-3	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-4	Compressor Engine	Caterpillar	G3516	JEF02607	1380 hp	1380 hp	2/10/2014 3/16/2020	Oxidation Catalyst ENG-4	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-5	Compressor Engine	Caterpillar	G3516	N6W00191	1380 hp	1380 hp	4/20/2017 3/17/2020	Oxidation Catalyst ENG-5	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-6	Compressor Engine	Caterpillar	G3516	N6W00962	1380 hp	1380 hp	10/22/2018 3/17/2020	Oxidation Catalyst ENG-6	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-7	Compressor Engine	Caterpillar	G3516	TBD	1380 hp	1380 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-7	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-8	Compressor Engine	Caterpillar	3606	JFE01335	1875 hp	1875 hp	3/20/2019 7/26/2021	Oxidation Catalyst ENG-8	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-9	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-9	20200254	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-10	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-10	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-11	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-11	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-12	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-12	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-13	Compressor Engine	Caterpillar	3606	TBD	1875 hp	1875 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-13	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-14	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-14	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-15	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-15	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-16	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-16	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-17	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-17	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
ENG-18	Compressor Engine	Caterpillar	3608	TBD	2500 hp	2500 hp	After 7/1/2010 After 6/12/2006	Oxidation Catalyst ENG-18	20200254	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
GUN-1	Gunbarrel Tank	TBD	TBD	TBD	750 bbl	750 bbl	TBD After 9/18/2015	FL-2 GUN-1	40400311	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
COND TK-1	Condensate Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 COND TK-1	31000212	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
COND TK-2	Condensate Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 COND TK-2	31000212	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
COND TK-3	Condensate Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 COND TK-3	31000212	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
COND TK-4	Condensate Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 COND TK-4	31000212	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
COND TK-5	Condensate Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 COND TK-5	31000212	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
PWTK-1	Produced Water Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 PWTK-1	31000213	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
PWTK-2	Produced Water Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 PWTK-2	31000213	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	TK-6
PWTK-3	Produced Water Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 PWTK-3	31000213	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	TK-6
PWTK-4	Produced Water Tank	TBD	TBD	TBD	500 bbl	500 bbl	TBD After 9/18/2015	FL-2 PWTK-4	31000213	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
HTR-1	Dehy Reboiler Heater	TBD	TBD	TBD	1.50 MMBtu/hr	1.50 MMBtu/hr	TBD TBD	N/A HTR-1	30600105	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
HTR-2	Dehy Reboiler Heater	TBD	TBD	TBD	1.50 MMBtu/hr	1.50 MMBtu/hr	TBD TBD	N/A HTR-2	30600105	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
LOAD	Hydrocarbon Loadout	N/A	N/A	N/A	N/A	N/A	N/A N/A	FL-2 N/A	2310021030	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
FUG-1	Fugitives	N/A	N/A	N/A	N/A	N/A	N/A After 9/18/2015	N/A N/A	31088811	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-1	TEG Dehydrator	TBD	TBD	TBD	70.00 MMSCFD	70.00 MMSCFD	TBD TBD	ECD-1 DEHY-1	31000304	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
DEHY-2	TEG Dehydrator	TBD	TBD	TBD	70.00 MMSCFD	70.00 MMSCFD	TBD TBD	ECD-2 DEHY-2	31000304	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
ECD-1	Combustor	SpiralX	TBD	TBD	TBD	TBD	TBD TBD	N/A ECD-1	31000160	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
ECD-2	Combustor	SpiralX	TBD	TBD	TBD	TBD	TBD TBD	N/A ECD-2	31000160	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
FL-1	Process Flare	TBD	TBD	TBD	TBD	TBD	TBD TBD	N/A FL-1	31000160	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
FL-2	Tank Flare	TBD	TBD	TBD	TBD	TBD	TBD TBD	N/A FL-2	31000160	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
HR-1	Road Dust	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000199	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ To Be Modified ☐ To be Replaced	N/A	N/A
SSM	Maintenance Activities	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000199	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
UP/MAL-1	Upsets/Malfunctions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000199	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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

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

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

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]	
N/A	Misc. Insignificant Tanks	N/A	TBD	TBD	20.2.72.202.B.5	TBD	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
			TBD	TBD	N/A	TBD	
GEN-1	Generator Engine	TBD	TBD	644	20.2.72.202.B.3	After 2014	☑ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
			TBD	hp	N/A	After 2006	
							☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
							☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
							☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
							☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
							☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ To be Replaced
							☐ Existing (unchanged) ☐ New/Additional ☐ To Be Modified ☐ To be Removed ☐ Replacement Unit ☐ 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
ENG-1	Oxidation Catalyst	2/8/2019	VOC, CO and CH2O	ENG-1	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-2	Oxidation Catalyst	11/1/2019	VOC, CO and CH2O	ENG-2	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-3	Oxidation Catalyst	11/22/2019	NOx,VOC, CO and CH2O	ENG-3	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-4	Oxidation Catalyst	2/8/2020	NOx,VOC, CO and CH2O	ENG-4	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-5	Oxidation Catalyst	2/7/2020	NOx,VOC, CO and CH2O	ENG-5	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-6	Oxidation Catalyst	2/7/2020	VOC, CO and CH2O	ENG-6	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-7	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-7	67% VOC / 81% CO / 72% CH2O	Catalyst Information
ENG-8	Oxidation Catalyst	7/26/2021	NOx,VOC, CO and CH2O	ENG-8	67% VOC / 81% CO / 50% CH2O	Catalyst Information
ENG-9	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-9	67% VOC / 81% CO / 50% CH2O	Catalyst Information
ENG-10	Oxidation Catalyst	TBD	VOC, CO and CH2O	ENG-10	67% VOC / 81% CO / 50% CH2O	Catalyst Information
ENG-11	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-11	67% VOC / 81% CO / 50% CH2O	Catalyst Information
ENG-12	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-12	67% VOC / 81% CO / 50% CH2O	Catalyst Information
ENG-13	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-13	67% VOC / 81% CO / 50% CH2O	Catalyst Information
ENG-14	Oxidation Catalyst	TBD	VOC, CO and CH2O	ENG-14	68% VOC / 86% CO / 63% CH2O	Catalyst Information
ENG-15	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-15	68% VOC / 86% CO / 63% CH2O	Catalyst Information
ENG-16	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-16	68% VOC / 86% CO / 63% CH2O	Catalyst Information
ENG-17	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-17	68% VOC / 86% CO / 63% CH2O	Catalyst Information
ENG-18	Oxidation Catalyst	TBD	NOx,VOC, CO and CH2O	ENG-18	68% VOC / 86% CO / 63% CH2O	Catalyst Information
Condenser	Dehydrator Condenser	TBD	VOC	DEHY 1-2	~55% VOC	GlyCalc
ECD-1	Combustor	TBD	VOC	DEHY-1	98% VOC	Manufacturer Data
ECD-2	Combustor	TBD	VOC	DEHY-2	98% VOC	Manufacturer Data
FL-1	Plant Flare	TBD	VOC	Maintenance	98% VOC	Manufacturer Data
FL-2	Tank Flare	TBD	VOC	GUN-1, COND TK 1-5, PW TK 1-4	98% VOC	Manufacturer Data

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
ENG-1	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-2	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-3	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-4	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-5	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-6	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-7	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-8	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-9	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-10	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-11	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-12	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-13	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-14	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-15	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-16	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-17	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-18	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
GUN-1	--	--	--	--	17,350.64	515.85	--	--	--	--	--	--	--	--	0.40	0.01	--	--
COND TK 1-5	--	--	--	--	9,987.52	122.79	--	--	--	--	--	--	--	--	0.32	0.01	--	--
PW TK 1-4	--	--	--	--	6.92	0.05	--	--	--	--	--	--	--	--	0.25	0.00	--	--
HTR-1	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--
HTR-2	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--
LOAD	--	--	--	--	189.53	17.29	--	--	--	--	--	--	--	--	0.01	0.00	--	--
FUG-1	--	--	--	--	7.65	33.52	--	--	0.00	0.00	--	--	--	--	0.00	0.01	--	--
DEHY-1	--	--	--	--	308.88	1,352.88	--	--	0.00	0.00	--	--	--	--	0.36	1.57	--	--
DEHY-2	--	--	--	--	308.88	1,352.88	--	--	0.00	0.00	--	--	--	--	0.36	1.57	--	--
ECD-1	0.02	0.07	0.05	0.23	0.05	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--
ECD-2	0.02	0.07	0.05	0.23	0.05	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--
FL-1	0.12	0.51	0.23	1.02	0.27	1.20	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	--	--
FL-2	0.02	0.10	0.05	0.20	0.05	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--
HR-1	--	--	--	--	--	--	--	--	2.03	0.17	0.52	0.04	0.05	0.00	--	--	--	--
SSM	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	0.00	--	--
UP/MAL-1	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Totals	37.30	163.38	238.69	1,045.46	28,273.08	3,910.51	2.26	9.88	4.61	11.45	3.09	11.32	2.63	11.28	1.69	3.16	<0.01	<0.01

[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	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-2	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-3	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-4	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-5	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-6	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-7	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	--	--
ENG-8	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-9	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-10	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-11	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-12	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-13	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	--	--
ENG-14	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-15	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-16	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-17	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
ENG-18	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	--	--
GUN-1[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COND TK 1-5[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PW TK 1-4[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HTR-1	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--
HTR-2	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	--	--
LOAD[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FUG-1	--	--	--	--	7.65	33.52	--	--	--	--	--	--	--	--	<0.01	0.01	--	--
DEHY-1[3]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DEHY-2[3]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ECD-1	0.60	2.11	1.89	6.68	2.55	11.16	0.61	2.67	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.03	--	--
ECD-2	0.60	2.11	1.89	6.68	2.55	11.16	0.61	2.67	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.03	--	--
FL-1[4]	369.63	2.56	737.93	5.10	934.15	7.00	15.80	0.11	4.96	0.03	4.96	0.03	4.96	0.03	0.17	<0.01	--	--
FL-2	133.18	6.22	265.88	12.41	606.47	18.44	2.00	0.06	0.80	0.04	0.80	0.04	0.80	0.04	0.02	<0.01	--	--
HR-1	--	--	--	--	--	--	--	--	2.03	0.17	0.52	0.04	0.05	<0.01	--	--	--	--
SSM	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	<0.01	--	--
UP/MAL-1	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Totals	541.14	175.62	1047.43	205.36	1590.22	262.68	21.26	15.35	10.39	11.55	8.87	11.43	8.40	11.39	0.20	0.07	<0.01	<0.01
Total Less Fugitives	541.14	175.62	1047.43	205.36	1582.56	229.16	21.26	15.35	10.39	11.55	8.87	11.43	8.40	11.39	0.20	0.06	<0.01	<0.01

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

2 - VOC and H2S emissions for GUN-1, COND TK 1-5, PW TK 1-4, and LOAD are represented at FL-2.

3 - VOC and H2S emissions for DEHY 1-2 are represented at ECD 1-2.

4 - SSM emissions controlled by FL-1 and 10 tpy of SSM emissions are shown on Table 2-F.

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
FL-1[3]	369.63	1.21	737.93	2.41	934.15	2.84	15.80	0.05	4.96	0.02	4.96	0.02	4.96	0.02	0.17	<0.01	--	--
SSM	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Totals	369.63	1.21	737.93	2.41	934.15	12.84	15.80	0.05	4.96	0.02	4.96	0.02	4.96	0.02	0.17	<0.01	--	--

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

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

3 - VOC and H2S emissions represented at FL-1 FL-3, and FL-4 are from compressor blowdowns and plant blowdowns.

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	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	25	839.00	136.01	98.51	9	126.5	1.2
ENG-2	ENG-2	V	No	25	839.00	136.01	98.51	9	126.5	1.2
ENG-3	ENG-3	V	No	25	839.00	136.01	98.51	9	126.5	1.2
ENG-4	ENG-4	V	No	25	839.00	136.01	98.51	9	126.5	1.2
ENG-5	ENG-5	V	No	25	839.00	136.01	98.51	9	126.5	1.2
ENG-6	ENG-6	V	No	25	839.00	136.01	98.51	9	126.5	1.2
ENG-7	ENG-7	V	No	25	839.00	136.01	98.51	9	126.5	1.2
ENG-8	ENG-8	V	No	25	806.00	198.78	145.55	8	90.8	1.7
ENG-9	ENG-9	V	No	25	806.00	198.78	145.55	8	90.8	1.7
ENG-10	ENG-10	V	No	25	806.00	198.78	145.55	8	90.8	1.7
ENG-11	ENG-11	V	No	25	806.00	198.78	145.55	8	90.8	1.7
ENG-12	ENG-12	V	No	25	806.00	198.78	145.55	8	90.8	1.7
ENG-13	ENG-13	V	No	25	806.00	198.78	145.55	8	90.8	1.7
ENG-14	ENG-14	V	No	25	857.00	266.72	195.31	8	84.9	2.0
ENG-15	ENG-15	V	No	25	857.00	266.72	195.31	8	84.9	2.0
ENG-16	ENG-16	V	No	25	857.00	266.72	195.31	8	84.9	2.0
ENG-17	ENG-17	V	No	25	857.00	266.72	195.31	8	84.9	2.0
ENG-18	ENG-18	V	No	25	857.00	266.72	195.31	8	84.9	2.0
GUN-1	GUN-1	V	No	25	70.00	0.00	0.00	0	0.0	0.7
COND TK 1-5	COND TK 1-5	V	No	20	70.00	0.00	0.00	0	0.0	0.7
PWTK 1-4	PWTK 1-4	V	No	20	70.00	0.00	0.00	0	0.0	0.7
HTR-1	HTR-1	V	No	21	500.00	0.39	0.31	0	0.2	1.5
HTR-2	HTR-2	V	No	21	500.00	0.39	0.31	0	0.2	1.5
ECD-1	ECD-1	V	No	9	1,100.00	30.82	24.53	0	5.9	2.6
ECD-2	ECD-2	V	No	9	1,100.00	30.82	24.53	0	5.9	2.6
FL-1[1]	FL-11	V	No	30	1,832.00	79,097.30	62,954.99	0	65.6	39.2
FL-2[1]	FL-21	V	No	20	1,832.00	26,533.04	21,118.13	0	65.6	22.7

[1]Effective diameter and flow rates are calculated per the NMED Modeling Guidelines revised October 26, 2020.

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		Acetaldehyde ☑ HAP or ☐ TAP		Acrolein ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or ☐ TAP		Xylenes ☑ HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		2,2,4 TMP ☑ 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	lb/hr	ton/yr
ENG-1	ENG-1	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-2	ENG-2	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-3	ENG-3	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-4	ENG-4	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-5	ENG-5	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-6	ENG-6	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-7	ENG-7	0.5	2.1	0.3	1.3	0.1	0.4	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-8	ENG-8	0.6	2.8	0.4	1.8	0.1	0.5	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-9	ENG-9	0.6	2.8	0.4	1.8	0.1	0.5	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-10	ENG-10	0.6	2.8	0.4	1.8	0.1	0.5	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-11	ENG-11	0.6	2.8	0.4	1.8	0.1	0.5	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-12	ENG-12	0.6	2.8	0.4	1.8	0.1	0.5	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-13	ENG-13	0.6	2.8	0.4	1.8	0.1	0.5	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-14	ENG-14	0.8	3.7	0.6	2.4	0.2	0.7	0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-15	ENG-15	0.8	3.7	0.6	2.4	0.2	0.7	0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-16	ENG-16	0.8	3.7	0.6	2.4	0.2	0.7	0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-17	ENG-17	0.8	3.7	0.6	2.4	0.2	0.7	0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
ENG-18	ENG-18	0.8	3.7	0.6	2.4	0.2	0.7	0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	--	--
GUN-1[1]	GUN-1[1]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COND TK 1-5[1]	COND TK 1-5[1]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PW TK 1-4[1]	PW TK 1-4[1]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HTR-1	HTR-1	<0.1	<0.1	<0.1	<0.1	--	--	--	--	<0.1	<0.1	<0.1	<0.1	--	--	--	--	<0.1	<0.1	--	--
HTR-2	HTR-2	<0.1	<0.1	<0.1	<0.1	--	--	--	--	<0.1	<0.1	<0.1	<0.1	--	--	--	--	<0.1	<0.1	--	--
LOAD[1]	LOAD[1]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FUG-1	FUG-1	0.3	1.5	--	--	--	--	--	--	0.1	0.3	0.1	0.3	<0.1	<0.1	<0.1	0.1	0.2	0.8	<0.1	<0.1
DEHY-1[2]	DEHY-1[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DEHY-2[2]	DEHY-2[2]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ECD-1	ECD-1	1.3	5.7	--	--	--	--	--	--	0.9	4.1	0.3	1.2	<0.1	<0.1	<0.1	0.1	0.1	0.2	<0.1	<0.1
ECD-2	ECD-2	1.3	5.7	--	--	--	--	--	--	0.9	4.1	0.3	1.2	<0.1	<0.1	<0.1	0.1	0.1	0.2	<0.1	<0.1
FL-1	FL-1	42.7	0.4	--	--	--	--	--	--	8.6	0.1	7.6	0.1	0.8	<0.1	3.2	<0.1	22.3	0.2	0.1	<0.1
FL-2	FL-2	60.1	2.0	--	--	--	--	--	--	38.2	1.4	6.0	0.2	0.1	<0.1	0.4	<0.1	15.1	0.4	0.4	<0.1
HR-1	HR-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SSM	SSM	--	0.5	--	--	--	--	--	--	--	0.1	--	0.1	--	<0.1	--	<0.1	--	0.2	--	<0.1
UP/MAL-1	UP/MAL-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Totals:		117.1	65.6	7.4	32.3	2.1	9.3	1.3	5.7	48.9	10.5	14.2	3.5	1.0	0.2	3.8	0.7	38.0	3.4	0.5	<0.1

1 - VOC and H2S emissions for GUN-1, COND TK 1-5, PW TK 1-4, and LOAD are represented at FL-2.

2 - VOC and H2S emissions for DEHY 1-2 are represented at ECD 1-2.

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)	Specify Units				
			Lower Heating Value	Hourly Usage (scf)	Annual Usage (scf)	% Sulfur	% Ash
ENG-1	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-2	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-3	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-4	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-5	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-6	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-7	Natural Gas	Field Natural Gas	1,300 btu/scf	8,581	75,169,560	N/A	N/A
ENG-8	Natural Gas	Field Natural Gas	1,300 btu/scf	10,536	92,295,360	N/A	N/A
ENG-9	Natural Gas	Field Natural Gas	1,300 btu/scf	10,536	92,295,360	N/A	N/A
ENG-10	Natural Gas	Field Natural Gas	1,300 btu/scf	10,536	92,295,360	N/A	N/A
ENG-11	Natural Gas	Field Natural Gas	1,300 btu/scf	10,536	92,295,360	N/A	N/A
ENG-12	Natural Gas	Field Natural Gas	1,300 btu/scf	10,536	92,295,360	N/A	N/A
ENG-13	Natural Gas	Field Natural Gas	1,300 btu/scf	10,536	92,295,360	N/A	N/A
ENG-14	Natural Gas	Field Natural Gas	1,300 btu/scf	14,287	125,154,120	N/A	N/A
ENG-15	Natural Gas	Field Natural Gas	1,300 btu/scf	14,287	125,154,120	N/A	N/A
ENG-16	Natural Gas	Field Natural Gas	1,300 btu/scf	14,287	125,154,120	N/A	N/A
ENG-17	Natural Gas	Field Natural Gas	1,300 btu/scf	14,287	125,154,120	N/A	N/A
ENG-18	Natural Gas	Field Natural Gas	1,300 btu/scf	14,287	125,154,120	N/A	N/A
HTR-1	Natural Gas	Field Natural Gas	1,300 btu/scf	1,154	10,107,692	N/A	N/A
HTR-2	Natural Gas	Field Natural Gas	1,300 btu/scf	1,154	10,107,692	N/A	N/A
ECD-1	Natural Gas	Field Natural Gas	1,300 btu/scf	125	1,095,000	N/A	N/A
ECD-2	Natural Gas	Field Natural Gas	1,300 btu/scf	125	1,095,000	N/A	N/A
FL-1	Natural Gas	Field Natural Gas	1,300 btu/scf	625	5,475,000	N/A	N/A
FL-2	Natural Gas	Field Natural Gas	1,300 btu/scf	125	1,095,000	N/A	N/A

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
GUN-1	40400311	Oil/ Produced Water	Mixed Hydrocarbons	7.1	50	61.7	12.42	75.77	16.59
COND TK-1	31000212	Condensate	Mixed Hydrocarbons	5.6	62	61.7	12.57	75.77	16.83
COND TK-2	31000212	Condensate	Mixed Hydrocarbons	5.6	62	61.7	12.57	75.77	16.83
COND TK-3	31000212	Condensate	Mixed Hydrocarbons	5.6	62	61.7	12.57	75.77	16.83
COND TK-4	31000212	Condensate	Mixed Hydrocarbons	5.6	62	61.7	12.57	75.77	16.83
COND TK-5	31000212	Condensate	Mixed Hydrocarbons	5.6	62	61.7	12.57	75.77	16.83
PW TK-1	31000213	Produced Water	Mixed Hydrocarbons	8.3	19.8	61.7	0.40	75.77	0.72
PW TK-2	31000213	Produced Water	Mixed Hydrocarbons	8.3	19.8	61.7	0.40	75.77	0.72
PW TK-3	31000213	Produced Water	Mixed Hydrocarbons	8.3	19.8	61.7	0.40	75.77	0.72
PW TK-4	31000213	Produced Water	Mixed Hydrocarbons	8.3	19.8	61.7	0.40	75.77	0.72

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			
GUN-1	TBD	Oil/ Produced Water	N/A	FX	750	119	3.7	3.81	OT (Green)	OT (Green)	Good	20,695,500	657.00
COND TK-1	TBD	Condensate	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	3,066,000	146.00
COND TK-2	TBD	Condensate	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	3,066,000	146.00
COND TK-3	TBD	Condensate	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	3,066,000	146.00
COND TK-4	TBD	Condensate	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	3,066,000	146.00
COND TK-5	TBD	Condensate	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	3,066,000	146.00
PWTK-1	TBD	Produced Water	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	31,938	1.52
PWTK-2	TBD	Produced Water	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	31,938	1.52
PWTK-3	TBD	Produced Water	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	31,938	1.52
PWTK-4	TBD	Produced Water	N/A	FX	500	79	3.7	3.05	OT (Green)	OT (Green)	Good	31,938	1.52

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)**
Oil/Produced Water	Mixed Hydrocarbons	Liquid	492,750 bbl/yr				
Gas	Mixed Hydrocarbons	Gas	140 MMScf/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
TBD									

Table 2-O: Parametric Emissions Measurement Equipment

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A								

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.

Unit No.	Unit No.		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.	**Unit No.**	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
ENG-1	**ENG-1**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-2	**ENG-2**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-3	**ENG-3**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-4	**ENG-4**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-5	**ENG-5**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-6	**ENG-6**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-7	**ENG-7**	**mass GHG**	5,715.14	0.01	0.11											5,715	
		CO_2e	5,715.14	3.21	2.69												5721
ENG-8	**ENG-8**	**mass GHG**	7,201.22	0.01	0.14											7,201	
		CO_2e	7,201.22	4.04	3.39												7209
ENG-9	**ENG-9**	**mass GHG**	7,201.22	0.01	0.14											7,201	
		CO_2e	7,201.22	4.04	3.39												7209
ENG-10	**ENG-10**	**mass GHG**	7,201.22	0.01	0.14											7,201	
		CO_2e	7,201.22	4.04	3.39												7209
ENG-11	**ENG-11**	**mass GHG**	7,201.22	0.01	0.14											7,201	
		CO_2e	7,201.22	4.04	3.39												7209
ENG-12	**ENG-12**	**mass GHG**	7,201.22	0.01	0.14											7,201	
		CO_2e	7,201.22	4.04	3.39												7209
ENG-13	**ENG-13**	**mass GHG**	7,201.22	0.01	0.14											7,201	
		CO_2e	7,201.22	4.04	3.39												7209
ENG-14	**ENG-14**	**mass GHG**	9,515.80	0.02	0.18											9,516	
		CO_2e	9,515.80	5.34	4.48												9526
ENG-15	**ENG-15**	**mass GHG**	9,515.80	0.02	0.18											9,516	
		CO_2e	9,515.80	5.34	4.48												9526
ENG-16	**ENG-16**	**mass GHG**	9,515.80	0.02	0.18											9,516	
		CO_2e	9,515.80	5.34	4.48												9526
ENG-17	**ENG-17**	**mass GHG**	9,515.80	0.02	0.18											9,516	
		CO_2e	9,515.80	5.34	4.48												9526
ENG-18	**ENG-18**	**mass GHG**	9,515.80	0.02	0.18											9,516	
		CO_2e	9,515.80	5.34	4.48												9526
HTR-1	**HTR-1**	**mass GHG**	768.54	0.00	0.01											769	
		CO2e	768.54	0.43	0.36												769
HTR-2	**HTR-2**	**mass GHG**	768.54	0.00	0.01											769	
		CO2e	768.54	0.43	0.36												769
FUG-1	**FUG-1**	**mass GHG**	47.11	0.00	1,692.88											1,740	
		CO2e	47.11	0.00	42,322.12												42369
ECD-1	**ECD-1**	**mass GHG**	2,519.14	0.00	0.05											2,519	
		CO2e	2,519.14	1.41	1.19												2522
ECD-2	**ECD-2**	**mass GHG**	2,519.14	0.00	0.05											2,519	
		CO2e	2,519.14	1.41	1.19												2522
FL-1	**FL-1**	**mass GHG**	3,191.39	0.01	0.06											3,191	
		CO2e	3,191.39	1.79	1.50												3195
FL-2	**FL-2**	**mass GHG**	5,269.90	0.01	0.10											5,270	
		CO2e	5,269.90	2.96	2.48												5275

SSM	**SSM**	**mass GHG**	0.00	0.00	10.00										10	
		CO2e	0.00	0.00	250.00											250
UP/MAL-1	**UP/MAL-1**	**mass GHG**	0.00	0.00	10.00										10	
		CO2e	0.00	0.00	250.00											250
	Total	**mass GHG**													147,592	
		CO_2e														188,849

[1] **GWP** means Global W [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** de [2] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[3] You must enter the app [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 emissi [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 D [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.

This application and accompanying material is a modification to the Aztec Compressor Station (Aztec), owned and operated by 3 Bear Delaware Operating – NM, LLC (3Bear). The facility is currently authorized by General Construction Permit – Oil & Gas (GCP) No. 7496M2 issued February 4, 2021. Aztec will increase capacity to receive up to 140 MMSCFD of gas from surrounding well pads.

More specifically, this permit application requests the following modifications:

- Increase compressor station inlet gas volume to 140 MMSCFD;
- Addition of nine (9) compressor engines;
- Addition of two (2) condensate tanks;
- Addition of two (2) produced water tanks;
- Replace dehydrator reboilers;
- Increase dehydrator capacity to 70 MMSCFD each;
- Replace enclosed combustors;
- Addition of process flare;
- Update engine emission factors;
- Addition of vapor balance to condensate loadout;
- Update enclosed combustors (ECD 1-2) stream volumes;
- Update tank flare (FL-2) stream volumes;
- Update haul road trip count to accommodate additional liquid throughput;
- Update tank emission unit numbers (administrative change);
- Addition of fugitive component counts for the facility

The facility will consist of the following emission units: eighteen (18) compressor engines, one (1) exempt emergency generator engine, one (1) gunbarrel tank, five (5) condensate tanks, four (4) produced water tanks, two (2) dehydrator reboiler heaters, two (2) dehydrator units, loadout, two (2) enclosed combustors, one (1) process flare, one (1) tank flare, process piping fugitives, and haul road fugitives.

SSM Overview:

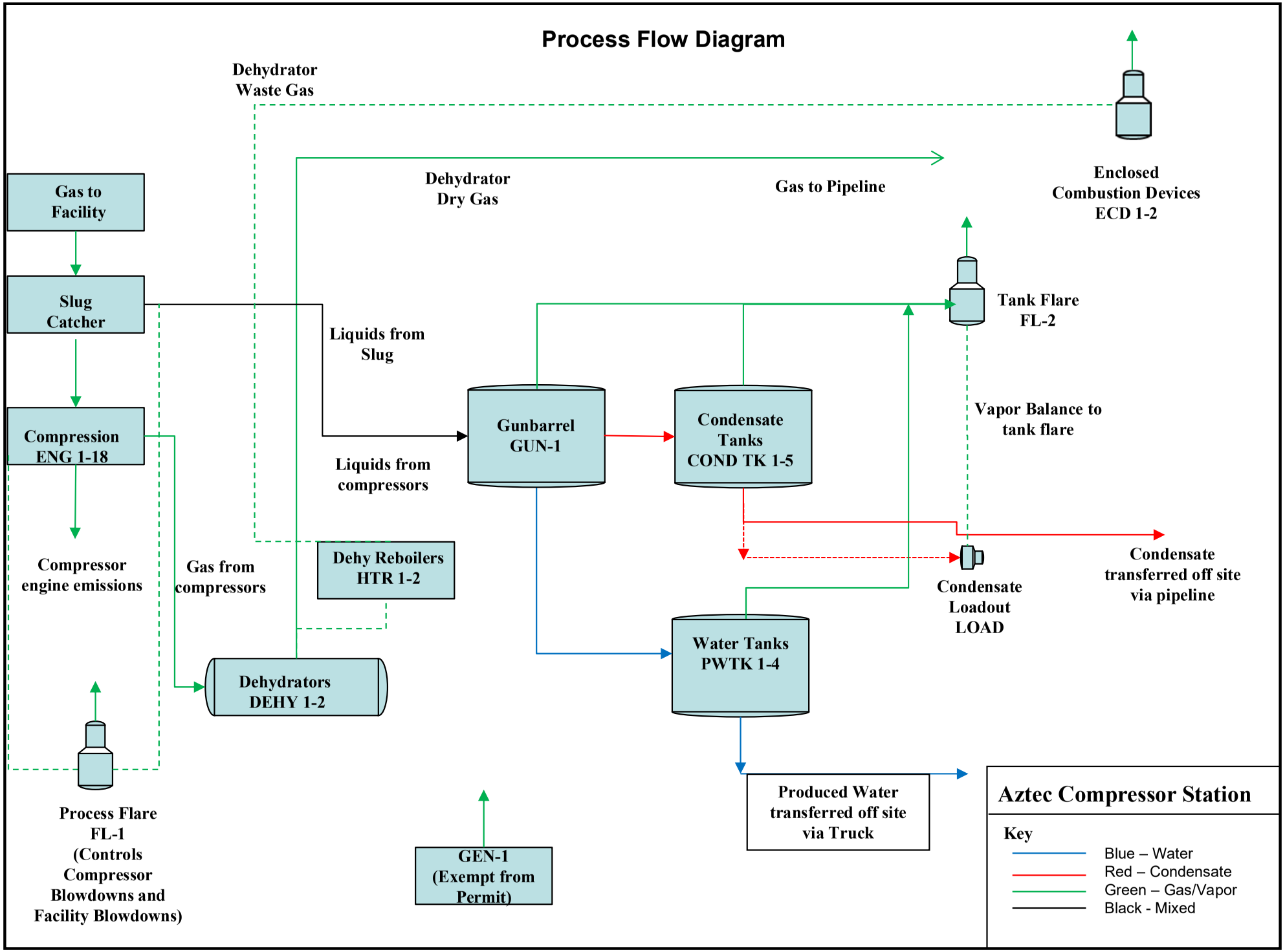
SSM emissions are expected at the facility and are included in the total facility wide emissions. Compressor blowdowns and plant blowdowns from the facility are controlled by process flare (FL-1). Additional maintenance flaring has been included in the application to account for other maintenance activities. Maintenance activities that cannot be controlled have been included in the application at a rate of 10 tpy for these uncontrolled maintenance activities.

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.

The facility process flow sheet is provided on the next page.

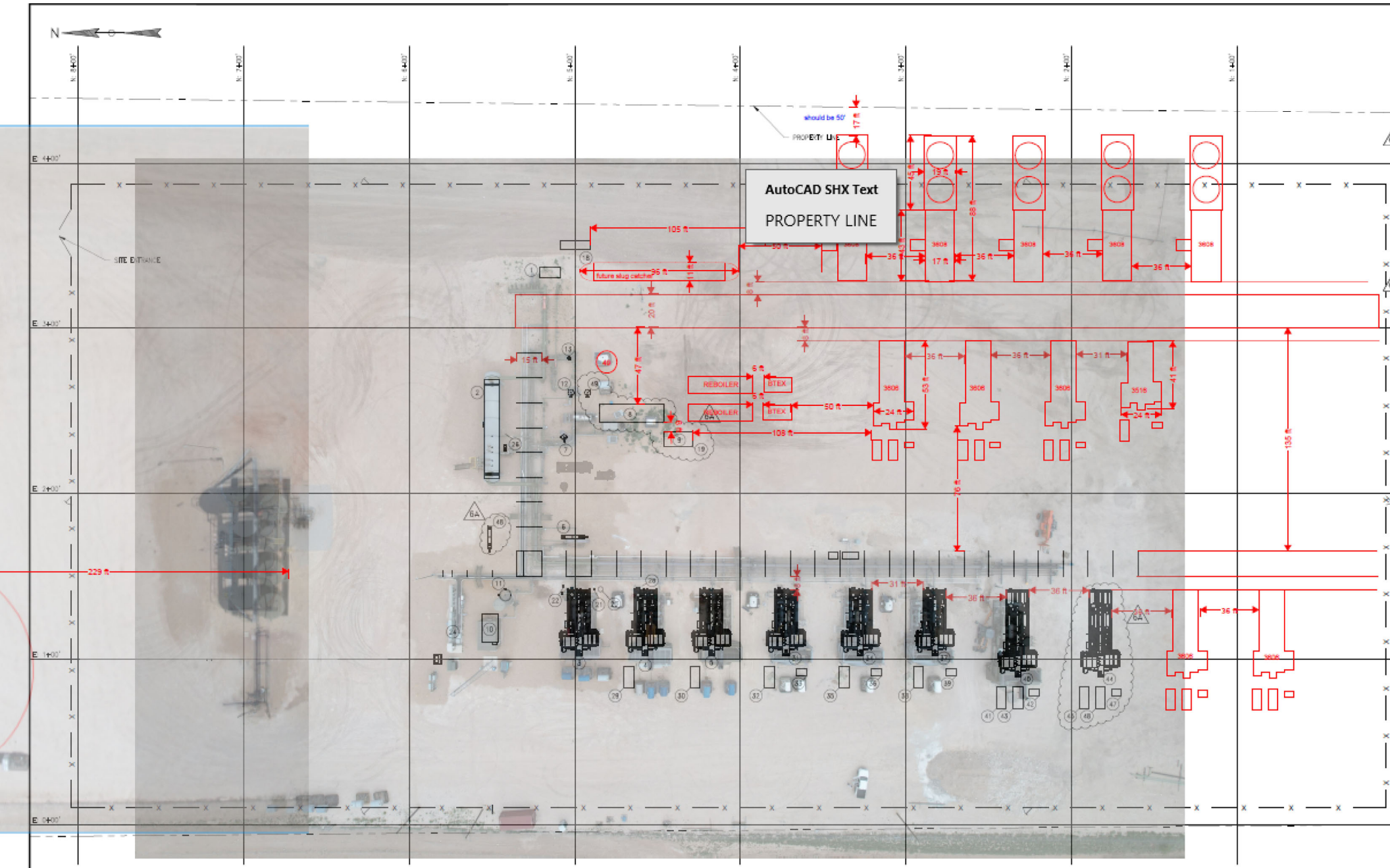

Process Flow Diagram
Dehydrator Waste Gas
Enclosed Combustion Devices ECD 1-2
Gas to Facility
Dehydrator Dry Gas
Gas to Pipeline
Slug Catcher
Tank Flare FL-2
Liquids from Slug
Compression ENG 1-18
Gunbarrel GUN-1
Condensate Tanks COND TK 1-5
Vapor Balance to tank flare
Liquids from compressors
Compressor engine emissions
Gas from compressors
Dehy Reboilers HTR 1-2
Condensate Loadout LOAD
Condensate transferred off site via pipeline
Water Tanks PWTK 1-4
Dehydrators DEHY 1-2
Process Flare FL-1 (Controls Compressor Blowdowns and Facility Blowdowns)
GEN-1 (Exempt from Permit)
Produced Water transferred off site via Truck
Aztec Compressor Station
Key
Blue – Water
Red – Condensate
Green – Gas/Vapor
Black - Mixed

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.

The facility plot plan is provided on the next page.



PLOT PLAN

SCALE: 1"=30'-0"

REFERENCED DRAWINGS

DRAWING NUMBER	TITLE
–	–

DRAWING REVISIONS

REV	DESCRIPTION	BY	CHK	APVD	DATE
6A	ISSUED FOR APPROVAL	BJP	RM	RM	01/21/22
1	REISSUED FOR CONSTRUCTION	DJI	RM	RGJ	02/21/18
2	UPDATE TANK CALLOUTS, IFC	DJA	DJA	RM	07/24/18
3	ADDED EQUIPMENT FOR EXPANSION	ACP	DMK	AJK	07/01/19
4	AS-BUILT CONTAINMENT LOCATION	ACP	DMK	AJK	09/17/20
5	REVISED ISSUED FOR CONSTRUCTION	ACP	SGS	RM	05/27/21

ZAP ENGINEERING & CONSTRUCTION SERVICES, INC

3Bear Energy

JOB N

DRAWIN

PLOT

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.

The emissions calculations are provided on the following pages.

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)

Summary of Uncontrolled Air Emission Units

Unit Name	Unit Description	Potential Emissions Uncontrolled + No Product Recovered																	
		NOx		CO		VOC		SO2		PM		PM10		PM2.5		H2S		HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-2	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-3	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-4	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-5	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-6	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-7	Compressor Engine - 3516	1.52	6.66	7.82	34.25	4.59	20.13	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	1.27	5.56
ENG-8	Compressor Engine - 3606	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	1.05	4.59
ENG-9	Compressor Engine - 3606	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	1.05	4.59
ENG-10	Compressor Engine - 3606	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	1.05	4.59
ENG-11	Compressor Engine - 3606	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	1.05	4.59
ENG-12	Compressor Engine - 3606	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	1.05	4.59
ENG-13	Compressor Engine - 3606	2.07	9.05	11.12	48.71	6.24	27.34	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	1.05	4.59
ENG-14	Compressor Engine - 3608	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	1.78	7.79
ENG-15	Compressor Engine - 3608	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	1.78	7.79
ENG-16	Compressor Engine - 3608	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	1.78	7.79
ENG-17	Compressor Engine - 3608	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	1.78	7.79
ENG-18	Compressor Engine - 3608	2.76	12.07	23.32	102.13	8.60	37.67	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	1.78	7.79
GUN-1	Gunbarrel Tank	--	--	--	--	17,350.64	515.85	--	--	--	--	--	--	--	--	0.40	0.01	2,592.91	90.82
COND TK 1-5	Condensate Tank	--	--	--	--	9,987.52	122.79	--	--	--	--	--	--	--	--	0.32	0.01	315.97	3.08
PW TK 1-4	Produced Water Tank	--	--	--	--	6.92	0.05	--	--	--	--	--	--	--	--	0.25	<0.01	0.22	<0.01
HTR-1	Dehy Reboiler Heater	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	<0.01	0.01
HTR-2	Dehy Reboiler Heater	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	<0.01	0.01
LOAD	Hydrocarbon Loadout	--	--	--	--	189.53	17.29	--	--	--	--	--	--	--	--	0.01	<0.01	6.00	0.43
FUG-1	Fugitives	--	--	--	--	7.65	33.52	--	--			--	--	--	--	<0.01	0.01	0.35	1.52
DEHY-1	TEG Dehydrator	--	--	--	--	308.88	1352.88	--	--			--	--	--	--	0.36	1.57	153.26	671.29
DEHY-2	TEG Dehydrator	--	--	--	--	308.88	1352.88	--	--			--	--	--	--	0.36	1.57	153.26	671.29
ECD-1	Combustor	0.02	0.07	0.05	0.23	0.05	0.24	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
ECD-2	Combustor	0.02	0.07	0.05	0.23	0.05	0.24	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
FL-1	Process Flare	0.12	0.51	0.23	1.02	0.27	1.20	<0.01	0.02	<0.01	0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	0.01	0.05
FL-2	Tank Flare	0.02	0.10	0.05	0.20	0.05	0.24	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
HR-1	Road Dust	--	--	--	--	--	--	--	--	2.03	0.17	0.52	0.04	0.05	<0.01	--	--	--	--
SSM	Maintenance Activities	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	<0.01	--	0.46
UP/MAL-1	Upsets/Malfunctions	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--
Facility-Wide Total Emissions		37.30	163.38	238.69	1,045.46	28,273.08	3,910.51	2.26	9.88	4.61	11.45	3.09	11.32	2.63	11.28	1.69	3.16	3,246.06	1,544.44
Facility-Wide Total Emissions Less Fugitives Equipment		37.30	163.38	238.69	1,045.46	28,265.43	3,876.99	2.26	9.88	4.61	11.45	3.09	11.32	2.63	11.28	1.69	3.16	3,245.71	1,542.93

Summary of Controlled Air Emission Units

Unit Name	Unit Description	Potential Emissions Controlled + Product Recovery NOx lb/hr	NOx tpy	CO lb/hr	CO tpy	VOC lb/hr	VOC tpy	SO2 lb/hr	SO2 tpy	PM lb/hr	PM tpy	PM10 lb/hr	PM10 tpy	PM2.5 lb/hr	PM2.5 tpy	H2S lb/hr	H2S tpy	HAPs lb/hr	HAPs tpy	CO2e
ENG-1	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-2	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-3	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-4	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-5	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-6	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-7	Compressor Engine - 3516	1.52	6.66	1.52	6.66	1.52	6.66	0.10	0.43	0.11	0.49	0.11	0.49	0.11	0.49	--	--	0.48	2.10	5,721
ENG-8	Compressor Engine - 3606	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	0.63	2.78	7,209
ENG-9	Compressor Engine - 3606	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	0.63	2.78	7,209
ENG-10	Compressor Engine - 3606	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	0.63	2.78	7,209
ENG-11	Compressor Engine - 3606	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	0.63	2.78	7,209
ENG-12	Compressor Engine - 3606	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	0.63	2.78	7,209
ENG-13	Compressor Engine - 3606	2.07	9.05	2.07	9.05	2.07	9.05	0.12	0.54	0.14	0.61	0.14	0.61	0.14	0.61	--	--	0.63	2.78	7,209
ENG-14	Compressor Engine - 3608	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	0.84	3.69	9,526
ENG-15	Compressor Engine - 3608	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	0.84	3.69	9,526
ENG-16	Compressor Engine - 3608	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	0.84	3.69	9,526
ENG-17	Compressor Engine - 3608	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	0.84	3.69	9,526
ENG-18	Compressor Engine - 3608	2.76	12.07	3.31	14.49	2.76	12.07	0.16	0.71	0.19	0.81	0.19	0.81	0.19	0.81	--	--	0.84	3.69	9,526
GUN-1[1]	Gunbarrel Tank	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COND TK 1-5[1]	Condensate Tank	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PW TK 1-4[1]	Produced Water Tank	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HTR-1	Dehy Reboiler Heater	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	<0.01	0.01	769
HTR-2	Dehy Reboiler Heater	0.15	0.64	0.12	0.54	0.01	0.04	0.01	0.06	0.01	0.05	0.01	0.05	0.01	0.05	--	--	<0.01	0.01	769
LOAD	Hydrocarbon Loadout	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FUG-1	Fugitives	--	--	--	--	7.65	33.52	--	--	--	--	--	--	--	--	<0.01	0.01	0.35	1.52	42,369
DEHY-1[2]	TEG Dehydrator	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DEHY-2[2]	TEG Dehydrator	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ECD-1	Combustor	0.60	2.11	1.89	6.68	2.55	11.16	0.61	2.67	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.03	1.30	5.68	2,522
ECD-2	Combustor	0.60	2.11	1.89	6.68	2.55	11.16	0.61	2.67	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.03	1.30	5.68	2,522
FL-1	Process Flare	369.63	3.76	737.93	7.52	934.15	9.84	15.80	0.16	4.96	0.05	4.96	0.05	4.96	0.05	0.17	<0.01	42.73	0.45	3,195
FL-2	Tank Flare	133.18	6.22	265.88	12.41	606.47	18.44	2.00	0.06	0.80	0.04	0.80	0.04	0.80	0.04	0.02	<0.01	60.07	2.03	5,275
HR-1	Road Dust	--	--	--	--	--	--	--	--	2.03	0.17	0.52	0.04	0.05	<0.01	--	--	--	--	--
SSM	Maintenance Activities	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	<0.01	--	0.46	250
UP/MAL-1	Upsets/Malfunctions	--	--	--	--	--	10.00	--	--	--	--	--	--	--	--	--	--	--	--	250
Facility-Wide Total Emissions		541.14	176.83	1,047.43	207.77	1,590.22	265.52	21.26	15.40	10.39	11.57	8.87	11.44	8.40	11.40	0.20	0.07	117.11	65.62	188,849
Facility-Wide Total Emissions Less Fugitives Equipment		541.14	176.83	1,047.43	207.77	1,582.56	232.00	21.26	15.40	10.39	11.57	8.87	11.44	8.40	11.40	0.20	0.06	116.77	64.11	146,480

1 - Emissions from the tanks are shown at the tank flare.
2 - Emissions from the dehydrator gas waste stream are shown at the combustor.

Summary of Uncontrolled HAP Emissions

Unit Name	Unit Description	Potential Emissions Uncontrolled + No Product Recovered																	
		Formaldehyde		Acetaldehyde		Acrolein		Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		2,2,4-TMP	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-2	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-3	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-4	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-5	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-6	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-7	Compressor Engine - 3516	1.10	4.80	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-8	Compressor Engine - 3606	0.83	3.62	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-9	Compressor Engine - 3606	0.83	3.62	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-10	Compressor Engine - 3606	0.83	3.62	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-11	Compressor Engine - 3606	0.83	3.62	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-12	Compressor Engine - 3606	0.83	3.62	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-13	Compressor Engine - 3606	0.83	3.62	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-14	Compressor Engine - 3608	1.49	6.52	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-15	Compressor Engine - 3608	1.49	6.52	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-16	Compressor Engine - 3608	1.49	6.52	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-17	Compressor Engine - 3608	1.49	6.52	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-18	Compressor Engine - 3608	1.49	6.52	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
GUN-1	Gunbarrel Tank	--	--	--	--	--	--	1,871.91	67.97	274.47	9.80	2.21	0.05	8.97	0.22	430.69	12.72	4.66	0.05
COND TK 1-5	Condensate Tank	--	--	--	--	--	--	28.89	0.29	17.73	0.17	2.44	0.02	8.80	0.08	248.12	2.53	9.99	<0.01
PW TK 1-4	Produced Water Tank	--	--	--	--	--	--	0.02	<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.17	<0.01	0.01	<0.01
HTR-1	Dehy Reboiler Heater	<0.01	<0.01	--	--	--	--	<0.01	<0.01	<0.01	<0.01	--	--	--	--	<0.01	0.01	--	--
HTR-2	Dehy Reboiler Heater	<0.01	<0.01	--	--	--	--	<0.01	<0.01	<0.01	<0.01	--	--	--	--	<0.01	0.01	--	--
LOAD	Hydrocarbon Loadout	--	--	--	--	--	--	0.55	0.04	0.34	0.02	0.05	<0.01	0.17	0.01	4.71	0.36	0.19	<0.01
FUG-1	Fugitives	--	--	--	--	--	--	0.07	0.30	0.06	0.26	0.01	0.03	0.03	0.11	0.18	0.80	<0.01	<0.01
DEHY-1	TEG Dehydrator	--	--	--	--	--	--	81.49	356.91	46.88	205.36	3.52	15.40	16.22	71.02	5.14	22.51	0.02	0.10
DEHY-2	TEG Dehydrator	--	--	--	--	--	--	81.49	356.91	46.88	205.36	3.52	15.40	16.22	71.02	5.14	22.51	0.02	0.10
ECD-1	Combustor	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
ECD-2	Combustor	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
FL-1	Process Flare	--	--	--	--	--	--	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.03	<0.01	<0.01
FL-2	Tank Flare	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
HR-1	Road Dust	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SSM	Maintenance Activities	--	--	--	--	--	--	--	0.09	--	0.08	--	0.01	--	0.03	--	0.24	--	<0.01
UP/MAL-1	Upsets/Malfunctions	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Facility-Wide Total HAP Emissions		20.07	87.91	2.13	9.35	1.31	5.75	2,064.52	783.02	386.49	421.52	11.75	30.95	50.45	142.71	694.45	62.98	14.89	0.25
Facility-Wide Total Emissions Less Fugitives Equipment		20.07	87.91	2.13	9.35	1.31	5.75	2,064.45	782.71	386.43	421.26	11.74	30.92	50.43	142.60	694.27	62.18	14.89	0.25

Summary of Controlled HAP Emissions

Unit Name	Unit Description	Potential Emissions Controlled + Product Recovery																	
		Formaldehyde		Acetaldehyde		Acrolein		Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		2,2,4-TMP	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-2	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-3	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-4	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-5	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-6	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-7	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--
ENG-8	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-9	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-10	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-11	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-12	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-13	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--
ENG-14	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-15	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-16	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-17	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
ENG-18	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--
GUN-1[1]	Gunbarrel Tank	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
COND TK 1-5[1]	Condensate Tank	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PW TK 1-4[1]	Produced Water Tank	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HTR-1	Dehy Reboiler Heater	<0.01	<0.01	--	--	--	--	<0.01	<0.01	<0.01	<0.01	--	--	--	--	<0.01	0.01	--	--
HTR-2	Dehy Reboiler Heater	<0.01	<0.01	--	--	--	--	<0.01	<0.01	<0.01	<0.01	--	--	--	--	<0.01	0.01	--	--
LOAD	Hydrocarbon Loadout	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FUG-1	Fugitives	--	--	--	--	--	--	0.07	0.30	0.06	0.26	0.01	0.03	0.03	0.11	0.18	0.80	<0.01	<0.01
DEHY-1[2]	TEG Dehydrator	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DEHY-2[2]	TEG Dehydrator	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ECD-1	Combustor	--	--	--	--	--	--	0.93	4.07	0.28	1.21	0.01	0.04	0.03	0.14	0.05	0.22	<0.01	<0.01
ECD-2	Combustor	--	--	--	--	--	--	0.93	4.07	0.28	1.21	0.01	0.04	0.03	0.14	0.05	0.22	<0.01	<0.01
FL-1	Process Flare	--	--	--	--	--	--	8.62	0.09	7.58	0.08	0.84	0.01	3.23	0.03	22.33	0.24	0.13	<0.01
FL-2	Tank Flare	--	--	--	--	--	--	38.19	1.38	5.95	0.21	0.11	<0.01	0.41	0.01	15.06	0.42	0.35	<0.01
HR-1	Road Dust	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SSM	Maintenance Activities	--	--	--	--	--	--	--	0.09	--	0.08	--	0.01	--	0.03	--	0.24	--	<0.01
UP/MAL-1	Upsets/Malfunctions	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Facility-Wide Total HAP Emissions		7.37	32.27	2.13	9.35	1.31	5.75	48.85	10.50	14.24	3.50	0.98	0.17	3.77	0.68	37.96	3.40	0.48	0.01
Facility-Wide Total Emissions Less Fugitives Equipment		7.37	32.27	2.13	9.35	1.31	5.75	48.78	10.20	14.18	3.24	0.97	0.14	3.75	0.57	37.78	2.60	0.48	0.01

1 - Emissions from the tanks are shown at the tank flare.
2 - Emissions from the dehydrator gas waste stream are shown at the combustor.

HH / DDDDD Determination

Major Source as used in this subpart, shall have the same meaning as in § 63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment, as defined in this section), and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) Emissions from processes, operations, or equipment that are not part of the same facility, as defined in this section, shall not be aggregated; and

(3) For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels shall be aggregated for a major source determination. For facilities that are not production field facilities, HAP emissions from all HAP emission units shall be aggregated for a major source determination.

§63.761 Definitions.
Production field facilities means those facilities located prior to the point of custody transfer.
Custody transfer means the transfer of hydrocarbon liquids or natural gas: after processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. **For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.**

Summary of Controlled HAP Emissions

Unit Name	Unit Description	Potential Emissions Controlled + Product Recovery																			
		Formaldehyde		Acetaldehyde		Acrolein		Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		2,2,4-TMP		Total HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
GUN-1	Gunbarrel Tank	--	--	--	--	--	--	37.44	1.36	5.49	0.20	0.04	<0.01	0.18	<0.01	8.61	0.25	0.09	<0.01	51.86	1.82
COND TK 1-5	Condensate Tank	--	--	--	--	--	--	0.58	0.01	0.35	<0.01	0.05	<0.01	0.18	<0.01	4.96	0.05	0.20	<0.01	6.32	0.06
PW TK 1-4	Produced Water Tank	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
DEHY-1	TEG Dehydrator	--	--	--	--	--	--	0.93	4.07	0.27	1.20	0.01	0.04	0.03	0.14	0.05	0.21	<0.01	<0.01	1.29	5.67
DEHY-2	TEG Dehydrator	--	--	--	--	--	--	0.93	4.07	0.27	1.20	0.01	0.04	0.03	0.14	0.05	0.21	<0.01	<0.01	1.29	5.67
	Facility-Wide Total HAP Emissions	0.00	0.00	0.00	0.00	0.00	0.00	39.87	9.50	6.39	2.61	0.11	0.08	0.42	0.29	13.68	0.73	0.29	0.00	60.77	13.21

ZZZZ Determination

Major Source as used in this subpart, shall have the same meaning as in § 63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in § 63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in § 63.1271 of subpart HHH of this part, shall not be aggregated.

§ 63.6675 What definitions apply to this subpart?

Production field facility means those oil and gas production facilities located prior to the point of custody transfer.

Custody transfer means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. **For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.**

Summary of Controlled HAP Emissions

Unit Name	Unit Description	Potential Emissions Controlled + Product Recovery																			
		Formaldehyde		Acetaldehyde		Acrolein		Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		2,2,4-TMP		Total HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
ENG-1	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-2	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-3	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-4	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-5	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-6	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-7	Compressor Engine - 3516	0.30	1.33	0.09	0.41	0.06	0.25	<0.01	0.02	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01	0.05	--	--	0.48	2.10
ENG-8	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--	0.63	2.78
ENG-9	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--	0.63	2.78
ENG-10	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--	0.63	2.78
ENG-11	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--	0.63	2.78
ENG-12	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--	0.63	2.78
ENG-13	Compressor Engine - 3606	0.41	1.81	0.12	0.51	0.07	0.32	0.01	0.03	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.07	--	--	0.63	2.78
ENG-14	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--	0.84	3.69
ENG-15	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--	0.84	3.69
ENG-16	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--	0.84	3.69
ENG-17	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--	0.84	3.69
ENG-18	Compressor Engine - 3608	0.55	2.41	0.16	0.68	0.10	0.42	0.01	0.04	0.01	0.03	<0.01	<0.01	<0.01	0.01	0.02	0.09	--	--	0.84	3.69
GUN-1[1]	Gunbarrel Tank	--	--	--	--	--	--	37.44	1.36	5.49	0.20	0.04	<0.01	0.18	<0.01	8.61	0.25	0.09	<0.01	51.86	1.82
COND TK 1-5[1]	Condensate Tank	--	--	--	--	--	--	0.58	0.01	0.35	<0.01	0.05	<0.01	0.18	<0.01	4.96	0.05	0.20	<0.01	6.32	0.06
PW TK 1-4[1]	Produced Water Tank	--	--	--	--	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
DEHY-1[2]	TEG Dehydrator	--	--	--	--	--	--	0.93	4.07	0.27	1.20	0.01	0.04	0.03	0.14	0.05	0.21	<0.01	<0.01	1.29	5.67
DEHY-2[2]	TEG Dehydrator	--	--	--	--	--	--	0.93	4.07	0.27	1.20	0.01	0.04	0.03	0.14	0.05	0.21	<0.01	<0.01	1.29	5.67
	Facility-Wide Total HAP Emissions	7.37	32.27	2.13	9.35	1.31	5.75	39.99	10.00	6.50	3.06	0.12	0.12	0.47	0.49	13.96	1.97	0.29	0.00	72.14	63.01

1 - Emissions from the tanks are shown at the tank flares.
2 - Emissions from amine acid gas waste stream and the amine flash gas stream are shown at the thermal oxidizer and flare respectively.

ProMax Run: Aztec 140 MM 031222 No 3phz

Process Streams		1	34 GB	42	43	44	46
Composition	**Status:**	**Solved**	**Solved**	**Solved**	**Solved**	**Solved**	**Solved**
Phase: **Total**	**From Block:**	**--**	**MIX-103**	**Gunbbl**	**Gunbbl**	**Gunbbl**	**VSSL-101**
	To Block:	**SAT-2**	**Gunbbl**	**--**	**--**	**VSSL-101**	**PUMP-100**
Mole Fraction		**%**	**%**	**%**	**%**	**%**	**%**
Methane		68.5232*	0.00413094	39.5454	0.000921240	0.133334	0.133334
Ethane		14.4704*	0.00249873	13.8462	0.000512994	0.344524	0.344524
Propane		7.94400*	0.00521777	14.5994	0.000386657	1.30840	1.30840
i-Butane		1.00390*	0.00183070	2.32035	4.66525E-05	0.558864	0.558864
n-Butane		2.68650*	0.0132793	11.0806	0.000268197	4.21993	4.21993
i-Pentane		0.556000*	0.00775608	2.54582	4.63737E-05	2.59960	2.59960
n-Pentane		0.622400*	0.0135637	3.28868	2.12334E-05	4.59548	4.59548
Cyclohexane		0.213667*	0.0513171	2.32968	0.000229662	17.5847	17.5847
n-Hexane		0.213667*	0.0102859	0.735260	3.36560E-06	3.53272	3.53272
n-Heptane		0.343000*	0.0170996	0.356667	1.27383E-06	5.89575	5.89575
C8		0.151100*	0.00229849	0.0136802	1.97639E-08	0.793394	0.793394
Water		0*	99.6817	2.20846	99.9779	0.0875464	0.0875464
N2		2.76590*	7.80078E-05	0.917100	1.03950E-05	0.000724533	0.000724533
CO2		0.337200*	0.000682052	1.12256	0.000561574	0.0144740	0.0144740
H2S		1.00000E-04*	2.67059E-06	0.00151927	2.33778E-06	7.98282E-05	7.98282E-05
Triethylene Glycol		0*	8.48369E-06	4.68383E-13	8.50892E-06	8.56532E-09	8.56532E-09
EG		0*	0	0	0	0	0
MeOH		0*	0	0	0	0	0
2,2,4-Trimethylpentane		0.001000000*	5.03196E-05	0.00118524	9.17838E-09	0.0173445	0.0173445
Benzene		0.0570000*	0.131331	4.52371	0.0174529	39.2316	39.2316
Toluene		0.0360000*	0.0522498	0.551494	0.00158977	17.4825	17.4825
Ethylbenzene		0.00300000*	0.000972886	0.00226048	6.15190E-06	0.333793	0.333793
m-Xylene		0.0130000*	0.00361854	0.00994432	1.64175E-05	1.24369	1.24369
Nonane		0.0370000*	6.12888E-05	0.000119913	2.14225E-10	0.0211618	0.0211618
Decane		0.0110000*	1.00658E-06	6.21414E-07	3.11201E-13	0.000347588	0.000347588
Undecane		0.00900000*	2.37576E-08	4.35274E-09	2.56055E-15	8.20411E-06	8.20411E-06
Dodecane		0.00200000*	2.32981E-10	1.43670E-11	3.52586E-17	8.04548E-08	8.04548E-08
UCARSOL™ AP-814		0*	0	0	0	0	0
VOC		13.90323*	0.31094*	42.35884*	0.02008*	99.41932*	99.41932*

Process Streams		1	34 GB	42	43	44	46
Compositior	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	MIX-103	Gunbbl	Gunbbl	Gunbbl	VSSL-101
	To Block:	SAT-2	Gunbbl	--	--	VSSL-101	PUMP-100
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Methane		10533.2*	0.00738800	0.00505476	0.00164271	0.000690534	0.000690534
Ethane		2224.35*	0.00446886	0.00176984	0.000914745	0.00178428	0.00178428
Propane		1221.13*	0.00933174	0.00186612	0.000689467	0.00677615	0.00677615
i-Butane		154.317*	0.00327412	0.000296592	8.31883E-05	0.00289434	0.00289434
n-Butane		412.962*	0.0237495	0.00141634	0.000478235	0.0218549	0.0218549
i-Pentane		85.4669*	0.0138714	0.000325411	8.26912E-05	0.0134633	0.0134633
n-Pentane		95.6737*	0.0242581	0.000420365	3.78622E-05	0.0237999	0.0237999
Cyclohexane		32.8444*	0.0917783	0.000297783	0.000409522	0.0910710	0.0910710
n-Hexane		32.8444*	0.0183958	9.39822E-05	6.00136E-06	0.0182958	0.0182958
n-Heptane		52.7251*	0.0305818	4.55899E-05	2.27144E-06	0.0305339	0.0305339
C8		23.2267*	0.00411075	1.74862E-06	3.52420E-08	0.00410897	0.00410897
Water		0*	178.276	0.000282289	178.275	0.000453400	0.000453400
N2		425.167*	0.000139514	0.000117225	1.85358E-05	3.75234E-06	3.75234E-06
CO2		51.8335*	0.00121982	0.000143488	0.00100137	7.49604E-05	7.49604E-05
H2S		0.0153717*	4.77623E-06	1.94195E-07	4.16860E-06	4.13428E-07	4.13428E-07
Triethylene Glycol		0*	1.51727E-05	5.98696E-17	1.51727E-05	4.43596E-11	4.43596E-11
EG		0*	0	0	0	0	0
MeOH		0*	0	0	0	0	0
2,2,4-Trimethylpentane		0.153717*	8.99943E-05	1.51499E-07	1.63664E-08	8.98265E-05	8.98265E-05
Benzene		8.76189*	0.234879	0.000578229	0.0311211	0.203180	0.203180
Toluene		5.53383*	0.0934465	7.04929E-05	0.00283480	0.0905412	0.0905412
Ethylbenzene		0.461152*	0.00173996	2.88938E-07	1.09697E-05	0.00172870	0.00172870
m-Xylene		1.99833*	0.00647160	1.27110E-06	2.92749E-05	0.00644105	0.00644105
Nonane		5.68754*	0.000109612	1.53275E-08	3.81995E-10	0.000109596	0.000109596
Decane		1.69089*	1.80023E-06	7.94303E-11	5.54917E-13	1.80015E-06	1.80015E-06
Undecane		1.38346*	4.24894E-08	5.56375E-13	4.56584E-15	4.24889E-08	4.24889E-08
Dodecane		0.307435*	4.16675E-10	1.83642E-15	6.28713E-17	4.16673E-10	4.16673E-10
UCARSOL™ AP-814		0*	0	0	0	0	0
VOC		2137.16927*	0.55611*	0.00541*	0.03580*	0.51489*	0.51489*

Process Streams		1	34 GB	42	43	44	46
Compositior	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	MIX-103	Gunbbl	Gunbbl	Gunbbl	VSSL-101
	To Block:	SAT-2	Gunbbl	--	--	VSSL-101	PUMP-100
Mass Fraction		%	%	%	%	%	%
Methane		46.1458*	0.00363850	17.0923	0.000819797	0.0261412	0.0261412
Ethane		18.2652*	0.00412516	11.2172	0.000855647	0.126605	0.126605
Propane		14.7048*	0.0126323	17.3446	0.000945767	0.705094	0.705094
i-Butane		2.44938*	0.00584199	3.63355	0.000150411	0.396973	0.396973
n-Butane		6.55469*	0.0423761	17.3516	0.000864685	2.99751	2.99751
i-Pentane		1.68394*	0.0307237	4.94870	0.000185594	2.29218	2.29218
n-Pentane		1.88505*	0.0537291	6.39271	8.49787E-05	4.05202	4.05202
Cyclohexane		0.754856*	0.237119	5.28243	0.00107215	18.0864	18.0864
n-Hexane		0.772937*	0.0486661	1.70710	1.60882E-05	3.72052	3.72052
n-Heptane		1.44276*	0.0940726	0.962885	7.08030E-06	7.21984	7.21984
C8		0.724540*	0.0144152	0.0421018	1.25231E-07	1.10758	1.10758
Water		0*	98.5958	1.07193	99.9097	0.0192749	0.0192749
N2		3.25256*	0.000119979	0.692177	1.61530E-05	0.000248048	0.000248048
CO2		0.622956*	0.00164803	1.33104	0.00137093	0.00778479	0.00778479
H2S		0.000143065*	4.99712E-06	0.00139502	4.41953E-06	3.32491E-05	3.32491E-05
Triethylene Glycol		0*	6.99485E-05	1.89508E-12	7.08808E-05	1.57198E-08	1.57198E-08
EG		0*	0	0	0	0	0
MeOH		0*	0	0	0	0	0
2,2,4-Trimethylpentane		0.00479510*	0.000315583	0.00364766	5.81572E-08	0.0242129	0.0242129
Benzene		0.186902*	0.563229	9.52021	0.0756218	37.4512	37.4512
Toluene		0.139241*	0.264319	1.36904	0.00812528	19.6859	19.6859
Ethylbenzene		0.0133698*	0.00567081	0.00646571	3.62287E-05	0.433082	0.433082
m-Xylene		0.0579359*	0.0210920	0.0284440	9.66834E-05	1.61364	1.61364
Nonane		0.199205*	0.000431576	0.000414358	1.52408E-09	0.0331696	0.0331696
Decane		0.0656999*	7.86323E-06	2.38213E-06	2.45614E-12	0.000604403	0.000604403
Undecane		0.0590538*	2.03886E-07	1.83307E-08	2.22012E-14	1.56720E-05	1.56720E-05
Dodecane		0.0143007*	2.17884E-09	6.59333E-11	3.33143E-16	1.67482E-07	1.67482E-07
UCARSOL™ AP-814		0*	0	0	0	0	0
VOC		31.71341*	1.39471*	68.59395*	0.08728*	99.81991*	99.81991*

Process Streams		1	34 GB	42	43	44	46
Compositior	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	MIX-103	Gunbbl	Gunbbl	Gunbbl	VSSL-101
	To Block:	SAT-2	Gunbbl	--	--	VSSL-101	PUMP-100
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Methane		168979*	0.118522	0.0810908	0.0263531	0.0110779	0.0110779
Ethane		66884.1*	0.134374	0.0532174	0.0275055	0.0536516	0.0536516
Propane		53846.5*	0.411489	0.0822878	0.0304025	0.298799	0.298799
i-Butane		8969.24*	0.190299	0.0172386	0.00483509	0.168226	0.168226
n-Butane		24002.3*	1.38037	0.0823209	0.0277960	1.27026	1.27026
i-Pentane		6166.33*	1.00080	0.0234780	0.00596607	0.971360	0.971360
n-Pentane		6902.74*	1.75019	0.0303288	0.00273171	1.71713	1.71713
Cyclohexane		2764.16*	7.72401	0.0250613	0.0344651	7.66448	7.66448
n-Hexane		2830.38*	1.58527	0.00809895	0.000517169	1.57665	1.57665
n-Heptane		5283.15*	3.06436	0.00456819	0.000227602	3.05956	3.05956
C8		2653.15*	0.469565	0.000199743	4.02564E-06	0.469361	0.469361
Water		0*	3211.69	0.00508551	3211.68	0.00816813	0.00816813
N2		11910.4*	0.00390825	0.00328388	0.000519251	0.000105116	0.000105116
CO2		2281.17*	0.0536836	0.00631484	0.0440698	0.00329897	0.00329897
H2S		0.523882*	0.000162778	6.61834E-06	0.000142070	1.40900E-05	1.40900E-05
Triethylene Glycol		0*	0.00227853	8.99079E-15	0.00227852	6.66161E-09	6.66161E-09
EG		0*	0	0	0	0	0
MeOH		0*	0	0	0	0	0
2,2,4-Trimethylpentane		17.5589*	0.0102799	1.73055E-05	1.86951E-06	0.0102607	0.0102607
Benzene		684.408*	18.3468	0.0451665	2.43093	15.8707	15.8707
Toluene		509.878*	8.61001	0.00649511	0.261194	8.34232	8.34232
Ethylbenzene		48.9582*	0.184723	3.06751E-05	0.00116460	0.183528	0.183528
m-Xylene		212.152*	0.687057	0.000134946	0.00310797	0.683814	0.683814
Nonane		729.457*	0.0140583	1.96583E-06	4.89928E-08	0.0140563	0.0140563
Decane		240.583*	0.000256140	1.13015E-08	7.89546E-11	0.000256128	0.000256128
Undecane		216.246*	6.64145E-06	8.69660E-11	7.13678E-13	6.64136E-06	6.64136E-06
Dodecane		52.3669*	7.09743E-08	3.12806E-13	1.07092E-14	7.09740E-08	7.09740E-08
UCARSOL™ AP-814		0*	0	0	0	0	0
VOC		116129.55202*	45.43186*	0.32543*	2.80562*	42.30081*	42.30081*

Process Streams		1	34 GB	42	43	44	46
Compositior	Status:	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	--	MIX-103	Gunbbl	Gunbbl	Gunbbl	VSSL-101
	To Block:	SAT-2	Gunbbl	--	--	VSSL-101	PUMP-100
Std Vapor Volumetric Flow		MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD
Methane		95.9324*	6.72871E-05	4.60368E-05	1.49612E-05	6.28912E-06	6.28912E-06
Ethane		20.2586*	4.07007E-05	1.61190E-05	8.33114E-06	1.62505E-05	1.62505E-05
Propane		11.1216*	8.49899E-05	1.69959E-05	6.27940E-06	6.17146E-05	6.17146E-05
i-Butane		1.40546*	2.98195E-05	2.70124E-06	7.57647E-07	2.63606E-05	2.63606E-05
n-Butane		3.76110*	0.000216301	1.28995E-05	4.35558E-06	0.000199046	0.000199046
i-Pentane		0.778400*	0.000126335	2.96372E-06	7.53120E-07	0.000122618	0.000122618
n-Pentane		0.871360*	0.000220933	3.82852E-06	3.44834E-07	0.000216760	0.000216760
Cyclohexane		0.299134*	0.000835881	2.71210E-06	3.72977E-06	0.000829439	0.000829439
n-Hexane		0.299134*	0.000167542	8.55954E-07	5.46581E-08	0.000166632	0.000166632
n-Heptane		0.480200*	0.000278527	4.15215E-07	2.06874E-08	0.000278092	0.000278092
C8		0.211540*	3.74392E-05	1.59258E-08	3.20971E-10	3.74229E-05	3.74229E-05
Water		0*	1.62367	2.57098E-06	1.62366	4.12940E-06	4.12940E-06
N2		3.87226*	1.27064E-06	1.06764E-06	1.68817E-07	3.41749E-08	3.41749E-08
CO2		0.472080*	1.11096E-05	1.30683E-06	9.12010E-06	6.82711E-07	6.82711E-07
H2S		0.000140000*	4.35001E-08	1.76866E-09	3.79661E-08	3.76535E-09	3.76535E-09
Triethylene Glycol		0*	1.38187E-07	5.45269E-19	1.38187E-07	4.04010E-13	4.04010E-13
EG		0*	0	0	0	0	0
MeOH		0*	0	0	0	0	0
2,2,4-Trimethylpentane		0.00140000*	8.19634E-07	1.37979E-09	1.49059E-10	8.18105E-07	8.18105E-07
Benzene		0.0798000*	0.00213919	5.26629E-06	0.000283439	0.00185048	0.00185048
Toluene		0.0504000*	0.000851075	6.42023E-07	2.58183E-05	0.000824615	0.000824615
Ethylbenzene		0.00420000*	1.58469E-05	2.63154E-09	9.99082E-08	1.57444E-05	1.57444E-05
m-Xylene		0.0182000*	5.89408E-05	1.15767E-08	2.66625E-07	5.86626E-05	5.86626E-05
Nonane		0.0518000*	9.98306E-07	1.39597E-10	3.47906E-12	9.98163E-07	9.98163E-07
Decane		0.0154000*	1.63958E-08	7.23421E-13	5.05398E-15	1.63951E-08	1.63951E-08
Undecane		0.0126000*	3.86977E-10	5.06725E-15	4.15839E-17	3.86972E-10	3.86972E-10
Dodecane		0.00280000*	3.79492E-12	1.67254E-17	5.72608E-19	3.79490E-12	3.79490E-12
UCARSOL™ AP-814		0*	0	0	0	0	0
VOC		19.46452*	0.00506*	0.00005*	0.00033*	0.00469*	0.00469*

Process Streams		1	34 GB	42	43	44	46
Properties	**Status:**	**Solved**	**Solved**	**Solved**	**Solved**	**Solved**	**Solved**
Phase: Total	**From Block:**	**--**	**MIX-103**	**Gunbbl**	**Gunbbl**	**Gunbbl**	**VSSL-101**
	To Block:	**SAT-2**	**Gunbbl**	**--**	**--**	**VSSL-101**	**PUMP-100**
Property	**Units**						
Temperature	°F	75*	62.8244	62.8697	62.8697	62.8697	62.8697
Pressure	psig	25*	25	0.125*	0.125	0.125	0.125
Mole Fraction Vapor	%	99.9650	0	100	0	0	0
Mole Fraction Light Liquid	%	0.0349824	0.294190	0	100	100	100
Mole Fraction Heavy Liquid	%	0	99.7058	0	0	0	0
Molecular Weight	lb/lbmol	23.8219	18.2137	37.1163	18.0276	81.8253	81.8253
Mass Density	lb/ft^3	0.158660	62.1380	0.0861177	62.3477	49.7480	49.7480
Molar Flow	lbmol/h	15371.7	178.845	0.0127822	178.315	0.517897	0.517897
Mass Flow	lb/h	366184	3257.44	0.474428	3214.59	42.3771	42.3771
Vapor Volumetric Flow	ft^3/h	2.30798E+06	52.4226	5.50906	51.5590	0.851835	0.851835
Liquid Volumetric Flow	gpm	287748	6.53581	0.686844	6.42813	0.106203	0.106203
Std Vapor Volumetric Flow	MMSCFD	140*	1.62886	0.000116415	1.62402	0.00471681	0.00471681
Std Liquid Volumetric Flow	sgpm	1949.90	6.53586	0.00193100	6.42728	0.106647	0.106647
Compressibility		0.987816	0.00197339	0.989549	0.000663868	0.00377639	0.00377639
Specific Gravity			0.996300	1.28153	0.999663	0.797643	0.797643
API Gravity			10.4687		9.99308	45.5606	45.5606
Enthalpy	Btu/h	-5.36829E+08	-2.19639E+07	-512.766	-2.19519E+07	-11432.1	-11432.1
Mass Enthalpy	Btu/lb	-1466.01	-6742.68	-1080.81	-6828.84	-269.771	-269.771
Mass Cp	Btu/(lb*°F)	0.459953	0.975170	0.394989	0.982576	0.418780	0.418780
Ideal Gas CpCv Ratio		1.22435	1.32363	1.15775	1.32606	1.09135	1.09135
Dynamic Viscosity	cP		1.08324	0.00897717	1.09156	0.550770	0.550770
Kinematic Viscosity	cSt		1.08830	6.50768	1.09297	0.691152	0.691152
Thermal Conductivity	Btu/(h*ft*°F)		0.338794	0.0124194	0.343254	0.0759102	0.0759102
Surface Tension	lbf/ft		0.00502916?		0.00508507?	0.00172469?	0.00172469?
Net Ideal Gas Heating Value	Btu/ft^3	1249.07	12.2285	1876.54	0.743537	3920.54	3920.54
Net Liquid Heating Value	Btu/lb	19818.4	-792.583	19042.7	-1043.32	18005.1	18005.1
Gross Ideal Gas Heating Value	Btu/ft^3	1372.60	63.0849	2038.04	51.0762	4148.98	4148.98
Gross Liquid Heating Value	Btu/lb	21786.8	267.016	20694.4	16.1970	19064.6	19064.6

Engine Emission Detail Sheet

Item	Value
Source Name	ENG 1-7
Description	Compressor Engine - 3516
Make	Caterpillar
Model	G3516
Serial Number	TBD
Manufacture Date	After 7/1/2010
Fuel Type	Natural Gas
Engine Type	4SLB
JJJJ Engine?	Yes
ZZZZ Engine?	Yes

Item	Value	Units	Source
Rated Horsepower	1,380	hp	Manufacturer
Heat Rate	11.15	MMBtu/hr	Calculated
Fuel Consumption	8083	Btu/hp-hr	GERP
Fuel Heat Value	1334	btu/scf	GERP
Emisson Controls	Oxidation Catalyst		Manufacturer
Control Efficiency CH2O	72%		Catalyst
Control Efficiency HAPs	0%		Engineering Estimation
Control Efficiency NOx	0%		Catalyst
Control Efficiency VOC	67%		Catalyst
Control Efficiency CO	81%		Catalyst
Engine Speed	1400	RPM	Manufacturer
Potential Operation	8760	hr/yr	
Sulfur Content	29,611	grains/MMscf	AP-42
	0.030	grains/dscf	
SO2/NOx Ratio	6.38%		

Stack Information	
Height (ft)	25.0
Temperature (°F)	839
Exit Velocity (ft/s)	126.5
Diameter (ft)	1.2
Flow Rate (acfs)	136.0
Flow Rate (acfm)	8,161

Fuel Use		
1300	Fuel Heat Value (LHV)[5]	
75.16	MMscf/yr	
8,580.42	scf/hr	

Potential Emissions Per Engine

Pollutant	Uncontrolled Emissions				Controlled Emissions				Source of Emission Factor
	EF	Units	(lb/hr)	(tpy)	EF	Units	(lb/hr)	(tpy)	
NOx[1]	0.50	g/hp-hr	1.52	6.66	0.50	g/hp-hr	1.52	6.66	Catalyst Spec
VOC (less Aldehydes)[1]	1.12	g/hp-hr	3.41	14.92	0.37	g/hp-hr	1.12	4.92	Engineering Calculation
VOC (less Formaldehyde)[1]	1.15	g/hp-hr	3.50	15.33	0.40	g/hp-hr	1.22	5.33	Catalyst Spec
Total VOC[2]	1.51	g/hp-hr	4.59	20.13	0.50	g/hp-hr	1.52	6.66	Catalyst Spec + Aldehydes
CO[1]	2.57	g/hp-hr	7.82	34.25	0.50	g/hp-hr	1.52	6.66	Catalyst Spec
SO2[3]	8.71E-03	lb/mmBtu	0.10	0.43	8.71E-03	lb/mmBtu	0.10	0.43	EPA AP-42 Table 3.2-2
PM10[4]	9.99E-03	lb/mmBtu	0.11	0.49	9.99E-03	lb/mmBtu	0.11	0.49	EPA AP-42 Table 3.2-2
Formaldehyde	0.36	g/hp-hr	1.10	4.80	0.10	g/hp-hr	0.30	1.33	Catalyst Spec
Acetaldehyde	8.36E-03	lb/mmBtu	0.09	0.41	8.36E-03	lb/mmBtu	0.09	0.41	EPA AP-42 Table 3.2-2
Acrolein	5.14E-03	lb/mmBtu	0.06	0.25	5.14E-03	lb/mmBtu	0.06	0.25	EPA AP-42 Table 3.2-2
Benzene	4.40E-04	lb/mmBtu	0.005	0.02	4.40E-04	lb/mmBtu	0.005	0.02	EPA AP-42 Table 3.2-2
Ethylbenzene	3.97E-05	lb/mmBtu	0.000	0.002	3.97E-05	lb/mmBtu	0.000	0.002	EPA AP-42 Table 3.2-2
n-Hexane	1.11E-03	lb/mmBtu	0.01	0.05	1.11E-03	lb/mmBtu	0.01	0.05	EPA AP-42 Table 3.2-2
Toluene	4.08E-04	lb/mmBtu	0.005	0.02	4.08E-04	lb/mmBtu	0.005	0.02	EPA AP-42 Table 3.2-2
Xylene	1.84E-04	lb/mmBtu	0.002	0.01	1.84E-04	lb/mmBtu	0.002	0.01	EPA AP-42 Table 3.2-2
Total HAPs			1.27	5.56			0.48	2.10	

1 - Uncontrolled and controlled NOx, VOC, and CO emission factors were taken from manufacture spec sheet and catalyst technical data sheets.

2- Total VOC emissions include Formaldehyde and Acetaldehyde.

3 - Sulfur emission factor from AP-42 Table 3.2-2 is ratio adjusted based on the max sulfur content when sulfur content is greater than 2,000 grains/MMscf.

4 - PM10 emissions include filterable and condensable particulates.

5 - Fuel heating value used for fuel use and is not used in the emissions calculations.

Sample Calculation for NOx

0.50 g/hp-hr * 1380 hp / 453.59 g/lb * 8760 hr/yr / 2000 lb/ton = 6.66 tpy

Engine Emission Detail Sheet

Item	Value
Source Name	ENG 8-13
Description	Compressor Engine - 3606
Make	Caterpillar
Model	3606
Serial Number	TBD
Manufacture Date	After 7/1/2010
Fuel Type	Natural Gas
Engine Type	4SLB
JJJJ Engine?	Yes
ZZZZ Engine?	Yes

Item	Value	Units	Source
Rated Horsepower	1,875	hp	Manufacturer
Heat Rate	14.06	MMBtu/hr	Calculated
Fuel Consumption	7496	Btu/hp-hr	Manufacturer
Fuel Heat Value	1198	btu/scf	GERP
Emisson Controls	Oxidation Catalyst		Manufacturer
Control Efficiency CH2O	50%		Manufacturer
Control Efficiency HAPs	0%		Engineering Estimation
Control Efficiency NOx	0%		Manufacturer
Control Efficiency VOC	67%		Manufacturer
Control Efficiency CO	81%		Manufacturer
Engine Speed	1000	RPM	Manufacturer
Potential Operation	8760	hr/yr	
Sulfur Content	29,611	grains/MMscf	AP-42
	0.030	grains/dscf	
SO2/NOx Ratio	5.92%		

Stack Information	
Height (ft)	25.0
Temperature (°F)	806
Exit Velocity (ft/s)	90.8
Diameter (ft)	1.7
Flow Rate (acfs)	198.8
Flow Rate (acfm)	11,927

Fuel Use		
1334	Fuel Heat Value (LHV)[5]	
92.30	MMscf/yr	
10,535.98	scf/hr	

Potential Emissions Per Engine

Pollutant	Uncontrolled Emissions				Controlled Emissions				Source of Emission Factor
	EF	Units	(lb/hr)	(tpy)	EF	Units	(lb/hr)	(tpy)	
NOx[1]	0.50	g/hp-hr	2.07	9.05	0.50	g/hp-hr	2.07	9.05	Catalyst Spec
VOC (less Aldehydes)[1]	1.28	g/hp-hr	5.30	23.21	0.37	g/hp-hr	1.54	6.73	Engineering Calculation
VOC (less Formaldehyde)[1]	1.31	g/hp-hr	5.42	23.72	0.40	g/hp-hr	1.65	7.24	Catalyst Spec
Total VOC[2]	1.51	g/hp-hr	6.24	27.34	0.50	g/hp-hr	2.07	9.05	Catalyst Spec + Aldehydes
CO[1]	2.69	g/hp-hr	11.12	48.71	0.50	g/hp-hr	2.07	9.05	Catalyst Spec
SO2[3]	8.71E-03	lb/mmBtu	0.12	0.54	8.71E-03	lb/mmBtu	0.12	0.54	EPA AP-42 Table 3.2-2
PM10[4]	9.99E-03	lb/mmBtu	0.14	0.61	9.99E-03	lb/mmBtu	0.14	0.61	EPA AP-42 Table 3.2-2
Formaldehyde	0.20	g/hp-hr	0.83	3.62	0.10	g/hp-hr	0.41	1.81	Catalyst Spec
Acetaldehyde	8.36E-03	lb/mmBtu	0.12	0.51	8.36E-03	lb/mmBtu	0.12	0.51	EPA AP-42 Table 3.2-2
Acrolein	5.14E-03	lb/mmBtu	0.07	0.32	5.14E-03	lb/mmBtu	0.07	0.32	EPA AP-42 Table 3.2-2
Benzene	4.40E-04	lb/mmBtu	0.006	0.03	4.40E-04	lb/mmBtu	0.006	0.03	EPA AP-42 Table 3.2-2
Ethylbenzene	3.97E-05	lb/mmBtu	0.001	0.002	3.97E-05	lb/mmBtu	0.001	0.002	EPA AP-42 Table 3.2-2
n-Hexane	1.11E-03	lb/mmBtu	0.02	0.07	1.11E-03	lb/mmBtu	0.02	0.07	EPA AP-42 Table 3.2-2
Toluene	4.08E-04	lb/mmBtu	0.006	0.03	4.08E-04	lb/mmBtu	0.006	0.03	EPA AP-42 Table 3.2-2
Xylene	1.84E-04	lb/mmBtu	0.003	0.01	1.84E-04	lb/mmBtu	0.003	0.01	EPA AP-42 Table 3.2-2
Total HAPs			1.05	4.59			0.63	2.78	

1 - Uncontrolled and controlled NOx, VOC, and CO emission factors were taken from catalyst technical data sheets.

2- Total VOC emissions include Formaldehyde and Acetaldehyde.

3 - Sulfur emission factor from AP-42 Table 3.2-2 is ratio adjusted based on the max sulfur content when sulfur content is greater than 2,000 grains/MMscf.

4 - PM10 emissions include filterable and condensable particulates.

5 - Fuel heating value used for fuel use and is not used in the emissions calculations.

Sample Calculation for NOx

0.50 g/hp-hr * 1875 hp / 453.59 g/lb * 8760 hr/yr / 2000 lb/ton = 9.05 tpy

Engine Emission Detail Sheet

Item	Value
Source Name	ENG 14-18
Description	Compressor Engine - 3608
Make	Caterpillar
Model	3608
Serial Number	TBD
Manufacture Date	After 7/1/2010
Fuel Type	Natural Gas
Engine Type	4SLB
JJJJ Engine?	Yes
ZZZZ Engine?	Yes

Item	Value	Units	Source
Rated Horsepower	2,500	hp	Manufacturer
Heat Rate	18.57	MMBtu/hr	Calculated
Fuel Consumption	7429	Btu/hp-hr	Manufacturer
Fuel Heat Value	1334	btu/scf	GERP
Emisson Controls	Oxidation Catalyst		Manufacturer
Control Efficiency CH2O	63%		EPA
Control Efficiency HAPs	0%		Engineering Estimation
Control Efficiency NOx	0%		Draft Ozone
Control Efficiency VOC	68%		Current Permit Condition
Control Efficiency CO	86%		Current Permit Condition
Engine Speed	1000	RPM	Manufacturer
Potential Operation	8760	hr/yr	
Sulfur Content	29,611	grains/MMscf	AP-42
	0.030	grains/dscf	
SO2/NOx Ratio	5.87%		

Stack Information	
Height (ft)	25.0
Temperature (°F)	857
Exit Velocity (ft/s)	84.9
Diameter (ft)	2.0
Flow Rate (acfs)	266.7
Flow Rate (acfm)	16,003

Fuel Use	
1300	Fuel Heat Value (LHV)[5]
125.15	MMscf/yr
14,286.54	scf/hr

Potential Emissions Per Engine

Pollutant	Uncontrolled Emissions				Controlled Emissions				Source of Emission Factor
	EF	Units	(lb/hr)	(tpy)	EF	Units	(lb/hr)	(tpy)	
NOx[1]	0.50	g/hp-hr	2.76	12.07	0.50	g/hp-hr	2.76	12.07	Catalyst Spec
VOC (less Aldehydes)[1]	1.26	g/hp-hr	6.96	30.47	0.37	g/hp-hr	2.05	8.98	Engineering Calculation
VOC (less Formaldehyde)[1]	1.29	g/hp-hr	7.11	31.15	0.40	g/hp-hr	2.21	9.66	Catalyst Spec
Total VOC[2]	1.56	g/hp-hr	8.60	37.67	0.50	g/hp-hr	2.76	12.07	Catalyst Spec + Aldehydes
CO[1]	4.23	g/hp-hr	23.32	102.13	0.60	g/hp-hr	3.31	14.49	Catalyst Spec
SO2[3]	8.71E-03	lb/mmBtu	0.16	0.71	8.71E-03	lb/mmBtu	0.16	0.71	EPA AP-42 Table 3.2-2
PM10[4]	9.99E-03	lb/mmBtu	0.19	0.81	9.99E-03	lb/mmBtu	0.19	0.81	EPA AP-42 Table 3.2-2
Formaldehyde	0.27	g/hp-hr	1.49	6.52	0.10	g/hp-hr	0.55	2.41	Catalyst Spec
Acetaldehyde	8.36E-03	lb/mmBtu	0.16	0.68	8.36E-03	lb/mmBtu	0.16	0.68	EPA AP-42 Table 3.2-2
Acrolein	5.14E-03	lb/mmBtu	0.10	0.42	5.14E-03	lb/mmBtu	0.10	0.42	EPA AP-42 Table 3.2-2
Benzene	4.40E-04	lb/mmBtu	0.008	0.04	4.40E-04	lb/mmBtu	0.008	0.04	EPA AP-42 Table 3.2-2
Ethylbenzene	3.97E-05	lb/mmBtu	0.001	0.003	3.97E-05	lb/mmBtu	0.001	0.003	EPA AP-42 Table 3.2-2
n-Hexane	1.11E-03	lb/mmBtu	0.02	0.09	1.11E-03	lb/mmBtu	0.02	0.09	EPA AP-42 Table 3.2-2
Toluene	4.08E-04	lb/mmBtu	0.008	0.03	4.08E-04	lb/mmBtu	0.008	0.03	EPA AP-42 Table 3.2-2
Xylene	1.84E-04	lb/mmBtu	0.003	0.01	1.84E-04	lb/mmBtu	0.003	0.01	EPA AP-42 Table 3.2-2
Total HAPs			1.78	7.79			0.84	3.69	

1 - Uncontrolled and controlled NOx, VOC, and CO emission factors were taken from catalyst technical data sheets.

2- Total VOC emissions include Formaldehyde and Acetaldehyde.

3 - Sulfur emission factor from AP-42 Table 3.2-3 is ratio adjusted based on the max sulfur content when sulfur content is greater than 2,000 grains/MMscf.

4 - PM10 emissions include filterable and condensable particulates.

5 - Fuel heating value used for fuel use and is not used in the emissions calculations.

Sample Calculation for NOx

0.50 g/hp-hr * 2500 hp / 453.59 g/lb * 8760 hr/yr / 2000 lb/ton = 12.07 tpy

Tank Detail Sheet

Equipment Source Name	GUN-1		Potential Gunbarrel Throughput (Condensate + PW)	492,750 bbl/yr
Source Description	Gunbarrel Tank			492,750 bbl/yr/tank
Quantity	1			1,350 avg. bbl/day
Tank Capacity	750	bbl		1,350 avg. bbl/day/tank
Tank Height	24	ft	Condensate Throughput	365,000 bbl/yr
Tank Diameter	15.5	ft	Potential Condensate Throughput	1,000 avg. bbl/day
Control Efficiency	98%		Potential Produced Water Throughput	350 avg. bbl/day
Construction Date	After 9/18/2015		Max hrly Throughput (TCEQ APDG 6250 & 6419)	5,000 bbl/hr/tank
OOOOa Applicable?	No		Turnovers/year	657 per tank
			Potential Operation	8,760 hr/yr

Total Potential Emissions

Pollutant	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	17,350.64	515.85	347.01	10.32
H2S	0.40	0.01	0.01	0.00
Benzene	1,871.91	67.97	37.44	1.36
Toluene	274.47	9.80	5.49	0.20
Ethylbenzene	2.21	0.05	0.04	0.001
Xylenes	8.97	0.22	0.18	0.004
n-Hexane	430.69	12.72	8.61	0.25
2,2,4-Trimethylpentane	4.66	0.05	0.09	0.001
Total HAPs	2,592.91	90.82	51.86	1.82

Potential Flash Emissions per Tank[1]

Pollutant	Uncontrolled		Controlled		
	(lb/hr)[3]	(ton/yr)	(lb/hr)	(ton/yr)	Source of Emission Factor
VOC	13,405.95	489.32	268.12	9.79	ProMax
H2S	0.27	0.01	0.01	0.00	ProMax
Benzene	1,860.62	67.91	37.21	1.36	ProMax
Toluene	267.56	9.77	5.35	0.20	ProMax
Ethylbenzene	1.26	0.05	0.03	0.001	ProMax
Xylenes	5.56	0.20	0.11	0.004	ProMax
n-Hexane	333.63	12.18	6.67	0.24	ProMax
2,2,4-Trimethylpentane[4]	0.71	0.03	0.01	0.00	ProMax
Total HAPs	2469.357	90.132	49.387	1.803	

Potential Working and Breathing Emissions Per Tank[2]

Pollutant	Uncontrolled		Controlled		
	(lb/hr)[3]	(ton/yr)	(lb/hr)	(ton/yr)	Source of Emission Factor
VOC	3,944.68	26.54	78.89	0.53	AP-42 Chapter 7.1
H2S	0.127	0.001	0.003	0.000	Engineering Calculation
Benzene	11.28	0.06	0.23	0.001	AP-42 Chapter 7.1
Toluene	6.90	0.04	0.14	0.001	AP-42 Chapter 7.1
Ethylbenzene	0.95	0.00	0.02	0.000	AP-42 Chapter 7.1
Xylenes	3.42	0.02	0.07	0.000	AP-42 Chapter 7.1
n-Hexane	97.06	0.54	1.94	0.01	AP-42 Chapter 7.1
2,2,4-Trimethylpentane[4]	3.94	0.03	0.08	0.001	Engineering Calculation
Total HAPs	123.55	0.69	2.47	0.01	

Aztec CS_BTECS_V1.4.2

	lb/hr	lb/yr
Total Losses	**3,944.68**	**53,074.41**
Total VOC Losses	3,944.68	53,074.41
Total HAP Losses	119.66	1,325.58
Benzene Losses	11.28	123.11
Biphenyl Losses	0.00	0.00
Cyclohexane Losses	18.00	198.42
Ethylbenzene Losses	0.95	9.29
Hexane (n) Losses	97.06	1,087.79
Naphthalene Losses	0.02	0.16
Phenol Losses	0.04	0.31
Toluene Losses	6.90	71.54
Trimethylbenzene (1,2,4) Losses	0.20	1.86
Xylene (m) Losses	3.42	33.36

Flash Emission Factor From ProMax[1]

Pollutant	lb/bbl
VOC	2.681
H2S	0.000
Benzene	0.372
Toluene	0.054
Ethylbenzene	0.000
Xylenes	0.001
n-Hexane	0.067
2,2,4-Trimethylpentane	0.000
Total HAPs	0.494

Max Hourly Working and Breathing Vapor Flow Rate

W&B Vapor Density	0.1394	lb/scf	Max BTECS
W&B GOR	5.66	scf/bbl	
W&B Gas Volume per Tank	28.30	Mscf/hr/tank	
Total Waste Stream Vapor Flow Rate	28.30	Mscf/hr	

Annual Working and Breathing Vapor Flow Rate

W&B Vapor Density	0.1081	lb/scf	Annual Avg. BTECS
W&B GOR	1.00	scf/bbl	
W&B Gas Volume per Tank	0.49	MMscf/yr/tank	
Total Waste Stream Vapor Flow Rate	0.49	MMscf/yr	

Notes:

1 - Uncontrolled flash emissions are based on a lb/bbl emission factor that was calculated from ProMax process simulation. The emission factor calculation can be found on the "Oil and PW Flash" page.

2 - Uncontrolled working and breathing emissions were calculated using AP-42 Chapter 7.1 methodology based on the total throughput of the oil and water.

3 - Lb/hr emissions are based on max hourly throughput.

4 - 2,2,4-Trimethylpentane emissions are calculated using an engineering assumption of 0.1 wt%.

Gunbarrel Flash

0.10620	gpm	Aztec 140 MM 031222 No 3phz - Stream 44
0.15	bbl/hr	Calculated
0.00	MMSCFD	Aztec 140 MM 031222 No 3phz - Stream 42
	scf/bbl	
31.97	condensate scf/bbl condensate	Calculated
39.96	with Margin	Calculated
25.00%	Margin	

	lb/hr[1]	lb/bbl	lb/bbl with Margin
VOC	0.33	2.14	2.68
H2S	0.00	0.00	0.00
Benzene	0.05	0.30	0.37
Toluene	0.01	0.04	0.05
Ethylbenzene	0.00	0.00	0.00
Xylenes	0.00	0.00	0.00
n-Hexane	0.01	0.05	0.07
2,2,4-Trimethylpentane	0.00	0.00	0.00

1 - lb/hr from ProMax - Aztec 140 MM 031222 No 3phz - Stream 42

Tank Detail Sheet

Equipment Source Name	COND TK 1-5		Potential Battery Throughput	365,000	bbl/yr
Source Description	Condensate Tank			73,000	bbl/yr/tank
	5			15,330,000	gal/yr
Tank Capacity	500	bbl		1,000	avg. bbl/day
Tank Height	20	ft		200	avg. bbl/day/tank
Tank Diameter	13.4	ft	Max hrly Cond Throughput (TCEQ APDG 6250 & 6419)	2500	bbl/hr/tank
Control Efficiency	98%		Turnovers/year	146	per tank
Construction Date	After 9/18/2015		Potential Operation	8,760	hr/yr
OOOOa Applicable?	No				

Total Potential Emissions

Pollutant	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	9,987.52	122.79	199.75	2.46
H2S	0.32	0.01	0.01	0.000
Benzene	28.89	0.29	0.58	0.01
Toluene	17.73	0.17	0.35	0.003
Ethylbenzene	2.44	0.02	0.05	0.000
Xylenes	8.80	0.08	0.18	0.002
n-Hexane	248.12	2.53	4.96	0.05
2,2,4-Trimethylpentane	9.99	0.00	0.20	0.000
Total HAPs	315.97	3.08	6.32	0.06

Potential Working and Breathing Emissions Per Tank[1]

Pollutant	Uncontrolled		Controlled		Source of Emission Factor
	(lb/hr)[2]	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	1,997.50	24.56	39.95	0.49	AP-42 Chapter 7.1
H2S	0.06	0.00	0.00	0.000	Engineering Calculation
Benzene	5.78	0.06	0.12	0.001	AP-42 Chapter 7.1
Toluene	3.55	0.03	0.07	0.001	AP-42 Chapter 7.1
Ethylbenzene	0.49	0.004	0.01	0.000	AP-42 Chapter 7.1
Xylenes	1.76	0.02	0.04	0.000	AP-42 Chapter 7.1
n-Hexane	49.62	0.51	0.99	0.01	AP-42 Chapter 7.1
2,2,4-Trimethylpentane[3]	2.00	0.00	0.04	0.000	Engineering Calculation
Total HAPs	63.19	0.62	1.26	0.01	

Aztec CS_BTECS_V1.4.2

	lb/hr	lb/yr
Total Losses	**1,997.50**	**49,114.50**
Total VOC Losses	1,997.50	49,114.50
Total HAP Losses	61.23	1,231.89
Benzene Losses	5.78	114.45
Biphenyl Losses	0.00	0.00
Cyclohexane Losses	9.21	184.42
Ethylbenzene Losses	0.49	8.66
Hexane (n) Losses	49.62	1,010.61
Naphthalene Losses	0.01	0.15
Phenol Losses	0.02	0.30
Toluene Losses	3.55	66.60
Trimethylbenzene (1,2,4) Losses	0.11	1.74
Xylene (m) Losses	1.76	31.11

Max Hourly Working and Breathing Vapor Flow Rate

W&B Vapor Density	0.1409	lb/scf	Max BTECS
W&B GOR	5.67	scf/bbl	
W&B Gas Volume per Tank	14.18	Mscf/hr/tank	
Total Waste Stream Vapor Flow Rate	70.88	Mscf/hr	

Annual Working and Breathing Vapor Flow Rate

W&B Vapor Density	0.1091	lb/scf	Annual Avg. BTECS
W&B GOR	6.17	scf/bbl	
W&B Gas Volume per Tank	0.45	MMscf/yr/tank	
Total Waste Stream Vapor Flow Rate	2.25	MMscf/yr	

Notes:

1 - Uncontrolled working and breathing emissions were calculated using AP-42 Chapter 7.1 methodology.
2 - Lb/hr emissions are based on max hourly throughput.
3 - 2,2,4-Trimethylpentane emissions are calculated using an engineering assumption of 0.1 wt%.

Tank Detail Sheet

Equipment Source Name	PW TK 1-4		Potential Battery Throughput	127,750	bbl/yr
Source Description	Produced Water Tank			31,938	bbl/yr/tank
	4			5,365,500	gal/yr
Tank Capacity	500	bbl		350	avg. bbl/day
Tank Height	20	ft		88	avg. bbl/day/tank
Tank Diameter	13.4	ft	Max hrly Cond Throughput (TCEQ APDG 6250 & 6419)	2500	bbl/hr/tank
Control Efficiency	98%		Turnovers/year	64	per tank
Construction Date	After 9/18/2015		Potential Operation	8,760	hr/yr
OOOOa Applicable?	No				

Total Potential Emissions

Pollutant	Uncontrolled		Controlled	
	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
VOC	6.92	0.05	0.14	0.001
H2S	0.25	0.00	0.005	0.000
Benzene	0.02	0.000	0.000	0.000
Toluene	0.01	0.000	0.000	0.000
Ethylbenzene	0.002	0.000	0.000	0.000
Xylenes	0.01	0.000	0.000	0.000
n-Hexane	0.17	0.001	0.003	0.000
2,2,4-Trimethylpentane	0.01	0.000	0.000	0.000
Total HAPs	0.22	0.001	0.004	0.000

Potential Working and Breathing Emissions Per Tank[1]

Pollutant	Uncontrolled		Controlled		Source of Emission Factor
	(lb/hr)[2]	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	1.73	0.01	0.035	0.000	AP-42 Chapter 7.1
H2S	0.06	0.001	0.001	0.000	Engineering Calculation
Benzene	0.01	0.000	0.000	0.000	Engineering Calculation
Toluene	0.003	0.000	0.000	0.000	Engineering Calculation
Ethylbenzene	0.000	0.000	0.000	0.000	Engineering Calculation
Xylenes	0.002	0.000	0.000	0.000	Engineering Calculation
n-Hexane	0.04	0.000	0.001	0.000	Engineering Calculation
2,2,4-Trimethylpentane[3]	0.002	0.000	0.000	0.000	Engineering Calculation
Total HAPs	0.05	0.000	0.001	0.000	

Aztec CS_BTECS_V1.4.2

	lb/hr	lb/yr
Total Losses	**31.89**	**321.50**
Total VOC Losses	1.73	23.14
Total Non-Pollutant Losses	30.15	298.36
Motor Gasoline RVP 13.0 Losses	1.73	23.14
Water Losses	30.15	298.36

Max Hourly Working and Breathing Vapor Flow Rate

W&B Vapor Density	0.0023	lb/scf	Max BTECS
W&B GOR	5.55	scf/bbl	
W&B Gas Volume per Tank	13.86	Mscf/hr/tank	
Total Waste Stream Vapor Flow Rate	55.45	Mscf/hr	

Annual Working and Breathing Vapor Flow Rate

W&B Vapor Density	0.0013	lb/scf	Annual Avg. BTECS
W&B GOR	7.74	scf/bbl	
W&B Gas Volume per Tank	0.25	MMscf/yr/tank	
Total Waste Stream Vapor Flow Rate	0.99	MMscf/yr	

Notes:

1 - Uncontrolled working and breathing emissions were calculated using AP-42 Chapter 7.1 methodology.

2 - Lb/hr emissions are based on max hourly throughput.

3 - 2,2,4-Trimethylpentane emissions are calculated using an engineering assumption of 0.1 wt%. Other HAPs are based on wt% from condensate tank BTECS run.

Heater / Boiler Detail Sheet

Equipment Source Name	HTR-1	Potential operation	8760	hr/yr
Source Description	Dehy Reboiler Heater	Fuel Heat Value	1348.10	Btu/scf
Equipment Usage	Dehy Reboiler Heater	Heat Value (LHV)[4]	1300	Btu/scf
Equipment Make	TBD	Heat Rate	1.50	MMBtu/hr
Equipment Model	TBD	Fuel Use	10.11	MMscf/yr
Serial Number	TBD	Sulfur Content	29,611	grains/MMscf

Total Potential Emissions

Pollutant	Estimated Emissions (lb/hr)	(tpy)
NOx	0.15	0.64
CO	0.12	0.54
VOC	0.01	0.04
SOx	0.01	0.06
PM10	0.01	0.05
Benzene	0.000	0.000
n-Hexane	0.003	0.01
Toluene	0.000	0.000
CH_2O	0.000	0.000
Total HAPs	0.003	0.01

Potential Emissions Per Heater

Pollutant	EF[2] (lb/MMscf)	EF[3] (lb/MMBtu)	Estimated Emissions (lb/hr)	(tpy)	Source of Emission Factor
NOx	100	0.098	0.15	0.64	AP-42 Table 1.4-1
CO	84	0.082	0.12	0.54	AP-42 Table 1.4-1
VOC	5.5	0.005	0.01	0.04	AP-42 Table 1.4-2
SOx[1]	8.88	0.009	0.01	0.06	AP-42 Table 1.4-2
PM10	7.6	0.007	0.01	0.05	AP-42 Table 1.4-2
Benzene	0.0021	0.000	0.000	0.000	AP-42 Table 1.4-3
n-Hexane	1.8	0.002	0.003	0.01	AP-42 Table 1.4-3
Toluene	0.0034	0.000	0.000	0.000	AP-42 Table 1.4-3
CH_2O	0.075	0.000	0.000	0.000	AP-42 Table 1.4-3
Total HAPs			0.003	0.01	

Notes:

1 - Sulfur emission factor from AP-42 Table 1.4-2 is ratio adjusted based on the max sulfur content when sulfur content is greater than 2,000 grains/MMscf.

2 - Emission factors are based on AP-42 Chapter 1.

3 - Emission factors from AP-42 Chapter 1 are calculated by converting from lb/MMscf to lb/MMbtu based AP-42 Table 1.4-1 note (a) (divide by 1020 btu/scf).

4 - Fuel use based on LHV.

Sample Calculation for NOx

(0.098 lb/MMBtu) * 1.50 MMBtu/hr = 0.15 lb/hr

Heater / Boiler Detail Sheet

Equipment Source Name	HTR-2	Potential operation	8760	hr/yr
Source Description	Dehy Reboiler Heater	Fuel Heat Value	1348.10	Btu/scf
Equipment Usage	Dehy Reboiler Heater	Heat Value (LHV)[4]	1300	Btu/scf
Equipment Make	TBD	Heat Rate	1.50	MMBtu/hr
Equipment Model	TBD	Fuel Use	10.11	MMscf/yr
Serial Number	TBD	Sulfur Content	29,611	grains/MMscf

Total Potential Emissions

Pollutant	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)
NOx	0.15	0.64
CO	0.12	0.54
VOC	0.01	0.04
SOx	0.01	0.06
PM10	0.01	0.05
Benzene	0.000	0.000
n-Hexane	0.003	0.01
Toluene	0.000	0.000
CH_2O	0.000	0.000
Total HAPs	0.003	0.01

Potential Emissions Per Heater

Pollutant	EF[2] (lb/MMscf)	EF[3] (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	100	0.098	0.15	0.64	AP-42 Table 1.4-1
CO	84	0.082	0.12	0.54	AP-42 Table 1.4-1
VOC	5.5	0.005	0.01	0.04	AP-42 Table 1.4-2
SOx[1]	8.88	0.009	0.01	0.06	AP-42 Table 1.4-2
PM10	7.6	0.007	0.01	0.05	AP-42 Table 1.4-2
Benzene	0.0021	0.000	0.000	0.000	AP-42 Table 1.4-3
n-Hexane	1.8	0.002	0.003	0.01	AP-42 Table 1.4-3
Toluene	0.0034	0.000	0.000	0.000	AP-42 Table 1.4-3
CH_2O	0.075	0.000	0.000	0.000	AP-42 Table 1.4-3
Total HAPs			0.003	0.01	

Notes:

1 - Sulfur emission factor from AP-42 Table 1.4-2 is ratio adjusted based on the max sulfur content when sulfur content is greater than 2,000 grains/MMscf.
2 - Emission factors are based on AP-42 Chapter 1.
3 - Emission factors from AP-42 Chapter 1 are calculated by converting from lb/MMscf to lb/MMbtu based AP-42 Table 1.4-1 note (a) (divide by 1020 btu/scf).
4 - Fuel use based on LHV.

Sample Calculation for NOx
(0.098 lb/MMBtu) * 1.50 MMBtu/hr = 0.15 lb/hr

Loadout Emissions Detail Sheet

Equipment Source Name	LOAD	
Source Description	Hydrocarbon Loadout	
Total Hydrocarbon Throughout	36,500	bbl/yr
	1,533,000	gal/yr

Potential Emissions

Pollutant	Uncontrolled		Controlled[3]		Source of Emission Calculations
	lb/hr	tpy	lb/hr	tpy	
VOC	189.53	17.29	59.51	5.43	AP-42 Section 5.2.1
H2S	0.006	0.001	0.002	0.000	Engineering Calculation
Benzene	0.55	0.04	0.17	0.01	Engineering Calculation
Toluene	0.34	0.02	0.11	0.01	Engineering Calculation
Ethylbenzene	0.05	0.003	0.01	0.001	Engineering Calculation
Xylenes	0.17	0.01	0.05	0.003	Engineering Calculation
n-Hexane	4.71	0.36	1.48	0.11	Engineering Calculation
2,2,4-Trimethylpentane	0.19	0.00	0.06	0.000	Engineering Calculation
Total HAPs	6.00	0.43	1.88	0.14	

Source Description	Condensate	
Potential Throughput	36,500	bbl/yr
	1,533,000	gal/yr
Percentage Trucked[1]	10%	
Control Device	Yes	
Control Efficiencies	98%	
Capture Efficiency	70%	

Potential Emissions

Pollutant	Uncontrolled		Controlled[3]		Source of Emission Calculations
	lb/hr	tpy	lb/hr	tpy	
VOC	189.53	17.29	59.51	5.43	AP-42 Section 5.2.1
H2S	0.006	0.001	0.002	0.000	Engineering Calculation
Benzene[2]	0.55	0.04	0.17	0.01	Engineering Calculation
Toluene[2]	0.34	0.02	0.11	0.01	Engineering Calculation
Ethylbenzene[2]	0.05	0.003	0.01	0.001	Engineering Calculation
Xylenes[2]	0.17	0.01	0.05	0.003	Engineering Calculation
n-Hexane[2]	4.71	0.36	1.48	0.11	Engineering Calculation
2,2,4-Trimethylpentane[2]	0.19	0.00	0.06	0.000	Engineering Calculation
Total HAPs	6.00	0.43	1.88	0.14	

Molecular Weight of Vapors, MW	50.00	lb/lb-mol	BTECS
True Vapor Pressure, Pva @ T	19.77	psia	BTECS
Temperature of Bulk Liquid Loaded, T	86.1	F	Calculated
	545.77	R	BTECS
Saturation Factor	1.00		
Efficiency of controlled loading (%)	0.0%		
Potential Annual Throughput, v	1,533	1000 gallons	
Loading losses, L @ tank	22.56	lb/1000 gallons	
L = 12.46 S P MW / T (1-eff)			
Potential annual losses @ tank, L*v	34,589.11	lb/yr	
	17.29	**tpy**	
Max hourly fill rate	8.4	1000 gallons/hr	Trucking Company
Max hourly emissions	**189.5**	**lb/hr**	Calculated

Notes:

1 - Condensate is normally piped off site; potential condensate loadout throughout allows for up to 10% to be trucked out.
2 - HAP emissions are based on the same ratio of HAPs to VOC from the condensate tank working and breathing calculations.
3 - Controlled VOC, H2S, and HAP emissions are represented at FL-2.

Sample Calculation

36500 bbl/yr * 42 gal/bbl / 1000 gal * 22.56 lb/1000 gal / 2000 lb/ton = 17.29 tpy

Fugitive Emissions Detail Sheet

Equipment Source Name	FUG-1	Potential Operation	8760	hr/yr
Source Description	Fugitives	Emission Controls	None	
		Component Increase	0%	

Potential Emissions

	Light Oil - Emissions			Gas - Emissions			Total Emissions	
Pollutant	Wt%	lb/hr	tpy	Wt%	lb/hr	tpy	lb/hr	tpy
VOC	100.00%	0.48	2.09	37.02%	7.17	31.43	7.65	33.52
H2S	0.00%	0.000	0.000	0.01%	0.001	0.01	0.00	0.01
Benzene	0.59%	0.003	0.01	0.34%	0.07	0.29	0.07	0.30
Toluene	0.44%	0.002	0.01	0.30%	0.06	0.25	0.06	0.26
Ethylbenzene	0.04%	0.000	0.001	0.03%	0.01	0.03	0.01	0.03
Xylenes	0.18%	0.001	0.004	0.13%	0.02	0.11	0.03	0.11
n-Hexane	2.44%	0.01	0.05	0.88%	0.17	0.75	0.18	0.80
2,2,4-Trimethylpentane	0.02%	0.000	0.000	0.01%	0.001	0.004	0.001	0.005
Total HAPs		0.02	0.08		0.33	1.44	0.35	1.52

Equipment Type	Light Oil[3]					Gas				
	EF[3] (kg/hr/source)	Source Count	Source Count With New Equipment	VOC (lb/hr)	VOC (tpy)	EF[3] (kg/hr/source)	Source Count	Source Count With New Equipmen	VOC (lb/hr)	VOC (tpy)
Valve	2.50E-03	41	41	0.23	0.99	4.50E-03	1548	1548	5.68	24.90
Flanges	1.10E-04	82	82	0.02	0.09					
Connectors	2.10E-04	72	72	0.03	0.15	2.00E-04	4134	4134	0.67	2.96
Open Ended Lines	1.40E-03	0	0	0.00	0.00	2.00E-03	86	86	0.14	0.61
Pressure Relief Valves						8.80E-03	94	94	0.68	2.96
Other Components	7.50E-03	12	12	0.20	0.87					
VOC Emissions				**0.48**	**2.09**				**7.17**	**31.43**

Equipment Type	Wellhead	Separator	Heater Treater	Header	In-Line Heater	Meters, Piping	Compressors	Dehydrators	Cond. Tanks
Equipment Count	**0**	**2**	**0**	**1**	**2**	**6**	**18**	**2**	**6**
Light Oil - Count per unit[1]									
Valve	5	6	8	5					4
Flanges	10	12	12	10					8
Connectors	4	10	20	4					8
Open-Ended Lines	0	0	0	0					0
Other Components	1	0	0	0					2
Gas - Count per unit[1]									
Valve	11	34			14	14	73	24	1
Connectors	36	106			65	51	179	90	14
Open-Ended Lines	1	6			2	1	3	2	1
Pressure Relief Valves	0	2			1	1	4	2	1

1 - Component counts taken from 40 CFR 98 Subpart W, Table W-1B and Table W-1C, Western U.S. Oil tank component counts are estimated.
2 - Component leak rates taken from EPA's Oil and Gas Production Operations average equipment leak emission factors (EPA 453/R-95-017 dated November 1995) Table 2-4.
3 - Assuming light oil weight percentage is 100% VOC to be conservative in light-oil fugitive emission calculations.

Sample Calculation:
0.00250 kg/hr-source * 41 Sources * 2.20462 lb/kg * 100 % VOC Wt% * 8760 hr/yr /2000 lb/ton = 0.99 tpy

Process and compressor Fugitives GHG Emissions

Fugitive GHG Summary

	CH4	CO2	CO2e
Emissions TPY	1692.88	47.11	**42,369.23**
Global Warming Potential (GWP)	25	1	

CH4 Emission Rate for Gas Processing Volume[1] = 2.5e-3 tonne CH4/MMscf processed
CH4 Emission Rate for Reciprocating Compressors[1] = 8.95e-3 tonne CH4/compressor-hr
CH4 Emission Rate for Centrifugal Compressors[1] = 1.7e-2 tonne CH4/compressor-hr

[1] API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry Table 6-5

Process gas CH4 molar percentage = 62.55% Based on Gas Analysis - Inlet
Process gas CO2 molar percentage = 0.63% Based on Gas Analysis - Inlet
CH4 molecular weight (lb/lb mol) 16
CO2 molecular weight (lb/lb mol) 44

Amount of gas throughput (MMscf/yr) = 51,100 (Max 140 MMSCFD * 365 days/yr)
Number of Reciprocating Compressors in Process = 18
Number of Centrifugal Compressors in Process = 0

CH4 Emission Calculation for Processing Volume

tonne CH4/MMscf processed	MMscf processed/year	ton CH4/ tonne CH4	ton CH4/year
0.0025	51,100	1.1	140.525

Total CH4 process emissions (ton/year) = 140.53

CO2 Emission Calculation for Processing Volume

ton CH4/year	CO2 mol % / CH4 mol %	CO2 mol wt/ CH4 mol wt	ton CO2 / year
140.525	0.01012	2.75	3.911

Total CO2 process emissions (ton/year) = 3.91

CH4 Emission Calculation for Reciprocating Compressors

tonne CH4/compressor-hr	hr/year	compressor number	ton CH4/ tonne CH4	ton CH4 /year
0.00895	8760	18	1.1	1552

Total CH4 reciprocating compressor emissions (ton/year) = 1552.36

CO2 Emission Calculation for Reciprocating Compressors

ton CH4/year	CO2 mol % / CH4 mol %	CO2 mol wt/ CH4 mol wt	ton CO2 / year
1552	0.01012	2.75	43.202

Total CO2 reciprocating compressor emissions (ton/year) = 43.202

CH4 Emission Calculation for Centrifugal Compressors

tonne CH4/compressor-hr	hr/year	compressor number	ton CH4/ tonne CH4	ton CH4 /year
0.017	8760	0	1.1	0

Total CH4 centrifugal compressor emissions (ton/year) = 0.00

CO2 Emission Calculation for Centrifugal Compressors

ton CH4/year	CO2 mol % / CH4 mol %	CO2 mol wt/ CH4 mol wt	ton CO2 / year
0	0.01012	2.75	0.000

Total CO2 centrifugal compressor emissions (ton/year) = 0.000

Dehydrator Detail Sheet

Equipment ID	DEHY-1					
Equipment Description	TEG Dehydrator				Flash Tank Used?	Yes
QTY:	1					
Equipment Usage	Gas Dehydration		Lean Glycol Water (wt%)	1.5%	Pressure (psig)	40-125
				Electric (primary) /pneumatic		
Manufacturer	TBD		Glycol Pump Type	(backup)	Temperature (ºF)	90-135
Model	TBD		Pump Manufacturer	Rotor Tech / Kimr	Overheads Routed to	Recycle/Recompression
Serial Number	TBD		Pump Model	GS2214 / 45020P	Stripping Gas	No
Glycol Service	TEG		Number of Pumps (Primary and bac	2	Condenser Used?	Yes
Potential operation (hr/yr)	8760		Glycol Recirculation (gpm)	22	Pressure (psia)	13.5
Gas Analysis	Site Specific				Temperature (ºF)	140
Inlet Gas Pressure (psig)	900-1440				Control Device	ECD
Inlet Gas Temperature (ºF)	90-131		Dry Gas Throughput		Combustor Destruction Efficiency	98%
Wet Gas Water Content	Saturated		Design (MMscf/day)	70	Emissions Margin	20.00%
Dry Gas Water Content	7	lb H2O/mmscf				

Total Potential Emissions - Regenerator and Flash Tank

Pollutant	Emission Factor	Modeled Emissions						Source of Emission Factor
		Uncontrolled Emissions		Controlled Emissions		Requested Emissions		
	(lb/MMscf)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	105.90	308.88	1352.88	2.08	9.10	2.49	10.92	GRI GLYCalc
H2S	0.12	0.36	1.57	0.01	0.02	0.01	0.03	GRI GLYCalc
Propane	13.85	40.39	176.92	0.20	0.88	0.24	1.05	GRI GLYCalc
Isobutane	2.81	8.20	35.90	0.05	0.23	0.06	0.28	GRI GLYCalc
n-Butane	10.88	31.74	139.03	0.24	1.03	0.28	1.24	GRI GLYCalc
Isopentane	2.76	8.05	35.24	0.06	0.25	0.07	0.30	GRI GLYCalc
n-Pentane	4.30	12.56	54.99	0.09	0.41	0.11	0.50	GRI GLYCalc
Cyclopentane	1.81	5.28	23.11	0.06	0.27	0.07	0.32	GRI GLYCalc
Cyclohexane	5.21	15.20	66.56	0.14	0.62	0.17	0.74	GRI GLYCalc
Other Hexanes	2.60	7.58	33.21	0.06	0.27	0.07	0.32	GRI GLYCalc
Heptanes	1.74	5.08	22.23	0.03	0.13	0.04	0.16	GRI GLYCalc
Methylcyclohexane	3.38	9.87	43.21	0.06	0.28	0.08	0.34	GRI GLYCalc
Octanes	4.01	11.68	51.17	0.00	0.00	0.00	0.00	GRI GLYCalc
Benzene	27.94	81.49	356.91	0.77	3.39	0.93	4.07	GRI GLYCalc
Toluene	16.07	46.88	205.36	0.23	1.00	0.27	1.20	GRI GLYCalc
Ethylbenzene	1.21	3.52	15.40	0.01	0.03	0.01	0.04	GRI GLYCalc
Xylene	5.56	16.22	71.02	0.03	0.12	0.03	0.14	GRI GLYCalc
n-Hexane	1.76	5.14	22.51	0.04	0.18	0.05	0.21	GRI GLYCalc
2,2,4-Trimethylpentane	0.01	0.02	0.10	0.00	0.00	0.00	0.00	GRI GLYCalc
Total HAPs		153.26	671.29	1.08	4.72	1.29	5.67	

Potential Emissions - Regenerator

Pollutant	Emission Factor	Modeled Emissions						Source of Emission Factor
		Uncontrolled Emissions		Controlled Emissions		Requested Emissions		
	(lb/MMscf)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	79.20	231.00	1011.77	2.08	9.10	2.49	10.92	GRI GLYCalc
H2S	0.09	0.27	1.20	0.01	0.02	0.01	0.03	GRI GLYCalc
Propane	3.55	10.36	45.36	0.20	0.88	0.24	1.05	GRI GLYCalc
Isobutane	0.96	2.80	12.28	0.05	0.23	0.06	0.28	GRI GLYCalc
n-Butane	4.42	12.90	56.52	0.24	1.03	0.28	1.24	GRI GLYCalc
Isopentane	1.22	3.56	15.58	0.06	0.25	0.07	0.30	GRI GLYCalc
n-Pentane	2.12	6.20	27.13	0.09	0.41	0.11	0.50	GRI GLYCalc
Cyclopentane	1.45	4.23	18.51	0.06	0.27	0.07	0.32	GRI GLYCalc
Cyclohexane	4.58	13.35	58.49	0.14	0.62	0.17	0.74	GRI GLYCalc
Other Hexanes	1.49	4.35	19.05	0.06	0.27	0.07	0.32	GRI GLYCalc
Heptanes	1.37	3.98	17.45	0.03	0.13	0.04	0.16	GRI GLYCalc
Methylcyclohexane	3.05	8.90	38.98	0.06	0.28	0.08	0.34	GRI GLYCalc
Octanes	3.91	11.40	49.92	0.00	0.00	0.00	0.00	GRI GLYCalc
Benzene	27.36	79.80	349.52	0.77	3.39	0.93	4.07	GRI GLYCalc
Toluene	15.86	46.26	202.62	0.23	1.00	0.27	1.20	GRI GLYCalc
Ethylbenzene	1.20	3.49	15.28	0.01	0.03	0.01	0.04	GRI GLYCalc
Xylene	5.53	16.13	70.64	0.03	0.12	0.03	0.14	GRI GLYCalc
n-Hexane	1.13	3.28	14.38	0.04	0.18	0.05	0.21	GRI GLYCalc
2,2,4-Trimethylpentane	0.00	0.01	0.06	0.00	0.00	0.00	0.00	GRI GLYCalc
Total HAPs		148.97	652.50	1.08	4.72	1.29	5.67	

Potential Emissions - Flash Tank

Pollutant	Emission Factor	Modeled Emissions						Source of Emission Factor
		Uncontrolled Emissions		Controlled Emissions		Requested Emissions		
	(lb/MMscf)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	26.70	77.88	341.11	0.000	0.000	0.000	0.000	GRI GLYCalc
H2S	0.03	0.08	0.37	0.000	0.000	0.000	0.000	GRI GLYCalc
Propane	10.30	30.04	131.57	0.000	0.000	0.000	0.000	GRI GLYCalc
Isobutane	1.85	5.39	23.62	0.000	0.000	0.000	0.000	GRI GLYCalc
n-Butane	6.46	18.84	82.51	0.000	0.000	0.000	0.000	GRI GLYCalc
Isopentane	1.54	4.49	19.67	0.000	0.000	0.000	0.000	GRI GLYCalc
n-Pentane	2.18	6.36	27.86	0.000	0.000	0.000	0.000	GRI GLYCalc
Cyclopentane	0.36	1.05	4.61	0.000	0.000	0.000	0.000	GRI GLYCalc
Cyclohexane	0.63	1.84	8.07	0.000	0.000	0.000	0.000	GRI GLYCalc
Other Hexanes	1.11	3.23	14.17	0.000	0.000	0.000	0.000	GRI GLYCalc
Heptanes	0.37	1.09	4.79	0.000	0.000	0.000	0.000	GRI GLYCalc
Methylcyclohexane	0.33	0.97	4.23	0.000	0.000	0.000	0.000	GRI GLYCalc
Octanes	0.10	0.28	1.24	0.000	0.000	0.000	0.000	GRI GLYCalc
Benzene	0.58	1.69	7.38	0.000	0.000	0.000	0.000	GRI GLYCalc
Toluene	0.21	0.62	2.73	0.000	0.000	0.000	0.000	GRI GLYCalc
Ethylbenzene	0.01	0.03	0.12	0.000	0.000	0.000	0.000	GRI GLYCalc
Xylene	0.03	0.09	0.38	0.000	0.000	0.000	0.000	GRI GLYCalc
n-Hexane	0.64	1.86	8.14	0.000	0.000	0.000	0.000	GRI GLYCalc
2,2,4-Trimethylpentane	0.00	0.01	0.03	0.000	0.000	0.000	0.000	GRI GLYCalc
Total HAPs		4.29	18.79	0.000	0.000	0.000	0.000	

Notes:
Reboiler emissions accounted for in separate heater calculation sheet.
A 10% margin was added to requested emissions to allow for variability in the gas composition.
Dehydrator is controlled with a condenser. Worst-case emissions scenario is represented. Condenser overheads are routed to a combustor. Flash gas emissions are zero because the gas is recycled and recompressed back into the system.

Dehydrator Detail Sheet

Equipment ID	DEHY-2					
Equipment Description	TEG Dehydrator				Flash Tank Used?	Yes
QTY:	1					
Equipment Usage	Gas Dehydration		Lean Glycol Water (wt%)	1.5%	Pressure (psig)	40-125
				Electric (primary)		
Manufacturer	TBD		Glycol Pump Type	/pneumatic	Temperature (ºF)	90-135
Model	TBD		Pump Manufacturer	Rotor Tech / Kim	Overheads Routed to	Recycle/Recompression
Serial Number	TBD		Pump Model	GS2214 / 45020F	Stripping Gas	No
Glycol Service	TEG		Number of Pumps (Primary and ba	2	Condenser Used?	Yes
Potential operation (hr/yr)	8760		Glycol Recirculation (gpm)	22	Pressure (psia)	13.5
Gas Analysis	Site Specific				Temperature (ºF)	140
Inlet Gas Pressure (psig)	900-1440				Control Device	ECD
Inlet Gas Temperature (ºF)	90-131		Dry Gas Throughput		Combustor Destruction Efficiency	98%
Wet Gas Water Content	Saturated		Design (MMscf/day)	70	Emissions Margin	20.00%
Dry Gas Water Content	7	lb H2O/mmscf				

Total Potential Emissions - Regenerator and Flash Tank

Pollutant	Emission Factor	Modeled Emissions						Source of Emission Factor
		Uncontrolled Emissions		Controlled Emissions		Requested Emissions		
	(lb/MMscf)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	105.90	308.88	1352.88	2.08	9.10	2.49	10.92	GRI GLYCalc
H2S	0.12	0.36	1.57	0.01	0.02	0.01	0.03	GRI GLYCalc
Propane	13.85	40.39	176.92	0.20	0.88	0.24	1.05	GRI GLYCalc
Isobutane	2.81	8.20	35.90	0.05	0.23	0.06	0.28	GRI GLYCalc
n-Butane	10.88	31.74	139.03	0.24	1.03	0.28	1.24	GRI GLYCalc
Isopentane	2.76	8.05	35.24	0.06	0.25	0.07	0.30	GRI GLYCalc
n-Pentane	4.30	12.56	54.99	0.09	0.41	0.11	0.50	GRI GLYCalc
Cyclopentane	1.81	5.28	23.11	0.06	0.27	0.07	0.32	GRI GLYCalc
Cyclohexane	5.21	15.20	66.56	0.14	0.62	0.17	0.74	GRI GLYCalc
Other Hexanes	2.60	7.58	33.21	0.06	0.27	0.07	0.32	GRI GLYCalc
Heptanes	1.74	5.08	22.23	0.03	0.13	0.04	0.16	GRI GLYCalc
Methylcyclohexane	3.38	9.87	43.21	0.06	0.28	0.08	0.34	GRI GLYCalc
Octanes	4.01	11.68	51.17	0.00	0.00	0.00	0.00	GRI GLYCalc
Benzene	27.94	81.49	356.91	0.77	3.39	0.93	4.07	GRI GLYCalc
Toluene	16.07	46.88	205.36	0.23	1.00	0.27	1.20	GRI GLYCalc
Ethylbenzene	1.21	3.52	15.40	0.01	0.03	0.01	0.04	GRI GLYCalc
Xylene	5.56	16.22	71.02	0.03	0.12	0.03	0.14	GRI GLYCalc
n-Hexane	1.76	5.14	22.51	0.04	0.18	0.05	0.21	GRI GLYCalc
2,2,4-Trimethylpentane	0.01	0.02	0.10	0.00	0.00	0.00	0.00	GRI GLYCalc
Total HAPs		153.26	671.29	1.08	4.72	1.29	5.67	

Potential Emissions - Regenerator

Pollutant	Emission Factor	Modeled Emissions						Source of Emission Factor
		Uncontrolled Emissions		Controlled Emissions		Requested Emissions		
	(lb/MMscf)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	79.20	231.00	1011.77	2.08	9.10	2.49	10.92	GRI GLYCalc
H2S	0.09	0.27	1.20	0.01	0.02	0.01	0.03	GRI GLYCalc
Propane	3.55	10.36	45.36	0.20	0.88	0.24	1.05	GRI GLYCalc
Isobutane	0.96	2.80	12.28	0.05	0.23	0.06	0.28	GRI GLYCalc
n-Butane	4.42	12.90	56.52	0.24	1.03	0.28	1.24	GRI GLYCalc
Isopentane	1.22	3.56	15.58	0.06	0.25	0.07	0.30	GRI GLYCalc
n-Pentane	2.12	6.20	27.13	0.09	0.41	0.11	0.50	GRI GLYCalc
Cyclopentane	1.45	4.23	18.51	0.06	0.27	0.07	0.32	GRI GLYCalc
Cyclohexane	4.58	13.35	58.49	0.14	0.62	0.17	0.74	GRI GLYCalc
Other Hexanes	1.49	4.35	19.05	0.06	0.27	0.07	0.32	GRI GLYCalc
Heptanes	1.37	3.98	17.45	0.03	0.13	0.04	0.16	GRI GLYCalc
Methylcyclohexane	3.05	8.90	38.98	0.06	0.28	0.08	0.34	GRI GLYCalc
Octanes	3.91	11.40	49.92	0.00	0.00	0.00	0.00	GRI GLYCalc
Benzene	27.36	79.80	349.52	0.77	3.39	0.93	4.07	GRI GLYCalc
Toluene	15.86	46.26	202.62	0.23	1.00	0.27	1.20	GRI GLYCalc
Ethylbenzene	1.20	3.49	15.28	0.01	0.03	0.01	0.04	GRI GLYCalc
Xylene	5.53	16.13	70.64	0.03	0.12	0.03	0.14	GRI GLYCalc
n-Hexane	1.13	3.28	14.38	0.04	0.18	0.05	0.21	GRI GLYCalc
2,2,4-Trimethylpentane	0.00	0.01	0.06	0.00	0.00	0.00	0.00	GRI GLYCalc
Total HAPs		148.97	652.50	1.08	4.72	1.29	5.67	

Potential Emissions - Flash Tank

Pollutant	Emission Factor	Modeled Emissions						Source of Emission Factor
		Uncontrolled Emissions		Controlled Emissions		Requested Emissions		
	(lb/MMscf)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	
VOC	26.70	77.88	341.11	0.000	0.000	0.000	0.000	GRI GLYCalc
H2S	0.03	0.08	0.37	0.000	0.000	0.000	0.000	GRI GLYCalc
Propane	10.30	30.04	131.57	0.000	0.000	0.000	0.000	GRI GLYCalc
Isobutane	1.85	5.39	23.62	0.000	0.000	0.000	0.000	GRI GLYCalc
n-Butane	6.46	18.84	82.51	0.000	0.000	0.000	0.000	GRI GLYCalc
Isopentane	1.54	4.49	19.67	0.000	0.000	0.000	0.000	GRI GLYCalc
n-Pentane	2.18	6.36	27.86	0.000	0.000	0.000	0.000	GRI GLYCalc
Cyclopentane	0.36	1.05	4.61	0.000	0.000	0.000	0.000	GRI GLYCalc
Cyclohexane	0.63	1.84	8.07	0.000	0.000	0.000	0.000	GRI GLYCalc
Other Hexanes	1.11	3.23	14.17	0.000	0.000	0.000	0.000	GRI GLYCalc
Heptanes	0.37	1.09	4.79	0.000	0.000	0.000	0.000	GRI GLYCalc
Methylcyclohexane	0.33	0.97	4.23	0.000	0.000	0.000	0.000	GRI GLYCalc
Octanes	0.10	0.28	1.24	0.000	0.000	0.000	0.000	GRI GLYCalc
Benzene	0.58	1.69	7.38	0.000	0.000	0.000	0.000	GRI GLYCalc
Toluene	0.21	0.62	2.73	0.000	0.000	0.000	0.000	GRI GLYCalc
Ethylbenzene	0.01	0.03	0.12	0.000	0.000	0.000	0.000	GRI GLYCalc
Xylene	0.03	0.09	0.38	0.000	0.000	0.000	0.000	GRI GLYCalc
n-Hexane	0.64	1.86	8.14	0.000	0.000	0.000	0.000	GRI GLYCalc
2,2,4-Trimethylpentane	0.00	0.01	0.03	0.000	0.000	0.000	0.000	GRI GLYCalc
Total HAPs		4.29	18.79	0.000	0.000	0.000	0.000	

Notes:
Reboiler emissions accounted for in separate heater calculation sheet.
A 10% margin was added to requested emissions to allow for variability in the gas composition.

Dehydrator is controlled with a condenser. Worst-case emissions scenario is represented. Condenser overheads are routed to a combustor. Flash gas emissions are zero because the gas is recycled and recompressed back into the system.

Enclosed Combustor Detail Sheet

Equipment Source Name	ECD-1	
Source Description	Combustor	
Equipment Make	TBD	
Equipment Model	TBD	
Serial Number	TBD	
Destruction Efficiency	98%	
Open or Enclosed?	Enclosed	
Ground or Elevated?	Elevated	
Potential Operation	8760	hr/yr

Stack Information	
Height (ft)	9.0
Temperature (°F)	1,100
Exit Velocity (ft/s)	5.9
Diameter (ft)	2.6
Flow Rate (acfs)	30.8
Flow Rate (acfm)	1,849.1

Total Emissions

Pollutant	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)
NOx	0.60	2.11
CO	1.89	6.68
VOC	2.55	11.16
H2S	0.01	0.03
SO2	0.61	2.67
PM10	0.01	0.02
Benzene	0.93	4.07
Toluene	0.28	1.21
Ethylbenzene	0.01	0.04
Xylenes	0.03	0.14
n-Hexane	0.05	0.22
2 2 4-trimethylpentane	0.000	0.001
Total HAPs	1.30	5.68

Pilot Stream

Annual Pilot Gas Flow Rate	0.88	MMscf/yr	
Annual Margin	25%		
	1.10	MMscf/yr	Annual Pilot Gas Flow Rate With Added Margin
Max Hourly Pilot Gas Flow Rate	0.10	Mscf/hr	
Max Hourly Margin	25%		
	0.13	Mscf/hr	Max Hourly Pilot Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/20
Total VOC Wt% to ECD	33.16%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/20
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/20
Fuel Heat Value (LHV)[6]	1,300.00	Btu/scf	
Annual Avg. Heat Rating	0.17	MMBtu/hr	
Max Hourly Heat Rating	0.17	MMBtu/hr	
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.098	0.02	0.07	AP-42 Table 1.4-1
CO	0.31	0.05	0.23	AP-42 Table 13.5-2
VOC[1]	N/A	0.05	0.24	Engineering Calculation
H2S[3]	4.23E-06	0.000	0.000	Engineering Calculation
SO2[3]	7.95E-06	0.001	0.004	Engineering Calculation
PM10[2]	40	0.00	0.00	AP-42 Table 13.5-1
Benzene	N/A	0.001	0.002	Engineering Calculation
Toluene	N/A	0.000	0.002	Engineering Calculation
Ethylbenzene	N/A	0.000	0.000	Engineering Calculation
Xylenes	N/A	0.000	0.001	Engineering Calculation
n-Hexane	N/A	0.001	0.006	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.000	0.000	Engineering Calculation
Total HAPs		0.003	0.011	

Dehydrator Waste Stream

Annual Dehydrator Waste Flow Rate	2,000.00	scf/hr	Based on GlyCalc condenser vent stream with margin
	17.52	MMscf/yr	Calculated
Annual Margin	0%		
	17.52	MMscf/yr	Annual Dehydrator Waste Gas Flow Rate With Added Margin
Average Hourly Dehydrator Waste Flow	2.00	Mscf/hr	Based on Glycalc
Average Hourly Margin	25%		
	2.50	Mscf/hr	Average Hourly Dehydrator Waste Gas Flow Rate With Added Marg
Gas MW	54.07	lb/lb/mol	Based on Condenser vent stream
Total VOC Wt% to Combustor	91.24%		Based on Condenser vent stream
Gas Heating Value	2,374	Btu/scf	Calculated
Annual Avg. Heat Rating	4.75	MMBtu/hr	
Max Hourly Heat Rating	5.94	MMBtu/hr	
Max Sulfur Content[2]	2,055,036.54	grains/MMscf	Maximum measured H2S concentration
	205.50	grains/100scf	
	3,470.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.098	0.58	2.04	AP-42 Table 1.4-1
CO	0.31	1.84	6.45	AP-42 Table 13.5-2
VOC[1]	N/A	2.49	10.92	GlyCalc
H2S[3]	N/A	0.01	0.03	Engineering Calculation
SO2[3]	N/A	0.61	2.66	Engineering Calculation
PM10[2]	40	0.01	0.02	AP-42 Table 13.5-1
Benzene	N/A	0.93	4.07	GlyCalc
Toluene	N/A	0.27	1.20	GlyCalc
Ethylbenzene	N/A	0.01	0.04	GlyCalc
Xylenes	N/A	0.03	0.14	GlyCalc
n-Hexane	N/A	0.05	0.21	GlyCalc
2 2 4-trimethylpentane	N/A	0.000	0.001	GlyCalc
Total HAPs		1.29	5.67	

1 - VOC emissions from pilot stream are calculated using a mass balance and a 98% destruction efficiency.
2 - PM10 emission factor in units of µg/L, assuming a lightly smoking flare.
3 - H2S and SO2 emissions factors are in units of lb/scf

Sample Calculation for NOx from Dehydrator Waste Stream
0.098 lb/MMBtu * (2.50 Mscf/hr / 1000) * 2,374.1 Btu/scf = 0.58 lb/hr

Enclosed Combustor Detail Sheet

Equipment Source Name	ECD-2	
Source Description	Combustor	
Equipment Make	TBD	
Equipment Model	TBD	
Serial Number	TBD	
Destruction Efficiency	98%	
Open or Enclosed?	Enclosed	
Ground or Elevated?	Elevated	
Potential Operation	8760	hr/yr

Stack Information	
Height (ft)	9.0
Temperature (°F)	1,100
Exit Velocity (ft/s)	5.9
Diameter (ft)	2.6
Flow Rate (acfs)	30.8
Flow Rate (acfm)	1,849.1

Total Emissions

Pollutant	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)
NOx	0.60	2.11
CO	1.89	6.68
VOC	2.55	11.16
H2S	0.01	0.03
SO2	0.61	2.67
PM10	0.01	0.02
Benzene	0.93	4.07
Toluene	0.28	1.21
Ethylbenzene	0.01	0.04
Xylenes	0.03	0.14
n-Hexane	0.05	0.22
2 2 4-trimethylpentane	0.000	0.001
Total HAPs	1.30	5.68

Pilot Stream

Annual Pilot Gas Flow Rate	0.88	MMscf/yr	
Annual Margin	25%		
	1.10	MMscf/yr	Annual Pilot Gas Flow Rate With Added Margin
Max Hourly Pilot Gas Flow Rate	0.10	Mscf/hr	
Max Hourly Margin	25%		
	0.13	Mscf/hr	Max Hourly Pilot Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/202
Total VOC Wt% to ECD	33.16%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/202
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/202
Fuel Heat Value (LHV)[6]	1,300.00	Btu/scf	
Annual Avg. Heat Rating	0.17	MMBtu/hr	
Max Hourly Heat Rating	0.17	MMBtu/hr	
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.098	0.02	0.07	AP-42 Table 1.4-1
CO	0.31	0.05	0.23	AP-42 Table 13.5-2
VOC[1]	N/A	0.05	0.24	Engineering Calculation
H2S[3]	4.23E-06	0.000	0.000	Engineering Calculation
SO2[3]	7.95E-06	0.001	0.004	Engineering Calculation
PM10[2]	40	0.00	0.00	AP-42 Table 13.5-1
Benzene	N/A	0.001	0.002	Engineering Calculation
Toluene	N/A	0.000	0.002	Engineering Calculation
Ethylbenzene	N/A	0.000	0.000	Engineering Calculation
Xylenes	N/A	0.000	0.001	Engineering Calculation
n-Hexane	N/A	0.001	0.006	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.000	0.000	Engineering Calculation
Total HAPs		0.003	0.011	

Dehydrator Waste Stream

Annual Dehydrator Waste Flow Rate	2,000.00	scf/hr	Based on GlyCalc condenser vent stream with margin
	17.52	MMscf/yr	Calculated
	17.52	MMscf/yr	Annual Dehydrator Waste Gas Flow Rate With Added Margin
Average Hourly Dehydrator Waste Flow	2.00	Mscf/hr	Based on Glycalc
Average Hourly Margin	25%		
	2.50	Mscf/hr	Average Hourly Dehydrator Waste Gas Flow Rate With Added Margi
Gas MW	54.07	lb/lb/mol	Based on Condenser vent stream
Total VOC Wt% to Combustor	91.24%		Based on Condenser vent stream
Gas Heating Value	2,374	Btu/scf	Calculated
Annual Avg. Heat Rating	4.75	MMBtu/hr	
Max Hourly Heat Rating	5.94	MMBtu/hr	
Max Sulfur Content[2]	2,055,036.54	grains/MMscf	Maximum measured H2S concentration
	205.50	grains/100scf	
	3,470.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.098	0.58	2.04	AP-42 Table 1.4-1
CO	0.31	1.84	6.45	AP-42 Table 13.5-2
VOC[1]	N/A	2.49	10.92	GlyCalc
H2S[3]	N/A	0.01	0.03	Engineering Calculation
SO2[3]	N/A	0.61	2.66	Engineering Calculation
PM10[2]	40	0.01	0.02	AP-42 Table 13.5-1
Benzene	N/A	0.93	4.07	GlyCalc
Toluene	N/A	0.27	1.20	GlyCalc
Ethylbenzene	N/A	0.01	0.04	GlyCalc
Xylenes	N/A	0.03	0.14	GlyCalc
n-Hexane	N/A	0.05	0.21	GlyCalc
2 2 4-trimethylpentane	N/A	0.000	0.001	GlyCalc
Total HAPs		1.29	5.67	

1 - VOC emissions from pilot stream are calculated using a mass balance and a 98% destruction efficiency.
2 - PM10 emission factor in units of µg/L, assuming a lightly smoking flare.
3 - H2S and SO2 emissions factors are in units of lb/scf

Sample Calculation for NOx from Dehydrator Waste Stream
0.098 lb/MMBtu * (2.50 Mscf/hr / 1000) * 2,374.1 Btu/scf = 0.58 lb/hr

Flare Detail Sheet

Equipment Source Name	FL-1	
Source Description	Process Flare	
Equipment Make	TBD	
Equipment Model	TBD	
Serial Number	TBD	
Destruction Efficiency	98%	
Open or Enclosed?	Open	
Ground or Elevated?	Elevated	
Potential Operation	8760	hr/yr

Stack Parameters	
Height (ft)	30.0
Temperature (°F)	1,832
Exit Velocity (ft/s)	65.62
Effective Diameter (ft)	39.2
Flow Rate (acfs)	79,097.3
Flow Rate (acfm)	4,745,838

Total Emissions

Pollutant	Estimated Emissions (lb/hr)*	Estimated Emissions (tpy)
NOx	369.63	3.76
CO	737.93	7.52
VOC	934.15	9.84
H2S	0.17	0.002
SO2	15.80	0.16
PM10	4.96	0.05
Benzene	8.62	0.09
Toluene	7.58	0.08
Ethylbenzene	0.84	0.01
Xylenes	3.23	0.03
n-Hexane	22.33	0.24
2 2 4-trimethylpentane	0.13	0.001
Total HAPs	42.73	0.45

Pilot Stream

Annual Pilot Gas Flow Rate	4.38	MMscf/yr	
Annual Margin	25%		
	5.48	MMscf/yr	Annual Pilot Gas Flow Rate With Added Margin
Max Hourly Pilot Gas Flow Rate	0.50	Mscf/hr	
Max Hourly Margin	25%		
	0.63	Mscf/hr	Max Hourly Pilot Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Total VOC Wt% to Flare	33.16%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Fuel Heat Value (LHV)[5]	1,300.00	Btu/scf	
Annual Avg. Heat Rating	0.84	MMBtu/hr	
Max Hourly Heat Rating	0.84	MMBtu/hr	
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.1380	0.12	0.51	Manufacturer
CO	0.2755	0.23	1.02	Manufacturer
VOC[1]	N/A	0.27	1.20	Engineering Calculation
H2S[3]	4.23E-06	0.000	0.000	Engineering Calculation
SO2[3]	7.95E-06	0.005	0.022	Engineering Calculation
PM10[2]	40	0.002	0.007	AP-42 Table 13.5-1
Benzene	N/A	0.003	0.011	Engineering Calculation
Toluene	N/A	0.002	0.010	Engineering Calculation
Ethylbenzene	N/A	0.000	0.001	Engineering Calculation
Xylenes	N/A	0.001	0.004	Engineering Calculation
n-Hexane	N/A	0.007	0.029	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.000	0.000	Engineering Calculation
Total HAPs		0.012	0.055	

Process Gas Stream

Annual Produced Gas Flow Rate	22.00	MMscf/yr	
Annual Margin	0%		
	22.00	MMscf/yr	Annual Process Gas Flow Rate With Added Margin
Max Hourly Produced Gas Flow Rate	730.00	Mscf/hr	
Max Hourly Margin	0%		
	730.00	Mscf/hr	Max Hourly Process Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Total VOC Wt% to Flare	40.00%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Annual Avg. Heat Rating	3.39	MMBtu/hr	
Max Hourly Heat Rating	984.11	MMBtu/hr	
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.1380	135.81	2.05	Manufacturer
CO	0.2755	271.12	4.09	Manufacturer
VOC[1]	N/A	384.83	5.80	Engineering Calculation
H2S[3]	4.23E-06	0.062	0.001	Engineering Calculation
SO2[3]	7.95E-06	5.80	0.09	Engineering Calculation
PM10[2]	40	1.82	0.03	AP-42 Table 13.5-1
Benzene	N/A	3.55	0.05	Engineering Calculation
Toluene	N/A	3.12	0.05	Engineering Calculation
Ethylbenzene	N/A	0.34	0.01	Engineering Calculation
Xylenes	N/A	1.33	0.02	Engineering Calculation
n-Hexane	N/A	9.20	0.14	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.05	0.00	Engineering Calculation
Total HAPs		17.60	0.27	

Compressor Blowdowns

Volume per Unit	5	Mscf/event	
Events per Year	1080	events/yr	
Annual Total Compressor Blowdown Flaring	5.40	MMscf/yr	
Annual Margin	25%		
	6.75	MMscf/yr	Annual Maintenance Gas Flow Rate With Added Margin
Max Hourly Compressor Blowdown Flow Rate	5.00	Mscf/hr	
Max Hourly Margin	25%		
	6.25	Mscf/hr	Max Hourly Maintenance Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Total VOC Wt% to Flare	33.16%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Annual Avg. Heat Rating	1.04	MMBtu/hr	
Max Hourly Heat Rating	8.43	MMBtu/hr	
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.1380	1.16	0.63	Manufacturer
CO	0.2755	2.32	1.25	Manufacturer
VOC[1]	N/A	2.73	1.48	Engineering Calculation
H2S[3]	4.23E-06	0.001	0.00	Engineering Calculation
SO2[3]	7.95E-06	0.05	0.03	Engineering Calculation
PM10[2]	40	0.02	0.01	AP-42 Table 13.5-1
Benzene	N/A	0.03	0.01	Engineering Calculation
Toluene	N/A	0.02	0.01	Engineering Calculation
Ethylbenzene	N/A	0.002	0.001	Engineering Calculation
Xylenes	N/A	0.01	0.01	Engineering Calculation
n-Hexane	N/A	0.07	0.04	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.000	0.000	Engineering Calculation
Total HAPs		0.12	0.07	

Plant Blowdown

Volume per Unit	1000.0	Mscf/event	
Events per Year	5	events/yr	
Annual Total Plant Blowdown Flaring	5.00	MMscf/yr	
Annual Margin	25%		
	6.25	MMscf/yr	Annual Maintenance Gas Flow Rate With Added Margin
Max Hourly Blowdown Flow Rate	1000.0	Mscf/hr	
Max Hourly Margin	25%		
	1250.00	Mscf/hr	Max Hourly Maintenance Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Total VOC Wt% to Flare	33.16%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2(
Annual Avg. Heat Rating	0.96	MMBtu/hr	
Max Hourly Heat Rating	1685.13	MMBtu/hr	
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.1380	232.55	0.58	Manufacturer
CO	0.2755	464.25	1.16	Manufacturer
VOC[1]	N/A	546.32	1.37	Engineering Calculation
H2S[3]	4.23E-06	0.106	0.000	Engineering Calculation
SO2[3]	7.95E-06	9.94	0.02	Engineering Calculation
PM10[2]	40	3.12	0.01	AP-42 Table 13.5-1
Benzene	N/A	5.04	0.01	Engineering Calculation
Toluene	N/A	4.43	0.01	Engineering Calculation
Ethylbenzene	N/A	0.49	0.00	Engineering Calculation
Xylenes	N/A	1.89	0.00	Engineering Calculation
n-Hexane	N/A	13.06	0.03	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.08	0.00	Engineering Calculation
Total HAPs		24.99	0.06	

Notes:

1 - VOC and H2S emissions are calculated using a mass balance and a 98% destruction efficiency.

2 - PM10 emission factor in units of µg/L, assuming a lightly smoking flare.

3 - H2S and SO2 emissions factors are in units of lb/scf

4 - Sulfur content of pilot and waste streams are either based on gas analysis or pipeline quality natural gas. Pipeline quality natural gas assumes sulfur levels of 2,000 grains per million cubic feet (2,000 grains/MMscf).

5 - LHV heating value used for fuel use and is not used in the emissions calculations.

Sample Calculation for NOx from Process Gas Waste Stream

0.138 lb/MMBtu * (730.00 Mscf/hr / 1000) * 1,348.1 Btu/scf = 135.81 lb/hr

Flare Detail Sheet

Equipment Source Name	FL-2	
Source Description	Tank Flare	
Equipment Make	TBD	
Equipment Model	TBD	
Serial Number	TBD	
Destruction Efficiency	98%	
Open or Enclosed?	Open	
Ground or Elevated?	Elevated	
Potential Operation	8760	hr/yr

Stack Parameters	
Height (ft)	20.0
Temperature (°F)	1,832
Exit Velocity (ft/s)	65.6
Effective Diameter (ft)	22.7
Flow Rate (acfs)	26,533
Flow Rate (acfm)	1,591,982

Total Emissions

Pollutant	Estimated Emissions (lb/hr)*	(tpy)
NOx	133.18	6.22
CO	265.88	12.41
VOC	606.47	18.44
H2S	0.02	0.001
SO2	2.00	0.06
PM10	0.80	0.04
Benzene	38.19	1.38
Toluene	5.95	0.21
Ethylbenzene	0.11	0.00
Xylenes	0.41	0.01
n-Hexane	15.06	0.42
2 2 4-trimethylpentane	0.35	0.001
Total HAPs	60.07	2.03

Pilot Stream

Annual Pilot Gas Flow Rate	0.88	MMscf/yr	
Annual Margin	25%		
	1.10	MMscf/yr	Annual Pilot Gas Flow Rate With Added Margin
Max Hourly Pilot Gas Flow Rate	0.10	Mscf/hr	
Max Hourly Margin	25%		
	0.13	Mscf/hr	Max Hourly Pilot Gas Flow Rate With Added Margin
Gas MW	25.00	lb/lbmol	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09
Total VOC Wt% to Flare	33.16%		Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09
Gas Heating Value	1,348.10	Btu/scf	Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09
Fuel Heat Value (LHV)[4]	1,300.00	Btu/scf	
Annual Avg. Heat Rating	0.17	MMBtu/hr	
Max Hourly Heat Rating	0.17	MMBtu/hr	
Max Sulfur Content[2]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	(tpy)	Source of Emission Factor
NOx	0.1380	0.02	0.10	Manufacturer
CO	0.2755	0.05	0.20	Manufacturer
VOC[1]	N/A	0.05	0.24	Engineering Calculation
H2S[5]	4.23E-06	0.000	0.000	Engineering Calculation
SO2[5]	7.95E-06	0.001	0.004	Engineering Calculation
PM10[2]	40	0.000	0.001	AP-42 Table 13.5-1
Benzene	N/A	0.001	0.002	Engineering Calculation
Toluene	N/A	0.000	0.002	Engineering Calculation
Ethylbenzene	N/A	0.000	0.000	Engineering Calculation
Xylenes	N/A	0.000	0.001	Engineering Calculation
n-Hexane	N/A	0.001	0.006	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.000	0.000	Engineering Calculation
Total HAPs		0.002	0.011	

Tank Waste Stream - Post Modifcation Emission Estimates

ProMax and BTECS Information Calculation

Gunbarrel Flash Emissions	39.96	scf/bbl
Gunbarrel Max Hourly W&B Losses	5.66	scf/bbl
Gunbarrel Annual W&B Losses	1.00	scf/bbl
Condensate Tanks Max Hourly W&B Losses	5.67	scf/bbl
Condensate Tanks Annual W&B Losses	6.17	scf/bbl
Produced Water Tanks Max Hourly W&B Losse	5.55	scf/bbl
Produced Water Tanks Annual W&B Losses	7.74	scf/bbl

Liquid Throughput Information

Annual Gunbarrel Throughput	492,750.00	bbl/yr
Annual Condensate Throughput	365,000.00	bbl/yr
Annual Produced Water Throughput	127,750.00	bbl/yr
Max Hourly Gunbarrel Throughput	5,000.00	bbl/hr
Max Hourly Condensate Throughput	2,500.00	bbl/hr
Max Hourly Produced Water Throughput	2,500.00	bbl/hr

Annual Waste Stream Vapor Flow Rate

Gunbarrel Tank Flash Flow Rate	19.69	MMscf/yr	
Gunbarrel Tank W&B Flow Rate	0.49	MMscf/yr	
Condensate Tank W&B Flow Rate	2.25	MMscf/yr	
Produced Water Tank W&B Flow Rate	0.99	MMscf/yr	
Annual Margin	25%		
Total Tank Waste Stream Vapor Flow Rate With Margin	29.28	MMscf/yr	Calculated

Max Hourly Waste Stream Vapor Flow Rate

Gunbarrel Tank Flash Flow Rate	199.82	Mscf/hr	
Gunbarrel Tank W&B Flow Rate	28.30	Mscf/hr	
Condensate Tank W&B Flow Rate	14.18	Mscf/hr	
Produced Water Tank W&B Flow Rate	13.86	Mscf/hr	
Annual Margin	25%	Mscf/hr	Margin to align previously modeled parameters
Total Tank Waste Stream Vapor Flow Rate With Margin	320.198	Mscf/hr	Calculated

Total Emissions Heat Value	3,000	Btu/scf	Based on ProMax with added margin
Annual Gas Heat Rate	87,837.86	MMBtu/yr	Gas Heat Rate With Added Margin
Average Hourly Gas Heat Rate	10.03	MMBtu/hr	Gas Heat Rate
Max Hourly Gas Heat Rate	960.59	MMBtu/hr	Gas Heat Rate
Max Sulfur Content[3]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.1380	132.56	6.06	Manufacturer
CO	0.2755	264.64	12.10	Manufacturer
VOC[1]	N/A	546.90	12.77	Engineering Calculation
H2S	N/A	0.02	0.00	Engineering Calculation
SO2	N/A	1.82	0.03	Engineering Calculation
PM10[2]	40	0.80	0.04	AP-42 Table 13.5-1
Benzene	N/A	38.02	1.37	Engineering Calculation
Toluene	N/A	5.84	0.20	Engineering Calculation
Ethylbenzene	N/A	0.09	0.001	Engineering Calculation
Xylenes	N/A	0.36	0.01	Engineering Calculation
n-Hexane	N/A	13.58	0.30	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.29	0.001	Engineering Calculation
Total HAPs		58.18	1.88	

Loadout Waste Stream

Waste Stream Flow Rate	34,589.11	lb/yr	Based on AP-42 Section 5.2.1
	189.53	lb/hr	Based on AP-42 Section 5.2.1
Vapor Molecular Weight	50.00	lb/lb-mol	BTECS
Vapor Flow Rate	0.262	MMscf/yr	
	1.438	Mscf/hr	
Emissions Heat Value	3,000	Btu/scf	Based on ProMax with added margin
Average Hourly Gas Heat Rate	0.09	MMBtu/hr	Gas Heat Rate
Max Hourly Gas Heat Rate	4.31	MMBtu/hr	Gas Heat Rate
Max Sulfur Content[4]	29,611.48	grains/MMscf	Maximum measured H2S concentration
	2.96	grains/100scf	
	50.00	ppm	

Pollutant	EF (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Source of Emission Factor
NOx	0.1380	0.60	0.05	Manufacturer
CO	0.2755	1.19	0.11	Manufacturer
VOC[1]	N/A	59.51	5.43	Engineering Calculation
H2S	N/A	0.002	0.000	Engineering Calculation
SO2	N/A	0.18	0.02	Engineering Calculation
PM10[2]	40	0.004	0.000	AP-42 Table 13.5-1
Benzene	N/A	0.17	0.01	Engineering Calculation
Toluene	N/A	0.11	0.01	Engineering Calculation
Ethylbenzene	N/A	0.01	0.001	Engineering Calculation
Xylenes	N/A	0.05	0.003	Engineering Calculation
n-Hexane	N/A	1.48	0.11	Engineering Calculation
2 2 4-trimethylpentane	N/A	0.06	0.000	Engineering Calculation
Total HAPs		1.88	0.14	

1 - VOC and H2S emissions are calculated using a mass balance and a 98% destruction efficiency.
2 - PM10 emission factor in units of μg/L, assuming a lightly smoking flare.
3 - Sulfur content of pilot and waste streams are either based on gas analysis or pipeline quality natural gas. Pipeline quality natural gas assumes sulfur levels of 2,000 grains per million cubic feet (2,000 grains/MMscf).
4 - LHV heating value used for fuel use and is not used in the emissions calculations.
5 - H2S and SO2 emissions factors are in units of lb/scf.

Sample Calculation for NOx from Tank Waste Stream

0.138 lb/MMBtu * (320.20 Mscf/hr / 1000) * 3,000.0 Btu/scf = 132.56 lb/hr

Fugitive Dust Emissions Detail Sheet

Equipment Source Name: HR-1
Source Description: Road Dust
Operation: 24 hr/day 365 days/yr
Emission Controls: None

Potential Emissions

Pollutant	Estimated Potential Emissions				Source of Emission Calculations
	Uncontrolled		Controlled		
	lb/hr	tpy	lb/hr	tpy	
PM30	2.033	0.171	2.033	0.171	AP-42 Section 13.2.2
PM10	0.518	0.044	0.518	0.044	AP-42 Section 13.2.2
PM 2.5	0.052	0.004	0.052	0.004	AP-42 Section 13.2.2
PM10	0.144		0.144		<---- Daily modeled
PM 2.5	0.014		0.014		<---- Daily modeled

Mean Vehicle Weight (W)	17.11	tons	Engineering Calculation
Surface Material Silt Content (s)	4.8	%	NMED Default[1]
Mean # of Days with > 0.01 inch of precipitation	70	Days	NMED Default[1]
Material moisture content (%water)	2	%	NMED Default[1]
Mean Wind Speed	11	mph	NMED Default[1]
Condensate Production Trucked	10% of max throughput	36,500.0	bbl/yr
Produced Water Trucked	100% of max throughput	127,750.0	bbl/yr

Condensate Hauler	200	BBL cond/trip	Truck capacity	12,000	lb Empty weight
	35,520	lb		5.6	lb/gal (condensate)
	3	max trips/hr			
	182.5	trips/yr			
	0.18	miles/hr			
	10.95	miles/yr			
Produced Water Hauler	120	BBL PW/trip	Truck capacity	12,000	lb Empty weight
	32,916	lb		8.3	lb/gal (Produced Water)
	3	max trips/hr			
	1064.583333	trips/yr			
	0.18	miles/hr			
	63.875	miles/yr			
	74.83	Total miles/yr (Condensate Hauler + Oil/PW Hauler)			
	0.36	Total miles/hr (Condensate Hauler + Oil/PW Hauler)			
	2.40	Total miles/day (40 total trips/day; Condensate + Oil/PW)			

Fugitive Dust (PM30) per mile traveled	5.65	lb/VMT	AP-42 Eqn 13.2.2-1a &2
Fugitive Dust (PM10) per mile traveled	1.44	lb/VMT	AP-42 Eqn 13.2.2-1a &2
Fugitive Dust (PM2.5) per mile traveled	0.14	lb/VMT	AP-42 Eqn 13.2.2-1a &2
Vehicle miles traveled	0.06	miles/trip	Engineering Assumption
Trips per hour	6.000	Trip/hr	
Trips per year	1247.08	Trip/yr	

Notes:

1 - NMED Department Accepted Values for: Aggregate Handling, Storage Pile, and Haul Road Emissions

Sample Calculation for PM10

(74.83 total miles/yr + 1.44 lb/VMT * 365 days/yr / 2000 lb/ton * (365 days - 70 days) / 365 days = 0.04 tpy

Uncontrolled SSM Activities

Equipment Source Name SSM
Source Description: Maintenance Activities

Emission Summary

Activity
Aerosol
Painting
Tank Degassing
Tank Cleaning
Engine Startup/Warmup
Sump Cleanout
Pipeline Degassing
Pigging
Filter Changes

Potential Emissions

Pollutant	lb/hr*	tpy
VOC	--	10.00
H2S	--	0.001
Benzene	--	0.092
Toluene	--	0.081
Ethylbenzene	--	0.009
Xylenes	--	0.035
n-Hexane	--	0.239
2,2,4-Trimethylpentane	--	0.001
Total HAPs	--	0.457

Notes:
* - Hourly emission limits are not appropriate for this operating situation.

Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2021

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	62.549%	62.55%	10.03	40.14%	40.14%	44.80%	NA
Ethane	30.07	13.542%	13.54%	4.07	16.29%	16.29%	18.18%	NA
Total HC (Non-VOC)		**76.091%**	**76.09%**	**14.11**	**56.43%**	**56.43%**	**62.98%**	**NA**
Propane	44.10	8.133%	8.13%	3.59	14.35%	14.35%	16.01%	43.26%
Iso-Butane	58.12	1.003%	1.00%	0.58	2.33%	2.33%	2.60%	7.03%
N-Butane	58.12	2.789%	2.79%	1.62	6.48%	6.48%	7.24%	19.55%
Iso-Pentane	72.15	0.655%	0.66%	0.47	1.89%	1.89%	2.11%	5.70%
N-Pentane	72.15	0.762%	0.76%	0.55	2.20%	2.20%	2.45%	6.63%
Other Hexanes	86.18	0.638%	0.64%	0.55	2.20%	2.20%	2.45%	6.63%
n-Hexane	86.18	0.230%	0.23%	0.20	0.79%	0.79%	0.88%	2.39%
Heptane	100.21	0.329%	0.33%	0.33	1.32%	1.32%	1.47%	3.98%
2,2,4-Trimethylpentane	114.22	0.001%	0.00%	0.00	0.00%	0.00%	0.01%	0.01%
Octanes+	114.23	0.192%	0.19%	0.22	0.88%	0.88%	0.98%	2.65%
Benzene	78.11	0.098%	0.10%	0.08	0.31%	0.31%	0.34%	0.92%
Toluene	92.14	0.073%	0.07%	0.07	0.27%	0.27%	0.30%	0.81%
Ethylbenzene	106.17	0.007%	0.01%	0.01	0.03%	0.03%	0.03%	0.09%
Xylenes	106.16	0.027%	0.03%	0.03	0.11%	0.11%	0.13%	0.35%
Total NMNE VOC		***14.937%***	**14.94%**	***6.81***	***33.16%***	**33.16%**	***37.02%***	***100.00%***
Total HAPs		***0.436%***	**0.44%**	***0.38***	***1.52%***	**1.52%**	***1.69%***	***4.57%***
Water	18.02	0.000%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.005%	0.01%	0.00	0.01%	0.01%	NA	NA
Carbon Dioxide	44.01	0.633%	0.63%	0.28	1.11%	1.11%	NA	NA
Nitrogen	28.01	8.291%	8.29%	2.32	9.29%	9.29%	NA	NA
Totals		99.96%	99.96%	25.00	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **55.51 lb/lb-mol**

Fuel Heat Value: 1,348.10 btu/scf

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Liquid Analysis - ProMax -Aztec 140 MM 031222 No 3phz - Stream 1

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	68.52%	68.52%	10.99	46.16%	46.16%	48.03%	NA
Ethane	30.07	14.47%	14.47%	4.35	18.27%	18.27%	19.01%	NA
Total HC (Non-VOC)		**82.99%**	**82.99%**	**15.34**	**64.44%**	**64.44%**	**67.03%**	**NA**
Propane	44.10	7.94%	7.94%	3.50	14.71%	14.71%	15.30%	46.42%
Iso-Butane	58.12	1.00%	1.00%	0.58	2.45%	2.45%	2.55%	7.73%
N-Butane	58.12	2.69%	2.69%	1.56	6.56%	6.56%	6.82%	20.69%
Iso-Pentane	72.15	0.56%	0.56%	0.40	1.68%	1.68%	1.75%	5.32%
N-Pentane	72.15	0.62%	0.62%	0.45	1.89%	1.89%	1.96%	5.95%
Other Hexanes	86.18	0.21%	0.21%	0.18	0.77%	0.77%	0.80%	2.44%
n-Hexane	86.18	0.21%	0.21%	0.18	0.77%	0.77%	0.80%	2.44%
Heptane	100.21	0.34%	0.34%	0.34	1.44%	1.44%	1.50%	4.55%
2,2,4-Trimethylpentane	114.22	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.02%
Octanes+	114.23	0.21%	0.21%	0.24	1.01%	1.01%	1.05%	3.18%
Benzene	78.11	0.06%	0.06%	0.04	0.19%	0.19%	0.19%	0.59%
Toluene	92.14	0.04%	0.04%	0.03	0.14%	0.14%	0.14%	0.44%
Ethylbenzene	106.17	0.00%	0.00%	0.00	0.01%	0.01%	0.01%	0.04%
Xylenes	106.16	0.01%	0.01%	0.01	0.06%	0.06%	0.06%	0.18%
Total NMNE VOC		***13.90%***	**13.90%**	***6.50***	***31.69%***	**31.69%**	***32.97%***	***100.00%***
Total HAPs		***0.32%***	**0.32%**	***0.28***	***1.18%***	**1.18%**	***1.22%***	***3.71%***
Water	18.02	0.00%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.00%	0.00%	0.00	0.00%	0.00%	NA	NA
Carbon Dioxide	44.01	0.34%	0.34%	0.15	0.62%	0.62%	NA	NA
Nitrogen	28.01	2.77%	2.77%	0.77	3.25%	3.25%	NA	NA
Totals		100.00%	100.00%	23.81	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **54.28 lb/lb-mol**

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Gas Analysis -Aztec Booster Prior to Dehy - Sample Date 02/22/2022

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	66.802%	66.80%	10.72	43.59%	43.59%	45.33%	NA
Ethane	30.07	14.392%	14.39%	4.33	17.60%	17.60%	18.30%	NA
Total HC (Non-VOC)		**81.194%**	**81.19%**	**15.04**	**61.19%**	**61.19%**	**63.63%**	**NA**
Propane	44.10	8.705%	8.71%	3.84	15.61%	15.61%	16.23%	44.64%
Iso-Butane	58.12	1.073%	1.07%	0.62	2.54%	2.54%	2.64%	7.25%
N-Butane	58.12	3.196%	3.20%	1.86	7.56%	7.56%	7.86%	21.60%
Iso-Pentane	72.15	0.711%	0.71%	0.51	2.09%	2.09%	2.17%	5.97%
N-Pentane	72.15	0.883%	0.88%	0.64	2.59%	2.59%	2.69%	7.41%
Other Hexanes	86.18	0.621%	0.62%	0.54	2.18%	2.18%	2.26%	6.22%
n-Hexane	86.18	0.213%	0.21%	0.18	0.75%	0.75%	0.78%	2.13%
Heptane	100.21	0.187%	0.19%	0.19	0.76%	0.76%	0.79%	2.18%
2,2,4-Trimethylpentane	114.22	0.001%	0.00%	0.00	0.00%	0.00%	0.00%	0.01%
Octanes+	114.23	0.095%	0.10%	0.11	0.44%	0.44%	0.46%	1.26%
Benzene	78.11	0.091%	0.09%	0.07	0.29%	0.29%	0.30%	0.83%
Toluene	92.14	0.036%	0.04%	0.03	0.13%	0.13%	0.14%	0.39%
Ethylbenzene	106.17	0.002%	0.00%	0.00	0.01%	0.01%	0.01%	0.02%
Xylenes	106.16	0.007%	0.01%	0.01	0.03%	0.03%	0.03%	0.09%
Total NMNE VOC		***15.821%***	**15.82%**	***7.47***	***34.98%***	**34.98%**	***36.37%***	***100.00%***
Total HAPs		***0.350%***	**0.35%**	***0.30***	***1.21%***	**1.21%**	***1.26%***	***3.47%***
Water	18.02	0.000%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.000%	0.00%	0.00	0.00%	0.00%	NA	NA
Carbon Dioxide	44.01	0.661%	0.66%	0.29	1.18%	1.18%	NA	NA
Nitrogen	28.01	2.324%	2.32%	0.65	2.65%	2.65%	NA	NA
Totals		100.000%	100.00%	24.59	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **54.36 lb/lb-mol**

Fuel Heat Value: 1,422.20 btu/scf

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Gas Analysis - ProMax -Aztec Slug Catcher Flash Sample - Sample Date 02/24/2022

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	2.86%	2.86%	0.46	0.90%	0.90%	0.93%	NA
Ethane	30.07	10.75%	10.75%	3.23	6.35%	6.35%	6.52%	NA
Total HC (Non-VOC)		**13.61%**	**13.61%**	**3.69**	**7.25%**	**7.25%**	**7.45%**	**NA**
Propane	44.10	29.93%	29.93%	13.20	25.92%	25.92%	26.63%	28.77%
Iso-Butane	58.12	8.28%	8.28%	4.81	9.45%	9.45%	9.71%	10.49%
N-Butane	58.12	27.85%	27.85%	16.19	31.79%	31.79%	32.66%	35.29%
Iso-Pentane	72.15	6.54%	6.54%	4.72	9.27%	9.27%	9.52%	10.29%
N-Pentane	72.15	6.53%	6.53%	4.71	9.25%	9.25%	9.50%	10.27%
Other Hexanes	86.18	1.38%	1.38%	1.19	2.34%	2.34%	2.40%	2.60%
n-Hexane	86.18	0.46%	0.46%	0.39	0.77%	0.77%	0.79%	0.86%
Heptane	100.21	0.37%	0.37%	0.37	0.73%	0.73%	0.75%	0.81%
2,2,4-Trimethylpentane	114.22	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.00%
Octanes+	114.23	0.14%	0.14%	0.16	0.31%	0.31%	0.32%	0.34%
Benzene	78.11	0.11%	0.11%	0.08	0.16%	0.16%	0.17%	0.18%
Toluene	92.14	0.05%	0.05%	0.04	0.08%	0.08%	0.09%	0.09%
Ethylbenzene	106.17	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.00%
Xylenes	106.16	0.01%	0.01%	0.01	0.01%	0.01%	0.01%	0.01%
Total NMNE VOC		***81.64%***	**81.64%**	***43.63***	***90.09%***	**90.09%**	***92.55%***	***100.00%***
Total HAPs		***0.62%***	**0.62%**	***0.53***	***1.04%***	**1.04%**	***1.07%***	***1.15%***
Water	18.02	0.00%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.00%	0.00%	0.00	0.00%	0.00%	NA	NA
Carbon Dioxide	44.01	0.14%	0.14%	0.06	0.12%	0.12%	NA	NA
Nitrogen	28.01	4.61%	4.61%	1.29	2.54%	2.54%	NA	NA
Totals		100.00%	100.00%	50.92	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **56.19 lb/lb-mol**

2,857.20 btu/scf

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Condenser Vent Stream Analysis - ECD-1 - GlyCalc Run 3Bear Aztec Compressor Station_Aggregate

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	3.79%	4.82%	0.61	1.12%	1.21%	1.25%	NA
Ethane	30.07	6.96%	8.85%	2.09	3.87%	4.17%	4.31%	NA
Total HC (Non-VOC)		**10.75%**	**13.68%**		**5.00%**	**5.38%**	**5.57%**	**NA**
Propane	44.10	9.99%	12.71%	4.41	8.15%	8.77%	9.08%	9.62%
Iso-Butane	58.12	1.99%	2.53%	1.16	2.14%	2.30%	2.38%	2.52%
N-Butane	58.12	8.93%	11.36%	5.19	9.60%	10.34%	10.70%	11.33%
Iso-Pentane	72.15	1.76%	2.24%	1.27	2.35%	2.53%	2.62%	2.77%
N-Pentane	72.15	4.80%	6.11%	3.46	6.41%	6.90%	7.14%	7.56%
Other Hexanes	86.18	5.23%	6.65%	4.51	8.34%	8.98%	9.29%	9.84%
n-Hexane	86.18	1.04%	1.32%	0.90	1.66%	1.79%	1.85%	1.96%
Heptane	100.21	2.10%	2.68%	2.11	3.90%	4.20%	4.35%	4.60%
2,2,4-Trimethylpentane	114.23	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.01%
Octanes +	114.23	0.01%	0.01%	0.01	0.01%	0.02%	0.02%	0.02%
Benzene	78.11	21.80%	27.74%	17.03	31.50%	33.91%	35.10%	37.17%
Toluene	92.14	5.46%	6.95%	5.03	9.31%	10.02%	10.37%	10.98%
Ethylbenzene	106.17	0.15%	0.19%	0.16	0.29%	0.31%	0.32%	0.34%
Xylenes	106.16	0.55%	0.70%	0.59	1.09%	1.17%	1.21%	1.28%
Total NMNE VOC		**63.81%**	**81.19%**	**45.81**	**84.73%**	**91.24%**	**94.43%**	**100.00%**
Total HAPs		**29.00%**	**36.90%**	**23.70**	**43.84%**	**47.21%**	**48.86%**	**51.74%**
Water	18.02	21.40%	NA	3.86	7.13%	NA	NA	NA
Hydrogen Sulfide	34.08	0.35%	0.44%	0.12	0.22%	0.24%	NA	NA
Carbon Dioxide	44.01	3.49%	4.44%	1.54	2.84%	3.06%	NA	NA
Nitrogen	28.01	0.16%	0.20%	0.04	0.08%	0.09%	NA	NA
Totals		99.96%	99.95%	54.07	100%	100%	100%	

Average Molecular Weight of VOCs: **71.79 lb/lb-mol**

Notes:

* Weight Percent corrected to remove Water, Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Condenser Vent Stream Analysis - ECD-2 - GlyCalc Run 3Bear Aztec Compressor Station_Aggregate

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	3.79%	4.82%	0.61	1.12%	1.21%	1.25%	NA
Ethane	30.07	6.96%	8.85%	2.09	3.87%	4.17%	4.31%	NA
Total HC (Non-VOC)		**10.75%**	**13.68%**		**5.00%**	**5.38%**	**5.57%**	**NA**
Propane	44.10	9.99%	12.71%	4.41	8.15%	8.77%	9.08%	9.62%
Iso-Butane	58.12	1.99%	2.53%	1.16	2.14%	2.30%	2.38%	2.52%
N-Butane	58.12	8.93%	11.36%	5.19	9.60%	10.34%	10.70%	11.33%
Iso-Pentane	72.15	1.76%	2.24%	1.27	2.35%	2.53%	2.62%	2.77%
N-Pentane	72.15	4.80%	6.11%	3.46	6.41%	6.90%	7.14%	7.56%
Other Hexanes	86.18	5.23%	6.65%	4.51	8.34%	8.98%	9.29%	9.84%
n-Hexane	86.18	1.04%	1.32%	0.90	1.66%	1.79%	1.85%	1.96%
Heptane	100.21	2.10%	2.68%	2.11	3.90%	4.20%	4.35%	4.60%
2,2,4-Trimethylpentane	114.23	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.01%
Octanes +	114.23	0.01%	0.01%	0.01	0.01%	0.02%	0.02%	0.02%
Benzene	78.11	21.80%	27.74%	17.03	31.50%	33.91%	35.10%	37.17%
Toluene	92.14	5.46%	6.95%	5.03	9.31%	10.02%	10.37%	10.98%
Ethylbenzene	106.17	0.15%	0.19%	0.16	0.29%	0.31%	0.32%	0.34%
Xylenes	106.16	0.55%	0.70%	0.59	1.09%	1.17%	1.21%	1.28%
Total NMNE VOC		**63.81%**	**81.19%**	**45.81**	**84.73%**	**91.24%**	**94.43%**	**100.00%**
Total HAPs		**29.00%**	**36.90%**	**23.70**	**43.84%**	**47.21%**	**48.86%**	**51.74%**
Water	18.02	21.40%	NA	3.86	7.13%	NA	NA	NA
Hydrogen Sulfide	34.08	0.35%	0.44%	0.12	0.22%	0.24%	NA	NA
Carbon Dioxide	44.01	3.49%	4.44%	1.54	2.84%	3.06%	NA	NA
Nitrogen	28.01	0.16%	0.20%	0.04	0.08%	0.09%	NA	NA
Totals		99.96%	99.95%	54.07	100.00%	100.00%	100.00%	

Average Molecular Weight of VOCs: **71.79 lb/lb-mol**

Notes:

* Weight Percent corrected to remove Water, Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

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.

Gunbarrel Tank

The gunbarrel tank is controlled by tank flare (FL-2) with 98% control efficiency. The working and breathing emissions for the tanks are calculated using BTECS *. An emission factor to estimate flash emissions was calculated using ProMax. An emission factor to estimate flash emissions from the flash vessel was calculated using Pro Max. VOC, H2S, and HAP emissions are shown at the tank flare (FL-2).

*BTECS = Barr Tank Emission Calculation Spreadsheet v.1.3.2 is a tool developed by Barr Engineering to calculate working and breathing losses using AP-42 Chapter 7.1 (June 2020) methodology.

Condensate Storage Tanks

The stabilized condensate tanks (CONDTK 1-5) are controlled by flare (FL-2) with 98% control efficiency. The working and breathing emissions for the condensate tanks were calculated using BTECS.

Produced Water Storage Tanks

The produced water tanks (PWTK 1-4) are controlled by flare (FL-2) with 98% control efficiency. The working and breathing emissions for the produced water tanks were calculated using BTECS. Emissions were calculated based on the assumption that 1% of the produced water throughput is condensate.

Dehydrator Reboiler Heaters

The emissions from the reboiler heaters (HTR-1, HTR-2) were calculated based on EPA approved AP-42 emission factors from Chapter 1.4, Tables 1.4-1 through 1.4-3.

Glycol Dehydration Unit

The emissions from the dehydration units (DEHY 1-2) were estimated using GRI GLYCalc 4.0, a site-specific gas analysis, and equipment operating parameters.

Equipment Fugitives

Process piping fugitive emissions (FUG-1) were estimated using component emission rates from EPA's Oil and Gas Production Operations average equipment leak emission factors (EPA 453/R-95-017 dated November 1995) Table 2-4. Component counts were from 40 CFR 98 Subpart W, Table W-1C and W-1B, Western U.S. Condensate tank component counts were estimated based on similar facilities.

Loadout

Condensate is piped off site during normal operation; however, permitted emissions reflect trucking during pipeline downtime or other event-based trucking requirements. Vapors from truck loading of the condensate (LOAD) are routed to FL-2 during vapor balance. Working loss emissions were estimated using the US EPA loadout equation from AP-42 Section 5.2, and the annual trucked volume of condensate.

Combustors

The emissions for the combustors (ECD 1-2) are based on the combustor pilot and combustion of gas streams from the dehydrators (DEHY 1-2). The pilot was assumed to operate 8760 hours per year. NOx and CO emissions were calculated using emission factors from AP-42 Table 1.4-1 and AP-42 Table 13.5-2, respectively. Controlled VOC emissions are based on GLYCalc as discussed above.

Flares

The emissions for the plant flare (FL-1) are based on the flare pilot and combustion of gas streams from maintenance activities, including compressor and plant blowdowns. Emission factors from the manufacturer were utilized for NOx and CO. The VOC, H2S, and HAP emissions were calculated using a mass balance.

The emissions for the tank flare (FL-2) are based on the flare pilot, flash emissions, and working and breathing losses from the tanks. Emission factors from the manufacturer were utilized for NOx and CO. The VOC, H2S, and HAP emissions were calculated using a mass balance. Due to the variability of heat content in tank vent streams a conservative heating value was used.

Compressor Engines

The compressor engine emissions (ENG 1-18) are calculated based on manufacturer specifications, including horsepower, fuel consumption, and uncontrolled emission factors, as well as applicable emission standards. For pollutants without manufacturer or regulatory defined emission factors, emissions were calculated based on EPA approved AP-42 emission factors from Chapter 3.2, Tables 3.2-1, 3.2-2 and 3.2-3. Lean burn engines are equipped with oxidation catalysts and rich burn engines are equipped with nonselective catalytic reduction for emission control.

SSM

The facility represents SSM emissions as 10 tpy of VOC’s.

Malfunction Emissions

The facility represents malfunction emissions (UP/MAL-1) emissions as 10 tpy of VOC’s.

Engine Information

DCL America Inc.
12620 FM 1960 W, Ste A4 Box # 560, Houston, TX 77065
Tel.: 877-897-9759 *Fax:* 281-605-5858 *E-mail:* info@dclamerica.com

To	Dalyce Watson	**Phone**	
	J-W Energy	**Fax**	
Date	February 25, 2022	**Email**	dwatson@jwenergy.com

RE: EMISSIONS GUARANTEE – 3 Bear Aztec

Dalyce,

We hereby guarantee that our QUICK-LID™ Model 4-DC63AL2-14HGS catalytic silencer described below:

Catalyst model	DC63
Catalyst coating	Oxidation High VOC reduction (A coating)
Outside Diameter of catalyst substrate	20.41"
No. of catalyst layers	2
No. of catalyst substrates per layer	2 (4 total elements)
Cell Density	300 cpsi

and sized for the following engine:

Engine model	CAT G3516J
Power	1380 hp @ 1400 rpm
Fuel	NG Per Supplied GERP
Exhaust Temperature	750F

will perform as follows:

SILENCER SYSTEM DATA

Silencer Grade	Hospital
Approx. Attenuation	35-40 dBA

Emissions	**Engine Output (g/bhp-hr)**	**Converter Output (g/bhp-hr)**
Nitrogen Oxides (NOx)	.50	.50
Carbon Monoxide (CO)	2.57	.50
Volatile Organic Compounds (NMNEHC)	1.15	.50
Formaldehyde (CH_2O)	.36	.10

for a period of 1 year (after invoice date) or 8000 hours, whichever comes first, subject to all terms and conditions contained in the attached warranty document being respected and met.

Best regards,
DCL America

Sam Kirk
Sales Manager – Gas Compression

DCL America Inc.

12620 FM 1960 W, Ste A4 Box # 560, Houston, TX 77065
Tel.: 877-897-9759 *Fax:* 281-605-5858 *E-mail:* info@dclamerica.com

ICE CATALYST SIZING PROGRAM

REV 2.0.38

REPORT DATE: 11-17-21

Customer	3 Bear Energy	Sales Person	BTK	Element	ERZ-1536-3-400
Housing	MCCOF4-4	Project	3 Bear	Contact	Robert Martinez

PROCESS DETAILS

Engine Name	Caterpillar G3606 A4 0.5 Caterpillar G3606 A4 0.5							
Engine Power	1875.0	BHP	ACFM	11869.0	CU. FT/MIN	Exhaust O_2	8.0	%
Exhaust Mass Flow	21766.0	LBS/HR	ACFH	712140	CU. FT/HR	Exhaust CO_2	6.4	%
Process Temperature	801.0	F	SCFM	4902.2	CU. FT/MIN	Exhaust H_2O	11.6	%
Exhaust Pressure	14.5	PSI	SCFH	294131	CU. FT/HR	Exhaust N_2	74.0	%
Exhaust Density	0.0306	LBS/FT^3	Standard Temperature	68.0	F	Max Pressure Drop	12.0	IN WC
Molecular Weight	28.52	AMU	Standard Pressure	14.6959	PSI	Propane in Fuel	9.31	%

CATALYST SELECTIONS

Type	Propane Oxidation		Geometry	Rectangular		Guard Bed	☐		
Cell Count	400	CPSI	Depth	3.500	IN	Layers	1	Modules/Layer	4
X	14.875	IN	Y	35.875	IN				
Open Area	13.441	FT^2	Part Volume	0.980	FT^3	Part Weight	70	LBS	
Linear Velocity	883	FT/MIN	Total Volume	3.920	FT^3	Total Weight	278	LBS	
Pressure Drop	1.5	IN WC	Space Velocity	75,026	(GHSV)				

EMISSIONS

inlet	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd	ppmvd%O2[3]
NO_X	0.50	2.07	9.06	58.86	66.58	33.15
CO	2.69	11.12	48.74	520.07	588.32	292.92
VOC[2]	1.31	5.42	23.73	160.86	181.97	90.60

targets	min % destruction	max g/bhp-hr	max lb/hr	max tons/year	max ppmv	max ppmvd	max ppmvd%O2
NO_X	0.00	0.50	2.07	9.06	58.86	66.58	33.15
CO	90.71	0.25	1.03	4.53	48.33	54.68	27.22
VOC	70.23	0.39	1.61	7.07	47.89	54.17	26.97

outlet	% destruction[1]	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd	ppmvd%O2
NO_X	0.00	0.50	2.07	9.06	58.86	66.58	33.15
CO	90.71	0.25	1.03	4.53	48.33	54.68	27.22
VOC	70.23	0.39	1.61	7.07	47.89	54.17	26.97

[1]Safety Value: 2 [2]VOC Molecular Weight: 44.1 [3]O_2 Reference Value: 15

ICE CATALYST SIZING PROGRAM

rev 2.0.43

Report Date: 1/10/2022

Customer	3Bear	Housing	
Sales Person	BTK	Element	ERZ-1536-3-400
Project	Aztek	Contact	Matt Jui
Engine Name	Caterpillar G3608 G3608 - 2520bhp - 1000RPM		

Engine Power	2500.0	BHP	ACFM	16122.0	CU. FT/MIN	Exhaust O2	8	%
Exhaust Mass Flow	29721.0	LBS/HR	ACFH	967320	CU. FT/HR	Exhaust CO2	6.4	%
Process Temperature	794.0	F	SCFM	6696.0	CU. FT/MIN	Exhaust H2O	11.6	%
Exhaust Pressure	14.5	PSI	SCFH	401758	CU. FT/HR	Exhaust N2	74	%
Exhaust Density	0.0307	LBS/FT^3	Std Temp	68.0	F	Max Pressure Drop	12.0	in wc
Molecular Weight	28.51	AMU	Std Pressure	14.6959	PSI	Propane in Fuel	9.48	%

ACS Part Name	R14.875X35.875X3.500-400				
OEM Part Name	ERZ-1536-3-400				
Type	Propane Oxidation	Layers	1		
Geometry	Rectangular	Modules/Layer	3	Cell Count	400cpsi
X	14.875in	Guard Bed	No	Depth	3.500in
Y	35.875in				

Open Area	10.081	ft^2	Part Volume	0.980	ft^3	Part Weight	70	lbs
Linear Velocity	1599	ft/min	Total Volume	2.940	ft^3	Total Weight	209	lbs
Pressure Drop	2.8	in wc	Space Velocity	136638	GHSV			

Inlet Emissions

	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd	ppmvd%O2
NOx	0.50	2.76	12.08	57.45	64.99	32.36
CO	4.23	23.31	102.18	798.30	903.06	449.62
VOC	1.29	7.11	31.16	154.63	174.92	87.09
H2CO	0.27	1.49	6.52	47.53	53.76	26.77

Target Emissions

	min %DRE	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd	ppmvd%O2
NOx	0.00	0.50	2.76	12.08	57.45	64.99	32.36
CO	85.82	0.60	3.31	14.49	113.23	128.09	63.78
VOC	45.74	0.70	3.86	16.91	83.91	94.92	47.26
H2CO	62.96	0.10	0.55	2.42	17.60	19.91	9.91

Emissions with Catalyst

	%DRE	g/bhp-hr	lb/hr	tons/year	ppmv	ppmvd	ppmvd%O2
NOx	0.00	0.50	2.76	12.08	57.45	64.99	32.36
CO	85.82	0.60	3.31	14.49	113.23	128.09	63.78
VOC	45.74	0.70	3.86	16.91	83.91	94.92	47.26
H2CO	62.96	0.10	0.55	2.42	17.60	19.91	9.91

Safety Value: 2 VOC Molecular Weight: 44.1 O2 Reference Value: 15

Tank Information

Gunbarrel Flash

0.10620	gpm	Aztec 140 MM 031222 No 3phz - Stream 44
0.15	bbl/hr	Calculated
0.00	MMSCFD	Aztec 140 MM 031222 No 3phz - Stream 42
	scf/bbl	
31.97	condensate scf/bbl condensate	Calculated
39.96	with Margin	Calculated
25.00%	Margin	

	lb/hr[1]	lb/bbl	lb/bbl with Margin
VOC	0.33	2.14	2.68
H2S	0.00	0.00	0.00
Benzene	0.05	0.30	0.37
Toluene	0.01	0.04	0.05
Ethylbenzene	0.00	0.00	0.00
Xylenes	0.00	0.00	0.00
n-Hexane	0.01	0.05	0.07
2,2,4-Trimethylpentane	0.00	0.00	0.00

1 - lb/hr from ProMax - Aztec 140 MM 031222 No 3phz - Stream 42

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	GUN-1
Location:	Aztec CS
Type of Tank:	Vertical Fixed Roof Tank

Physical Characteristics

Tank Dimensions, Throughput, and Temperature Profile

Diameter (ft):	15.50	Tank Volume (bbl):	750.00
Net Throughput (bbl/yr):	492,750	Turnovers Per Year:	637.41
Maximum Pumping Rate (bbl/hr):	5,000		
Shell Height (ft):	24	Maximum Liquid Height (ft):	24
Is Tank Underground (y / n)	No		
Tank Temperature Profile:	Ambient	Tank Insulation Type:	No Insulation

Shell Characteristics

Shell Paint Color/Shade:	Gray/Medium	Shell Paint Condition:	Average

Fixed Roof Characteristics

Type:	Cone	Height (ft):	
Fixed Roof Paint Color/Shade:	Gray/Medium	Fixed Roof Paint Condition:	Average

Breather Vent Settings

Vacuum Settings (psig):	-0.03	Pressure Settings (psig):	0.03

Meteorological Data

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Annual Avg.	Notes
T_{AX}	Ambient Daily Maximum Temperature (°F)	55.60	61.30	68.40	77.00	86.10	93.70	93.90	91.90	86.00	76.00	64.00	55.30	75.77	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
T_{AN}	Ambient Daily Minimum Temperature (°F)	27.80	32.50	38.50	46.10	56.40	64.50	68.50	67.00	59.50	47.90	35.20	27.70	47.63	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
T_{AA}	Ambient Daily Average Temperature (°F)	41.70	46.90	53.45	61.55	71.25	79.10	81.20	79.45	72.75	61.95	49.60	41.50	61.70	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
v	Monthly Average Wind Speed (mph)	7.60	8.70	9.60	10.50	10.10	10.10	8.50	7.60	7.80	7.80	7.60	7.40	8.61	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
P_A	Atmospheric Pressure (psia)	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
I	Monthly Solar Insolation (Btu/ft^2-day)	1,013.00	1,323.00	1,744.00	2,125.00	2,301.00	2,434.00	2,302.00	2,085.00	1,822.00	1,452.00	1,127.00	939.00	1,722.25	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.

Stored Liquid Characteristics[1]

i			T_{LA}	T_{LN}	T_{LX}	T_B	P_{VA}	P_{VN}	P_{VX}	M_L	M_V	Z_{Li}	Z_{vi}	
Component	Stored Product or Component in Mixture	Month	Average liquid surface temperature (°F)	Average minimum liquid surface temperature (°F)	Average maximum liquid surface temperature (°F)	Liquid Bulk Temperature for Use in Calculations (°F)	True vapor pressure at T_{LA} (psia)	True vapor pressure at T_{LN} (psia)	True vapor pressure at T_{LX} (psia)	Liquid Molecular Weight (lb/lbmol)	Vapor Molecular Weight (lb/lbmol)	Liquid Wt. Percent of Components Within Liquid	Vapor Weight Percent Eq. 40-6	Basis for Vapor Pressure Calculations. Component vapor pressures shown are partial pressures as determined using the vapor pressure methodology shown, the liquid mole fraction as determined by Eq. 40-4, and Eq. 40-3.
Mixture/Product	**Crude Oil RVP 13.0**	**January**	**45.73**	**37.04**	**54.42**	**43.86**	**8.5305**	**7.3911**	**9.7980**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0092	0.0071	0.0118	78.11	78.11	0.45%	0.17%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0140	0.0108	0.0179	84.16	84.16	0.70%	0.28%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0004	0.0003	0.0006	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0771	0.0602	0.0977	86.18	86.18	2.46%	1.56%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0041	0.0031	0.0055	92.14	92.14	0.88%	0.09%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0000	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0015	0.0011	0.0021	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**February**	**52.16**	**42.41**	**61.91**	**49.72**	**9.4556**	**8.0799**	**11.0007**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0111	0.0083	0.0146	78.11	78.11	0.45%	0.18%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0168	0.0127	0.0220	84.16	84.16	0.70%	0.30%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0005	0.0004	0.0007	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0919	0.0702	0.1189	86.18	86.18	2.46%	1.68%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0051	0.0037	0.0069	92.14	92.14	0.88%	0.10%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0001	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0019	0.0013	0.0027	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**March**	**60.39**	**49.24**	**71.54**	**57.16**	**10.7475**	**9.0271**	**12.7025**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0140	0.0102	0.0189	78.11	78.11	0.45%	0.20%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0211	0.0155	0.0283	84.16	84.16	0.70%	0.33%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0007	0.0005	0.0010	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1143	0.0849	0.1516	86.18	86.18	2.46%	1.83%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification
Tank Number: GUN-1
Location: Aztec CS
Type of Tank: Vertical Fixed Roof Tank

	Toluene						0.0066	0.0046	0.0093	92.14	92.14	0.88%	0.11%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0001	0.0002	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0025	0.0017	0.0037	106.17	106.17	1.42%	0.05%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**April**	**70.00**	**57.59**	**82.41**	**66.08**	**12.4184**	**10.2944**	**14.8524**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0181	0.0129	0.0250	78.11	78.11	0.45%	0.23%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0272	0.0195	0.0371	84.16	84.16	0.70%	0.37%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0010	0.0006	0.0015	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1459	0.1062	0.1970	86.18	86.18	2.46%	2.03%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0088	0.0061	0.0127	92.14	92.14	0.88%	0.13%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0002	0.0001	0.0003	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0035	0.0023	0.0053	106.17	106.17	1.42%	0.06%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**May**	**80.40**	**67.76**	**93.04**	**76.15**	**14.4366**	**12.0133**	**17.2036**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0237	0.0171	0.0324	78.11	78.11	0.45%	0.26%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0354	0.0257	0.0479	84.16	84.16	0.70%	0.41%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0014	0.0009	0.0020	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1879	0.1380	0.2516	86.18	86.18	2.46%	2.24%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0120	0.0083	0.0169	92.14	92.14	0.88%	0.15%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0002	0.0002	0.0004	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0050	0.0033	0.0073	106.17	106.17	1.42%	0.07%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**June**	**88.78**	**75.88**	**101.68**	**84.28**	**16.2314**	**13.5324**	**19.3068**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0292	0.0212	0.0397	78.11	78.11	0.45%	0.28%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0433	0.0316	0.0584	84.16	84.16	0.70%	0.45%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0018	0.0012	0.0026	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.2284	0.1686	0.3044	86.18	86.18	2.46%	2.43%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0151	0.0105	0.0212	92.14	92.14	0.88%	0.17%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0003	0.0002	0.0005	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0064	0.0043	0.0095	106.17	106.17	1.42%	0.08%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**July**	**90.36**	**78.63**	**102.09**	**86.10**	**16.5874**	**14.0777**	**19.4111**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0304	0.0227	0.0400	78.11	78.11	0.45%	0.29%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0450	0.0338	0.0589	84.16	84.16	0.70%	0.46%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0019	0.0013	0.0026	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.2368	0.1801	0.3071	86.18	86.18	2.46%	2.46%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0001	0.0002	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0158	0.0114	0.0215	92.14	92.14	0.88%	0.18%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0004	0.0002	0.0005	120.19	120.19	0.33%	0.01%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0068	0.0047	0.0096	106.17	106.17	1.42%	0.09%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**August**	**87.74**	**76.72**	**98.76**	**83.89**	**16.0002**	**13.6959**	**18.5777**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0285	0.0216	0.0371	78.11	78.11	0.45%	0.28%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0423	0.0323	0.0547	84.16	84.16	0.70%	0.44%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0017	0.0012	0.0024	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.2230	0.1720	0.2856	86.18	86.18	2.46%	2.40%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0147	0.0108	0.0197	92.14	92.14	0.88%	0.17%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0003	0.0002	0.0005	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0062	0.0044	0.0087	106.17	106.17	1.42%	0.08%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**September**	**80.00**	**69.36**	**90.64**	**76.63**	**14.3547**	**12.3015**	**16.6510**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0235	0.0178	0.0306	78.11	78.11	0.45%	0.26%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0350	0.0267	0.0453	84.16	84.16	0.70%	0.41%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0014	0.0010	0.0019	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1861	0.1436	0.2383	86.18	86.18	2.46%	2.23%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0118	0.0087	0.0159	92.14	92.14	0.88%	0.15%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0002	0.0002	0.0004	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0049	0.0035	0.0068	106.17	106.17	1.42%	0.07%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**October**	**67.72**	**57.76**	**77.68**	**65.04**	**12.0056**	**10.3209**	**13.8871**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	GUN-1
Location:	Aztec CS
Type of Tank:	Vertical Fixed Roof Tank

	Benzene						0.0171	0.0130	0.0222	78.11	78.11	0.45%	0.22%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0256	0.0196	0.0331	84.16	84.16	0.70%	0.36%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0009	0.0006	0.0013	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1378	0.1067	0.1761	86.18	86.18	2.46%	1.98%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0083	0.0061	0.0111	92.14	92.14	0.88%	0.13%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0002	0.0001	0.0002	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0033	0.0023	0.0045	106.17	106.17	1.42%	0.06%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**November**	**54.08**	**44.86**	**63.30**	**52.00**	**9.7460**	**8.4114**	**11.2338**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0117	0.0090	0.0152	78.11	78.11	0.45%	0.19%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0177	0.0136	0.0228	84.16	84.16	0.70%	0.31%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0006	0.0004	0.0008	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0968	0.0752	0.1232	86.18	86.18	2.46%	1.71%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0054	0.0040	0.0072	92.14	92.14	0.88%	0.10%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0001	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0020	0.0014	0.0028	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13.0**	**December**	**45.23**	**36.79**	**53.67**	**43.50**	**8.4616**	**7.3596**	**9.6839**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0091	0.0070	0.0116	78.11	78.11	0.45%	0.17%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0138	0.0107	0.0175	84.16	84.16	0.70%	0.27%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0004	0.0003	0.0006	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0760	0.0597	0.0957	86.18	86.18	2.46%	1.55%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0041	0.0030	0.0053	92.14	92.14	0.88%	0.09%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0000	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0015	0.0011	0.0020	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.

Monthly Total Emissions Report[1]

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total	Notes
L_S	**Standing Losses (lb)**	**521.81**	**707.32**	**858.77**	**829.07**	--	--	--	--	--	**859.11**	**793.27**	**496.93**	**5,066.28**	Calculated Using Equation 1-2
V_V	Vapor Space Volume (ft^3)	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75		Calculated Using Equation 1-3
W_V	Vapor Density (lb/ft^3)	0.0784	0.0857	0.0957	0.1084	0.1236	0.1368	0.1394	0.1352	0.1232	0.1055	0.0880	0.0778		Calculated Using Equation 1-22
K_E	Vapor Space Expansion Factor	0.6083	0.9117	1.0000	1.0000	--	--	--	--	--	1.0000	0.9531	0.5793		Calculated Using Equation 1-5
K_S	Vented Vapor Saturation Factor	0.1539	0.1410	0.1261	0.1111	0.0970	0.0872	0.0855	0.0884	0.0975	0.1144	0.1373	0.1549		Calculated Using equation 1-21
V_V	**Tank Vapor Space Volume (ft^3)**	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75	2,294.75		Calculated Using Equation 1-3
D	Tank Diameter (ft)	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50		See 'Tank Identification and Physical Characteristics' table above
H_{VO}	Vapor Space Outage (ft)	12.161	12.161	12.161	12.161	12.161	12.161	12.161	12.161	12.161	12.161	12.161	12.161		Calculated Using Equation 1-16
H_S	Tank Shell Height (ft)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00		See 'Tank Identification and Physical Characteristics' table above
H_L	Average Liquid Height (ft)	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00		See 'Tank Identification and Physical Characteristics' table above
H_{RO}	Roof Outage (ft)	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16		Calculated Using Equation 1-17 or 1-19
H_{RO}	**Roof Outage - Cone Roof (ft)**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**	**0.16**		**Calculated Using 1-17**
H_R	Cone Roof Height (ft)														See 'Tank Identification and Physical Characteristics' table above
W_V	**Vapor Density (lb/ft^3)**	**0.0784**	**0.0857**	**0.0957**	**0.1084**	**0.1236**	**0.1368**	**0.1394**	**0.1352**	**0.1232**	**0.1055**	**0.0880**	**0.0778**		**Calculated Using Equation 1-22**
M_V	Vapor Molecular Weight (lb/lbmol)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.5305	9.4556	10.7475	12.4184	14.4366	16.2314	16.5874	16.0002	14.3547	12.0056	9.7460	8.4616		See 'Stored Liquid Characteristics' table above
T_{LA}	Daily Average Liquid Surface Temperature (°R)	505.40	511.83	520.06	529.67	540.07	548.45	550.03	547.41	539.67	527.39	513.75	504.90		Calculated Using Equation 1-27
ΔT_A	Daily Average Ambient Temperature Range (°R)	27.80	28.80	29.90	30.90	29.70	29.20	25.40	24.90	26.50	28.10	28.80	27.60		Calculated Using Equation 1-11
R	Ideal Gas Constant R ($psia\text{-}ft^3/(lbmol\text{-}°R)$)	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731		Per AP-42 Chapter 7.1
T_B	Liquid Bulk Temperature (°R)	503.53	509.39	516.83	525.75	535.82	543.95	545.77	543.56	536.30	524.71	511.67	503.17		Calculated Using Equation 1-31
T_V	Average Vapor Temperature (°R)	507.27	514.28	523.28	533.60	544.32	552.95	554.28	551.26	543.03	530.08	515.83	506.64		Calculated Using Equation 1-32
α_S	Tank Shell Paint Solar Absorptance	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71		From Table 7.1-6
α_R	Tank Roof Paint Solar Absorptance	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71		From Table 7.1-6
I	Daily Total Solar Insolation Factor ($Btu/ft^2\text{-}day$)	1,013.00	1,323.00	1,744.00	2,125.00	2,301.00	2,434.00	2,302.00	2,085.00	1,822.00	1,452.00	1,127.00	939.00		From Table 7.1-7
K_E	**Vapor Space Expansion Factor**	**0.6083**	**0.9117**	**1.0000**	**1.0000**	--	--	--	--	--	**1.0000**	**0.9531**	**0.5793**		**Calculated Using Equation 1-5**
ΔT_V	Daily Vapor Temperature Range (°R)	34.76	39.02	44.59	49.63	50.55	51.59	46.91	44.09	42.56	39.84	36.86	33.77		Calculated Using Equation 1-6
ΔP_V	Daily Vapor Pressure Range (psia)	2.41	2.92	3.68	4.56	5.19	5.77	5.33	4.88	4.35	3.57	2.82	2.32		Calculated Using Equation 1-9
ΔP_B	Breather Vent Pressure Setting Range (psia)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06		Calculated Using Equation 1-10
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.5305	9.4556	10.7475	12.4184	14.4366	16.2314	16.5874	16.0002	14.3547	12.0056	9.7460	8.4616		See 'Stored Liquid Characteristics' table above
P_{VN}	Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	7.3911	8.0799	9.0271	10.2944	12.0133	13.5324	14.0777	13.6959	12.3015	10.3209	8.4114	7.3596		See 'Stored Liquid Characteristics' table above
P_{VX}	Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia)	9.7980	11.0007	12.7025	14.8524	17.2036	19.3068	19.4111	18.5777	16.6510	13.8871	11.2338	9.6839		See 'Stored Liquid Characteristics' table above
T_{LA}	Daily Average Liquid Surface Temperature (°R)	505.40	511.83	520.06	529.67	540.07	548.45	550.03	547.41	539.67	527.39	513.75	504.90		Calculated Using Equation 1-27
T_{LN}	Daily Minimum Liquid Surface Temperature (°R)	496.71	502.08	508.91	517.26	527.43	535.55	538.30	536.39	529.03	517.43	504.53	496.46		Calculated Using Figure 7-1.17
T_{LX}	Daily Maximum Liquid Surface Temperature (°R)	514.09	521.58	531.21	542.08	552.71	561.35	561.76	558.43	550.31	537.35	522.97	513.34		Calculated Using Figure 7-1.17

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	GUN-1
Location:	Aztec CS
Type of Tank:	Vertical Fixed Roof Tank

ΔT_A	Daily Ambient Temperature Range (°R)	27.80	28.80	29.90	30.90	29.70	29.20	25.40	24.90	26.50	28.10	28.80	27.60	Calculated Using Equation 1-11
K_S	**Vented Vapor Saturation Factor**	**0.1539**	**0.1410**	**0.1261**	**0.1111**	**0.0970**	**0.0872**	**0.0855**	**0.0884**	**0.0975**	**0.1144**	**0.1373**	**0.1549**	**Calculated Using Equation 1-21**
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.5305	9.4556	10.7475	12.4184	14.4366	16.2314	16.5874	16.0002	14.3547	12.0056	9.7460	8.4616	See 'Stored Liquid Characteristics' table above
H_{VO}	Vapor Space Outage (ft)	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	12.1613	Calculated Using Equation 1-16
L_W	**Working Losses (lb/month)**	**2,950.97**	**2,914.20**	**3,604.17**	**3,952.21**	**4,654.12**	**4,984.97**	**5,251.47**	**5,093.25**	**4,489.09**	**3,974.41**	**3,208.51**	**2,930.76**	**48,008.14**	**Calculated Using Equation 1-35**
M_V	Vapor Molecular Weight (lb/lbmol)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Avg. Liquid Surface Temp. (psia)	8.5305	9.4556	10.7475	12.4184	14.4366	16.2314	16.5874	16.0002	14.3547	12.0056	9.7460	8.4616	See 'Stored Liquid Characteristics' table above
Q	Throughput (gal/month)	1,757,700.00	1,587,600.00	1,757,700.00	1,701,000.00	1,757,700.00	1,701,000.00	1,757,700.00	1,757,700.00	1,701,000.00	1,757,700.00	1,701,000.00	1,757,700.00	Specified monthly throughput
N	Annual Turnovers	637.41	637.41	637.41	637.41	637.41	637.41	637.41	637.41	637.41	637.41	637.41	637.41	Calculated Using Equation 1-36
K_N	Turnover Factor	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	0.2137	Per notes to Equation 1-35
H_{LX}	Maximum Liquid Height (ft)	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	See 'Tank Identification and Physical Characteristics' table above
D	Tank Diameter (ft)	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	15.50	See 'Tank Identification and Physical Characteristics' table above
K_B	Working Loss Product Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	Per notes to Equation 1-35
K_S	Vent Setting Correction Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Calculated using equations 1-40 and 1-41
L_T	**Total Losses (lb/month)**	**3,472.78**	**3,621.52**	**4,462.93**	**4,781.28**	**4,654.12**	**4,984.97**	**5,251.47**	**5,093.25**	**4,489.09**	**4,833.52**	**4,001.78**	**3,427.70**	**53,074.41**	**Calculated Using Equation 2-1**
L_T	Total VOC Losses (lb/month)	3,472.78	3,621.52	4,462.93	4,781.28	4,654.12	4,984.97	5,251.47	5,093.25	4,489.09	4,833.52	4,001.78	3,427.70	53,074.41	Sum of VOC Component Emissions
L_T	Total HAP Losses (lb/month)	64.67	72.89	98.83	117.76	127.85	148.91	159.31	150.60	122.81	116.14	82.39	63.44	1,325.58	Sum of HAP Component Emissions
L_{TI}	Benzene Losses (lb/month)	5.84	6.64	9.08	10.91	11.96	14.02	15.02	14.17	11.48	10.74	7.52	5.73	123.11	Calculated using Equations 40-1 through 40-9
L_{TI}	Biphenyl Losses (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Calculated using Equations 40-1 through 40-9
L_{TI}	Cyclohexane Losses (lb/month)	9.59	10.84	14.74	17.62	19.19	22.39	23.97	22.64	18.43	17.36	12.26	9.40	198.42	Calculated using Equations 40-1 through 40-9
L_{TI}	Ethylbenzene Losses (lb/month)	0.36	0.43	0.63	0.80	0.94	1.17	1.26	1.17	0.90	0.78	0.49	0.35	9.29	Calculated using Equations 40-1 through 40-9
L_{TI}	Hexane (n) Losses (lb/month)	54.07	60.67	81.81	96.84	104.40	120.91	129.21	122.36	100.31	95.66	68.49	53.06	1,087.79	Calculated using Equations 40-1 through 40-9
L_{TI}	Naphthalene Losses (lb/month)	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.16	Calculated using Equations 40-1 through 40-9
L_{TI}	Phenol Losses (lb/month)	0.01	0.01	0.02	0.02	0.03	0.05	0.05	0.05	0.03	0.02	0.01	0.01	0.31	Calculated using Equations 40-1 through 40-9
L_{TI}	Toluene Losses (lb/month)	3.10	3.60	5.06	6.28	7.10	8.54	9.19	8.60	6.81	6.13	4.10	3.03	71.54	Calculated using Equations 40-1 through 40-9
L_{TI}	Trimethylbenzene (1,2,4) Losses (lb/month)	0.06	0.08	0.12	0.16	0.19	0.25	0.27	0.25	0.19	0.15	0.09	0.06	1.86	Calculated using Equations 40-1 through 40-9
L_{TI}	Xylene (m) Losses (lb/month)	1.29	1.54	2.24	2.88	3.39	4.20	4.55	4.22	3.25	2.79	1.77	1.26	33.36	Calculated using Equations 40-1 through 40-9

Maximum Hourly Emissions Report[2]

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Max Month	Notes
L_{MAX}	**Maximum Hourly Emissions (lb/hr)**	**2,207.80**	**2,416.48**	**2,703.17**	**3,066.75**	**3,496.50**	**3,871.15**	**3,944.68**	**3,823.25**	**3,479.26**	**2,977.63**	**2,481.37**	**2,192.12**	**3,944.68**	TCEQ APDG 6250 - Equation 1
M_V	Vapor Molecular Weight (lb/lb-mole)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.53	9.46	10.75	12.42	14.44	16.23	16.59	16.00	14.35	12.01	9.75	8.46		See 'Stored Liquid Characteristics' table above
R	Ideal Gas Constant R (psia-ft^3/lbmol-°R)	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731		Constant
T_{LA}	Daily Average Liquid Surface Temperature (°R)	--	--	--	--	--	--	--	--	--	--	--	--		Calculated Using Equation 1-27
FR_M	Maximum Filling Rate for Tank (gal/hr)	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00	210,000.00		See 'Tank Identification and Physical Characteristics' table above
L_T	**Total Losses (lb/hr)**	**2,207.80**	**2,416.48**	**2,703.17**	**3,066.75**	**3,496.50**	**3,871.15**	**3,944.68**	**3,823.25**	**3,479.26**	**2,977.63**	**2,481.37**	**2,192.12**	**3,944.68**	Calculated Using Equation 2-1
L_T	Total VOC Losses (lb/hr)	2,207.80	2,416.48	2,703.17	3,066.75	3,496.50	3,871.15	3,944.68	3,823.25	3,479.26	2,977.63	2,481.37	2,192.12	3,944.68	Sum of VOC Component Emissions
L_T	Total HAP Losses (lb/hr)	41.11	48.63	59.86	75.53	96.05	115.64	119.66	113.05	95.19	71.54	51.09	40.57	119.66	Sum of HAP Component Emissions
L_{TI}	Benzene Losses (lb/hr)	3.72	4.43	5.50	7.00	8.98	10.89	11.28	10.64	8.90	6.62	4.66	3.66	11.28	Calculated using Equations 40-1 through 40-9
L_{TI}	Biphenyl Losses (lb/hr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Calculated using Equations 40-1 through 40-9
L_{TI}	Cyclohexane Losses (lb/hr)	6.09	7.23	8.93	11.30	14.41	17.39	18.00	17.00	14.28	10.70	7.60	6.01	18.00	Calculated using Equations 40-1 through 40-9
L_{TI}	Ethylbenzene Losses (lb/hr)	0.23	0.29	0.38	0.52	0.71	0.91	0.95	0.88	0.70	0.48	0.31	0.23	0.95	Calculated using Equations 40-1 through 40-9
L_{TI}	Hexane (n) Losses (lb/hr)	34.37	40.49	49.55	62.12	78.43	93.89	97.06	91.85	77.75	58.93	42.47	33.93	97.06	Calculated using Equations 40-1 through 40-9
L_{TI}	Naphthalene Losses (lb/hr)	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.02	Calculated using Equations 40-1 through 40-9
L_{TI}	Phenol Losses (lb/hr)	0.00	0.01	0.01	0.02	0.03	0.04	0.04	0.04	0.03	0.01	0.01	0.00	0.04	Calculated using Equations 40-1 through 40-9
L_{TI}	Toluene Losses (lb/hr)	1.97	2.40	3.06	4.03	5.34	6.63	6.90	6.46	5.28	3.78	2.54	1.94	6.90	Calculated using Equations 40-1 through 40-9
L_{TI}	Trimethylbenzene (1,2,4) Losses (lb/hr)	0.04	0.05	0.07	0.10	0.15	0.19	0.20	0.19	0.14	0.09	0.06	0.04	0.20	Calculated using Equations 40-1 through 40-9
L_{TI}	Xylene (m) Losses (lb/hr)	0.82	1.02	1.35	1.85	2.55	3.26	3.42	3.17	2.52	1.72	1.09	0.80	3.42	Calculated using Equations 40-1 through 40-9

Notes:
(1) Equations, figures, and tables are from AP-42 Chapter 7.1 Organic Liquid Storage Tanks, June 2020.
(2) Calculations follow the methodology specified in TCEQ Air Permit Reviewer Guides (APDG) 6250 and 6419. Notes in this table which do not begin with 'TCEQ APDG' are to the AP-42 referenced in footnote (1).

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	TK-COND
Location:	Aztec
Type of Tank:	Vertical Fixed Roof Tank

Physical Characteristics

Tank Dimensions, Throughput, and Temperature Profile

Diameter (ft):	20.00	Tank Volume (bbl):	500.00
Net Throughput (bbl/yr):	365,000	Turnovers Per Year:	343.29
Maximum Pumping Rate (bbl/hr):	2,500		
Shell Height (ft):	13.4	Maximum Liquid Height (ft):	20
Is Tank Underground (y / n)	No		
Tank Temperature Profile:	Ambient	Tank Insulation Type:	No Insulation

Shell Characteristics

Shell Paint Color/Shade:	Gray/Medium	Shell Paint Condition:	Average

Fixed Roof Characteristics

Type:	Cone	Height (ft):	0.63
Fixed Roof Paint Color/Shade:	Gray/Medium	Fixed Roof Paint Condition:	Average

Breather Vent Settings

Vacuum Settings (psig):	-0.03	Pressure Settings (psig):	0.03

Meteorological Data

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Annual Avg.	Notes
T_{AX}	Ambient Daily Maximum Temperature (°F)	55.60	61.30	68.40	77.00	86.10	93.70	93.90	91.90	86.00	76.00	64.00	55.30	75.77	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
T_{AN}	Ambient Daily Minimum Temperature (°F)	27.80	32.50	38.50	46.10	56.40	64.50	68.50	67.00	59.50	47.90	35.20	27.70	47.63	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
T_{AA}	Ambient Daily Average Temperature (°F)	41.70	46.90	53.45	61.55	71.25	79.10	81.20	79.45	72.75	61.95	49.60	41.50	61.70	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
v	Monthly Average Wind Speed (mph)	7.60	8.70	9.60	10.50	10.10	10.10	8.50	7.60	7.80	7.80	7.60	7.40	8.61	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
P_A	Atmospheric Pressure (psia)	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
I	Monthly Solar Insolation (Btu/ft^2-day)	1,013.00	1,323.00	1,744.00	2,125.00	2,301.00	2,434.00	2,302.00	2,085.00	1,822.00	1,452.00	1,127.00	939.00	1,722.25	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.

Stored Liquid Characteristics[1]

i			T_{LA}	T_{LN}	T_{LX}	T_B	P_{VA}	P_{VN}	P_{VX}	M_L	M_V	Z_{Li}	Z_{vi}	
Component	Stored Product or Component in Mixture	Month	Average liquid surface temperature (°F)	Average minimum liquid surface temperature (°F)	Average maximum liquid surface temperature (°F)	Liquid Bulk Temperature for Use in Calculations (°F)	True vapor pressure at T_{LA} (psia)	True vapor pressure at T_{LN} (psia)	True vapor pressure at T_{LX} (psia)	Liquid Molecular Weight (lb/lbmol)	Vapor Molecular Weight (lb/lbmol)	Liquid Wt. Percent of Components Within Liquid	Vapor Weight Percent Eq. 40-6	Basis for Vapor Pressure Calculations. Component vapor pressures shown are partial pressures as determined using the vapor pressure methodology shown, the liquid mole fraction as determined by Eq. 40-4, and Eq. 40-3.
Mixture/Product	**Crude Oil RVP 13**	**January**	**46.20**	**37.73**	**54.67**	**43.86**	**8.5957**	**7.4772**	**9.8363**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0093	0.0072	0.0119	78.11	78.11	0.45%	0.17%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0142	0.0110	0.0180	84.16	84.16	0.70%	0.28%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0004	0.0003	0.0006	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0781	0.0614	0.0983	86.18	86.18	2.46%	1.57%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0042	0.0031	0.0055	92.14	92.14	0.88%	0.09%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0000	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0015	0.0011	0.0021	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**February**	**52.78**	**43.15**	**62.41**	**49.72**	**9.5486**	**8.1794**	**11.0836**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0113	0.0085	0.0148	78.11	78.11	0.45%	0.18%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0171	0.0130	0.0223	84.16	84.16	0.70%	0.30%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0005	0.0004	0.0008	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0935	0.0717	0.1204	86.18	86.18	2.46%	1.69%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0052	0.0038	0.0070	92.14	92.14	0.88%	0.10%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0001	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0019	0.0013	0.0027	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**March**	**61.20**	**50.05**	**72.35**	**57.16**	**10.8814**	**9.1435**	**12.8556**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0143	0.0104	0.0193	78.11	78.11	0.45%	0.21%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0216	0.0158	0.0289	84.16	84.16	0.70%	0.33%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0007	0.0005	0.0011	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1167	0.0868	0.1547	86.18	86.18	2.46%	1.85%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification
Tank Number: TK-COND
Location: Aztec
Type of Tank: Vertical Fixed Roof Tank

	Toluene						0.0068	0.0048	0.0095	92.14	92.14	0.88%	0.11%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0001	0.0002	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0026	0.0017	0.0038	106.17	106.17	1.42%	0.05%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**April**	**70.99**	**58.45**	**83.53**	**66.08**	**12.6009**	**10.4324**	**15.0880**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0186	0.0133	0.0257	78.11	78.11	0.45%	0.23%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0279	0.0200	0.0382	84.16	84.16	0.70%	0.37%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0010	0.0007	0.0015	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1496	0.1087	0.2023	86.18	86.18	2.46%	2.05%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0091	0.0062	0.0131	92.14	92.14	0.88%	0.13%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0002	0.0001	0.0003	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0036	0.0024	0.0055	106.17	106.17	1.42%	0.06%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**May**	**81.47**	**68.61**	**94.33**	**76.15**	**14.6572**	**12.1660**	**17.5065**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0244	0.0175	0.0334	78.11	78.11	0.45%	0.26%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0363	0.0262	0.0494	84.16	84.16	0.70%	0.42%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0014	0.0009	0.0021	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1927	0.1410	0.2589	86.18	86.18	2.46%	2.27%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0123	0.0085	0.0175	92.14	92.14	0.88%	0.15%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0003	0.0002	0.0004	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0051	0.0034	0.0076	106.17	106.17	1.42%	0.07%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**June**	**89.92**	**76.74**	**103.10**	**84.28**	**16.4877**	**13.7010**	**19.6699**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0300	0.0216	0.0410	78.11	78.11	0.45%	0.28%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0445	0.0323	0.0603	84.16	84.16	0.70%	0.45%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0019	0.0012	0.0027	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.2344	0.1721	0.3138	86.18	86.18	2.46%	2.45%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0002	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0156	0.0108	0.0220	92.14	92.14	0.88%	0.17%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0004	0.0002	0.0005	120.19	120.19	0.33%	0.01%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0067	0.0044	0.0099	106.17	106.17	1.42%	0.09%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**July**	**91.43**	**79.39**	**103.47**	**86.10**	**16.8317**	**14.2305**	**19.7660**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0312	0.0231	0.0413	78.11	78.11	0.45%	0.29%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0461	0.0345	0.0608	84.16	84.16	0.70%	0.46%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0019	0.0013	0.0028	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.2426	0.1834	0.3164	86.18	86.18	2.46%	2.48%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0001	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0001	0.0002	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0162	0.0116	0.0222	92.14	92.14	0.88%	0.18%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0004	0.0002	0.0006	120.19	120.19	0.33%	0.01%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0070	0.0048	0.0100	106.17	106.17	1.42%	0.09%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**August**	**88.71**	**77.44**	**99.98**	**83.89**	**16.2158**	**13.8398**	**18.8789**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0292	0.0220	0.0381	78.11	78.11	0.45%	0.28%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0432	0.0329	0.0562	84.16	84.16	0.70%	0.45%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0018	0.0013	0.0025	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.2280	0.1751	0.2933	86.18	86.18	2.46%	2.42%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0151	0.0110	0.0203	92.14	92.14	0.88%	0.17%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0003	0.0002	0.0005	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0064	0.0045	0.0090	106.17	106.17	1.42%	0.08%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**September**	**80.85**	**70.10**	**91.60**	**76.63**	**14.5291**	**12.4368**	**16.8707**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0240	0.0182	0.0313	78.11	78.11	0.45%	0.26%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0358	0.0273	0.0463	84.16	84.16	0.70%	0.41%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0014	0.0010	0.0019	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1899	0.1463	0.2435	86.18	86.18	2.46%	2.25%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0001	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0121	0.0089	0.0163	92.14	92.14	0.88%	0.15%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0003	0.0002	0.0004	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0050	0.0035	0.0070	106.17	106.17	1.42%	0.07%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**October**	**68.40**	**58.50**	**78.30**	**65.04**	**12.1276**	**10.4401**	**14.0104**	**207.00**	**50.00**	**--**	**--**	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	TK-COND
Location:	Aztec
Type of Tank:	Vertical Fixed Roof Tank

	Benzene						0.0174	0.0133	0.0225	78.11	78.11	0.45%	0.22%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0261	0.0200	0.0336	84.16	84.16	0.70%	0.36%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0009	0.0007	0.0013	106.17	106.17	0.35%	0.02%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.1402	0.1088	0.1787	86.18	86.18	2.46%	1.99%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0001	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0084	0.0062	0.0113	92.14	92.14	0.88%	0.13%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0002	0.0001	0.0002	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0033	0.0024	0.0046	106.17	106.17	1.42%	0.06%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**November**	**54.61**	**45.59**	**63.63**	**52.00**	**9.8273**	**8.5117**	**11.2901**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0119	0.0092	0.0153	78.11	78.11	0.45%	0.19%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0180	0.0139	0.0230	84.16	84.16	0.70%	0.31%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0006	0.0004	0.0008	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0982	0.0768	0.1243	86.18	86.18	2.46%	1.72%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0055	0.0041	0.0073	92.14	92.14	0.88%	0.10%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0001	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0021	0.0015	0.0028	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.
Mixture/Product	**Crude Oil RVP 13**	**December**	**45.67**	**37.47**	**53.87**	**43.50**	**8.5222**	**7.4446**	**9.7137**	**207.00**	**50.00**	--	--	**Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.**
	Benzene						0.0092	0.0072	0.0116	78.11	78.11	0.45%	0.17%	Equation 1-26 (Antoine's equation). A = 6.9, B = 1211, C = 220.79.
	Biphenyl						0.0000	0.0000	0.0000	154.21	154.21	0.06%	0.00%	Equation 1-26 (Antoine's equation). A = 7.24, B = 1998.7, C = 202.73.
	Cyclohexane						0.0140	0.0110	0.0176	84.16	84.16	0.70%	0.28%	Equation 1-26 (Antoine's equation). A = 6.84, B = 1203.5, C = 222.86.
	Ethylbenzene						0.0004	0.0003	0.0006	106.17	106.17	0.35%	0.01%	Equation 1-26 (Antoine's equation). A = 6.95, B = 1419.3, C = 212.61.
	Hexane (n)						0.0769	0.0609	0.0962	86.18	86.18	2.46%	1.56%	Equation 1-26 (Antoine's equation). A = 6.87, B = 1171.5, C = 224.37.
	Naphthalene						0.0000	0.0000	0.0000	128.17	128.17	0.22%	0.00%	Equation 1-26 (Antoine's equation). A = 7.14, B = 1831.6, C = 211.82.
	Phenol						0.0000	0.0000	0.0000	94.11	94.11	0.32%	0.00%	Equation 1-26 (Antoine's equation). A = 7.12, B = 1509.7, C = 174.2.
	Toluene						0.0041	0.0031	0.0054	92.14	92.14	0.88%	0.09%	Equation 1-26 (Antoine's equation). A = 7.01, B = 1377.6, C = 222.64.
	Trimethylbenzene (1,2,4)						0.0001	0.0000	0.0001	120.19	120.19	0.33%	0.00%	Equation 1-26 (Antoine's equation). A = 7.04, B = 1573.3, C = 208.56.
	Xylene (m)						0.0015	0.0011	0.0020	106.17	106.17	1.42%	0.04%	Equation 1-26 (Antoine's equation). A = 7, B = 1462.3, C = 215.11.

Monthly Total Emissions Report[1]

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total	Notes
L_S	**Standing Losses (lb)**	**632.26**	**900.41**	**1,101.70**	**1,093.34**	--	--	--	--	--	**1,125.72**	**1,005.03**	**597.86**	**6,456.32**	Calculated Using Equation 1-2
V_V	Vapor Space Volume (ft^3)	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59		Calculated Using Equation 1-3
W_V	Vapor Density (lb/ft^3)	0.0788	0.0863	0.0966	0.1096	0.1250	0.1384	0.1409	0.1366	0.1243	0.1063	0.0886	0.0782		Calculated Using Equation 1-22
K_E	Vapor Space Expansion Factor	0.6036	0.9289	1.0000	1.0000	--	--	--	--	--	1.0000	0.9606	0.5718		Calculated Using Equation 1-5
K_S	Vented Vapor Saturation Factor	0.3782	0.3538	0.3246	0.2933	0.2629	0.2408	0.2370	0.2438	0.2647	0.3013	0.3473	0.3803		Calculated Using equation 1-21
V_V	**Tank Vapor Space Volume (ft^3)**	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59	1,133.59		Calculated Using Equation 1-3
D	Tank Diameter (ft)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00		See 'Tank Identification and Physical Characteristics' table above
H_{VO}	Vapor Space Outage (ft)	3.608	3.608	3.608	3.608	3.608	3.608	3.608	3.608	3.608	3.608	3.608	3.608		Calculated Using Equation 1-16
H_S	Tank Shell Height (ft)	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40		See 'Tank Identification and Physical Characteristics' table above
H_L	Average Liquid Height (ft)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00		See 'Tank Identification and Physical Characteristics' table above
H_{RO}	Roof Outage (ft)	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21		Calculated Using Equation 1-17 or 1-19
H_{RO}	**Roof Outage - Cone Roof (ft)**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**		**Calculated Using 1-17**
H_R	Cone Roof Height (ft)	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63		See 'Tank Identification and Physical Characteristics' table above
W_V	**Vapor Density (lb/ft^3)**	**0.0788**	**0.0863**	**0.0966**	**0.1096**	**0.1250**	**0.1384**	**0.1409**	**0.1366**	**0.1243**	**0.1063**	**0.0886**	**0.0782**		**Calculated Using Equation 1-22**
M_V	Vapor Molecular Weight (lb/lbmol)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.5957	9.5486	10.8814	12.6009	14.6572	16.4877	16.8317	16.2158	14.5291	12.1276	9.8273	8.5222		See 'Stored Liquid Characteristics' table above
T_{LA}	Daily Average Liquid Surface Temperature (°R)	505.87	512.45	520.87	530.66	541.14	549.59	551.10	548.38	540.52	528.07	514.28	505.34		Calculated Using Equation 1-27
ΔT_A	Daily Average Ambient Temperature Range (°R)	27.80	28.80	29.90	30.90	29.70	29.20	25.40	24.90	26.50	28.10	28.80	27.60		Calculated Using Equation 1-11
R	Ideal Gas Constant R ($psia\text{-}ft^3/(lbmol\text{-}°R)$)	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731		Per AP-42 Chapter 7.1
T_B	Liquid Bulk Temperature (°R)	503.53	509.39	516.83	525.75	535.82	543.95	545.77	543.56	536.30	524.71	511.67	503.17		Calculated Using Equation 1-31
T_V	Average Vapor Temperature (°R)	508.21	515.51	524.90	535.58	546.47	555.22	556.42	553.21	544.73	531.43	516.89	507.51		Calculated Using Equation 1-32
α_S	Tank Shell Paint Solar Absorptance	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71		From Table 7.1-6
α_R	Tank Roof Paint Solar Absorptance	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71		From Table 7.1-6
I	Daily Total Solar Insolation Factor ($Btu/ft^2\text{-}day$)	1,013.00	1,323.00	1,744.00	2,125.00	2,301.00	2,434.00	2,302.00	2,085.00	1,822.00	1,452.00	1,127.00	939.00		From Table 7.1-7
K_E	**Vapor Space Expansion Factor**	**0.6036**	**0.9289**	**1.0000**	**1.0000**	--	--	--	--	--	**1.0000**	**0.9606**	**0.5718**		**Calculated Using Equation 1-5**
ΔT_V	Daily Vapor Temperature Range (°R)	33.87	38.51	44.62	50.14	51.43	52.71	48.16	45.07	43.00	39.59	36.06	32.80		Calculated Using Equation 1-6
ΔP_V	Daily Vapor Pressure Range (psia)	2.36	2.90	3.71	4.66	5.34	5.97	5.54	5.04	4.43	3.57	2.78	2.27		Calculated Using Equation 1-9
ΔP_B	Breather Vent Pressure Setting Range (psia)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06		Calculated Using Equation 1-10
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.5957	9.5486	10.8814	12.6009	14.6572	16.4877	16.8317	16.2158	14.5291	12.1276	9.8273	8.5222		See 'Stored Liquid Characteristics' table above
P_{VN}	Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	7.4772	8.1794	9.1435	10.4324	12.1660	13.7010	14.2305	13.8398	12.4368	10.4401	8.5117	7.4446		See 'Stored Liquid Characteristics' table above
P_{VX}	Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia)	9.8363	11.0836	12.8556	15.0880	17.5065	19.6699	19.7660	18.8789	16.8707	14.0104	11.2901	9.7137		See 'Stored Liquid Characteristics' table above
T_{LA}	Daily Average Liquid Surface Temperature (°R)	505.87	512.45	520.87	530.66	541.14	549.59	551.10	548.38	540.52	528.07	514.28	505.34		Calculated Using Equation 1-27
T_{LN}	Daily Minimum Liquid Surface Temperature (°R)	497.40	502.82	509.72	518.12	528.28	536.41	539.06	537.11	529.77	518.17	505.26	497.14		Calculated Using Figure 7-1.17
T_{LX}	Daily Maximum Liquid Surface Temperature (°R)	514.34	522.08	532.02	543.20	554.00	562.77	563.14	559.65	551.27	537.97	523.30	513.54		Calculated Using Figure 7-1.17

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number: TK-COND
Location: Aztec
Type of Tank: Vertical Fixed Roof Tank

ΔT_A	Daily Ambient Temperature Range (°R)	27.80	28.80	29.90	30.90	29.70	29.20	25.40	24.90	26.50	28.10	28.80	27.60	Calculated Using Equation 1-11
K_S	**Vented Vapor Saturation Factor**	**0.3782**	**0.3538**	**0.3246**	**0.2933**	**0.2629**	**0.2408**	**0.2370**	**0.2438**	**0.2647**	**0.3013**	**0.3473**	**0.3803**	**Calculated Using Equation 1-21**
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.5957	9.5486	10.8814	12.6009	14.6572	16.4877	16.8317	16.2158	14.5291	12.1276	9.8273	8.5222	See 'Stored Liquid Characteristics' table above
H_{VO}	Vapor Space Outage (ft)	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	3.6083	Calculated Using Equation 1-16
L_W	**Working Losses (lb/month)**	**2,613.30**	**2,584.98**	**3,203.04**	**3,517.97**	**4,144.20**	**4,440.30**	**4,673.87**	**4,529.02**	**3,988.13**	**3,526.00**	**2,842.85**	**2,594.53**	**42,658.19**	**Calculated Using Equation 1-35**
M_V	Vapor Molecular Weight (lb/lbmol)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Avg. Liquid Surface Temp. (psia)	8.5957	9.5486	10.8814	12.6009	14.6572	16.4877	16.8317	16.2158	14.5291	12.1276	9.8273	8.5222	See 'Stored Liquid Characteristics' table above
Q	Throughput (gal/month)	1,302,000.00	1,176,000.00	1,302,000.00	1,260,000.00	1,302,000.00	1,260,000.00	1,302,000.00	1,302,000.00	1,260,000.00	1,302,000.00	1,260,000.00	1,302,000.00	Specified monthly throughput
N	Annual Turnovers	343.29	343.29	343.29	343.29	343.29	343.29	343.29	343.29	343.29	343.29	343.29	343.29	Calculated Using Equation 1-36
K_N	Turnover Factor	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	0.2541	Per notes to Equation 1-35
H_{LX}	Maximum Liquid Height (ft)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	See 'Tank Identification and Physical Characteristics' table above
D	Tank Diameter (ft)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	See 'Tank Identification and Physical Characteristics' table above
K_P	Working Loss Product Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	Per notes to Equation 1-35
K_S	Vent Setting Correction Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Calculated using equations 1-40 and 1-41
L_T	**Total Losses (lb/month)**	**3,245.56**	**3,485.38**	**4,304.74**	**4,611.31**	**4,144.20**	**4,440.30**	**4,673.87**	**4,529.02**	**3,988.13**	**4,651.72**	**3,847.88**	**3,192.39**	**49,114.50**	**Calculated Using Equation 2-1**
L_T	Total VOC Losses (lb/month)	3,245.56	3,485.38	4,304.74	4,611.31	4,144.20	4,440.30	4,673.87	4,529.02	3,988.13	4,651.72	3,847.88	3,192.39	49,114.50	Sum of VOC Component Emissions
L_T	Total HAP Losses (lb/month)	60.79	70.67	96.20	114.79	115.09	134.12	143.26	135.20	110.06	112.60	79.71	59.40	1,231.89	Sum of HAP Component Emissions
L_{TI}	Benzene Losses (lb/month)	5.50	6.44	8.84	10.65	10.78	12.64	13.52	12.73	10.30	10.42	7.28	5.37	114.45	Calculated using Equations 40-1 through 40-9
L_{TI}	Biphenyl Losses (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Calculated using Equations 40-1 through 40-9
L_{TI}	Cyclohexane Losses (lb/month)	9.01	10.51	14.35	17.18	17.28	20.18	21.56	20.33	16.52	16.84	11.86	8.81	184.42	Calculated using Equations 40-1 through 40-9
L_{TI}	Ethylbenzene Losses (lb/month)	0.34	0.42	0.61	0.79	0.86	1.06	1.14	1.06	0.81	0.76	0.48	0.33	8.66	Calculated using Equations 40-1 through 40-9
L_{TI}	Hexane (n) Losses (lb/month)	50.81	58.80	79.59	94.34	93.91	108.82	116.11	109.78	89.84	92.70	66.25	49.67	1,010.61	Calculated using Equations 40-1 through 40-9
L_{TI}	Naphthalene Losses (lb/month)	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.15	Calculated using Equations 40-1 through 40-9
L_{TI}	Phenol Losses (lb/month)	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.04	0.03	0.02	0.01	0.01	0.30	Calculated using Equations 40-1 through 40-9
L_{TI}	Toluene Losses (lb/month)	2.92	3.50	4.94	6.14	6.42	7.73	8.30	7.75	6.13	5.96	3.98	2.84	66.60	Calculated using Equations 40-1 through 40-9
L_{TI}	Trimethylbenzene (1,2,4) Losses (lb/month)	0.06	0.07	0.11	0.15	0.18	0.23	0.25	0.23	0.17	0.15	0.09	0.06	1.74	Calculated using Equations 40-1 through 40-9
L_{TI}	Xylene (m) Losses (lb/month)	1.21	1.50	2.19	2.83	3.08	3.82	4.12	3.81	2.93	2.72	1.72	1.18	31.11	Calculated using Equations 40-1 through 40-9

Maximum Hourly Emissions Report[2]

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Max Month	Notes
L_{MAX}	**Maximum Hourly Emissions (lb/hr)**	**1,111.30**	**1,218.65**	**1,366.30**	**1,553.01**	**1,771.46**	**1,962.05**	**1,997.50**	**1,933.95**	**1,757.99**	**1,502.01**	**1,249.75**	**1,102.96**	**1,997.50**	TCEQ APDG 6250 - Equation 1
M_V	Vapor Molecular Weight (lb/lb-mole)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	8.60	9.55	10.88	12.60	14.66	16.49	16.83	16.22	14.53	12.13	9.83	8.52		See 'Stored Liquid Characteristics' table above
R	Ideal Gas Constant R (psia-ft^3/lbmol-°R)	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731		Constant
T_{LA}	Daily Average Liquid Surface Temperature (°R)	--	--	--	--	--	--	--	--	--	--	--	--		Calculated Using Equation 1-27
FR_M	Maximum Filling Rate for Tank (gal/hr)	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00		See 'Tank Identification and Physical Characteristics' table above
L_T	**Total Losses (lb/hr)**	**1,111.30**	**1,218.65**	**1,366.30**	**1,553.01**	**1,771.46**	**1,962.05**	**1,997.50**	**1,933.95**	**1,757.99**	**1,502.01**	**1,249.75**	**1,102.96**	**1,997.50**	Calculated Using Equation 2-1
L_{TI}	Total VOC Losses (lb/hr)	1,111.30	1,218.65	1,366.30	1,553.01	1,771.46	1,962.05	1,997.50	1,933.95	1,757.99	1,502.01	1,249.75	1,102.96	1,997.50	Sum of VOC Component Emissions
L_{TI}	Total HAP Losses (lb/hr)	20.81	24.71	30.53	38.66	49.20	59.27	61.23	57.73	48.51	36.36	25.89	20.52	61.23	Sum of HAP Component Emissions
L_{TI}	Benzene Losses (lb/hr)	1.88	2.25	2.81	3.59	4.61	5.59	5.78	5.44	4.54	3.36	2.36	1.85	5.78	Calculated using Equations 40-1 through 40-9
L_{TI}	Biphenyl Losses (lb/hr)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Calculated using Equations 40-1 through 40-9
L_{TI}	Cyclohexane Losses (lb/hr)	3.09	3.67	4.56	5.79	7.39	8.92	9.21	8.68	7.28	5.44	3.85	3.04	9.21	Calculated using Equations 40-1 through 40-9
L_{TI}	Ethylbenzene Losses (lb/hr)	0.12	0.15	0.19	0.27	0.37	0.47	0.49	0.45	0.36	0.25	0.16	0.11	0.49	Calculated using Equations 40-1 through 40-9
L_{TI}	Hexane (n) Losses (lb/hr)	17.40	20.56	25.26	31.77	40.14	48.08	49.62	46.88	39.60	29.93	21.52	17.16	49.62	Calculated using Equations 40-1 through 40-9
L_{TI}	Naphthalene Losses (lb/hr)	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	Calculated using Equations 40-1 through 40-9
L_{TI}	Phenol Losses (lb/hr)	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.02	Calculated using Equations 40-1 through 40-9
L_{TI}	Toluene Losses (lb/hr)	1.00	1.22	1.57	2.07	2.74	3.41	3.55	3.31	2.70	1.92	1.29	0.98	3.55	Calculated using Equations 40-1 through 40-9
L_{TI}	Trimethylbenzene (1,2,4) Losses (lb/hr)	0.02	0.03	0.04	0.05	0.08	0.10	0.11	0.10	0.07	0.05	0.03	0.02	0.11	Calculated using Equations 40-1 through 40-9
L_{TI}	Xylene (m) Losses (lb/hr)	0.42	0.52	0.70	0.95	1.32	1.69	1.76	1.63	1.29	0.88	0.56	0.41	1.76	Calculated using Equations 40-1 through 40-9

Notes:
(1) Equations, figures, and tables are from AP-42 Chapter 7.1 Organic Liquid Storage Tanks, June 2020.
(2) Calculations follow the methodology specified in TCEQ Air Permit Reviewer Guides (APDG) 6250 and 6419. Notes in this table which do not begin with 'TCEQ APDG' are to the AP-42 referenced in footnote (1).

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	PWTK
Location:	Aztec CS
Type of Tank:	Vertical Fixed Roof Tank

Physical Characteristics

Tank Dimensions, Throughput, and Temperature Profile

Diameter (ft):	13.40	Tank Volume (bbl):	500.00
Net Throughput (bbl/yr):	127,750	Turnovers Per Year:	267.66
Maximum Pumping Rate (bbl/hr):	2,500		
Shell Height (ft):	20	Maximum Liquid Height (ft):	20
Is Tank Underground (y / n)	No		
Tank Temperature Profile:	Ambient	Tank Insulation Type:	No Insulation

Shell Characteristics

Shell Paint Color/Shade:	Gray/Medium	Shell Paint Condition:	Average

Fixed Roof Characteristics

Type:	Cone	Height (ft):	
Fixed Roof Paint Color/Shade:	Gray/Medium	Fixed Roof Paint Condition:	Average

Breather Vent Settings

Vacuum Settings (psig):	-0.03	Pressure Settings (psig):	0.03

Meteorological Data

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Annual Avg.	Notes
T_{AX}	Ambient Daily Maximum Temperature (°F)	55.60	61.30	68.40	77.00	86.10	93.70	93.90	91.90	86.00	76.00	64.00	55.30	75.77	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
T_{AN}	Ambient Daily Minimum Temperature (°F)	27.80	32.50	38.50	46.10	56.40	64.50	68.50	67.00	59.50	47.90	35.20	27.70	47.63	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
T_{AA}	Ambient Daily Average Temperature (°F)	41.70	46.90	53.45	61.55	71.25	79.10	81.20	79.45	72.75	61.95	49.60	41.50	61.70	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
v	Monthly Average Wind Speed (mph)	7.60	8.70	9.60	10.50	10.10	10.10	8.50	7.60	7.80	7.80	7.60	7.40	8.61	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
P_A	Atmospheric Pressure (psia)	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	12.88	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.
I	Monthly Solar Insolation (Btu/ft^2-day)	1,013.00	1,323.00	1,744.00	2,125.00	2,301.00	2,434.00	2,302.00	2,085.00	1,822.00	1,452.00	1,127.00	939.00	1,722.25	AP-42 Chapter 7.1, Organic Liquid Storage Tanks, June 2020, Table 7.1-7. Values for Roswell, NM.

Stored Liquid Characteristics[1]

i			T_{LA}	T_{LN}	T_{LX}	T_B	P_{VA}	P_{VN}	P_{VX}	M_L	M_V	Z_{Li}	Z_{vi}	
Component	Stored Product or Component in Mixture	Month	Average liquid surface temperature (°F)	Average minimum liquid surface temperature (°F)	Average maximum liquid surface temperature (°F)	Liquid Bulk Temperature for Use in Calculations (°F)	True vapor pressure at T_{LA} (psia)	True vapor pressure at T_{LN} (psia)	True vapor pressure at T_{LX} (psia)	Liquid Molecular Weight (lb/lbmol)	Vapor Molecular Weight (lb/lbmol)	Liquid Wt. Percent of Components Within Liquid	Vapor Weight Percent Eq. 40-6	Basis for Vapor Pressure Calculations. Component vapor pressures shown are partial pressures as determined using the vapor pressure methodology shown, the liquid mole fraction as determined by Eq. 40-4, and Eq. 40-3.
Mixture/Product	**Produced Water (Example)**	**January**	**45.75**	**37.07**	**54.43**	**43.86**	**0.1580**	**0.1139**	**0.2168**	**18.16**	**19.53**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0075	0.0065	0.0086	207	50	1.00%	12.13%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.1506	0.1074	0.2082	18.0153	18.0153	99.00%	87.87%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**February**	**52.19**	**42.44**	**61.94**	**49.72**	**0.2000**	**0.1397**	**0.2825**	**18.16**	**19.34**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0083	0.0071	0.0097	207	50	1.00%	10.73%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.1917	0.1326	0.2728	18.0153	18.0153	99.00%	89.27%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**March**	**60.42**	**49.27**	**71.57**	**57.16**	**0.2679**	**0.1799**	**0.3921**	**18.16**	**19.14**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0094	0.0079	0.0111	207	50	1.00%	9.20%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.2585	0.1720	0.3809	18.0153	18.0153	99.00%	90.80%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**April**	**70.04**	**57.63**	**82.45**	**66.08**	**0.3725**	**0.2429**	**0.5595**	**18.16**	**18.95**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0109	0.0090	0.0130	207	50	1.00%	7.72%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.3616	0.2339	0.5465	18.0153	18.0153	99.00%	92.28%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**May**	**80.45**	**67.80**	**93.10**	**76.15**	**0.5247**	**0.3455**	**0.7806**	**18.16**	**18.79**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0127	0.0105	0.0151	207	50	1.00%	6.43%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.5120	0.3349	0.7655	18.0153	18.0153	99.00%	93.57%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**June**	**88.83**	**75.92**	**101.74**	**84.28**	**0.6843**	**0.4529**	**1.0127**	**18.16**	**18.68**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0142	0.0119	0.0170	207	50	1.00%	5.57%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.6700	0.4410	0.9958	18.0153	18.0153	99.00%	94.43%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**July**	**90.40**	**78.66**	**102.14**	**86.10**	**0.7184**	**0.4952**	**1.0248**	**18.16**	**18.66**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0146	0.0124	0.0170	207	50	1.00%	5.43%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.7039	0.4828	1.0078	18.0153	18.0153	99.00%	94.57%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**August**	**87.78**	**76.75**	**98.81**	**83.89**	**0.6622**	**0.4653**	**0.9282**	**18.16**	**18.69**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0140	0.0120	0.0163	207	50	1.00%	5.67%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.6481	0.4533	0.9119	18.0153	18.0153	99.00%	94.33%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**September**	**80.03**	**69.39**	**90.67**	**76.63**	**0.5176**	**0.3644**	**0.7246**	**18.16**	**18.79**	--	--	**Sum of partial pressures of individual components listed below.**

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number: PWTK
Location: Aztec CS
Type of Tank: Vertical Fixed Roof Tank

	Crude Oil RVP 13.0						0.0126	0.0108	0.0146	207	50	1.00%	6.48%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.5050	0.3536	0.7100	18.0153	18.0153	99.00%	93.52%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**October**	**67.75**	**57.79**	**77.71**	**65.04**	**0.3448**	**0.2443**	**0.4801**	**18.16**	**18.99**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0105	0.0091	0.0122	207	50	1.00%	8.04%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.3343	0.2353	0.4679	18.0153	18.0153	99.00%	91.96%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**November**	**54.10**	**44.89**	**63.31**	**52.00**	**0.2143**	**0.1531**	**0.2962**	**18.16**	**19.29**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0086	0.0074	0.0099	207	50	1.00%	10.35%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.2057	0.1457	0.2863	18.0153	18.0153	99.00%	89.65%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.
Mixture/Product	**Produced Water (Example)**	**December**	**45.25**	**36.82**	**53.68**	**43.50**	**0.1551**	**0.1128**	**0.2111**	**18.16**	**19.55**	--	--	**Sum of partial pressures of individual components listed below.**
	Crude Oil RVP 13.0						0.0074	0.0065	0.0085	207	50	1.00%	12.24%	Equation 1-25. A & B constants determined by using equations in Figure 7.1-16 and RVP 13 psia.
	Water						0.1477	0.1064	0.2026	18.0153	18.0153	99.00%	87.76%	Equation 1-26 (Antoine's equation). A = 8.07, B = 1730.63, C = 233.42.

Monthly Total Emissions Report[1]

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total	Notes
L_S	**Standing Losses (lb)**	**1.67**	**2.10**	**3.46**	**5.03**	**7.24**	**9.13**	**8.94**	**7.77**	**5.78**	**3.86**	**2.25**	**1.59**	**58.81**	Calculated Using Equation 1-2
V_V	Vapor Space Volume (ft^3)	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96		Calculated Using Equation 1-3
W_V	Vapor Density (lb/ft^3)	0.0006	0.0007	0.0009	0.0012	0.0017	0.0022	0.0023	0.0021	0.0017	0.0012	0.0007	0.0006		Calculated Using Equation 1-22
K_E	Vapor Space Expansion Factor	0.0721	0.0827	0.0978	0.1142	0.1240	0.1351	0.1240	0.1136	0.1032	0.0896	0.0782	0.0698		Calculated Using Equation 1-5
K_S	Vented Vapor Saturation Factor	0.9217	0.9029	0.8741	0.8332	0.7800	0.7311	0.7215	0.7375	0.7824	0.8437	0.8967	0.9230		Calculated Using Equation 1-21
V_V	**Tank Vapor Space Volume (ft^3)**	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96	1,429.96		Calculated Using Equation 1-3
D	Tank Diameter (ft)	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40		See 'Tank Identification and Physical Characteristics' table above
H_{VO}	Vapor Space Outage (ft)	10.140	10.140	10.140	10.140	10.140	10.140	10.140	10.140	10.140	10.140	10.140	10.140		Calculated Using Equation 1-16
H_S	Tank Shell Height (ft)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00		See 'Tank Identification and Physical Characteristics' table above
H_L	Average Liquid Height (ft)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00		See 'Tank Identification and Physical Characteristics' table above
H_{RO}	Roof Outage (ft)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14		Calculated Using Equation 1-17 or 1-19
H_{RO}	**Roof Outage - Cone Roof (ft)**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**		**Calculated Using 1-17**
H_R	Cone Roof Height (ft)														See 'Tank Identification and Physical Characteristics' table above
W_V	**Vapor Density (lb/ft^3)**	**0.0006**	**0.0007**	**0.0009**	**0.0012**	**0.0017**	**0.0022**	**0.0023**	**0.0021**	**0.0017**	**0.0012**	**0.0007**	**0.0006**		**Calculated Using Equation 1-22**
M_V	Vapor Molecular Weight (lb/lbmol)	19.53	19.34	19.14	18.95	18.79	18.68	18.66	18.69	18.79	18.99	19.29	19.55		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	0.1580	0.2000	0.2679	0.3725	0.5247	0.6843	0.7184	0.6622	0.5176	0.3448	0.2143	0.1551		See 'Stored Liquid Characteristics' table above
T_{LA}	Daily Average Liquid Surface Temperature (°R)	505.42	511.86	520.09	529.71	540.12	548.50	550.07	547.45	539.70	527.42	513.77	504.92		Calculated Using Equation 1-27
ΔT_A	Daily Average Ambient Temperature Range (°R)	27.80	28.80	29.90	30.90	29.70	29.20	25.40	24.90	26.50	28.10	28.80	27.60		Calculated Using Equation 1-11
R	Ideal Gas Constant R ($psia\text{-}ft^3/(lbmol\text{-}°R)$)	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731		Per AP-42 Chapter 7.1
T_B	Liquid Bulk Temperature (°R)	503.53	509.39	516.83	525.75	535.82	543.95	545.77	543.56	536.30	524.71	511.67	503.17		Calculated Using Equation 1-31
T_V	Average Vapor Temperature (°R)	507.31	514.33	523.34	533.68	544.41	553.04	554.37	551.34	543.10	530.13	515.88	506.68		Calculated Using Equation 1-32
α_S	Tank Shell Paint Solar Absorptance	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71		From Table 7.1-6
α_R	Tank Roof Paint Solar Absorptance	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71		From Table 7.1-6
I	Daily Total Solar Insolation Factor ($Btu/ft^2\text{-}day$)	1,013.00	1,323.00	1,744.00	2,125.00	2,301.00	2,434.00	2,302.00	2,085.00	1,822.00	1,452.00	1,127.00	939.00		From Table 7.1-7
K_E	**Vapor Space Expansion Factor**	**0.0721**	**0.0827**	**0.0978**	**0.1142**	**0.1240**	**0.1351**	**0.1240**	**0.1136**	**0.1032**	**0.0896**	**0.0782**	**0.0698**		**Calculated Using Equation 1-5**
ΔT_V	Daily Vapor Temperature Range (°R)	34.72	39.00	44.59	49.65	50.58	51.63	46.96	44.13	42.58	39.83	36.83	33.73		Calculated Using Equation 1-6
ΔP_V	Daily Vapor Pressure Range (psia)	0.10	0.14	0.21	0.32	0.44	0.56	0.53	0.46	0.36	0.24	0.14	0.10		Calculated Using Equation 1-9
ΔP_B	Breather Vent Pressure Setting Range (psia)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06		Calculated Using Equation 1-10
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	0.1580	0.2000	0.2679	0.3725	0.5247	0.6843	0.7184	0.6622	0.5176	0.3448	0.2143	0.1551		See 'Stored Liquid Characteristics' table above
P_{VN}	Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	0.1139	0.1397	0.1799	0.2429	0.3455	0.4529	0.4952	0.4653	0.3644	0.2443	0.1531	0.1128		See 'Stored Liquid Characteristics' table above
P_{VX}	Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia)	0.2168	0.2825	0.3921	0.5595	0.7806	1.0127	1.0248	0.9282	0.7246	0.4801	0.2962	0.2111		See 'Stored Liquid Characteristics' table above
T_{LA}	Daily Average Liquid Surface Temperature (°R)	505.42	511.86	520.09	529.71	540.12	548.50	550.07	547.45	539.70	527.42	513.77	504.92		Calculated Using Equation 1-27
T_{LN}	Daily Minimum Liquid Surface Temperature (°R)	496.74	502.11	508.94	517.30	527.47	535.59	538.33	536.42	529.06	517.46	504.56	496.49		Calculated Using Figure 7-1.17
T_{LX}	Daily Maximum Liquid Surface Temperature (°R)	514.10	521.61	531.24	542.12	552.77	561.41	561.81	558.48	550.34	537.38	522.98	513.35		Calculated Using Figure 7-1.17
ΔT_A	Daily Ambient Temperature Range (°R)	27.80	28.80	29.90	30.90	29.70	29.20	25.40	24.90	26.50	28.10	28.80	27.60		Calculated Using Equation 1-11
K_S	**Vented Vapor Saturation Factor**	**0.9217**	**0.9029**	**0.8741**	**0.8332**	**0.7800**	**0.7311**	**0.7215**	**0.7375**	**0.7824**	**0.8437**	**0.8967**	**0.9230**		**Calculated Using Equation 1-21**
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	0.1580	0.2000	0.2679	0.3725	0.5247	0.6843	0.7184	0.6622	0.5176	0.3448	0.2143	0.1551		See 'Stored Liquid Characteristics' table above
H_{VO}	Vapor Space Outage (ft)	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397	10.1397		Calculated Using Equation 1-16
L_W	**Working Losses (lb/month)**	**9.63**	**10.75**	**15.51**	**20.26**	**28.65**	**35.39**	**38.27**	**35.52**	**27.43**	**19.55**	**12.27**	**9.47**	**262.69**	**Calculated Using Equation 1-35**
M_V	Vapor Molecular Weight (lb/lbmol)	19.53	19.34	19.14	18.95	18.79	18.68	18.66	18.69	18.79	18.99	19.29	19.55		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Avg. Liquid Surface Temp. (psia)	0.1580	0.2000	0.2679	0.3725	0.5247	0.6843	0.7184	0.6622	0.5176	0.3448	0.2143	0.1551		See 'Stored Liquid Characteristics' table above
Q	Throughput (gal/month)	455,700.00	411,600.00	455,700.00	441,000.00	455,700.00	441,000.00	455,700.00	455,700.00	441,000.00	455,700.00	441,000.00	455,700.00		Specified monthly throughput
N	Annual Turnovers	267.66	267.66	267.66	267.66	267.66	267.66	267.66	267.66	267.66	267.66	267.66	267.66		Calculated Using Equation 1-36
K_N	Turnover Factor	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788	0.2788		Per notes to Equation 1-35
H_{LX}	Maximum Liquid Height (ft)	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00		See 'Tank Identification and Physical Characteristics' table above
D	Tank Diameter (ft)	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40		See 'Tank Identification and Physical Characteristics' table above
K_P	Working Loss Product Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		Per notes to Equation 1-35
K_B	Vent Setting Correction Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		Calculated using equations 1-40 and 1-41
L_T	**Total Losses (lb/month)**	**11.30**	**12.85**	**18.97**	**25.29**	**35.89**	**44.52**	**47.21**	**43.30**	**33.21**	**23.40**	**14.52**	**11.06**	**321.50**	**Calculated Using Equation 2-1**
L_T	Total VOC Losses (lb/month)	1.37	1.38	1.74	1.95	2.31	2.48	2.56	2.46	2.15	1.88	1.50	1.35	23.14	Sum of VOC Component Emissions

(Site Name)
(Type of Calculation)
Detailed Storage Tank Emission Calculations

Tank Identification

Identification

Tank Number:	PWTK
Location:	Aztec CS
Type of Tank:	Vertical Fixed Roof Tank

L_T	Total Non-Pollutant Losses (lb/month)	9.93	11.47	17.22	23.34	33.58	42.04	44.65	40.84	31.06	21.52	13.01	9.71	298.36	Sum of Non-Pollutant Component Emissions
L_{TI}	Crude Oil RVP 13.0 Losses (lb/month)	1.37	1.38	1.74	1.95	2.31	2.48	2.56	2.46	2.15	1.88	1.50	1.35	23.14	Calculated using Equations 40-1 through 40-9
L_{TI}	Water Losses (lb/month)	9.93	11.47	17.22	23.34	33.58	42.04	44.65	40.84	31.06	21.52	13.01	9.71	298.36	Calculated using Equations 40-1 through 40-9

Maximum Hourly Emissions Report[2]

	Month	January	February	March	April	May	June	July	August	September	October	November	December	Max Month	Notes
L_{MAX}	**Maximum Hourly Emissions (lb/hr)**	**7.99**	**9.89**	**12.90**	**17.43**	**23.87**	**30.48**	**31.89**	**29.58**	**23.58**	**16.24**	**10.52**	**7.86**	**31.89**	TCEQ APDG 6250 - Equation 1
M_V	Vapor Molecular Weight (lb/lb-mole)	19.53	19.34	19.14	18.95	18.79	18.68	18.66	18.69	18.79	18.99	19.29	19.55		See 'Stored Liquid Characteristics' table above
P_{VA}	Vapor Pressure at Daily Average Liquid Surface temperature (psia)	0.16	0.20	0.27	0.37	0.52	0.68	0.72	0.66	0.52	0.34	0.21	0.16		See 'Stored Liquid Characteristics' table above
R	Ideal Gas Constant R (psia-ft^3/lbmol-°R)	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731		Constant
T_{LA}	Daily Average Liquid Surface Temperature (°R)	--	--	--	--	--	--	--	--	--	--	--	--		Calculated Using Equation 1-27
FR_M	Maximum Filling Rate for Tank (gal/hr)	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00	105,000.00		See 'Tank Identification and Physical Characteristics' table above
L_T	**Total Losses (lb/hr)**	**7.99**	**9.89**	**12.90**	**17.43**	**23.87**	**30.48**	**31.89**	**29.58**	**23.58**	**16.24**	**10.52**	**7.86**	**31.89**	Calculated Using Equation 2-1
L_{TI}	Total VOC Losses (lb/hr)	0.97	1.06	1.19	1.35	1.53	1.70	1.73	1.68	1.53	1.31	1.09	0.96	1.73	Sum of VOC Component Emissions
L_{TI}	Total Non-Pollutant Losses (lb/hr)	7.02	8.83	11.71	16.09	22.34	28.78	30.15	27.90	22.05	14.94	9.43	6.89	30.15	Sum of Non-Pollutant Component Emissions
L_{TI}	Crude Oil RVP 13.0 Losses (lb/hr)	0.97	1.06	1.19	1.35	1.53	1.70	1.73	1.68	1.53	1.31	1.09	0.96	1.73	Calculated using Equations 40-1 through 40-9
L_{TI}	Water Losses (lb/hr)	7.02	8.83	11.71	16.09	22.34	28.78	30.15	27.90	22.05	14.94	9.43	6.89	30.15	Calculated using Equations 40-1 through 40-9

Notes:
(1) Equations, figures, and tables are from AP-42 Chapter 7.1 Organic Liquid Storage Tanks, June 2020.
(2) Calculations follow the methodology specified in TCEQ Air Permit Reviewer Guides (APDG) 6250 and 6419. Notes in this table which do not begin with 'TCEQ APDG' are to the AP-42 referenced in footnote (1).

Heater Information

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 $1b/10^6$ 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.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
74-98-6	Propane	1.6E+00	E
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

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

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylchloranthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
205-82-3	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D

Loadout Information

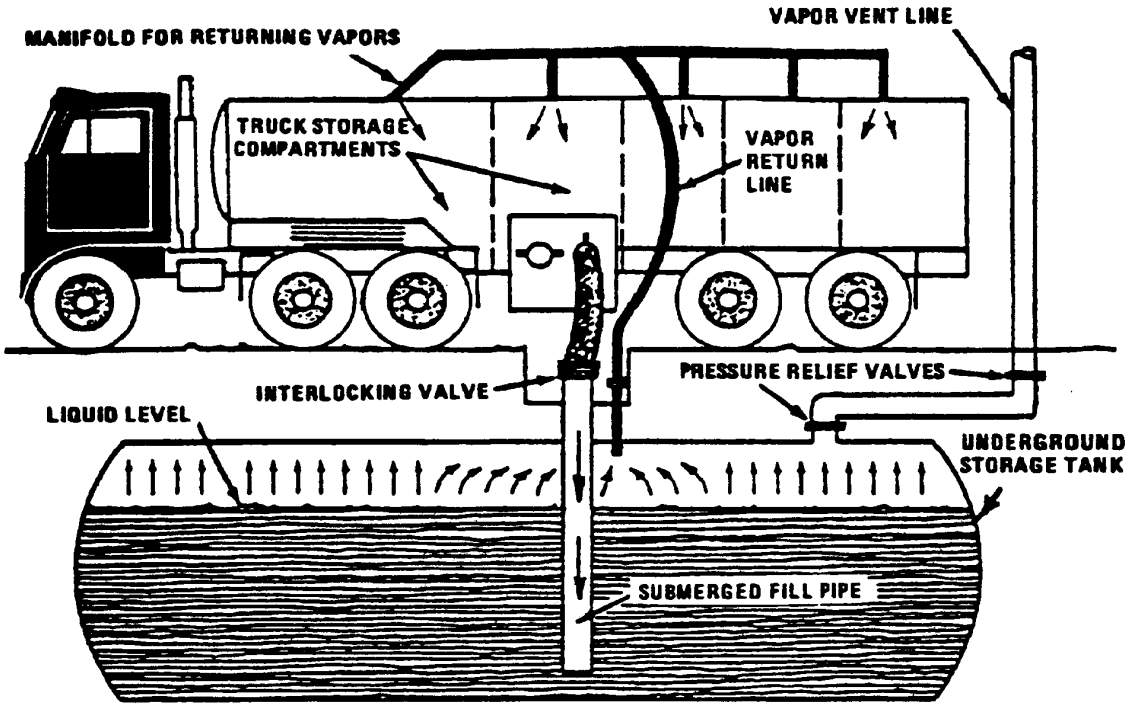


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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

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

Fugitive Information

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

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

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

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

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

and outer diameter greater than or equal to 2.375 inch.

Tubing systems means piping equal to or less than one half inch diameter as per nominal pipe size.

Turbine meter means a flow meter in which a gas or liquid flow rate through the calibrated tube spins a turbine from which the spin rate is detected and calibrated to measure the fluid flow rate.

Vented emissions means intentional or designed releases of CH_4 or CO_2 containing natural gas or hydrocarbon gas (not including stationary combustion flue gas), including process designed flow to the atmosphere through seals or vent pipes, equipment blowdown for maintenance, and direct venting of gas used to power equipment (such as pneumatic devices).

Vertical well means a well bore that is primarily vertical but has some unintentional deviation or one or more intentional deviations to enter one or more subsurface targets that are offset horizontally from the surface location, intercepting the targets either vertically or at an angle.

Well testing venting and flaring means venting and/or flaring of natural gas at the time the production rate of a well is determined for regulatory, commercial, or technical purposes. If well testing is conducted immediately after well completion or workover, then it is considered part of well completion or workover.

[75 FR 74488, Nov. 30, 2010, as amended at 76 FR 80590, Dec. 23, 2011]

TABLE W–1A OF SUBPART W—DEFAULT WHOLE GAS EMISSION FACTORS FOR ONSHORE PETROLEUM AND NATURAL GAS PRODUCTION

Onshore petroleum and natural gas production	Emission factor (scf/hour/component)
Eastern U.S.	
Population Emission Factors—All Components, Gas Service [1]	
Valve	0.640
Connector	0.083
Open-ended Line	1.46
Pressure Relief Valve	0.97
Low Continuous Bleed Pneumatic Device Vents [2]	1.39
High Continuous Bleed Pneumatic Device Vents [2]	37.3
Intermittent Bleed Pneumatic Device Vents [2]	13.5
Pneumatic Pumps [3]	10.3
Population Emission Factors—All Components, Light Crude Service [4]	
Valve	0.04
Flange	0.002
Connector	0.005
Open-ended Line	0.04
Pump	0.01
Other [5]	0.23
Population Emission Factors—All Components, Heavy Crude Service [6]	
Valve	0.0004
Flange	0.0007
Connector (other)	0.0002
Open-ended Line	0.004
Other [5]	0.002
Western U.S.	
Population Emission Factors—All Components, Gas Service [1]	
Valve	2.903
Connector	0.396
Open-ended Line	0.748
Pressure Relief Valve	4.631
Low Continuous Bleed Pneumatic Device Vents [2]	1.77
High Continuous Bleed Pneumatic Device Vents [2]	47.4
Intermittent Bleed Pneumatic Device Vents [2]	17.1
Pneumatic Pumps [3]	10.3

Onshore petroleum and natural gas production	Emission factor (scf/hour/component)
Population Emission Factors—All Components, Light Crude Service [4]	
Valve	0.04
Flange	0.002
Connector	0.005
Open-ended Line	0.04
Pump	0.01
Other [5]	0.23
Population Emission Factors—All Components, Heavy Crude Service [6]	
Valve	0.0004
Flange	0.0007
Connector (other)	0.0002
Open-ended Line	0.004
Other [5]	0.002

[1] For multi-phase flow that includes gas, use the gas service emissions factors.
[2] Emission Factor is in units of ''scf/hour/device.''
[3] Emission Factor is in units of ''scf/hour/pump.''
[4] Hydrocarbon liquids greater than or equal to 20°API are considered ''light crude.''
[5] ''Others'' category includes instruments, loading arms, pressure relief valves, stuffing boxes, compressor seals, dump lever arms, and vents.
[6] Hydrocarbon liquids less than 20°API are considered ''heavy crude.''

[76 FR 80591, Dec. 23, 2011]

TABLE W–1B TO SUBPART W OF PART 98—DEFAULT AVERAGE COMPONENT COUNTS FOR MAJOR ONSHORE NATURAL GAS PRODUCTION EQUIPMENT

Major equipment	Valves	Connectors	Open-ended lines	Pressure relief valves
Eastern U.S.				
Wellheads	8	38	0.5	0
Separators	1	6	0	0
Meters/piping	12	45	0	0
Compressors	12	57	0	0
In-line heaters	14	65	2	1
Dehydrators	24	90	2	2
Western U.S.				
Wellheads	11	36	1	0
Separators	34	106	6	2
Meters/piping	14	51	1	1
Compressors	73	179	3	4
In-line heaters	14	65	2	1
Dehydrators	24	90	2	2

TABLE W–1C TO SUBPART W OF PART 98—DEFAULT AVERAGE COMPONENT COUNTS FOR MAJOR CRUDE OIL PRODUCTION EQUIPMENT

Major equipment	Valves	Flanges	Connectors	Open-ended lines	Other components
Eastern U.S.					
Wellhead	5	10	4	0	1
Separator	6	12	10	0	0
Heater-treater	8	12	20	0	0
Header	5	10	4	0	0
Western U.S.					
Wellhead	5	10	4	0	1
Separator	6	12	10	0	0
Heater-treater	8	12	20	0	0
Header	5	10	4	0	0

TABLE W–1D OF SUBPART W OF PART 98—DESIGNATION OF EASTERN AND WESTERN U.S.

Eastern U.S.	Western U.S.
Connecticut	Alabama
Delaware	Alaska
Florida	Arizona
Georgia	Arkansas
Illinois	California
Indiana	Colorado
Kentucky	Hawaii
Maine	Idaho
Maryland	Iowa
Massachusetts	Kansas
Michigan	Louisiana
New Hampshire	Minnesota
New Jersey	Mississippi
New York	Missouri
North Carolina	Montana
Ohio	Nebraska
Pennsylvania	Nevada
Rhode Island	New Mexico
South Carolina	North Dakota
Tennessee	Oklahoma
Vermont	Oregon
Virginia	South Dakota
West Virginia	Texas
Wisconsin	Utah
	Washington
	Wyoming

TABLE W–2 OF SUBPART W—DEFAULT TOTAL HYDROCARBON EMISSION FACTORS FOR ONSHORE NATURAL GAS PROCESSING

Onshore natural gas processing plants	Emission factor (scf/hour/component)
Leaker Emission Factors—Compressor Components, Gas Service	
Valve [1]	14.84
Connector	5.59
Open-Ended Line	17.27
Pressure Relief Valve	39.66
Meter	19.33
Leaker Emission Factors—Non-Compressor Components, Gas Service	
Valve [1]	6.42
Connector	5.71
Open-Ended Line	11.27
Pressure Relief Valve	2.01
Meter	2.93

[1] Valves include control valves, block valves and regulator valves.

[76 FR 80592, Dec. 23, 2011]

TABLE W–3 OF SUBPART W—DEFAULT TOTAL HYDROCARBON EMISSION FACTORS FOR ONSHORE NATURAL GAS TRANSMISSION COMPRESSION

Onshore natural gas transmission compression	Emission factor (scf/hour/component)
Leaker Emission Factors—Compressor Components, Gas Service	
Valve [1]	14.84
Connector	5.59
Open-Ended Line	17.27
Pressure Relief Valve	39.66
Meter	19.33
Leaker Emission Factors—Non-Compressor Components, Gas Service	
Valve [1]	6.42
Connector	5.71
Open-Ended Line	11.27
Pressure Relief Valve	2.01
Meter	2.93
Population Emission Factors—Gas Service	
Low Continuous Bleed Pneumatic Device Vents [2]	1.37
High Continuous Bleed Pneumatic Device Vents [2]	18.20

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

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

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

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

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

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

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

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

1 lb/VMT = 281.9 g/VKT

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

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

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

*Assumed equivalent to total suspended particulate matter (TSP)
"-" = not used in the emission factor equation

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

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

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

[a] See discussion in text.

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

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (*C*) was obtained from EPA's MOBILE6.2 model [23]. The emission factor also varies with aerodynamic size range

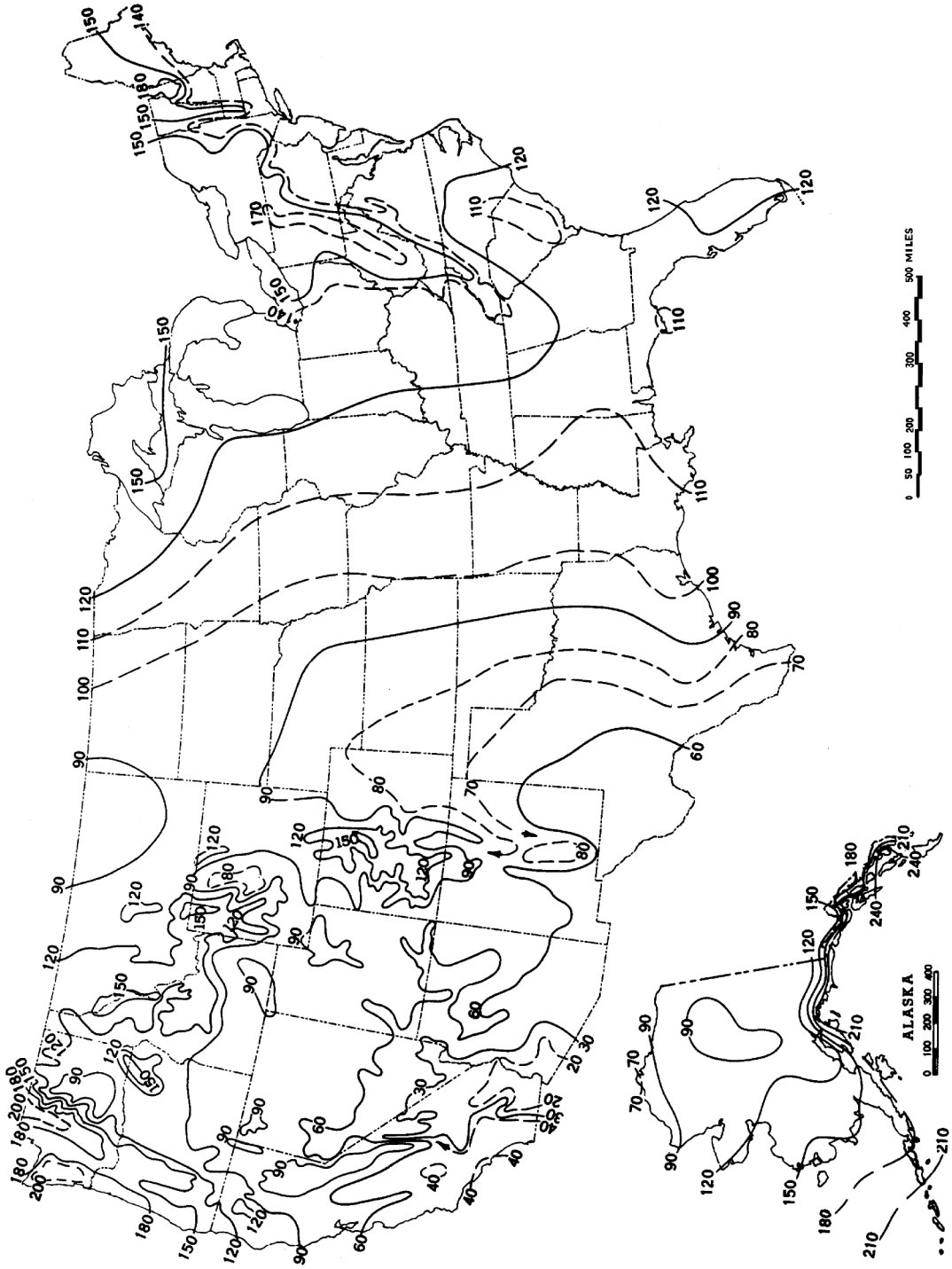


Figure 13.2.2-1. Mean number of days with 0.01 inch or more of precipitation in United States.

Dehy Information

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 3 Bear Aztec Compressor Station
File Name: P:\Denver\06 CO\16\06161031 3Bear Energy\WorkFiles\003 001 Aztec Compressor Station\1.0 Air Emissions\1.1 Permits\1.1.1 Applications\NSR-7496M2-Application (01-2022)\GlyCalc\3 Bear Aztec Compressor Station_GlyCalc.ddf
Date: March 14, 2022

DESCRIPTION:

Description:

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 90.00 deg. F
Pressure: 900.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.6610
Hydrogen Sulfide	0.0050
Nitrogen	2.3240
Methane	66.8020
Ethane	14.3920
Propane	8.7050
Isobutane	1.0730
n-Butane	3.1960
Isopentane	0.7110
n-Pentane	0.8830
Cyclopentane	0.0850
n-Hexane	0.2130
Cyclohexane	0.1360
Other Hexanes	0.4000
Heptanes	0.1100
Methylcyclohexane	0.0770
2,2,4-Trimethylpentane	0.0010
Benzene	0.0910
Toluene	0.0360
Ethylbenzene	0.0020
Xylenes	0.0070
C8+ Heavies	0.0950

DRY GAS:

Flow Rate: 70.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 22.0 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 131.0 deg. F
Pressure: 52.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 140.0 deg. F
Pressure: 13.5 psia

Control Device: Combustion Device
Destruction Efficiency: 98.0 %
Excess Oxygen: 0.0 %
Ambient Air Temperature: 62.7 deg. F

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 3 Bear Aztec Compressor Station
File Name: P:\Denver\06 CO\16\06161031 3Bear Energy\WorkFiles\003 001 Aztec Compressor Station\1.0 Air Emissions\1.1 Permits\1.1.1 Applications\NSR-7496M2-Application (01-2022)\GlyCalc\3 Bear Aztec Compressor Station_GlyCalc.ddf
Date: March 14, 2022

DESCRIPTION:

Description:

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0054	0.129	0.0236
Methane	0.0276	0.663	0.1210
Ethane	0.0952	2.286	0.4171
Propane	0.2004	4.809	0.8776
Isobutane	0.0526	1.263	0.2306
n-Butane	0.2362	5.668	1.0344
Isopentane	0.0579	1.390	0.2537
n-Pentane	0.0943	2.262	0.4129
Cyclopentane	0.0617	1.482	0.2704
n-Hexane	0.0408	0.978	0.1786
Cyclohexane	0.1406	3.375	0.6159
Other Hexanes	0.0610	1.464	0.2672
Heptanes	0.0298	0.716	0.1306
Methylcyclohexane	0.0647	1.554	0.2836
2,2,4-Trimethylpentane	0.0001	0.003	0.0005
Benzene	0.7742	18.580	3.3909
Toluene	0.2290	5.495	1.0028
Ethylbenzene	0.0071	0.171	0.0312
Xylenes	0.0267	0.641	0.1170
C8+ Heavies	0.0005	0.012	0.0023
Total Emissions	2.2059	52.942	9.6619
Total Hydrocarbon Emissions	2.2005	52.813	9.6383
Total VOC Emissions	2.0777	49.864	9.1002
Total HAP Emissions	1.0778	25.868	4.7210
Total BTEX Emissions	1.0370	24.887	4.5419

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.2745	6.588	1.2023
Methane	1.3836	33.207	6.0602
Ethane	4.7974	115.138	21.0127
Propane	10.3554	248.529	45.3566
Isobutane	2.8035	67.283	12.2792
n-Butane	12.9047	309.713	56.5227
Isopentane	3.5565	85.355	15.5773

n-Pentane	6.1950	148.680	27.1341
Cyclopentane	4.2256	101.414	18.5080
n-Hexane	3.2826	78.782	14.3777
Cyclohexane	13.3539	320.494	58.4901
Other Hexanes	4.3485	104.363	19.0462
Heptanes	3.9831	95.593	17.4458
Methylcyclohexane	8.9000	213.601	38.9821
2,2,4-Trimethylpentane	0.0142	0.341	0.0623
Benzene	79.7996	1915.191	349.5223
Toluene	46.2609	1110.262	202.6227
Ethylbenzene	3.4883	83.720	15.2790
Xylenes	16.1277	387.064	70.6392
C8+ Heavies	11.3977	273.544	49.9217
Total Emissions	237.4526	5698.862	1040.0423
Total Hydrocarbon Emissions	237.1781	5692.274	1038.8399
Total VOC Emissions	230.9970	5543.929	1011.7670
Total HAP Emissions	148.9733	3575.360	652.5032
Total BTEX Emissions	145.6765	3496.236	638.0631

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0835	2.003	0.3656
Methane	29.3672	704.812	128.6282
Ethane	28.4109	681.861	124.4397
Propane	30.0382	720.917	131.5674
Isobutane	5.3934	129.440	23.6229
n-Butane	18.8372	452.092	82.5068
Isopentane	4.4898	107.755	19.6652
n-Pentane	6.3606	152.655	27.8595
Cyclopentane	1.0517	25.240	4.6063
n-Hexane	1.8575	44.580	8.1358
Cyclohexane	1.8422	44.212	8.0686
Other Hexanes	3.2345	77.627	14.1669
Heptanes	1.0933	26.240	4.7889
Methylcyclohexane	0.9653	23.167	4.2280
2,2,4-Trimethylpentane	0.0076	0.183	0.0334
Benzene	1.6857	40.457	7.3835
Toluene	0.6240	14.977	2.7332
Ethylbenzene	0.0268	0.644	0.1175
Xylenes	0.0874	2.098	0.3828
C8+ Heavies	0.2841	6.818	1.2442
Total Emissions	135.7407	3257.777	594.5443
Total Hydrocarbon Emissions	135.6572	3255.774	594.1788
Total VOC Emissions	77.8792	1869.101	341.1110
Total HAP Emissions	4.2891	102.938	18.7862
Total BTEX Emissions	2.4240	58.176	10.6171

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Hydrogen Sulfide	0.0054	0.129	0.0236
Methane	0.0276	0.663	0.1210
Ethane	0.0952	2.286	0.4171
Propane	0.2004	4.809	0.8776
Isobutane	0.0526	1.263	0.2306
n-Butane	0.2362	5.668	1.0344
Isopentane	0.0579	1.390	0.2537
n-Pentane	0.0943	2.262	0.4129
Cyclopentane	0.0617	1.482	0.2704
n-Hexane	0.0408	0.978	0.1786
Cyclohexane	0.1406	3.375	0.6159
Other Hexanes	0.0610	1.464	0.2672
Heptanes	0.0298	0.716	0.1306
Methylcyclohexane	0.0647	1.554	0.2836
2,2,4-Trimethylpentane	0.0001	0.003	0.0005
Benzene	0.7742	18.580	3.3909
Toluene	0.2290	5.495	1.0028
Ethylbenzene	0.0071	0.171	0.0312
Xylenes	0.0267	0.641	0.1170
C8+ Heavies	0.0005	0.012	0.0023
Total Emissions	2.2059	52.942	9.6619
Total Hydrocarbon Emissions	2.2005	52.813	9.6383
Total VOC Emissions	2.0777	49.864	9.1002
Total HAP Emissions	1.0778	25.868	4.7210
Total BTEX Emissions	1.0370	24.887	4.5419

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Hydrogen Sulfide	1.5679	0.0236	98.50
Methane	134.6884	0.1210	99.91
Ethane	145.4523	0.4171	99.71
Propane	176.9240	0.8776	99.50
Isobutane	35.9021	0.2306	99.36
n-Butane	139.0295	1.0344	99.26
Isopentane	35.2425	0.2537	99.28
n-Pentane	54.9937	0.4129	99.25
Cyclopentane	23.1143	0.2704	98.83
n-Hexane	22.5135	0.1786	99.21
Cyclohexane	66.5587	0.6159	99.07
Other Hexanes	33.2131	0.2672	99.20
Heptanes	22.2346	0.1306	99.41
Methylcyclohexane	43.2101	0.2836	99.34
2,2,4-Trimethylpentane	0.0957	0.0005	99.50
Benzene	356.9057	3.3909	99.05
Toluene	205.3560	1.0028	99.51
Ethylbenzene	15.3965	0.0312	99.80
Xylenes	71.0220	0.1170	99.84
C8+ Heavies	51.1659	0.0023	100.00
Total Emissions	1634.5866	9.6619	99.41

Total Hydrocarbon Emissions	1633.0187	9.6383	99.41
Total VOC Emissions	1352.8780	9.1002	99.33
Total HAP Emissions	671.2894	4.7210	99.30
Total BTEX Emissions	648.6802	4.5419	99.30

EQUIPMENT REPORTS:

CONDENSER AND COMBUSTION DEVICE

Condenser Outlet Temperature:	140.00 deg. F
Condenser Pressure:	13.50 psia
Condenser Duty:	4.18e-001 MM BTU/hr
Hydrocarbon Recovery:	10.24 bbls/day
Produced Water:	8.47 bbls/day
Ambient Temperature:	62.70 deg. F
Excess Oxygen:	0.00 %
Combustion Efficiency:	98.00 %
Supplemental Fuel Requirement:	4.18e-001 MM BTU/hr

Component	Emitted	Destroyed
Hydrogen Sulfide	1.96%	98.04%
Methane	2.00%	98.00%
Ethane	1.99%	98.01%
Propane	1.93%	98.07%
Isobutane	1.88%	98.12%
n-Butane	1.83%	98.17%
Isopentane	1.63%	98.37%
n-Pentane	1.52%	98.48%
Cyclopentane	1.46%	98.54%
n-Hexane	1.24%	98.76%
Cyclohexane	1.05%	98.95%
Other Hexanes	1.40%	98.60%
Heptanes	0.75%	99.25%
Methylcyclohexane	0.73%	99.27%
2,2,4-Trimethylpentane	0.78%	99.22%
Benzene	0.97%	99.03%
Toluene	0.49%	99.51%
Ethylbenzene	0.20%	99.80%
Xylenes	0.17%	99.83%
C8+ Heavies	0.00%	100.00%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25
Calculated Dry Gas Dew Point:	1.95 lbs. H2O/MMSCF
Temperature:	90.0 deg. F
Pressure:	900.0 psig
Dry Gas Flow Rate:	70.0000 MMSCF/day
Glycol Losses with Dry Gas:	1.9144 lb/hr
Wet Gas Water Content:	Saturated

Calculated Wet Gas Water Content: 47.26 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 9.97 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.11%	95.89%
Carbon Dioxide	99.54%	0.46%
Hydrogen Sulfide	97.27%	2.73%
Nitrogen	99.95%	0.05%
Methane	99.96%	0.04%
Ethane	99.90%	0.10%
Propane	99.86%	0.14%
Isobutane	99.83%	0.17%
n-Butane	99.78%	0.22%
Isopentane	99.80%	0.20%
n-Pentane	99.74%	0.26%
Cyclopentane	98.85%	1.15%
n-Hexane	99.64%	0.36%
Cyclohexane	98.27%	1.73%
Other Hexanes	99.71%	0.29%
Heptanes	99.40%	0.60%
Methylcyclohexane	98.30%	1.70%
2,2,4-Trimethylpentane	99.75%	0.25%
Benzene	85.10%	14.90%
Toluene	81.63%	18.37%
Ethylbenzene	78.48%	21.52%
Xylenes	71.64%	28.36%
C8+ Heavies	99.06%	0.94%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 131.0 deg. F
Flash Pressure: 52.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.95%	0.05%
Carbon Dioxide	34.46%	65.54%
Hydrogen Sulfide	76.68%	23.32%
Nitrogen	4.46%	95.54%
Methane	4.50%	95.50%
Ethane	14.45%	85.55%
Propane	25.64%	74.36%
Isobutane	34.20%	65.80%
n-Butane	40.66%	59.34%
Isopentane	44.48%	55.52%
n-Pentane	49.59%	50.41%
Cyclopentane	80.17%	19.83%
n-Hexane	64.04%	35.96%
Cyclohexane	88.27%	11.73%
Other Hexanes	57.77%	42.23%
Heptanes	78.57%	21.43%
Methylcyclohexane	90.61%	9.39%
2,2,4-Trimethylpentane	65.64%	34.36%
Benzene	98.03%	1.97%
Toluene	98.77%	1.23%

Ethylbenzene	99.32%	0.68%
Xylenes	99.53%	0.47%
C8+ Heavies	97.86%	2.14%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	58.38%	41.62%
Carbon Dioxide	0.00%	100.00%
Hydrogen Sulfide	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	1.12%	98.88%
n-Pentane	1.01%	98.99%
Cyclopentane	0.62%	99.38%
n-Hexane	0.78%	99.22%
Cyclohexane	3.63%	96.37%
Other Hexanes	1.73%	98.27%
Heptanes	0.64%	99.36%
Methylcyclohexane	4.41%	95.59%
2,2,4-Trimethylpentane	2.28%	97.72%
Benzene	5.10%	94.90%
Toluene	8.00%	92.00%
Ethylbenzene	10.47%	89.53%
Xylenes	12.96%	87.04%
C8+ Heavies	12.26%	87.74%

STREAM REPORTS:

WET GAS STREAM

Temperature: 90.00 deg. F
Pressure: 914.70 psia
Flow Rate: 2.92e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.96e-002	1.38e+002
Carbon Dioxide	6.60e-001	2.24e+003
Hydrogen Sulfide	4.99e-003	1.31e+001
Nitrogen	2.32e+000	5.01e+003
Methane	6.67e+001	8.24e+004
Ethane	1.44e+001	3.33e+004
Propane	8.70e+000	2.95e+004
Isobutane	1.07e+000	4.80e+003
n-Butane	3.19e+000	1.43e+004
Isopentane	7.10e-001	3.95e+003

n-Pentane	8.82e-001	4.90e+003
Cyclopentane	8.49e-002	4.59e+002
n-Hexane	2.13e-001	1.41e+003
Cyclohexane	1.36e-001	8.81e+002
Other Hexanes	4.00e-001	2.65e+003
Heptanes	1.10e-001	8.48e+002
Methylcyclohexane	7.69e-002	5.82e+002
2,2,4-Trimethylpentane	9.99e-004	8.79e+000
Benzene	9.09e-002	5.47e+002
Toluene	3.60e-002	2.55e+002
Ethylbenzene	2.00e-003	1.63e+001
Xylenes	6.99e-003	5.72e+001
C8+ Heavies	9.49e-002	1.25e+003
Total Components	100.00	1.90e+005

DRY GAS STREAM

Temperature: 90.00 deg. F
Pressure: 914.70 psia
Flow Rate: 2.92e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	4.10e-003	5.67e+000
Carbon Dioxide	6.59e-001	2.23e+003
Hydrogen Sulfide	4.87e-003	1.28e+001
Nitrogen	2.33e+000	5.01e+003
Methane	6.68e+001	8.24e+004
Ethane	1.44e+001	3.33e+004
Propane	8.70e+000	2.95e+004
Isobutane	1.07e+000	4.79e+003
n-Butane	3.19e+000	1.43e+004
Isopentane	7.10e-001	3.94e+003
n-Pentane	8.82e-001	4.89e+003
Cyclopentane	8.41e-002	4.53e+002
n-Hexane	2.12e-001	1.41e+003
Cyclohexane	1.34e-001	8.65e+002
Other Hexanes	3.99e-001	2.64e+003
Heptanes	1.09e-001	8.43e+002
Methylcyclohexane	7.58e-002	5.72e+002
2,2,4-Trimethylpentane	9.98e-004	8.77e+000
Benzene	7.75e-002	4.65e+002
Toluene	2.94e-002	2.08e+002
Ethylbenzene	1.57e-003	1.28e+001
Xylenes	5.02e-003	4.10e+001
C8+ Heavies	9.42e-002	1.23e+003
Total Components	100.00	1.89e+005

LEAN GLYCOL STREAM

Temperature: 90.00 deg. F
Flow Rate: 2.20e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.84e+001	1.22e+004
Water	1.50e+000	1.86e+002
Carbon Dioxide	8.25e-012	1.02e-009
Hydrogen Sulfide	2.90e-013	3.58e-011
Nitrogen	1.84e-012	2.28e-010
Methane	8.36e-018	1.03e-015
Ethane	1.27e-007	1.57e-005
Propane	1.33e-008	1.64e-006
Isobutane	1.99e-009	2.46e-007
n-Butane	6.37e-009	7.87e-007
Isopentane	3.27e-004	4.04e-002
n-Pentane	5.10e-004	6.31e-002
Cyclopentane	2.15e-004	2.65e-002
n-Hexane	2.09e-004	2.58e-002
Cyclohexane	4.06e-003	5.02e-001
Other Hexanes	6.20e-004	7.66e-002
Heptanes	2.06e-004	2.55e-002
Methylcyclohexane	3.32e-003	4.11e-001
2,2,4-Trimethylpentane	2.69e-006	3.33e-004
Benzene	3.47e-002	4.29e+000
Toluene	3.25e-002	4.02e+000
Ethylbenzene	3.30e-003	4.08e-001
Xylenes	1.94e-002	2.40e+000
C8+ Heavies	1.29e-002	1.59e+000
Total Components	100.00	1.24e+004

RICH GLYCOL STREAM

Temperature: 90.00 deg. F
Pressure: 914.70 psia
Flow Rate: 2.31e+001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.44e+001	1.22e+004
Water	2.47e+000	3.18e+002
Carbon Dioxide	7.92e-002	1.02e+001
Hydrogen Sulfide	2.78e-003	3.58e-001
Nitrogen	1.77e-002	2.28e+000
Methane	2.39e-001	3.08e+001
Ethane	2.58e-001	3.32e+001
Propane	3.14e-001	4.04e+001
Isobutane	6.36e-002	8.20e+000
n-Butane	2.46e-001	3.17e+001
Isopentane	6.28e-002	8.09e+000
n-Pentane	9.80e-002	1.26e+001
Cyclopentane	4.12e-002	5.30e+000
n-Hexane	4.01e-002	5.17e+000
Cyclohexane	1.22e-001	1.57e+001
Other Hexanes	5.95e-002	7.66e+000
Heptanes	3.96e-002	5.10e+000
Methylcyclohexane	7.98e-002	1.03e+001
2,2,4-Trimethylpentane	1.72e-004	2.22e-002
Benzene	6.66e-001	8.58e+001
Toluene	3.95e-001	5.09e+001
Ethylbenzene	3.05e-002	3.92e+000
Xylenes	1.45e-001	1.86e+001

Component	Conc. (vol%)	Loading (lb/hr)
C8+ Heavies	1.03e-001	1.33e+001
Total Components	100.00	1.29e+004

FLASH TANK OFF GAS STREAM

Temperature: 131.00 deg. F
Pressure: 66.70 psia
Flow Rate: 1.67e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.10e-001	1.67e-001
Carbon Dioxide	3.44e+000	6.69e+000
Hydrogen Sulfide	5.55e-002	8.35e-002
Nitrogen	1.76e+000	2.18e+000
Methane	4.15e+001	2.94e+001
Ethane	2.14e+001	2.84e+001
Propane	1.54e+001	3.00e+001
Isobutane	2.10e+000	5.39e+000
n-Butane	7.34e+000	1.88e+001
Isopentane	1.41e+000	4.49e+000
n-Pentane	2.00e+000	6.36e+000
Cyclopentane	3.40e-001	1.05e+000
n-Hexane	4.88e-001	1.86e+000
Cyclohexane	4.96e-001	1.84e+000
Other Hexanes	8.50e-001	3.23e+000
Heptanes	2.47e-001	1.09e+000
Methylcyclohexane	2.23e-001	9.65e-001
2,2,4-Trimethylpentane	1.51e-003	7.62e-003
Benzene	4.89e-001	1.69e+000
Toluene	1.53e-001	6.24e-001
Ethylbenzene	5.73e-003	2.68e-002
Xylenes	1.87e-002	8.74e-002
C8+ Heavies	3.78e-002	2.84e-001
Total Components	100.00	1.45e+002

FLASH TANK GLYCOL STREAM

Temperature: 131.00 deg. F
Flow Rate: 2.28e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.55e+001	1.22e+004
Water	2.50e+000	3.18e+002
Carbon Dioxide	2.76e-002	3.52e+000
Hydrogen Sulfide	2.16e-003	2.75e-001
Nitrogen	7.99e-004	1.02e-001
Methane	1.09e-002	1.38e+000
Ethane	3.77e-002	4.80e+000
Propane	8.13e-002	1.04e+001
Isobutane	2.20e-002	2.80e+000
n-Butane	1.01e-001	1.29e+001
Isopentane	2.82e-002	3.60e+000
n-Pentane	4.91e-002	6.26e+000
Cyclopentane	3.34e-002	4.25e+000

n-Hexane	2.60e-002	3.31e+000
Cyclohexane	1.09e-001	1.39e+001
Other Hexanes	3.48e-002	4.43e+000
Heptanes	3.15e-002	4.01e+000
Methylcyclohexane	7.31e-002	9.31e+000
2,2,4-Trimethylpentane	1.14e-004	1.46e-002
Benzene	6.60e-001	8.41e+001
Toluene	3.95e-001	5.03e+001
Ethylbenzene	3.06e-002	3.90e+000
Xylenes	1.46e-001	1.85e+001
C8+ Heavies	1.02e-001	1.30e+001
Total Components	100.00	1.27e+004

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.00e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.97e+001	1.32e+002
Carbon Dioxide	7.58e-001	3.52e+000
Hydrogen Sulfide	7.64e-002	2.75e-001
Nitrogen	3.45e-002	1.02e-001
Methane	8.19e-001	1.38e+000
Ethane	1.51e+000	4.80e+000
Propane	2.23e+000	1.04e+001
Isobutane	4.58e-001	2.80e+000
n-Butane	2.11e+000	1.29e+001
Isopentane	4.68e-001	3.56e+000
n-Pentane	8.15e-001	6.20e+000
Cyclopentane	5.72e-001	4.23e+000
n-Hexane	3.62e-001	3.28e+000
Cyclohexane	1.51e+000	1.34e+001
Other Hexanes	4.79e-001	4.35e+000
Heptanes	3.77e-001	3.98e+000
Methylcyclohexane	8.60e-001	8.90e+000
2,2,4-Trimethylpentane	1.18e-003	1.42e-002
Benzene	9.70e+000	7.98e+001
Toluene	4.77e+000	4.63e+001
Ethylbenzene	3.12e-001	3.49e+000
Xylenes	1.44e+000	1.61e+001
C8+ Heavies	6.35e-001	1.14e+001
Total Components	100.00	3.73e+002

CONDENSER PRODUCED WATER STREAM

Temperature: 140.00 deg. F
Flow Rate: 2.47e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	1.23e+002	998696.
Carbon Dioxide	2.36e-003	2.91e-003	24.
Hydrogen Sulfide	6.04e-004	7.46e-004	6.
Nitrogen	2.04e-006	2.53e-006	0.
Methane	5.11e-005	6.32e-005	1.
Ethane	1.92e-004	2.38e-004	2.
Propane	4.72e-004	5.83e-004	5.
Isobutane	6.60e-005	8.16e-005	1.
n-Butane	3.85e-004	4.76e-004	4.
Isopentane	6.46e-005	7.98e-005	1.
n-Pentane	1.11e-004	1.38e-004	1.
Cyclopentane	4.80e-004	5.93e-004	5.
n-Hexane	3.84e-005	4.75e-005	0.
Cyclohexane	7.01e-004	8.66e-004	7.
Other Hexanes	4.70e-005	5.81e-005	0.
Heptanes	1.52e-005	1.88e-005	0.
Methylcyclohexane	1.51e-004	1.87e-004	2.
2,2,4-Trimethylpentane	3.81e-008	4.71e-008	0.
Benzene	9.84e-002	1.22e-001	984.
Toluene	2.31e-002	2.86e-002	231.
Ethylbenzene	5.27e-004	6.52e-004	5.
Xylenes	2.68e-003	3.31e-003	27.
C8+ Heavies	1.34e-007	1.66e-007	0.
Total Components	100.00	1.24e+002	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 140.00 deg. F
Flow Rate: 2.99e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	6.49e-002	8.25e-002
Carbon Dioxide	1.21e-002	1.54e-002
Hydrogen Sulfide	3.67e-003	4.67e-003
Nitrogen	2.22e-004	2.82e-004
Methane	1.47e-003	1.87e-003
Ethane	2.79e-002	3.55e-002
Propane	2.64e-001	3.36e-001
Isobutane	1.35e-001	1.71e-001
n-Butane	8.62e-001	1.10e+000
Isopentane	5.19e-001	6.60e-001
n-Pentane	1.17e+000	1.48e+000
Cyclopentane	8.96e-001	1.14e+000
n-Hexane	9.79e-001	1.24e+000
Cyclohexane	4.97e+000	6.32e+000
Other Hexanes	1.02e+000	1.30e+000
Heptanes	1.96e+000	2.49e+000
Methylcyclohexane	4.46e+000	5.66e+000
2,2,4-Trimethylpentane	6.85e-003	8.71e-003
Benzene	3.22e+001	4.10e+001
Toluene	2.74e+001	3.48e+001

Ethylbenzene	2.46e+000	3.13e+000
Xylenes	1.16e+001	1.48e+001
C8+ Heavies	8.95e+000	1.14e+001
Total Components	100.00	1.27e+002

CONDENSER VENT STREAM

Temperature: 140.00 deg. F
Pressure: 13.50 psia
Flow Rate: 8.63e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.14e+001	8.78e+000
Carbon Dioxide	3.49e+000	3.50e+000
Hydrogen Sulfide	3.47e-001	2.69e-001
Nitrogen	1.59e-001	1.01e-001
Methane	3.79e+000	1.38e+000
Ethane	6.96e+000	4.76e+000
Propane	9.99e+000	1.00e+001
Isobutane	1.99e+000	2.63e+000
n-Butane	8.93e+000	1.18e+001
Isopentane	1.76e+000	2.90e+000
n-Pentane	2.87e+000	4.71e+000
Cyclopentane	1.93e+000	3.09e+000
n-Hexane	1.04e+000	2.04e+000
Cyclohexane	3.67e+000	7.03e+000
Other Hexanes	1.56e+000	3.05e+000
Heptanes	6.54e-001	1.49e+000
Methylcyclohexane	1.45e+000	3.24e+000
2,2,4-Trimethylpentane	2.12e-003	5.52e-003
Benzene	2.18e+001	3.87e+001
Toluene	5.46e+000	1.14e+001
Ethylbenzene	1.48e-001	3.57e-001
Xylenes	5.53e-001	1.34e+000
C8+ Heavies	6.70e-003	2.60e-002
Total Components	100.00	1.23e+002

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.29e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Hydrogen Sulfide	4.63e-001	5.38e-003
Methane	5.06e+000	2.76e-002
Ethane	9.29e+000	9.52e-002
Propane	1.33e+001	2.00e-001
Isobutane	2.66e+000	5.26e-002
n-Butane	1.19e+001	2.36e-001
Isopentane	2.36e+000	5.79e-002
n-Pentane	3.83e+000	9.43e-002
Cyclopentane	2.58e+000	6.17e-002
n-Hexane	1.39e+000	4.08e-002

Cyclohexane	4.90e+000	1.41e-001
Other Hexanes	2.08e+000	6.10e-002
Heptanes	8.73e-001	2.98e-002
Methylcyclohexane	1.93e+000	6.47e-002
2,2,4-Trimethylpentane	2.83e-003	1.10e-004
Benzene	2.91e+001	7.74e-001
Toluene	7.29e+000	2.29e-001
Ethylbenzene	1.97e-001	7.13e-003
Xylenes	7.38e-001	2.67e-002
C8+ Heavies	8.94e-003	5.19e-004
Total Components	100.00	2.21e+000

Enclosed Combustor Information

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 $1b/10^6$ 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 13.5-2 (English Units). VOC and CO EMISSIONS FACTORS FOR ELEVATED FLARE OPERATIONS FOR CERTAIN REFINERY AND CHEMICAL MANUFACTURING PROCESSES[a,b]

Pollutant	SCC[e]	Emissions Factor ($lb/10^6$ Btu)[f]	Representativeness
Volatile organic compounds[c]	30190099; 30600904; 30119701; 30119705; 30119709; 30119741; 30119799; 30130115; 30600201; 30600401; 30600508; 30600903; 30600999; 30601701; 30601801; 30688801; 40600240	0.66	Poorly
Carbon monoxide[d]		0.31	Poorly

[a] The emissions factors in this table represent the emissions exiting the flare. Since the flare is not the originating source of the VOC emissions, but rather the device controlling these pollutants routed from a process at the facility, the emissions factor is representative of controlled emissions rates for VOC. This values is not representative of the uncontrolled VOC routed to the flare from the associated process, and as such, it may not be appropriate for estimating the uncontrolled VOC emissions or potential to emit from the associated process.

[b] These factors apply to well operated flares achieving at least 98% destruction efficiency and operating in compliance with the current General Provisions requirements of 40 CFR Part 60, i.e. >300 btu/scf net heating value in the vent gas and less than the specified maximum flare tip velocity. The VOC emissions factor data set had an average destruction efficiency of 98.9%, and the CO emissions factor data set had an average destruction efficiency of 99.1% (based on test reports where destruction efficiency was provided). These factors are based on steam-assisted and air-assisted flares burning a variety of vent gases.

[c] References 4 through 9 and 11.

[d] References 1, 4 through 8, and 11.

[e] See Table 13.5-4 for a description of these SCCs.

[f] Factor developed using the lower (net) heating value of the vent gas.

Flare Information

Trent M. Wade

From: Stephanie Swanson <stephanie@3bearllc.com>
Sent: Tuesday, June 1, 2021 12:49 PM
To: Lori K. Marquez; Trent M. Wade; Liz Klein
Subject: Fwd: 3 Bear Flare emission factors

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

From: Steve Caissie <s_caissie@tornadotech.com>
Sent: Tuesday, June 1, 2021 11:23:49 AM
To: Stephanie Swanson <stephanie@3bearllc.com>
Subject: RE: 3 Bear Flare emission factors

Stephanie,
The emission factors Tornado uses are as follows:

FLARE EMISSION FACTORS	
CONDITION	[lb/MMBTU]
NOX AT HIGH BTU/SCF >1000	0.1380
NOX AT LOW BTU/SCF 184-1000	0.0641
CO AT HIGH BTU/SCF >1000	0.2755
CO AT LOW BTU/SCF 184-1000	0.5496

Regards,
Steve Caissie
Tornado Combustion Technologies Inc.
Phone: (403) 567-2226

From: Stephanie Swanson <stephanie@3bearllc.com>
Sent: June 1, 2021 9:30 AM
To: Steve Caissie <s_caissie@tornadotech.com>
Subject: 3 Bear Flare emission factors
Hi Steve
Do you have an update on 3 bear Libby emission factors
Thanks
Stephanie Swanson
720-272-6791
Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

Table 13.5-1 (English Units). THC, NOx AND SOOT EMISSIONS FACTORS FOR FLARE OPERATIONS[a]

EMISSIONS FACTOR RATING: B

Pollutant	SCC[d]	Emissions Factor Value	Emissions Factor Units
Total hydrocarbons[b]	30190099; 30119701; 30119705; 30119709; 30119741	0.14	lb/10^6 Btu
Nitrogen oxides[c]		0.068	lb/10^6 Btu
Soot[c]		0 - 274	µg/L

[a] Reference 1. Based on tests using crude propylene containing 80% propylene and 20% propane.
[b] Measured as methane equivalent. The THC emissions factor may not be appropriate for reporting VOC emissions when a VOC emissions factor exists.
[c] Soot in concentration values: nonsmoking flares, 0 micrograms per liter (µg/L); lightly smoking flares, 40 µg/L; average smoking flares, 177 µg/L; and heavily smoking flares, 274 µg/L.
[d] See Table 13.5-3 for a description of these SCCs.

Inlet Gas Analysis

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575.397.3713 2609 W MARLAND HOBBS, NEW MEXICO 88240

EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Aztec Comp Stat. Inlet	**For:**	12563G
Sample Date:	09/22/2021	**Cyl. Ident.:**	2021046030
Sampled By:	DJ	**Company:**	3 Bear
Time Sampled:	13:25	**Analysis Date:**	09/27/2021
Sample Temp:	0.0 F	**Analysis By:**	BH
Sample Press:	29.0 **H2S (PPM)** = 0.2	**Data File:**	LS_6325.D

Component	Mole%	GPM REAL	GPM IDEAL
H2S	0.000		
Nitrogen	8.291		
Methane	62.549		
CO2	0.633		
Ethane	13.542	3.621	3.612
Propane	8.133	2.240	2.235
Isobutane	1.003	0.328	0.327
N-Butane	2.789	0.879	0.877
Isopentane	0.655	0.239	0.239
N-Pentane	0.762	0.276	0.276
Hexanes+	1.643	0.670	0.667
Total	100.000	8.253	8.233

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	25.049
VAPOR PRESS PSIA:	3253.6
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.8681
AIR = 1 (IDEAL):	0.8645
H2O = 1 (IDEAL):	0.399
REPORTED BASIS:	14.73
Unnormalized Total:	94.686

HEATING VALUE

BTU/CUFT (DRY)	1348.1
BTU/CUFT (WET)	1325.2

BTEX SUMMARY

WT% BENZENE	5.425
WT% TOLUENE	4.491
WT% E BENZENE	0.488
WT% XYLENES	1.881

LAB MANAGER

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Sample Name: Aztec Comp Stat. Inlet
Company: 3 Bear

Data File: LS_6325.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.005	0.019
CYCLOPENTANE	0.076	0.237
2-METHYLPENTANE	0.165	0.569
3-METHYLPENTANE	0.094	0.323
HEXANE (C6)	0.230	0.757
DIMETHYLPENTANES	0.013	0.056
METHYLCYCLOPENTANE	0.137	0.462
2,2,3 TRIMETHYLBUTANE	0.001	0.003
BENZENE	0.098	0.307
CYCLOHEXANE	0.161	0.541
2-METHYLHEXANE	0.030	0.119
3-METHYLHEXANE	0.049	0.194
DIMETHYCYCLOPENTANES	0.020	0.080
HEPTANE (C7)	0.075	0.299
METHYLCYCLOHEXANE	0.141	0.557
2,5 DIMETHYLHEXANE	0.002	0.010
TOLUENE	0.073	0.268
2-METHYLHEPTANE	0.022	0.101
OTHER OCTANES	0.064	0.288
OCTANE (C8)	0.025	0.113
ETHYLCYCLOHEXANE	0.011	0.051
ETHYL BENZENE	0.007	0.031
M,P-XYLENE	0.021	0.091
O-XYLENE	0.006	0.027
OTHER NONANES	0.032	0.153
NONANE (C-9)	0.015	0.074
IC3 BENZENE	0.003	0.016
CYCLOOCTANE	0.001	0.006
NC3 BENZENE	0.000	0.002
TM BENZENE(S)	0.002	0.011
IC4 BENZENE	0.000	0.001
NC4 BENZENE	0.000	0.002
DECANES + (C10+)	0.015	0.121

*HEXANES PLUS SUMMARY

AVG MOLE WT	93.027
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	63.1
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.727

COMPONENT RATIOS

HEXANES (C6) MOLE%	34.095
HEPTANES (C7) MOLE%	38.622
OCTANES (C8) MOLE%	19.950
NONANES (C9) MOLE%	5.563
DECANES+ (C10+) MOLE%	1.770
HEXANES (C6) WT%	31.184
HEPTANES (C7) WT%	37.264
OCTANES (C8) WT%	21.936
NONANES (C9) WT%	7.004
DECANES+ (C10+) WT%	2.612

Remarks: spot

* Hexane+ portion calculated by Allocation Process

Gas Analysis - Inlet Aztec Comp Stat. Inlet - Sample Date 09/22/2021

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	62.549%	62.55%	10.03	40.14%	40.14%	44.80%	NA
Ethane	30.07	13.542%	13.54%	4.07	16.29%	16.29%	18.18%	NA
Total HC (Non-VOC)		**76.091%**	**76.09%**	**14.11**	**56.43%**	**56.43%**	**62.98%**	**NA**
Propane	44.10	8.133%	8.13%	3.59	14.35%	14.35%	16.01%	43.26%
Iso-Butane	58.12	1.003%	1.00%	0.58	2.33%	2.33%	2.60%	7.03%
N-Butane	58.12	2.789%	2.79%	1.62	6.48%	6.48%	7.24%	19.55%
Iso-Pentane	72.15	0.655%	0.66%	0.47	1.89%	1.89%	2.11%	5.70%
N-Pentane	72.15	0.762%	0.76%	0.55	2.20%	2.20%	2.45%	6.63%
Other Hexanes	86.18	0.638%	0.64%	0.55	2.20%	2.20%	2.45%	6.63%
n-Hexane	86.18	0.230%	0.23%	0.20	0.79%	0.79%	0.88%	2.39%
Heptane	100.21	0.329%	0.33%	0.33	1.32%	1.32%	1.47%	3.98%
2,2,4-Trimethylpentane	114.22	0.001%	0.00%	0.00	0.00%	0.00%	0.01%	0.01%
Octanes+	114.23	0.192%	0.19%	0.22	0.88%	0.88%	0.98%	2.65%
Benzene	78.11	0.098%	0.10%	0.08	0.31%	0.31%	0.34%	0.92%
Toluene	92.14	0.073%	0.07%	0.07	0.27%	0.27%	0.30%	0.81%
Ethylbenzene	106.17	0.007%	0.01%	0.01	0.03%	0.03%	0.03%	0.09%
Xylenes	106.16	0.027%	0.03%	0.03	0.11%	0.11%	0.13%	0.35%
Total NMNE VOC		***14.937%***	**14.94%**	***6.81***	***33.16%***	**33.16%**	***37.02%***	***100.00%***
Total HAPs		***0.436%***	**0.44%**	***0.38***	***1.52%***	**1.52%**	***1.69%***	***4.57%***
Water	18.02	0.000%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.005%	0.01%	0.00	0.01%	0.01%	NA	NA
Carbon Dioxide	44.01	0.633%	0.63%	0.28	1.11%	1.11%	NA	NA
Nitrogen	28.01	8.291%	8.29%	2.32	9.29%	9.29%	NA	NA
Totals		99.96%	99.96%	25.00	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **55.51 lb/lb-mol**

Fuel Heat Value: 1,348.10 btu/scf

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Dehy Gas Analysis

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575.397.3713 2609 W MARLAND HOBBS, NEW MEXICO 88240

EXTENDED GAS REPORT
SUMMARY OF CHROMATOGRAPHIC ANALYSIS

Sample Name:	Aztec Booster Prior to Dehy	**For:**	12562G
Sample Date:	02/22/2022	**Cyl. Ident.:**	2022051621
Sampled By:	CJ	**Company:**	3 Bear
Time Sampled:	14:35	**Analysis Date:**	02/24/2022
Sample Temp:	0.0 F	**Analysis By:**	BH
Sample Press:	1000.0 **H2S (PPM)** = 1.0	**Data File:**	LS_6877.D

Component	Mole%	GPM REAL	GPM IDEAL
H2S	0.000		
Nitrogen	2.324		
Methane	66.802		
CO2	0.661		
Ethane	14.392	3.848	3.839
Propane	8.705	2.398	2.392
Isobutane	1.073	0.351	0.350
N-Butane	3.196	1.007	1.005
Isopentane	0.711	0.260	0.259
N-Pentane	0.883	0.320	0.319
Hexanes+	1.253	0.498	0.495
Total	100.000	8.682	8.659

CALCULATED PARAMETERS

TOTAL ANALYSIS SUMMARY

MOLE WT:	24.576
VAPOR PRESS PSIA:	3474.4
SPECIFIC GRAVITY	
AIR = 1 (REAL):	0.8522
AIR = 1 (IDEAL):	0.8484
H2O = 1 (IDEAL):	0.382
REPORTED BASIS:	14.73
Unnormalized Total:	100.603

HEATING VALUE

BTU/CUFT (DRY)	1422.2
BTU/CUFT (WET)	1398.1

BTEX SUMMARY

WT% BENZENE	6.923
WT% TOLUENE	3.070
WT% E BENZENE	0.190
WT% XYLENES	0.664

LAB MANAGER

www.permianls.com

575.397.3713 2609 W MARLAND HOBBS, NEW MEXICO 88240

Sample Name: Aztec Booster Prior to Dehy
Company: 3 Bear

Data File: LS_6877.D

*ANALYSIS OF HEXANES PLUS

Component	MOLE%	WT%
2,2 DIMETHYL BUTANE	0.007	0.025
CYCLOPENTANE	0.085	0.271
2-METHYLPENTANE	0.174	0.609
3-METHYLPENTANE	0.095	0.333
HEXANE (C6)	0.213	0.737
DIMETHYLPENTANES	0.008	0.034
METHYLCYCLOPENTANE	0.124	0.423
2,2,3 TRIMETHYLBUTANE	0.001	0.003
BENZENE	0.091	0.291
CYCLOHEXANE	0.136	0.464
2-METHYLHEXANE	0.019	0.077
3-METHYLHEXANE	0.030	0.124
DIMETHYCYCLOPENTANES	0.013	0.051
HEPTANE (C7)	0.039	0.161
METHYLCYCLOHEXANE	0.077	0.309
2,5 DIMETHYLHEXANE	0.001	0.004
TOLUENE	0.036	0.137
2-METHYLHEPTANE	0.007	0.031
OTHER OCTANES	0.023	0.106
OCTANE (C8)	0.006	0.029
ETHYLCYCLOHEXANE	0.003	0.014
ETHYL BENZENE	0.002	0.008
M,P-XYLENE	0.005	0.022
O-XYLENE	0.002	0.007
OTHER NONANES	0.008	0.042
NONANE (C-9)	0.002	0.012
IC3 BENZENE	0.001	0.005
CYCLOOCTANE	0.000	0.002
NC3 BENZENE	0.000	0.001
TM BENZENE(S)	0.002	0.011
IC4 BENZENE	0.000	0.000
NC4 BENZENE	0.000	0.002
DECANES + (C10+)	0.012	0.077

*HEXANES PLUS SUMMARY

AVG MOLE WT	89.408
VAPOR PRESS PSIA	9.860
API GRAVITY @ 60F	65.0
SPECIFIC GRAVITY	
AIR = 1 (IDEAL):	2.975
H2O = 1 (IDEAL):	0.720

COMPONENT RATIOS

HEXANES (C6) MOLE%	45.643
HEPTANES (C7) MOLE%	39.288
OCTANES (C8) MOLE%	11.976
NONANES (C9) MOLE%	1.753
DECANES+ (C10+) MOLE%	1.340
HEXANES (C6) WT%	43.383
HEPTANES (C7) WT%	38.704
OCTANES (C8) WT%	13.489
NONANES (C9) WT%	2.286
DECANES+ (C10+) WT%	2.138

Remarks: spot

* Hexane+ portion calculated by Allocation Process

Gas Analysis -Aztec Booster Prior to Dehy - Sample Date 02/22/2022

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	66.802%	66.80%	10.72	43.59%	43.59%	45.33%	NA
Ethane	30.07	14.392%	14.39%	4.33	17.60%	17.60%	18.30%	NA
Total HC (Non-VOC)		**81.194%**	**81.19%**	**15.04**	**61.19%**	**61.19%**	**63.63%**	**NA**
Propane	44.10	8.705%	8.71%	3.84	15.61%	15.61%	16.23%	44.64%
Iso-Butane	58.12	1.073%	1.07%	0.62	2.54%	2.54%	2.64%	7.25%
N-Butane	58.12	3.196%	3.20%	1.86	7.56%	7.56%	7.86%	21.60%
Iso-Pentane	72.15	0.711%	0.71%	0.51	2.09%	2.09%	2.17%	5.97%
N-Pentane	72.15	0.883%	0.88%	0.64	2.59%	2.59%	2.69%	7.41%
Other Hexanes	86.18	0.621%	0.62%	0.54	2.18%	2.18%	2.26%	6.22%
n-Hexane	86.18	0.213%	0.21%	0.18	0.75%	0.75%	0.78%	2.13%
Heptane	100.21	0.187%	0.19%	0.19	0.76%	0.76%	0.79%	2.18%
2,2,4-Trimethylpentane	114.22	0.001%	0.00%	0.00	0.00%	0.00%	0.00%	0.01%
Octanes+	114.23	0.095%	0.10%	0.11	0.44%	0.44%	0.46%	1.26%
Benzene	78.11	0.091%	0.09%	0.07	0.29%	0.29%	0.30%	0.83%
Toluene	92.14	0.036%	0.04%	0.03	0.13%	0.13%	0.14%	0.39%
Ethylbenzene	106.17	0.002%	0.00%	0.00	0.01%	0.01%	0.01%	0.02%
Xylenes	106.16	0.007%	0.01%	0.01	0.03%	0.03%	0.03%	0.09%
Total NMNE VOC		***15.821%***	**15.82%**	***7.47***	***34.98%***	**34.98%**	***36.37%***	***100.00%***
Total HAPs		***0.350%***	**0.35%**	***0.30***	***1.21%***	**1.21%**	***1.26%***	***3.47%***
Water	18.02	0.000%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.000%	0.00%	0.00	0.00%	0.00%	NA	NA
Carbon Dioxide	44.01	0.661%	0.66%	0.29	1.18%	1.18%	NA	NA
Nitrogen	28.01	2.324%	2.32%	0.65	2.65%	2.65%	NA	NA
Totals		100.000%	100.00%	24.59	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **54.36 lb/lb-mol**

Fuel Heat Value: 1,422.20 btu/scf

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Enclosed Combustor Gas Analysis

Condenser Vent Stream Analysis - ECD-1 - GlyCalc Run 3Bear Aztec Compressor Station_Aggregate

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	3.79%	4.82%	0.61	1.12%	1.21%	1.25%	NA
Ethane	30.07	6.96%	8.85%	2.09	3.87%	4.17%	4.31%	NA
Total HC (Non-VOC)		**10.75%**	**13.68%**		**5.00%**	**5.38%**	**5.57%**	**NA**
Propane	44.10	9.99%	12.71%	4.41	8.15%	8.77%	9.08%	9.62%
Iso-Butane	58.12	1.99%	2.53%	1.16	2.14%	2.30%	2.38%	2.52%
N-Butane	58.12	8.93%	11.36%	5.19	9.60%	10.34%	10.70%	11.33%
Iso-Pentane	72.15	1.76%	2.24%	1.27	2.35%	2.53%	2.62%	2.77%
N-Pentane	72.15	4.80%	6.11%	3.46	6.41%	6.90%	7.14%	7.56%
Other Hexanes	86.18	5.23%	6.65%	4.51	8.34%	8.98%	9.29%	9.84%
n-Hexane	86.18	1.04%	1.32%	0.90	1.66%	1.79%	1.85%	1.96%
Heptane	100.21	2.10%	2.68%	2.11	3.90%	4.20%	4.35%	4.60%
2,2,4-Trimethylpentane	114.23	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.01%
Octanes +	114.23	0.01%	0.01%	0.01	0.01%	0.02%	0.02%	0.02%
Benzene	78.11	21.80%	27.74%	17.03	31.50%	33.91%	35.10%	37.17%
Toluene	92.14	5.46%	6.95%	5.03	9.31%	10.02%	10.37%	10.98%
Ethylbenzene	106.17	0.15%	0.19%	0.16	0.29%	0.31%	0.32%	0.34%
Xylenes	106.16	0.55%	0.70%	0.59	1.09%	1.17%	1.21%	1.28%
Total NMNE VOC		**63.81%**	**81.19%**	**45.81**	**84.73%**	**91.24%**	**94.43%**	**100.00%**
Total HAPs		**29.00%**	**36.90%**	**23.70**	**43.84%**	**47.21%**	**48.86%**	**51.74%**
Water	18.02	21.40%	NA	3.86	7.13%	NA	NA	NA
Hydrogen Sulfide	34.08	0.35%	0.44%	0.12	0.22%	0.24%	NA	NA
Carbon Dioxide	44.01	3.49%	4.44%	1.54	2.84%	3.06%	NA	NA
Nitrogen	28.01	0.16%	0.20%	0.04	0.08%	0.09%	NA	NA
Totals		99.96%	99.95%	54.07	100%	100%	100%	

Average Molecular Weight of VOCs: **71.79 lb/lb-mol**

Notes:

* Weight Percent corrected to remove Water, Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Condenser Vent Stream Analysis - ECD-2 - GlyCalc Run 3Bear Aztec Compressor Station_Aggregate

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	3.79%	4.82%	0.61	1.12%	1.21%	1.25%	NA
Ethane	30.07	6.96%	8.85%	2.09	3.87%	4.17%	4.31%	NA
Total HC (Non-VOC)		**10.75%**	**13.68%**		**5.00%**	**5.38%**	**5.57%**	**NA**
Propane	44.10	9.99%	12.71%	4.41	8.15%	8.77%	9.08%	9.62%
Iso-Butane	58.12	1.99%	2.53%	1.16	2.14%	2.30%	2.38%	2.52%
N-Butane	58.12	8.93%	11.36%	5.19	9.60%	10.34%	10.70%	11.33%
Iso-Pentane	72.15	1.76%	2.24%	1.27	2.35%	2.53%	2.62%	2.77%
N-Pentane	72.15	4.80%	6.11%	3.46	6.41%	6.90%	7.14%	7.56%
Other Hexanes	86.18	5.23%	6.65%	4.51	8.34%	8.98%	9.29%	9.84%
n-Hexane	86.18	1.04%	1.32%	0.90	1.66%	1.79%	1.85%	1.96%
Heptane	100.21	2.10%	2.68%	2.11	3.90%	4.20%	4.35%	4.60%
2,2,4-Trimethylpentane	114.23	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.01%
Octanes +	114.23	0.01%	0.01%	0.01	0.01%	0.02%	0.02%	0.02%
Benzene	78.11	21.80%	27.74%	17.03	31.50%	33.91%	35.10%	37.17%
Toluene	92.14	5.46%	6.95%	5.03	9.31%	10.02%	10.37%	10.98%
Ethylbenzene	106.17	0.15%	0.19%	0.16	0.29%	0.31%	0.32%	0.34%
Xylenes	106.16	0.55%	0.70%	0.59	1.09%	1.17%	1.21%	1.28%
Total NMNE VOC		**63.81%**	**81.19%**	**45.81**	**84.73%**	**91.24%**	**94.43%**	**100.00%**
Total HAPs		**29.00%**	**36.90%**	**23.70**	**43.84%**	**47.21%**	**48.86%**	**51.74%**
Water	18.02	21.40%	NA	3.86	7.13%	NA	NA	NA
Hydrogen Sulfide	34.08	0.35%	0.44%	0.12	0.22%	0.24%	NA	NA
Carbon Dioxide	44.01	3.49%	4.44%	1.54	2.84%	3.06%	NA	NA
Nitrogen	28.01	0.16%	0.20%	0.04	0.08%	0.09%	NA	NA
Totals		99.96%	99.95%	54.07	100.00%	100.00%	100.00%	

Average Molecular Weight of VOCs: **71.79 lb/lb-mol**

Notes:

* Weight Percent corrected to remove Water, Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

Flare Gas Analysis

Gas Analysis - ProMax -Aztec Slug Catcher Flash Sample - Sample Date 02/24/2022

Gas Constituent	Molecular Weight (lb/lb-mol)	Mole %	Mole % Without Water	Weight (lb/lbmole Gas)	Weight %	Weight % Without Water	Total HC Corrected Weight * %	Total VOC Corrected Weight ** %
Methane	16.04	2.86%	2.86%	0.46	0.90%	0.90%	0.93%	NA
Ethane	30.07	10.75%	10.75%	3.23	6.35%	6.35%	6.52%	NA
Total HC (Non-VOC)		**13.61%**	**13.61%**	**3.69**	**7.25%**	**7.25%**	**7.45%**	**NA**
Propane	44.10	29.93%	29.93%	13.20	25.92%	25.92%	26.63%	28.77%
Iso-Butane	58.12	8.28%	8.28%	4.81	9.45%	9.45%	9.71%	10.49%
N-Butane	58.12	27.85%	27.85%	16.19	31.79%	31.79%	32.66%	35.29%
Iso-Pentane	72.15	6.54%	6.54%	4.72	9.27%	9.27%	9.52%	10.29%
N-Pentane	72.15	6.53%	6.53%	4.71	9.25%	9.25%	9.50%	10.27%
Other Hexanes	86.18	1.38%	1.38%	1.19	2.34%	2.34%	2.40%	2.60%
n-Hexane	86.18	0.46%	0.46%	0.39	0.77%	0.77%	0.79%	0.86%
Heptane	100.21	0.37%	0.37%	0.37	0.73%	0.73%	0.75%	0.81%
2,2,4-Trimethylpentane	114.22	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.00%
Octanes+	114.23	0.14%	0.14%	0.16	0.31%	0.31%	0.32%	0.34%
Benzene	78.11	0.11%	0.11%	0.08	0.16%	0.16%	0.17%	0.18%
Toluene	92.14	0.05%	0.05%	0.04	0.08%	0.08%	0.09%	0.09%
Ethylbenzene	106.17	0.00%	0.00%	0.00	0.00%	0.00%	0.00%	0.00%
Xylenes	106.16	0.01%	0.01%	0.01	0.01%	0.01%	0.01%	0.01%
Total NMNE VOC		***81.64%***	**81.64%**	***43.63***	***90.09%***	**90.09%**	***92.55%***	***100.00%***
Total HAPs		***0.62%***	**0.62%**	***0.53***	***1.04%***	**1.04%**	***1.07%***	***1.15%***
Water	18.02	0.00%	NA	0.00	0.00%	NA	NA	NA
Hydrogen Sulfide	34.08	0.00%	0.00%	0.00	0.00%	0.00%	NA	NA
Carbon Dioxide	44.01	0.14%	0.14%	0.06	0.12%	0.12%	NA	NA
Nitrogen	28.01	4.61%	4.61%	1.29	2.54%	2.54%	NA	NA
Totals		100.00%	100.00%	50.92	100.00%	100.00%	100.00%	100.00%

Average Molecular Weight of VOCs: **56.19 lb/lb-mol**

2,857.20 btu/scf

Notes:

* Weight Percent corrected to remove Carbon Dioxide,Nitrogen, and H2S content.

** Weight Percent corrected to remove non-VOC content.

ProMax Runs

Process Streams		1	34 GB	42	43	44	46
Composition	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	--	MIX-103	Gunbbl	Gunbbl	Gunbbl	VSSL-101
	To Block:	SAT-2	Gunbbl	--	--	VSSL-101	PUMP-100
Mole Fraction		%	%	%	%	%	%
Methane		68.5232*	0.00413094	39.5454	0.000921240	0.133334	0.133334
Ethane		14.4704*	0.00249873	13.8462	0.000512994	0.344524	0.344524
Propane		7.94400*	0.00521777	14.5994	0.000386657	1.30840	1.30840
i-Butane		1.00390*	0.00183070	2.32035	4.66525E-05	0.558864	0.558864
n-Butane		2.68650*	0.0132793	11.0806	0.000268197	4.21993	4.21993
i-Pentane		0.556000*	0.00775608	2.54582	4.63737E-05	2.59960	2.59960
n-Pentane		0.622400*	0.0135637	3.28868	2.12334E-05	4.59548	4.59548
Cyclohexane		0.213667*	0.0513171	2.32968	0.000229662	17.5847	17.5847
n-Hexane		0.213667*	0.0102859	0.735260	3.36560E-06	3.53272	3.53272
n-Heptane		0.343000*	0.0170996	0.356667	1.27383E-06	5.89575	5.89575
C8		0.151100*	0.00229849	0.0136802	1.97639E-08	0.793394	0.793394
Water		0*	99.6817	2.20846	99.9779	0.0875464	0.0875464
N2		2.76590*	7.80078E-05	0.917100	1.03950E-05	0.000724533	0.000724533
CO2		0.337200*	0.000682052	1.12256	0.000561574	0.0144740	0.0144740
H2S		1.00000E-04*	2.67059E-06	0.00151927	2.33778E-06	7.98282E-05	7.98282E-05
Triethylene Glycol		0*	8.48369E-06	4.68383E-13	8.50892E-06	8.56532E-09	8.56532E-09
EG		0*	0	0	0	0	0
MeOH		0*	0	0	0	0	0
2,2,4-Trimethylpentane		0.001000000*	5.03196E-05	0.00118524	9.17838E-09	0.0173445	0.0173445
Benzene		0.0570000*	0.131331	4.52371	0.0174529	39.2316	39.2316
Toluene		0.0360000*	0.0522498	0.551494	0.00158977	17.4825	17.4825
Ethylbenzene		0.00300000*	0.000972886	0.00226048	6.15190E-06	0.333793	0.333793
m-Xylene		0.0130000*	0.00361854	0.00994432	1.64175E-05	1.24369	1.24369
Nonane		0.0370000*	6.12888E-05	0.000119913	2.14225E-10	0.0211618	0.0211618
Decane		0.0110000*	1.00658E-06	6.21414E-07	3.11201E-13	0.000347588	0.000347588
Undecane		0.00900000*	2.37576E-08	4.35274E-09	2.56055E-15	8.20411E-06	8.20411E-06
Dodecane		0.00200000*	2.32981E-10	1.43670E-11	3.52586E-17	8.04548E-08	8.04548E-08
UCARSOL™ AP-814		0*	0	0	0	0	0

Mass Fraction	%	%	%	%	%	%
Methane	46.1458*	0.00363850	17.0923	0.000819797	0.0261412	0.0261412
Ethane	18.2652*	0.00412516	11.2172	0.000855647	0.126605	0.126605
Propane	14.7048*	0.0126323	17.3446	0.000945767	0.705094	0.705094
i-Butane	2.44938*	0.00584199	3.63355	0.000150411	0.396973	0.396973
n-Butane	6.55469*	0.0423761	17.3516	0.000864685	2.99751	2.99751
i-Pentane	1.68394*	0.0307237	4.94870	0.000185594	2.29218	2.29218
n-Pentane	1.88505*	0.0537291	6.39271	8.49787E-05	4.05202	4.05202
Cyclohexane	0.754856*	0.237119	5.28243	0.00107215	18.0864	18.0864
n-Hexane	0.772937*	0.0486661	1.70710	1.60882E-05	3.72052	3.72052
n-Heptane	1.44276*	0.0940726	0.962885	7.08030E-06	7.21984	7.21984
C8	0.724540*	0.0144152	0.0421018	1.25231E-07	1.10758	1.10758
Water	0*	98.5958	1.07193	99.9097	0.0192749	0.0192749
N2	3.25256*	0.000119979	0.692177	1.61530E-05	0.000248048	0.000248048
CO2	0.622956*	0.00164803	1.33104	0.00137093	0.00778479	0.00778479
H2S	0.000143065*	4.99712E-06	0.00139502	4.41953E-06	3.32491E-05	3.32491E-05
Triethylene Glycol	0*	6.99485E-05	1.89508E-12	7.08808E-05	1.57198E-08	1.57198E-08
EG	0*	0	0	0	0	0
MeOH	0*	0	0	0	0	0
2,2,4-Trimethylpentane	0.00479510*	0.000315583	0.00364766	5.81572E-08	0.0242129	0.0242129
Benzene	0.186902*	0.563229	9.52021	0.0756218	37.4512	37.4512
Toluene	0.139241*	0.264319	1.36904	0.00812528	19.6859	19.6859
Ethylbenzene	0.0133698*	0.00567081	0.00646571	3.62287E-05	0.433082	0.433082
m-Xylene	0.0579359*	0.0210920	0.0284440	9.66834E-05	1.61364	1.61364
Nonane	0.199205*	0.000431576	0.000414358	1.52408E-09	0.0331696	0.0331696
Decane	0.0656999*	7.86323E-06	2.38213E-06	2.45614E-12	0.000604403	0.000604403
Undecane	0.0590538*	2.03886E-07	1.83307E-08	2.22012E-14	1.56720E-05	1.56720E-05
Dodecane	0.0143007*	2.17884E-09	6.59333E-11	3.33143E-16	1.67482E-07	1.67482E-07
UCARSOL™ AP-814	0*	0	0	0	0	0

Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Methane	168979*	0.118522	0.0810908	0.0263531	0.0110779	0.0110779
Ethane	66884.1*	0.134374	0.0532174	0.0275055	0.0536516	0.0536516
Propane	53846.5*	0.411489	0.0822878	0.0304025	0.298799	0.298799
i-Butane	8969.24*	0.190299	0.0172386	0.00483509	0.168226	0.168226
n-Butane	24002.3*	1.38037	0.0823209	0.0277960	1.27026	1.27026
i-Pentane	6166.33*	1.00080	0.0234780	0.00596607	0.971360	0.971360
n-Pentane	6902.74*	1.75019	0.0303288	0.00273171	1.71713	1.71713
Cyclohexane	2764.16*	7.72401	0.0250613	0.0344651	7.66448	7.66448
n-Hexane	2830.38*	1.58527	0.00809895	0.000517169	1.57665	1.57665
n-Heptane	5283.15*	3.06436	0.00456819	0.000227602	3.05956	3.05956
C8	2653.15*	0.469565	0.000199743	4.02564E-06	0.469361	0.469361
Water	0*	3211.69	0.00508551	3211.68	0.00816813	0.00816813
N2	11910.4*	0.00390825	0.00328388	0.000519251	0.000105116	0.000105116
CO2	2281.17*	0.0536836	0.00631484	0.0440698	0.00329897	0.00329897
H2S	0.523882*	0.000162778	6.61834E-06	0.000142070	1.40900E-05	1.40900E-05
Triethylene Glycol	0*	0.00227853	8.99079E-15	0.00227852	6.66161E-09	6.66161E-09
EG	0*	0	0	0	0	0
MeOH	0*	0	0	0	0	0
2,2,4-Trimethylpentane	17.5589*	0.0102799	1.73055E-05	1.86951E-06	0.0102607	0.0102607
Benzene	684.408*	18.3468	0.0451665	2.43093	15.8707	15.8707
Toluene	509.878*	8.61001	0.00649511	0.261194	8.34232	8.34232
Ethylbenzene	48.9582*	0.184723	3.06751E-05	0.00116460	0.183528	0.183528
m-Xylene	212.152*	0.687057	0.000134946	0.00310797	0.683814	0.683814
Nonane	729.457*	0.0140583	1.96583E-06	4.89928E-08	0.0140563	0.0140563
Decane	240.583*	0.000256140	1.13015E-08	7.89546E-11	0.000256128	0.000256128
Undecane	216.246*	6.64145E-06	8.69660E-11	7.13678E-13	6.64136E-06	6.64136E-06
Dodecane	52.3669*	7.09743E-08	3.12806E-13	1.07092E-14	7.09740E-08	7.09740E-08
UCARSOL™ AP-814	0*	0	0	0	0	0

Std Vapor Volumetric Flow	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD
Methane	95.9324*	6.72871E-05	4.60368E-05	1.49612E-05	6.28912E-06	6.28912E-06
Ethane	20.2586*	4.07007E-05	1.61190E-05	8.33114E-06	1.62505E-05	1.62505E-05
Propane	11.1216*	8.49899E-05	1.69959E-05	6.27940E-06	6.17146E-05	6.17146E-05
i-Butane	1.40546*	2.98195E-05	2.70124E-06	7.57647E-07	2.63606E-05	2.63606E-05
n-Butane	3.76110*	0.000216301	1.28995E-05	4.35558E-06	0.000199046	0.000199046
i-Pentane	0.778400*	0.000126335	2.96372E-06	7.53120E-07	0.000122618	0.000122618
n-Pentane	0.871360*	0.000220933	3.82852E-06	3.44834E-07	0.000216760	0.000216760
Cyclohexane	0.299134*	0.000835881	2.71210E-06	3.72977E-06	0.000829439	0.000829439
n-Hexane	0.299134*	0.000167542	8.55954E-07	5.46581E-08	0.000166632	0.000166632
n-Heptane	0.480200*	0.000278527	4.15215E-07	2.06874E-08	0.000278092	0.000278092
C8	0.211540*	3.74392E-05	1.59258E-08	3.20971E-10	3.74229E-05	3.74229E-05
Water	0*	1.62367	2.57098E-06	1.62366	4.12940E-06	4.12940E-06
N2	3.87226*	1.27064E-06	1.06764E-06	1.68817E-07	3.41749E-08	3.41749E-08
CO2	0.472080*	1.11096E-05	1.30683E-06	9.12010E-06	6.82711E-07	6.82711E-07
H2S	0.000140000*	4.35001E-08	1.76866E-09	3.79661E-08	3.76535E-09	3.76535E-09
Triethylene Glycol	0*	1.38187E-07	5.45269E-19	1.38187E-07	4.04010E-13	4.04010E-13
EG	0*	0	0	0	0	0
MeOH	0*	0	0	0	0	0
2,2,4-Trimethylpentane	0.00140000*	8.19634E-07	1.37979E-09	1.49059E-10	8.18105E-07	8.18105E-07
Benzene	0.0798000*	0.00213919	5.26629E-06	0.000283439	0.00185048	0.00185048
Toluene	0.0504000*	0.000851075	6.42023E-07	2.58183E-05	0.000824615	0.000824615
Ethylbenzene	0.00420000*	1.58469E-05	2.63154E-09	9.99082E-08	1.57444E-05	1.57444E-05
m-Xylene	0.0182000*	5.89408E-05	1.15767E-08	2.66625E-07	5.86626E-05	5.86626E-05
Nonane	0.0518000*	9.98306E-07	1.39597E-10	3.47906E-12	9.98163E-07	9.98163E-07
Decane	0.0154000*	1.63958E-08	7.23421E-13	5.05398E-15	1.63951E-08	1.63951E-08
Undecane	0.0126000*	3.86977E-10	5.06725E-15	4.15839E-17	3.86972E-10	3.86972E-10
Dodecane	0.00280000*	3.79492E-12	1.67254E-17	5.72608E-19	3.79490E-12	3.79490E-12
UCARSOL™ AP-814	0*	0	0	0	0	0

Process Streams		1	34 GB	42	43	44	46
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	**From Block:**	--	MIX-103	Gunbbl	Gunbbl	Gunbbl	VSSL-101
	To Block:	SAT-2	Gunbbl	--	--	VSSL-101	PUMP-100
Property	**Units**						
Temperature	°F	75*	62.8244	62.8697	62.8697	62.8697	62.8697
Pressure	psig	25*	25	0.125*	0.125	0.125	0.125
Mole Fraction Vapor	%	99.9650	0	100	0	0	0
Mole Fraction Light Liquid	%	0.0349824	0.294190	0	100	100	100
Mole Fraction Heavy Liquid	%	0	99.7058	0	0	0	0
Molecular Weight	lb/lbmol	23.8219	18.2137	37.1163	18.0276	81.8253	81.8253
Mass Density	lb/ft^3	0.158660	62.1380	0.0861177	62.3477	49.7480	49.7480
Molar Flow	lbmol/h	15371.7	178.845	0.0127822	178.315	0.517897	0.517897
Mass Flow	lb/h	366184	3257.44	0.474428	3214.59	42.3771	42.3771
Vapor Volumetric Flow	ft^3/h	2.30798E+06	52.4226	5.50906	51.5590	0.851835	0.851835
Liquid Volumetric Flow	gpm	287748	6.53581	0.686844	6.42813	0.106203	0.106203
Std Vapor Volumetric Flow	MMSCFD	140*	1.62886	0.000116415	1.62402	0.00471681	0.00471681
Std Liquid Volumetric Flow	sgpm	1949.90	6.53586	0.00193100	6.42728	0.106647	0.106647
Compressibility		0.987816	0.00197339	0.989549	0.000663868	0.00377639	0.00377639
Specific Gravity			0.996300	1.28153	0.999663	0.797643	0.797643
API Gravity			10.4687		9.99308	45.5606	45.5606
Enthalpy	Btu/h	-5.36829E+08	-2.19639E+07	-512.766	-2.19519E+07	-11432.1	-11432.1
Mass Enthalpy	Btu/lb	-1466.01	-6742.68	-1080.81	-6828.84	-269.771	-269.771
Mass Cp	Btu/(lb*°F)	0.459953	0.975170	0.394989	0.982576	0.418780	0.418780
Ideal Gas CpCv Ratio		1.22435	1.32363	1.15775	1.32606	1.09135	1.09135
Dynamic Viscosity	cP		1.08324	0.00897717	1.09156	0.550770	0.550770
Kinematic Viscosity	cSt		1.08830	6.50768	1.09297	0.691152	0.691152
Thermal Conductivity	Btu/(h*ft*°F)		0.338794	0.0124194	0.343254	0.0759102	0.0759102
Surface Tension	lbf/ft		0.00502916?		0.00508507?	0.00172469?	0.00172469?
Net Ideal Gas Heating Value	Btu/ft^3	1249.07	12.2285	1876.54	0.743537	3920.54	3920.54
Net Liquid Heating Value	Btu/lb	19818.4	-792.583	19042.7	-1043.32	18005.1	18005.1
Gross Ideal Gas Heating Value	Btu/ft^3	1372.60	63.0849	2038.04	51.0762	4148.98	4148.98
Gross Liquid Heating Value	Btu/lb	21786.8	267.016	20694.4	16.1970	19064.6	19064.6

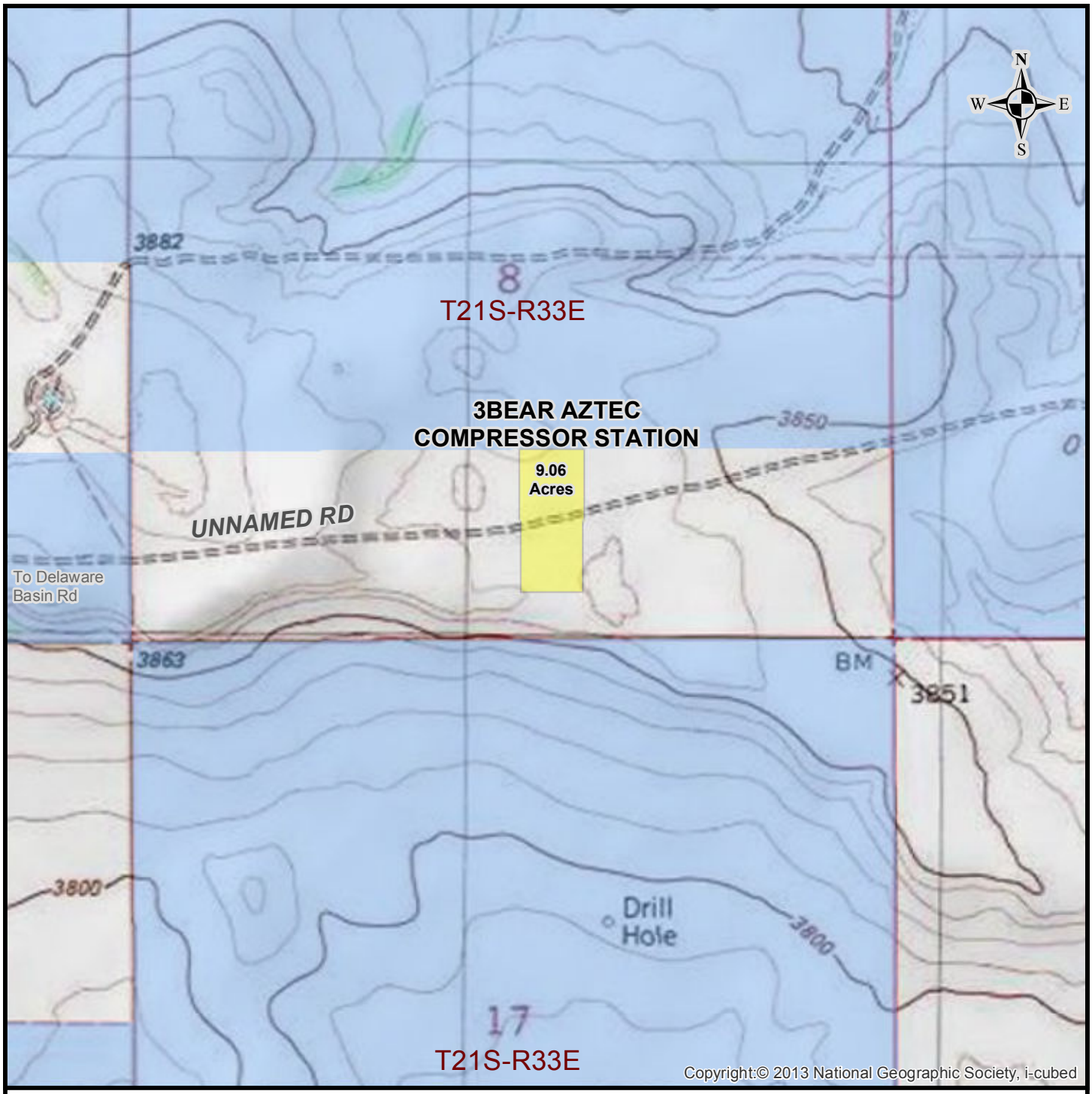
Section 8

Map(s)

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

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

A map is provided on the following page.



3BEAR AZTEC COMPRESSOR STATION
3BEAR DELAWARE OPERATING - NM, LLC

SECTION 8, T21S, R33E
LEA COUNTY, NEW MEXICO

- PROPOSED ACCESS ROAD
- OVERHEAD ELECTRIC
- EXISING PIPELINE
- EXISTING FENCE
- 3BEAR AZTEC COMPRESSOR STATION
- STATE LAND

1,000 500 0 1,000
Feet Feet

DATE: 9/8/2017

FILE: 3Bear-Aztec-CS-Topo

Coordinate System: NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US
Projection: Transverse Mercator
Datum: NAD 1983 2011

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.

Certified Letter Receipts with Post Marks

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Land Office New Mexico State
310 Old Santa Fe Trail
Santa Fe, NM 87501

9590 9403 0961 5223 6732 38

2. Article Number *(Transfer from service label)*
16 0340 0001 1609 3106

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

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

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

List of Public Notice Postings

1. Eunice Public Library - 1003 Avenue N, Eunice, NM 88231
2. Eunice City Hall - 1106 Ave J, Eunice, NM 88231
3. Lowe's Pay-N-Save - 1326 Ave J, Eunice, NM 88231

Property Tax Record

Lea County

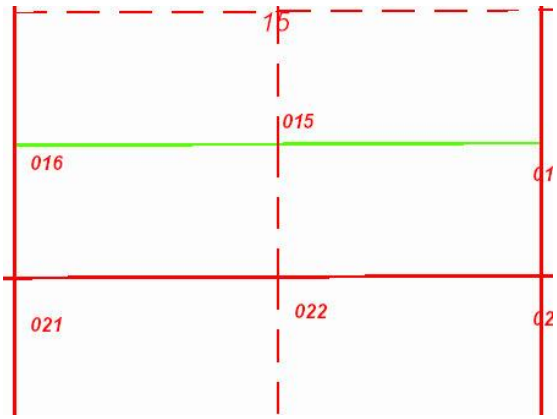
GIS INTERNET REPORT

Assessment Information

OWNER NUMBER: 50188

PARCEL NUMBER: 4000501880002

UPC CODE: 4000501880002



Owner Information	
Owner:	MERCHANT LIVESTOCK
Mailing Address:	PO BOX 1105 EUNICE NM 88231
Property Address:	

Subdivision Information	
Name:	
Unit:	
Block	
Lot:	

Legal Information
160.00 AC LOC S2S2

Lea County

GIS INTERNET REPORT

Other Information			
Taxable Value:	$4,411.00	**Deed Book:**	
Exempt Value:	$0.00	**Deed Page:**	0
Net Value	$4,411.00	**District:**	080
Livestock Value:	$0.00	**Section:**	15
Manufactured Home Value:	$0.00	**Township:**	21
Personal Property:	$0.00	**Range:**	34
Land Value:	$12,594.00	**Date Filed:**	
Improvement Value:	$639.00	**Most Current Tax:**	$149.30
Full Value:	$13,233.00	**Year Recorded:**	

Square Foot and Year Built listed only to be used for comparative purposes, NOT to be used for commerce.

Sample Letter Sent To Owners, Counties, Municipalities, Indian Tribes

CERTIFIED MAIL 70140150000023563816
RETURN RECEIPT REQUESTED *(certified mail is required, **return receipt is optional**)*

To Whom it May Concern,
3 Bear Delaware Operating – NM, LLC announces its application to the New Mexico Environment Department for an air quality permit for the **modification** of its **3Bear Aztec Compressor Station** facility. The expected date of application submittal to the Air Quality Bureau is **April, 2022.**

The exact location for the facility known as, **3Bear Aztec Compressor Station** is at latitude 32 deg, 29 min, 18.10 sec and longitude –103 deg, 35 min, 37.93 sec. From the intersection of NM-176 W / Ave O in Eunice, NM, head west on NM-176 W for 28.3 miles. Turn Left (Southerly) onto unmarked road for 0.6 miles. At the fork in the road, take the left hand side, and continue (Southeasterly) for 2.8 miles. Turn Right (Southerly) for 0.4 miles. The facility location will be on the right. The approximate location of this facility is **21.36** miles **Southwest** of **Monument** in **Lea** county.

The proposed **modification** consists of: eighteen compressor engines, five condensate tanks, four produced water tanks, one gunbarrel tank, two dehydrator reboilers, hydrocarbon loadout, two dehydrators, two combustors, two flares, haul road fugitives, and process piping fugitives.

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

Pollutant:	Pounds per hour	Tons per year
PM_{10}	8.9 pph	11.4 tpy
$PM_{2.5}$	8.4 pph	11.4 tpy
Sulfur Dioxide (SO_2)	20.1 pph	10.1 tpy
Nitrogen Oxides (NO_x)	541.1 pph	176.8 tpy
Carbon Monoxide (CO)	1,047.4 pph	207.7 tpy
Volatile Organic Compounds (VOC)	1,590.2 pph	265.5 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	117.1 pph	65.6 tpy
Green House Gas Emissions as Total CO_2e	n/a	188,807 tpy

The standard operating schedule of the facility will be from 12:00 a.m. to 11:59 p.m. 7 days a week and a maximum of 52 weeks per year. The maximum operating schedule will be from 12:00 a.m. to 11:59 p.m. 7 days a week and a maximum of 52 weeks per year.

Owners and operators of the facility include:
3 Bear Delaware Operating – NM, LLC
1512 Larimer St. Suite 540 Denver, CO 80202
Denver, CO 80202

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,
Stephanie Swanson

1512 Larimer St. Suite 540
Denver, CO 80202

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.

Sample of Public Notice Posting and Verification of Posting

NOTICE

3 Bear Delaware Operating – NM, LLC announces its application to the New Mexico Environment Department for an air quality permit for the **modification** of its **3Bear Aztec Compressor Station** facility. The expected date of application submittal to the Air Quality Bureau is **April, 2022.**

The exact location for the facility known as, **3Bear Aztec Compressor Station** is at latitude 32 deg, 29 min, 18.10 sec and longitude –103 deg, 35 min, 37.93 sec. From the intersection of NM-176 W / Ave O in Eunice, NM, head west on NM-176 W for 28.3 miles. Turn Left (Southerly) onto unmarked road for 0.6 miles. At the fork in the road, take the left hand side, and continue (Southeasterly) for 2.8 miles. Turn Right (Southerly) for 0.4 miles. The facility location will be on the right. The approximate location of this facility is **21.36** miles **Southwest** of **Monument** in **Lea** county.

The proposed **modification** consists of: eighteen compressor engines, five condensate tanks, four produced water tanks, one gunbarrel tank, two dehydrator reboilers, hydrocarbon loadout, two dehydrators, two combustors, two flares, haul road fugitives, and process piping fugitives.

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Volatile Organic Compounds (VOC)	1,590.2 pph	265.5 tpy
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The standard operating schedule of the facility will be from 12:00 a.m. to 11:59 p.m. 7 days a week and a maximum of 52 weeks per year. The maximum operating schedule will be from 12:00 a.m. to 11:59 p.m. 7 days a week and a maximum of 52 weeks per year.

The owner and/or operator of the Facility is:
3 Bear Delaware Operating – NM, LLC
1512 Larimer St. Suite 540 Denver, CO 80202
Denver, CO 80202

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.

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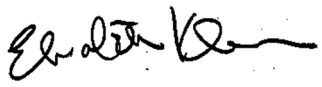
General Posting of Notices – Certification

I, __Elisabeth Klein_____, the undersigned, certify that on **April 4, 2022,** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the **City** of **Eunice** County, State of New Mexico on the following dates:

1. Facility entrance – 4/4/2022
2. Public Library – 1003 Avenue N, Eunice, NM 88231 – 4/4/2022
3. City Hall – 1106 Ave J, Eunice, NM 88231 – 4/4/2022
4. Lowe's Pay-N-Save – 1326 Ave J, Eunice, NM 88231 – 4/4/2022

Signed this ___21___ day of ____April_____, ____2022____,

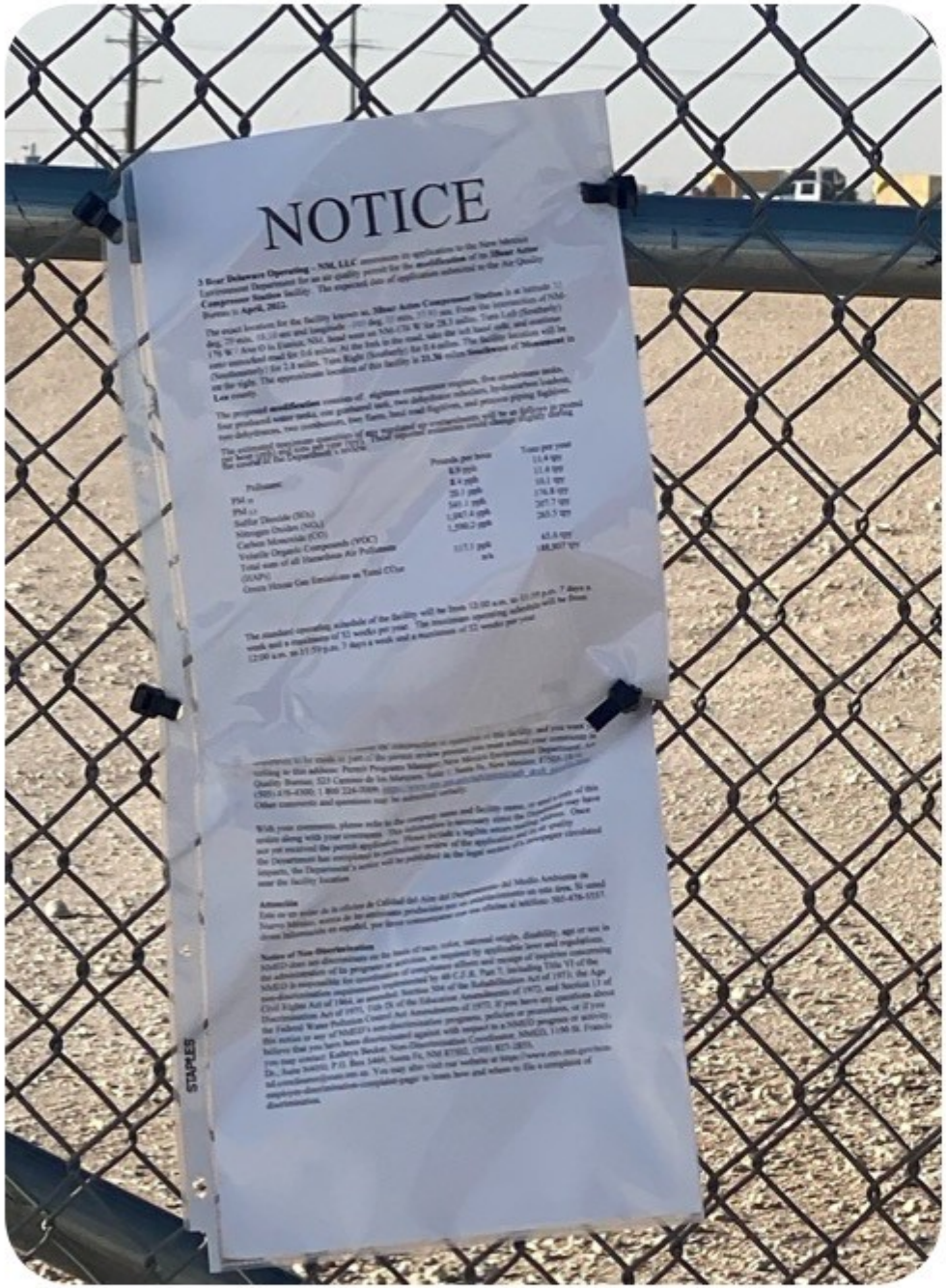


_____ _4/21/2022_____
Signature Date

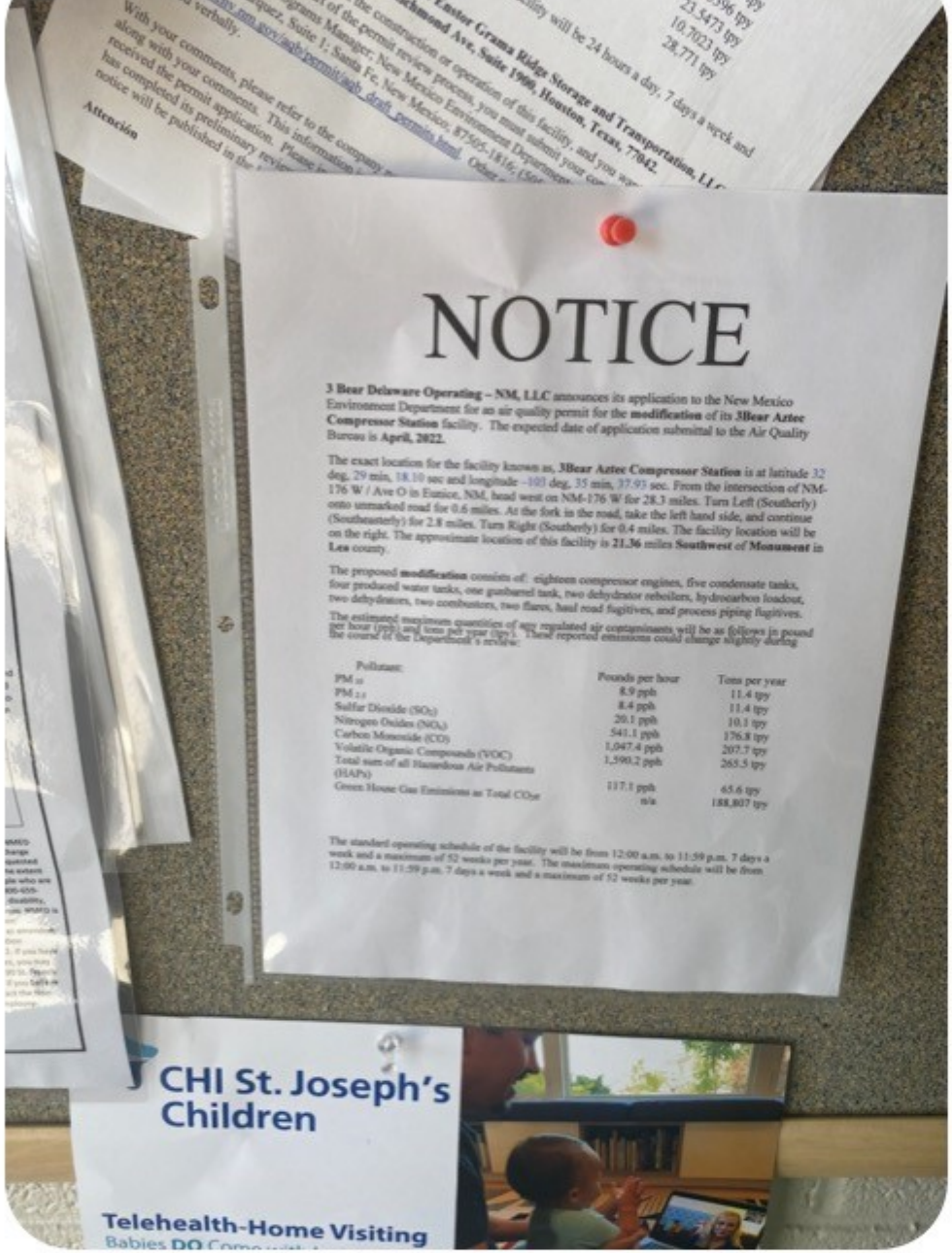
_____Elisabeth Klein_____
Printed Name

____ Director, EHS Regulatory Compliance____
Title

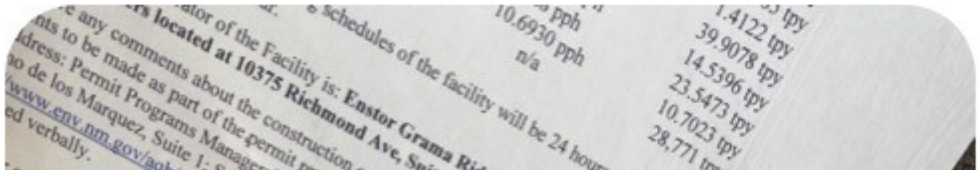
Yesterday 9:55 AM



Aztec



Notice at Eunice city hall



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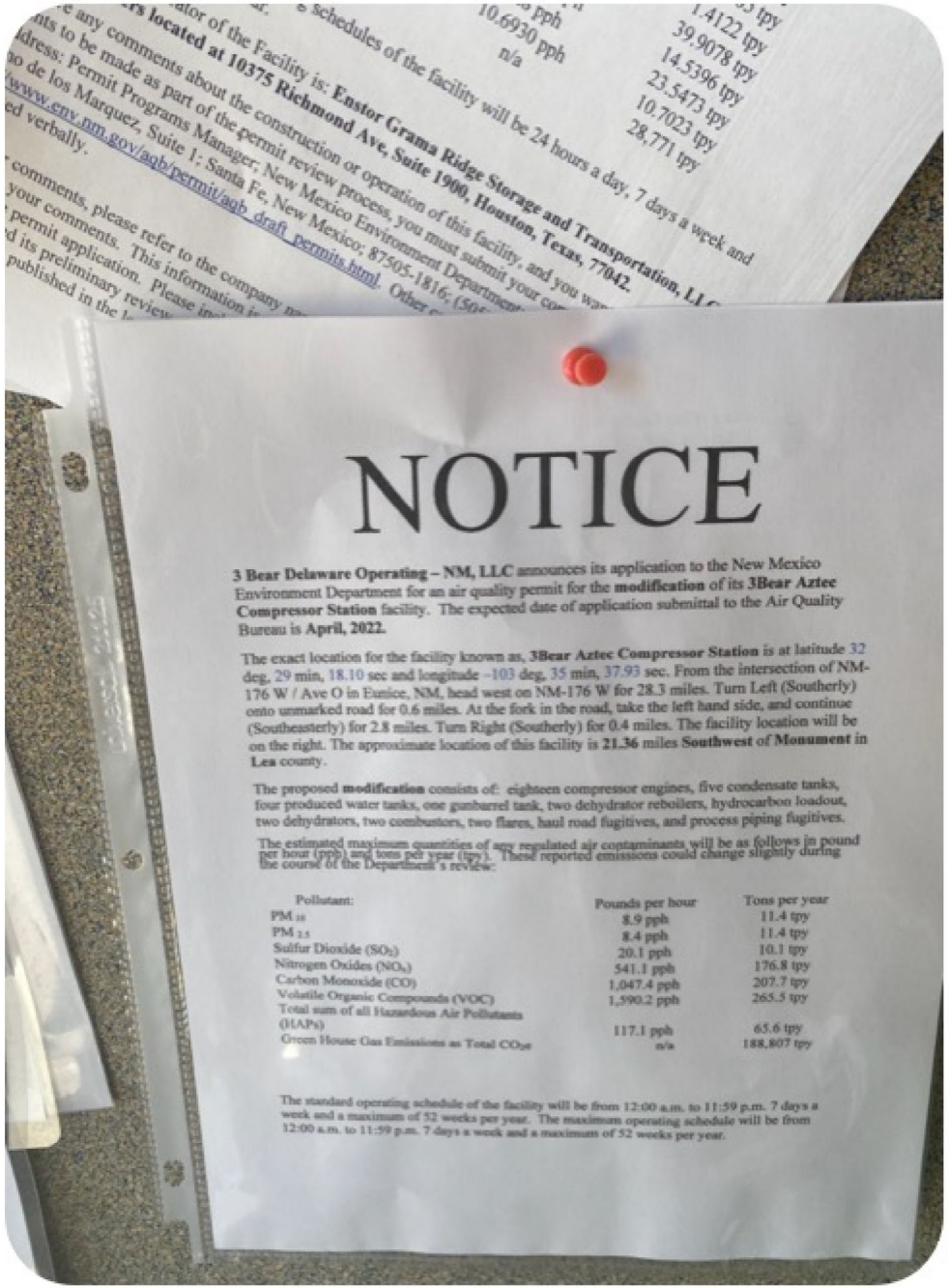

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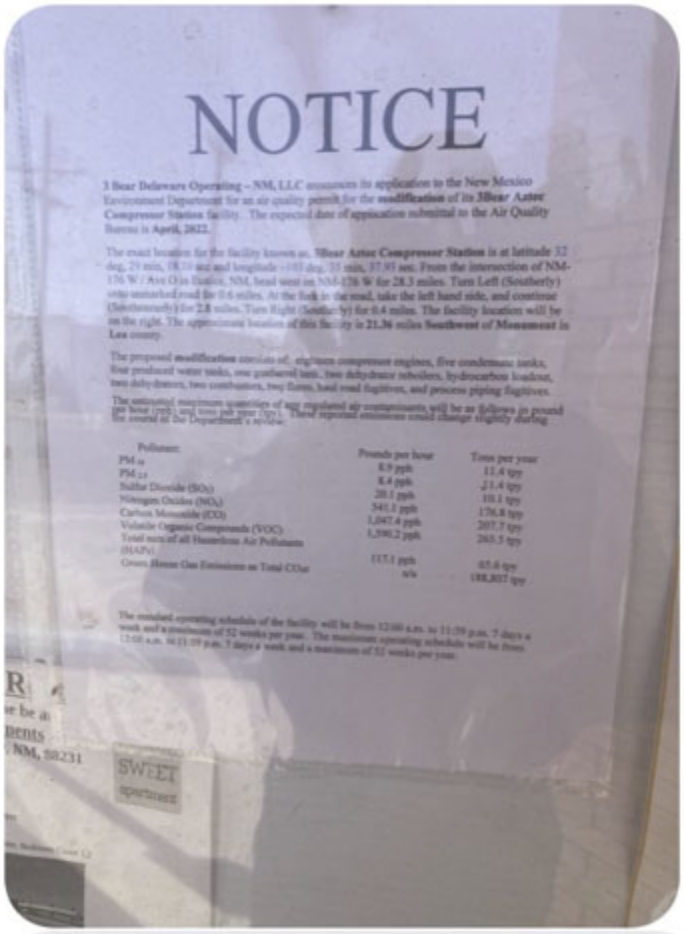


Notice At Lowes in Eunice NM

Table of Notified Citizens, Counties, Municipalities, Tribes

The Merchant Livestock Co., Inc.
PO Box 1105
Eunice, NM 88231

Pat Sims
Lea County Courthouse
100 North Main Avenue, Suite 4
Lovington, New Mexico 88260

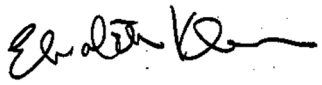
Land Office New Mexico State
310 Old Santa Fe Trail
Santa Fe, NM 87501

Copy of Public Service Announcement

Submittal of Public Service Announcement – Certification

I, Elisabeth Klein, the undersigned, certify that on March 25, 2022, submitted a public service announcement to **KZOR Radio** that serves the City of **Hobbs**, **Lea** County, New Mexico, in which the source is or is proposed to be located and that KZOR **DID NOT RESPOND.**

Signed this 21 day of April, 2022,



Signature

4/21/2022
Date

Elisabeth Klein
Printed Name

Director, EHS Regulatory Compliance
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Trent M. Wade

From: Trent M. Wade
Sent: Friday, March 25, 2022 3:03 PM
To: Aaron Forrister
Cc: Liz Klein; Greg Jones; Lori K. Marquez
Subject: Public Service Announcement

To Whom It May Concern,

3 Bear Delaware Operating – NM, LLC (3Bear) requests a public service announcement on KZOR Radio, for its intention to modify a compressor station in Lea County. The State of New Mexico requires that any company that desires to construct or modify an oil and gas facility must have a public service announcement. 3Bear has written out the following to be aired as soon as practical:

"3 Bear Delaware Operating – NM, LLC is an oil and gas gathering company planning to modify and operate the 3Bear Aztec Compressor Station in Lea County. The location for the proposed facility will be at latitude 32 degrees, 29 minutes, 18.10 seconds and longitude -103 degrees, 35 minutes, 37.93 seconds. The approximate location of this facility is 21.36 miles Southwest of Monument in Lea County. More information about the facility can be found at the Eunice Public Library, Eunice City Hall, and at Lowe's Pay-N-Save. For any comments about the construction or operation of the proposed facility, The New Mexico Air Quality Bureau can be contacted by phone at (505) 476-4300 or by mail at 525 Camino de los Marquez, Suite 1, Santa Fe, New Mexico 87505-1816."

Please provide an affidavit immediately after airing this announcement. You can send the affidavit and invoice to
3 Bear Delaware Operating – NM, LLC
Attn: Elisabeth Klein
1512 Larimer St. Suite 540
Denver, CO 80202

My contact information is as follows: (970) 381-0564 or TWade@barr.com.

Thanks,

Trent M. Wade

Chemical Engineer
Denver, CO office:
cell: 970.381.0564
TWade@barr.com
www.barr.com

Copy of Classified or Legal Ad and Display Ad

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
March 31, 2022
and ending with the issue dated
March 31, 2022.

Publisher

Sworn and subscribed to before me this
31st day of March 2022.

Business Manager

My commission expires
January 29, 2023
(Seal)

GUSSIE BLACK
Notary Public - State of New Mexico
Commission # 1087526
My Comm. Expires Jan 29, 2023

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 APPLICATION

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dgerth@gmail.com • 57
Hobbs City Commissi

209 West Broadway Suite 7
Hobbs, NM
575-390-9846

67114577

00265354

STEPHANIE SWANSON
3 BEAR DELAWARE OPERATING - NM, LLC
1512 LARIMER ST., STE. 540
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#37497

FUND
AB
SstnlGlbT
Americar
AmrcnBal
CptWldGr
GrfAmrcA
IncAmrcA
InvCAmrc
WAMtInvs
Columbia
SlgCmsInv
Dodge &
Inc
Stk
Fidelity
500IdxInsl
Contrafun
TtlMktIdxI
PIMCO
IncInstl
TtlRetAdm
Putnam
GlbHCA
Vanguard
500IdxAdm
InTrTEAdm
InsIdxIns
InsIdxInsPl
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TrgtRtr203
TrgtRtr203
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TtBMIdxAd
TtlnSIdxAd
TtlnSIdxInv
TtlSMIdxAd
TtlSMIdxIns
WlngtnAdm

67114577 00265352

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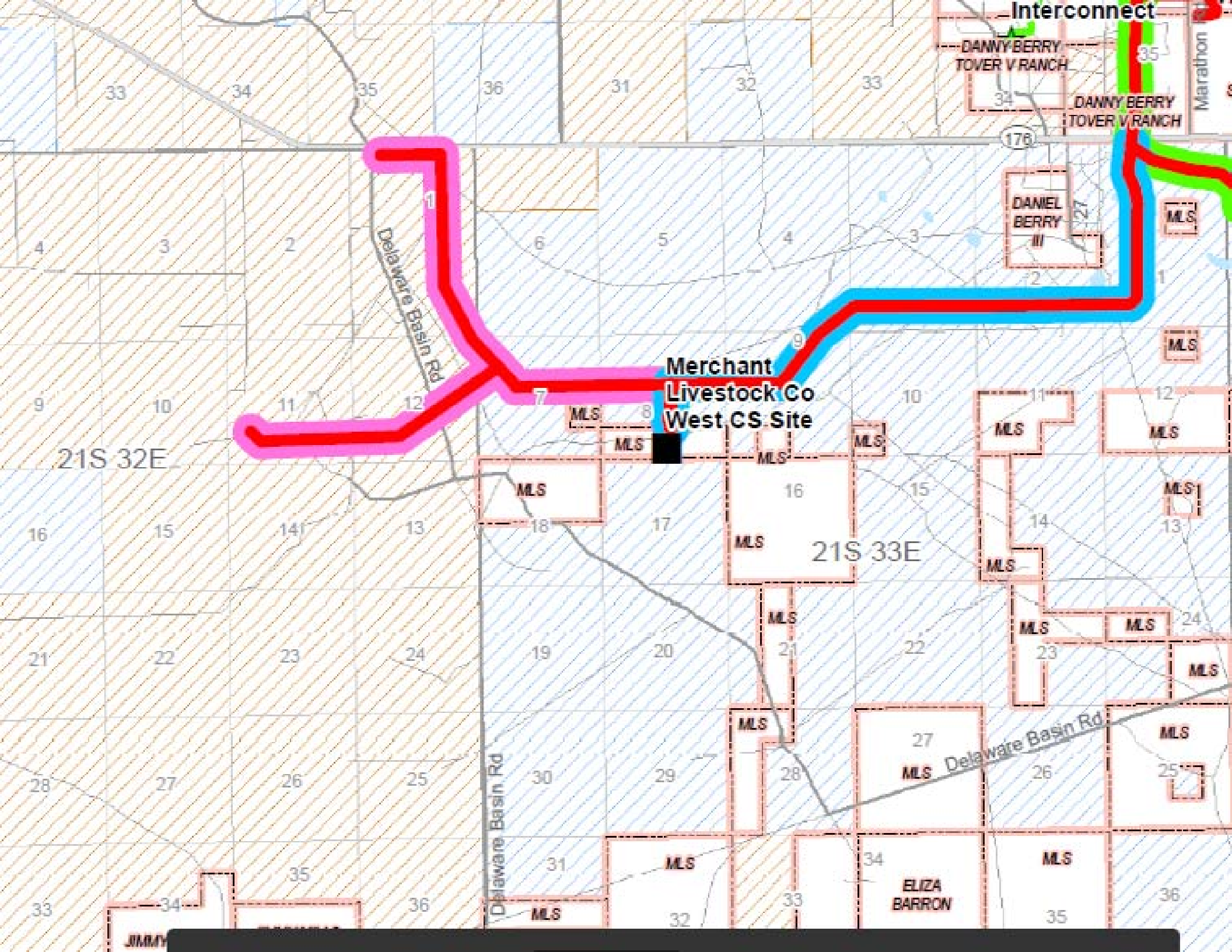
Map of Facility Boundary and Surrounding Area


Interconnect
DANNY BERRY
TOVER V RANCH
DANNY BERRY
TOVER V RANCH
DANIEL
BERRY
III
Merchant
Livestock Co
West CS Site
Delaware Basin Rd
Delaware Basin Rd
21S 32E
21S 33E
ELIZA
BARRON
MLS
176

Section 10

Written Description of the Routine Operations of the Facility

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

Produced fluids from offsite third-party upstream operations enter the site via pipeline and are routed to the slug catcher. Natural gas exits the top of the slug catcher and is compressed using eighteen compressors driven by 4SLB natural gas engines (ENG 1-18) equipped with catalytic oxidizers. Once compressed, the natural gas is routed to two 70 MMCFPD TEG dehydrators (DEHY 1-2) for the removal of entrained water. Once dried, the gas exits the facility via pipeline. Vapors from the flash tanks of the dehydrators are routed back into the process, and vapors from the overhead condensers are routed to two enclosed combustion devices (ECD 1-2), having a DRE of 98%.

Liquids off the slug catcher are routed to a gun barrel for gravity separation. Condensate is routed to five atmospheric tanks (COND TK 1-5). The large majority of condensate leaves the site via pipeline; however, removal of a portion of the same by tanker truck is reflected in the application. Produced water is routed to four atmospheric tanks (PWTK 1-4) and leaves the site by tanker truck. Both flash emissions and working and breathing losses are routed to a flare (FL-2), having a DRE of 98%. Emissions from the tanker truck loading process are also controlled by FL-2.

Compressor blowdowns and equipment depressurizations are routed to a high pressure flare (FL-1), which has a DRE of 98%.

Additional onsite emission sources include two 1.5 MMBtu/hr TEG reboilers (HTR 1-2) and an exempt diesel generator engine (GEN-1).

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)**:**
Facility sources are as presented in this application. The facility is not within ¼ mile of other sources owned and operated by 3Bear.

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

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

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

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

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

B. **This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions** for this modification are **not significant. The "project" emissions listed below do not 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: 176.8 TPY**
b. **CO: 207.7 TPY**
c. **VOC: 265.5 TPY***
d. **SOx: 10.1 TPY**
e. **PM10: 11.4 TPY**
f. **PM2.5: 11.4 TPY**
g. **Fluorides: N/A TPY**
h. **Lead: N/A TPY**
i. **Sulfur compounds (listed in Table 2): N/A TPY**
j. **GHG: 188,849 TPY**

*Including fugitive and SSM emissions.

C. **Netting is not required (project is not significant)**
D. **BACT** is **not required for this modification, as this application is a minor modification.**

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

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

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

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

Example of a 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	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This facility is located in New Mexico, therefore the requirements of this part are applicable.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This facility is subject to Air Quality Control Regulations, as defined in 20.2.7 NMAC, and is thus subject to the requirements of this regulation.
20.2.23 NMAC	Fugitive Dust Control	No	Facility	This is a permitted facility therefore this regulation does not apply.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This facility DOES NOT have new gas burning equipment **(external combustion emission sources, such as gas fired boilers and heaters)** having a heat input of greater than 1,000,000 million British Thermal Units per year per unit This facility DOES NOT have existing gas burning equipment having a heat input of greater than 1,000,000 million British Thermal Units per year per unit Note: "New gas burning equipment" means gas burning equipment, the construction or modification of which is commenced after February 17, 1972.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No		This facility DOES NOT have oil burning equipment **(external combustion emission sources, such as oil fired boilers and heaters)** having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		This facility is not a natural gas processing plant; therefore, it is not subject to the requirements of NMAC 2.35 for "New Natural **Gas Processing** Plants for which a modification commenced on or after July 1, 1974.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	**These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.**
20.2.38 NMAC	Hydrocarbon Storage Facility	Yes	COND TK 1-5	This regulation could apply to storage tanks at petroleum production facilities, processing facilities, tanks batteries, or hydrocarbon storage facilities.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		This facility is NOT a sulfur recovery plant
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	ENG 1-18, HTR 1-2, ECD 1-2, FL 1-2	Engines, heaters, enclosed combustors, and flares are Stationary Combustion Equipment.
20.2.70 NMAC	Operating Permits	Yes	Facility	As proposed, this facility is a Title V Major source and is in turn subject to 20.2.70.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This facility is subject to 20.2.70 NMAC and is in turn subject to 20.2.71 NMAC.
20.2.72 NMAC	Construction Permits	Yes	Facility	This facility is subject to 20.2.72 NMAC.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	**Emissions Inventory Reporting:** 20.2.73.300 NMAC applies. This facility will be issued a permit under 20.2.72 NMAC, therefore it will meet the applicability requirements of 20.2.73.300 NMAC.

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.)
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility	This facility is NOT a PSD major source.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	Subject to 20.2.72 NMAC and is in turn subject to 20.2.75 NMAC.
20.2.77 NMAC	New Source Performance	Yes	ENG 1-18, FUG-1, GEN-1	ENG 1-18 are subject to NSPS Subpart JJJJ. FUG-1is subject to NSPS Subpart OOOOa. GEN-1 is subject to NSPS Subpart IIII. GEN-1 is exempt from permitting under 20.2.72.202.B.3.
20.2.78 NMAC	Emission Standards for HAPS	No		This facility DOES NOT emit hazardous air pollutants that are subject to the requirements of 40 CFR Part 61, as amended through January 31, 2009.
20.2.79 NMAC	Permits – Nonattainment Areas	No		This facility is located in an attainment area for all regulated pollutants and the project does not cause or contribute to a violation of any national ambient air quality standard based on the modeling analysis included herein.
20.2.80 NMAC	Stack Heights	Yes		3Bear considered GEP requirements in the analysis. Stack heights do not exceed GEP.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	ENG 1-18, DEHY 1-2, GEN-1	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. Applies if other MACT subpart applies. The MACT subpart HH and ZZZZ applies as discussed below. GEN-1 is exempt from permitting under 20.2.72.202.B.3.

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	Applies since the source emits air pollutants subject to NAAQS. Defined as applicable at 20.2.70.7.E.22, any national ambient air quality standard. See Section 16 for modeled demonstration of NAAQS compliance.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	ENG 1-18, FUG-1, GEN-1	ENG 1-18 are subject to NSPS Subpart JJJJ. FUG-1is subject to NSPS Subpart OOOOa. GEN-1 is subject to NSPS Subpart IIII. GEN-1 is exempt from permitting under 20.2.72.202.B.3.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No		There is not a steam generating unit that commenced construction, modification, or reconstruction after September 18, 1978, and that is capable of combusting more than 73 megawatts (MW) (250 million British thermal units per hour (MMBtu/hr)), therefore this facility is not applicable to this regulation.
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No		There is not a steam generating unit that commenced construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)), therefore this facility is not applicable to this regulation.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		There is not a steam generating unit units for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h). Therefore, this facility is not applicable to this regulation.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No		This facility does not have storage vessels greater than 151,416 liters (40,000 gallons) that are used to store petroleum liquids for which construction is commenced after May 18, 1978, therefore the facility is not applicable to this regulation.
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		This facility does have storage vessels (COND TK 1-5, PWTK 1-4), emission units with capacities greater than or equal to 75 cubic meters (m3) but less than 1,589,874 m3 that are used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification commenced after July 23, 1984. GUN-1 meets the definition of a process vessel, therefore is exempt from the subpart. COND TK 1-5 store condensate at the compressor station where the condensate was produced, therefore, they meet the definition of pre-custody transfer, and they are not applicable to this subpart. PWTK 1-4 have a vapor pressure less than 15 kPa, therefore they are exempt.
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No		There are no stationary gas turbines exceeding 10 MMBtu/hr at this facility.
NSPS	Leaks of VOC from **Onshore**	No		This is not an Onshore Gas Plant therefore it is not subject to the requirements of

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 60, Subpart KKK	**Gas Plants**			this subpart.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No		This is not an Onshore Gas Plant therefore it is not subject to the requirements of this subpart.
NSPS 40 CFR Part 60 Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No		The facility is NOT subject to the provisions of NSPS Subpart OOOO because the facility will be constructed after September 18, 2015.
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Yes	FUG-1,	The facility IS subject to the provisions of NSPS Subpart OOOOa listed below because: - This is a compressor station therefore the equipment leak standards apply to the affected facilities (FUG-1). The facility is NOT subject to the provisions of NSPS Subpart OOOOa listed below - - There are no gas-operated, continuous high bleed pneumatic controllers at this site, so the pneumatic controller requirements are not applicable (§60.5365a (d)). - COND TK 1-5 and PWTK 1-4 are storage vessels that emit less than 6 tpy VOC; therefore, the storage vessel affected facility requirements are not applicable (§60.5365a (e)(3)(v)).
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	GEN-1	GEN-1 is subject to NSPS Subpart IIII because the engine has a manufacture date after July 11, 2005 (§60.4200(a) (2)). This unit is exempt from permitting under 20.2.72.202.B.3.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes	ENG 1-18	ENG 1-18 are subject to NSPS Subpart JJJJ because the engines have a manufacture date after July 1, 2007 and have a maximum engine power greater than 500 hp (§60.4230(a) (4)(i)).
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No		There are not any steam generating units, integrated gasification combined cycle (IGCC), or stationary combustion turbines on site, therefore this facility is not subject to this subpart.
NSPS 40 CFR 60	Emissions Guidelines for	No		There are not any steam generating units, integrated gasification combined cycle (IGCC), or stationary combustion turbines on site, therefore this facility is not

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Subpart UUUU	Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units			subject to this subpart.
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No		This facility is not a landfill; therefore, it is not applicable to this subpart.
NESHAP 40 CFR 61 Subpart A	General Provisions	No		This facility DOES NOT emit HAPs in quantities that trigger these requirements.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No		This facility DOES NOT process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge.
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	No		The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart. VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated. Benzene is a VHAP (See 40 CFR 61 Subpart J). Link to 40 CFR 61 Subpart V Note: If 40 CFR 60 also applies source only needs to comply with this part. No equipment at this facility contains or contacts a fluid with at least 10 percent by weight of a VHAP.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	ENG 1-18, DEHY 1-2, GEN-1	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. Applies if other MACT subpart applies. The MACT Subparts HH and ZZZZ apply as discussed below. The facility is classified as an area source of HAPs under MACT HH and MACT DDDDD, and a major source of HAPs under MACT ZZZZ. GEN-1 is exempt from permitting under 20.2.72.202.B.3.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	Yes	DEHY 1-2	DEHY 1-2 are subject to the area source requirements of MACT HH.
MACT 40 CFR 63 Subpart HHH		No		This facility IS NOT a natural gas transmission and storage facility.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		This facility is a production field facility under 63.7575(3) and is therefore classified as an area source under this rule because HAP emissions from aggregation of the glycol dehydration units and storage vessels with the potential for flash emissions are less than major source thresholds.
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No		There are not any coal and oil fired electric utility steam generating units on site, therefore it is not subject to this subpart.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Yes	ENG 1-18, GEN-1	40 CFR 63, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from existing, new, modified and reconstructed stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The regulation contains provisions for initial and continuous compliance demonstration. ENG 1-18 are stationary RICE at a major source of HAP emissions as defined by this rule, therefore the engines are subject to this subpart as defined in 63.6585. GEN-1 is exempt from permitting under 20.2.72.202.B.3.
40 CFR 64	**Compliance Assurance Monitoring**	Yes	GUN-1, DEHY 1-2, ENG 13-18	GUN-1 and DEHY 1-2 have pre-control VOC emissions greater than 100 TPY and are subject to this subpart because there is no emission limitation or standard applicable to these units proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act. The Caterpillar 3608 compressor engines have pre-control CO emissions greater than 100 TPY and use a control device to achieve compliance with either a permit emission limitation or a regulatory standard. The engines are affected facilities under NSPS JJJJ and are exempt under §64.2(b)(1)(i).
40 CFR 68	**Chemical Accident Prevention**	Yes		This facility DOES NOT have more than a threshold quantity of a regulated substance in a process, as determined under §68.115.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No		Not an affected facility.
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No		Not an affected facility.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No		Not an affected facility.
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No		Not an affected facility.
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	N/A	N/A	Not Applicable – facility will not "service" , "maintain", or "repair" class I or class II appliances nor "disposes" of the appliances.

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.

None.

Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☑ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☐ No modeling is required.

Universal Application 4

Air Dispersion Modeling Report

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

16-A: Identification

1	Name of facility:	3Bear Aztec Compressor Station
2	Name of company:	3 Bear Delaware Operating – NM, LLC
3	Current Permit number:	GCP No. 7496M2
4	Name of applicant's modeler:	Jeff Bennett, Barr Engineering, Co.
5	Phone number of modeler:	573-638-5033
6	E-mail of modeler:	jbennett@barr.com

16-B: Brief

1	Was a modeling protocol submitted and approved?	Yes☒	No☐
2	Why is the modeling being done?	Adding New Equipment	
3	Describe the permit changes relevant to the modeling.		
	Plant expansion adds new equipment; existing equipment emissions changes to accommodate expansion.		
4	What geodetic datum was used in the modeling?	WGS84	
5	How long will the facility be at this location?	Permanently	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒
7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155	

8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	March 16, 1988	
	SO2	July 28, 1978	
	PM10	February 20, 1979	
	PM2.5	November 13, 2013	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	There are no Class I areas within 50 km of the 3Bear Aztec Compressor Station.		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
11	Describe any special modeling requirements, such as streamline permit requirements.		
	N/A		

16-C: Modeling History of Facility

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

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	7496M1	9/14/2018	NAAQS/NMAAQS
NO_2	7496M1	9/14/2018	NAAQS/NMAAQS/Increment
SO_2	7496M1	9/14/2018	NAAQS/NMAAQS/Increments
H_2S	N/A	N/A	N/A
PM2.5	7496M1	9/14/2018	NAAQS/NMAAQS/Increments
PM10	7496M1	9/14/2018	NAAQS/NMAAQS/Increments
Lead	N/A	N/A	N/A
Ozone (PSD only)	N/A	N/A	N/A
NM Toxic Air Pollutants (20.2.72.402 NMAC)	N/A	N/A	N/A

16-D: Modeling performed for this application

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

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
CO	☒	☐	☐	☐	☐
NO_2	☒	☒	☒	☐	☐
SO_2	☒	☒	☐	☐	☐
H_2S	☒	☐	☐	☐	☐

	PM2.5	☒	☒	☐	☐	☐
	PM10	☒	☒	☐	☐	☐
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☒
	State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

16-E: New Mexico toxic air pollutants modeling

1 List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application.

The facility does not emit any toxic air pollutants listed in Tables A and B in 20.2.72.502 NMAC.

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

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor

16-F: Modeling options

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

3Bear ran the model in Regulatory Default mode with the following options:

- the use of stack-tip downwash;
- incorporating the effects of elevated terrain; and
- including the calms and missing data processing routines.

To estimate NO2 concentrations, 3Bear used the Ambient Ratio Method 2 (ARM2) technique. As indicated in AERMOD User's Guide Section 3.3.6.3, 3Bear used 0.5 for the minimum ambient ratio and 0.9 for the maximum ambient ratio.

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	Near source information was obtained from the NMED (Ms. Paula Sumrall downloaded on February 22, 2022). PM_{10}, $PM_{2.5}$, NO_X, and SO_2 sources were used in the cumulative modeling.

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

AQB Source ID	Description of Corrections
All	Source elevations were calculated for all nearby sources using AERMAP.

16-H: Building and structure downwash

1	How many buildings are present at the facility?	The following structures were included in the modeling scenario: • Eighteen Engine Enclosures • Two Heater Skids	
2	How many above ground storage tanks are present at the facility?	The following tanks were included in the modeling scenario: • One Gunbarrel Tank • Five Condensate Tanks • Four Produced Water Tanks	
3	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes☒	No☐
4	Building comments		

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.		
	3Bear has installed a continuous barrier around the 3Bear Aztec Compressor Station with No Trespassing signage identifying the area as a limited access area. Further, the restricted area was expanded to include additional property to the west (as seen in the modeling figures for this project).		
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?	Yes☐	No☒
3	Are restricted area boundary coordinates included in the modeling files?	Yes☒	No☐

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

Grid Type	Shape	Spacing	Start distance from restricted area ~~or center of facility~~	End distance from restricted area ~~or center of facility~~	Comments
Cartesian	Square	50 meter	0 meters	500 meters	Used for CO, H_2S, NO_2, SO_2, $PM_{2.5}$, and PM_{10} SIL/ROI analysis.
Cartesian	Square	100 meter	500 meters	1 km	Used for CO, H_2S, NO_2, SO_2, $PM_{2.5}$, and PM_{10} SIL/ROI analysis.
Cartesian	Square	250 meter	1 km	5 km	Used for CO, H_2S, NO_2, SO_2, $PM_{2.5}$, and PM_{10} SIL/ROI analysis.
Cartesian	Square	1,000 meter	5 km	50+ km	Used for CO, H_2S, NO_2, SO_2, $PM_{2.5}$, and PM_{10} SIL/ROI analysis.
Cartesian	Circle	50, 100, 250, 500 and 1000 meter	0 meters (from emissions centroid)	26.55 km	Used receptors inside ROI for 1-hour NO_2 NAAQS and Annual NO_2 Increment analysis – total 4,871 (max ROI from 1-hour)
Cartesian	Circle	50 meter	0 meters (from emissions centroid)	333 meters	Used receptors inside ROI for 24-hour PM_{10} NAAQS and 24-hour and Annual PM_{10} Increment analysis – total 132 (max ROI from 24-hour)

	Cartesian	Circle	50,100 meter	0 meters (from emissions centroid)	825 meters	Used receptors inside ROI for 24-hour and Annual $PM_{2.5}$ NAAQS/Increment analysis – total 693 (max ROI from 24-hour)
	Cartesian	Circle	50 meter	0 meters (from emissions centroid)	660 meters	Used receptors inside ROI for 1-hour SO_2 NAAQS and 3-hour, 24-hour, and Annual SO_2 Increment analysis – total 532 (max ROI from 1-hour)
5	Describe receptor spacing along the fence line.					
	Fence line receptors were spaced every 50 meters.					
6	Describe the PSD Class I area receptors.					
	The closest Class I area is Carlsbad Caverns National Park, but is 80 km from the facility, so no receptors are analyzed there for this study.					

16-J: Sensitive areas

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

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).
	Consistent with the NMED modeling guidance, Section 2.4.1, the SIL/ROI analyses includes only the new equipment or new emissions increases described in this application. To that end, the facility emission units will consist of: eighteen (18) compressor engines, five (5) condensate tanks, four (4) oil/produced water tanks, two (2) dehydrator reboiler heaters, two (2) enclosed combustors, one (1) process flare, one (1) tank flare, process piping fugitives, and haul road fugitives. SSM emissions are expected at the facility and are included in the total facility wide emissions. Additional maintenance flaring has

	been included in the application to account for other maintenance activities. Maintenance activities that cannot be controlled have been included in the application at a rate of 10 tpy for these uncontrolled maintenance activities. After the SIL runs were completed, the pollutants with predicted concentrations above the SILs were NO_2, PM_{10}, SO_2 and $PM_{2.5}$. The increment and NAAQS scenarios were then accomplished for the appropriate averaging times with the entire set of allowable emissions at 3Bear Aztec for these pollutants along with the nearby sources provided by NMED.
2	Which scenario produces the highest concentrations? Why? N/A

3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes☐	No☒

4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources:

5

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

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

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

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:

2	Describe the NO_2 modeling.		
	3Bear used the Ambient Ratio Method 2 (ARM2) technique for both the SIL/ROI and NAAQS/increment analyses. As indicated in AERMOD User's Guide Section 3.3.6.3, 3Bear used 0.5 for the minimum ambient ratio and 0.9 for the maximum ambient ratio.		
3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	Yes☒	No☐
4	Describe the design value used for each averaging period modeled.		
	SIL 1-hour: Average of high 1st high SIL Annual: Maximum of annual averages NAAQS 1-hour: 98th percentile as calculated by AERMOD Increment Annual: Other (Describe): Highest annual average for each year in meteorological period (5 years)		

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☐	PM10
	☒	None
2	Describe the particle size distributions used. Include the source of information.	
	Particle size distribution was only used for haul road emissions which used AP42 eqn 13.2.2-1a and AP42 Table 13.2.2-2 to determine emissions for $PM_{2.5}$ and PM_{10}.	

3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5. 3-Bear Aztec is not a PSD major source – no PM2.5 secondary formation analysis required.	Yes☒	No☐
4	Was secondary PM modeled for PM2.5?	Yes☐	No☒

5 If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.

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

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	Setback distances were not used at this facility.

2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A

16-O: PSD Increment and Source IDs

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

Unit Number in UA-2	Unit Number in Modeling Files

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes☐	No☒
	The maximum hourly emissions from haul road traffic listed in Tables 2-E and 2-F for PM_{10} and $PM_{2.5}$ do not match the emissions in the PM_{10} and $PM_{2.5}$ NAAQS and increment modeling. Hourly emissions from haul road traffic in the modeling files were calculated based on a maximum daily number of trips converted to an hourly average.		
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	No☒

4 Which units consume increment for which pollutants?
See Table 16-1 for a list of units emitting increment consuming pollutants.

Unit ID	NO_2	SO_2	PM10	PM2.5

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	The facility is located in AQCR 155 which has triggered the Minor Source Baseline Date for NO2 (March 16, 1988), SO2 (July 28, 1978), PM10 (February 20, 1979), and PM2.5 (November 13, 2013).

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

16-P: Flare Modeling

1 For each flare or flaring scenario, complete the following

	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	FL-1	25.00 lb/lb-mol	187,617,453.96 cal/s	11.94 m
	FL-2	37.12 lb/lb-mol	67,599,275.96 cal/s	6.92 m

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☒	No☐
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	Haul Roads: Sigma-Y and Sigma-Z were determined by following the haul road guidelines listed in the NM AQB 2019 Air Dispersion Modeling Guidelines: Sigma-Y was calculated by dividing the width of the road (W) by 2.15 Sigma-Z was taken from the 'Large Trucks' information listed in Table 28 of the NM AQB 2020 Air Dispersion Modeling Guidelines.		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	The numbers match except for the individual road sources that are numbered HR01-HR10.		
4	Describe any open pits.		
	There are no open pits at this facility.		
5	Describe emission units included in each open pit.		
	N/A		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes☒	No☐
	CO: N/A		
	NO_2: N/A		
	PM2.5: Hobbs-Jefferson (350450019)		
	PM10: Hobbs-Jefferson (350250008)		
	SO_2: N/A		
	Other:		
	Comments:	Consistent with NMED modeling guidance, the 1-hour NO_2 and SO_2 NAAQS modeling did not include background concentrations and instead included nearby sources. PM_{10} NAAQS included a 24-hour background concentration along with nearby sources. The concentration was 100.7 µg/m^3. The only other pollutant and standards that require an additional monitored background concentration is the $PM_{2.5}$ NAAQS. The background concentration was 13.4 µg/m^3 for the 24-hour average and 5.9 µg/m$_3$ for the annual average.	
2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	No☒

16-S: Meteorological Data

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

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
2	What was the source of the terrain data?		
	The elevations of receptors were determined using the AERMAP terrain processor and seamless DEM terrain data downloaded from the USGS *The National Map* server. The DEM terrain data was processed such that an actual, true elevation is assigned to each receptor as determined through satellite data.		

16-U: Modeling Files

Describe the modeling files: YYYY = 2014, 2015, 2016, 2017, 2018

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
\NO2\SIL\3BearAztec_NO2_1HR_SIL_20220407.inp	NO2, 1-hour	1-hour SIL AERMOD input file
\NO2\SIL\3BearAztec_NO2_1HR_SIL_20220407.out	NO2, 1-hour	1-hour SIL AERMOD output file
\NO2\SIL\3BearAztec_NO2_1HRSIL_MAXDCONT_20220407.TXT	NO2, 1-hour	1-hour SIL AERMOD MAXDCONT file
\NO2\NAAQS\3BearAztec_NO2_1HR_NAAQS_20220407.inp	NO2, 1-hour	1-hour NAAQS input file – all 5 years
\NO2\NAAQS\3BearAztec_NO2_1HR_NAAQS_20220407.out	NO2, 1-hour	1-hour NAAQS output file – all 5 years
\NO2\NAAQS\3BEARAZTEC_NO2_ALL_1HRSIL_NAAQS_MAXDCONT_20220407.TXT	NO2, 1-hour	1-hour NAAQS MAXDCONT output file – 1st - 8th high average 3Bear and nearby sources – all 5 years
\NO2\NAAQS\3BEARAZTEC_NO2_3BEAR_1HRSIL_NAAQS_MAXDCONT_20220407.TXT	NO2, 1-hour	1-hour NAAQS MAXDCONT output file – 1st - 8th high average 3Bear-Aztec sources – all 5 years (not used)
\NO2\SIL\Annual\YYYY\3BearAztec_NO2_Annual_SIL_20220407_YYYY.inp	NO2, Annual	Annual SIL input files – all 5 years

	\NO2\SIL\Annual\YYYY\3BearAztec_NO2_Annual_SIL_20220407_YYYY.out	NO2, Annual	Annual SIL output files – all 5 years
	\NO2\SIL\Annual\YYYY\3BEARAZTEC_NO2_ALL_ANNSIL_20220407_YYYY.plt	NO2, Annual	Annual SIL output plot files for 3Bear-Aztec sources – all 5 years
	\NO2\INC\3BearAztec_NO2_Annual-INC_20220407_YYYY.inp	NO2, Annual	Annual increment input files – all 5 years
	\NO2\INC\3BearAztec_NO2_Annual-INC_20220407_YYYY.out	NO2, Annual	Annual increment output files – all 5 years
	\NO2\INC\3BEARAZTEC_NO2_ALL_ANN_-INC_20220407_YYYY.PLT	NO2, Annual	Annual increment output plot files for 3Bear Aztec and nearby increment sources – all 5 years
	\NO2\INC\3BEARAZTEC_NO2_3BEAR_ANN_INC_20220407_YYYY.PLT	NO2, Annual	Annual increment output plot files for 3Bear Aztec sources – all 5 years
	\CO\ 3BearAztec_CO_1HR-8HR_20220407.inp	CO, 1-hour and 8-hour	SIL input file – all 5 years
	\CO\3BearAztec_CO_1HR-8HR_20220407.out	CO, 1-hour and 8-hour	SIL output file – all 5 years
	\CO\3BEARAZTEC_CO_ALL_1HRSIL_20220407.plt	CO, 1-hour	SIL output plot file for 3Bear sources 1st high – all 5 years
	\CO\3BEARAZTEC_CO_ALL_8HRSIL_20220407.plt	CO, 8-hour	SIL output plot file for 3Bear sources 1st high – all 5 years
	\SO2\SIL\1Hr\3BearAztec_SO2_1HR_SIL_20220419.inp	SO2, 1-hour	SIL input file –all 5 years
	\SO2\SIL\1Hr\3BearAztec_SO2_1HR_SIL_20220419.out	SO2, 1-hour	SIL input file –all 5 years
	\SO2\SIL\1Hr\3BearAztec_SO2_ALL_1HRSIL_20220419	SO2, 1-hour	SIL output plot files for 3Bear Aztec sources
	\SO2\NAAQS\1HR\3BearAztec_SO2_1HR_NAAQS_20220407.inp	SO2, 1-hour	NAAQS input file – all 5 years
	\SO2\NAAQS\1HR\3BearAztec_SO2_1HR_NAAQS_20220407.out	SO2, 1-hour	NAAQS output file – all 5 years
	\SO2\NAAQS\1HR\3BEARAZTEC_SO2_ALL_1HR_NAAQS_MAXDCONT_20220407.TXT	SO2, 1-hour	NAAQS MAXDCONT output file 1st – 4th high All 3Bear sources – all 5 years
	\SO2\NAAQS\1HR\3BEARAZTEC_SO2_3BEAR_1HR_NAAQS_MAXDCONT_20220407.TXT	SO2, 1-hour	SIL MAXDCONT output file 1st-4th high 3Bear project sources – all 5 years (not used)
	\SO2\SIL\3-24Hr\3BearAztec_SO2_324HR_20220419.inp	SO2, 3-hour and 24-hour	SIL input file –all 5 years
	\SO2\SIL\3-24Hr\3BearAztec_SO2_324HR_20220419.out	SO2, 3-hour and 24-hour	SIL output file – all 5 years
	\SO2\SIL\3-24Hr\3BEARAZTEC_SO2_ALL_3HR_SIL_20220419.plt	SO2, 3-hour	SIL output plot file for 3Bear Aztec sources 1st high - all 5 years
	\SO2\SIL\3-24Hr\3BEARAZTEC_SO2_ALL_24HR_SIL_20220419.plt	SO2, 24-hour	SIL output plot file for 3Bear Aztec sources 1st high - all 5 years
	\SO2\INC\YYYY\3BearAztec_SO2_INC_YYYY_20220419.inp	SO2 3-hour, 24-hour, Annual	Increment input files including 3Bear and all nearby increment sources

	\SO2\INC\YYYY\3BearAztec_SO2_INC_YYYY_20220419.out	SO2 3-hour, 24-hour, Annual	Increment output files including 3Bear and all nearby increment sources
	\SO2\INC\YYYY\3BEARAZTEC_SO2_3BEAR_3HR2H_INCR_YYYY_20220419.PLT	SO2 3-hour	Increment output plot files for 3Bear Aztec sources –2nd high for each year (not used)
	\SO2\INC\YYYY\3BEARAZTEC_SO2_ALL_3HR2H_INCR_YYYY_20220419.PLT	SO2 3-hour	Increment output plot files for all sources – 2nd high for each year
	\SO2\INC\YYYY\3BEARAZTEC_SO2_3BEAR_24HR2H_INCR_YYYY_20220419.PLT	SO2 24-hour	Increment output plot files for 3Bear Aztec sources – 2nd high for each year (not used)
	\SO2\INC\YYYY\3BEARAZTEC_SO2_ALL_24HR2H_INCR_YYYY_20220419.PLT	SO2 24-hour	Increment output plot files for all sources – 2nd high for each year
	\SO2\INC\YYYY\3BEARAZTEC_SO2_3BEAR_ANN_INCR_YYYY_20220419.PLT	SO2 Annual	Increment output plot files for 3Bear Aztec sources – average for each year
	\SO2\INC\YYYY\3BEARAZTEC_SO2_ALL_ANN_INCR_YYYY_20220419.PLT	SO2 Annual	Increment output plot files for all sources – average for each year
	\SO2\SIL\Annual\3BearAztec_SO2_ANN_SIL_YYYY_20220419.inp	SO2, Annual	SIL input files
	\SO2\SIL\Annual\3BearAztec_SO2_ANN_SIL_YYYY_20220419.out	SO2, Annual	SIL output files
	\SO2\SIL\Annual\3BEARAZTEC_SO2_ALL_ANN_YYYY_20220419.PLT	SO2, Annual	SIL output plot files for 3Bear Aztec sources
	\PM10\SIL\24HR\3BearAztec_PM10_24HR_SIL_20220407.inp	PM10 24-hour	SIL input file – all 5 years
	\PM10\SIL\24HR\3BearAztec_PM10_24HR_SIL_20220407.out	PM10 24-hour	SIL output file – all 5 years
	\ PM10\SIL\24HR\3BEARAZTEC_PM10_ALL_24HRSIL_20220407.plt	PM10 24-hour	SIL output plot file for 3Bear Aztec sources 1st high – all 5 years
	\PM10\SIL\Annual\YYYY\3BearAztec_PM10_SIL_YYYY_20220407.inp	PM10 Annual	SIL input files
	\PM10\SIL\Annual\YYYY\3BearAztec_PM10_SIL_YYYY_20220407.out	PM10 Annual	SIL output files
	\PM10\SIL\Annual\YYYY\3BEARAZTEC_PM10_ALL_ANNSIL_20220407_YYYY.plt	PM10 Annual	SIL output plot files for 3Bear Aztec sources
	\PM10\NAAQS\3BearAztec_PM10_NAAQS_20220422.inp	PM10 24-hour	NAAQS input file including 3Bear and nearby sources – all 5 years
	\PM10\NAAQS\3BearAztec_PM10_NAAQS_20220422.out	PM10 24-hour	NAAQS output file including 3Bear and nearby sources – all 5 years
	\PM10\NAAQS\3BEARAZTEC_PM10_3BEARAZ_24HR_NAAQS_20220422.PLT	PM10 24-hour	NAAQS output plot file including 3Bear sources 6th high – all 5 years (not used)
	\PM10\NAAQS\3BEARAZTEC_PM10_NAAQS_24HR_NAAQS_20220422.PLT	PM10 24-hour	NAAQS output plot files including 3Bear and nearby sources 6th high – all 5 years

	\PM10\INC\YYYY\3BearAztec_PM10_INC_20220422_YYYY.inp	PM10 24-hour, Annual	Increment input files including 3Bear and nearby sources
	\PM10\INC\YYYY\3BearAztec_PM10_INC_20220422_YYYY.out	PM10 24-hour, Annual	Increment output files including 3Bear and nearby sources
	\PM10\INC\YYYY\3BEARAZTEC_PM10_3BEARAZ_24HR_CULP_20220422_YYYY.PLT	PM10 24-hour	24-hour increment output plot files including 3Bear Aztec sources 1st high for each year (not used)
	\PM10\INC\YYYY\3BEARAZTEC_PM10_PSD_24HRINC_20220407_YYYY.PLT	PM10 24-hour	24-hour increment output plot files including 3Bear and nearby sources 2nd high for each year
	\PM10\INC\YYYY\3BEARAZTEC_PM10_3BEARAZ_ANN_CULP_20220422_YYYY.PLT	PM10 Annual	Annual increment output plot files including 3Bear Aztec sources average for each year
	\PM10\INC\YYYY\3BEARAZTEC_PM10_PSD_ANNINC_20220407_YYYY.PLT	PM10 Annual	Annual increment output plot files including 3Bear and nearby sources average for each year
	\PM25\SIL\3BearAztec_PM25_24HRANNSIL_20220407.inp	PM2.5 24-hour and Annual	SIL input file – all 5 years
	\PM25\SIL\3BearAztec_PM25_24HRANNSIL_20220407.out	PM2.5 24-hour and Annual	SIL output file – all 5 years
	\PM25\SIL\3BEARAZTEC_PM25_ALL_24HRSIL_20220407.TXT	PM2.5 24-hour	SIL MAXDCONT output file for 3Bear Aztec sources – 1st high average for all 5 years
	\PM25\SIL\3BEARAZTEC_PM25_ALL_ANNSIL_20220407.plt	PM2.5 Annual	SIL output plot file for 3Bear Aztec sources – Average of all 5 years
	\PM25\NAAQS\3BearAztec_PM25_24HRANN_NAAQS_20220407.inp	PM2.5 24-hour and Annual	NAAQS input file including 3Bear and nearby sources
	\PM25\NAAQS\3BearAztec_PM25_24HRANN_NAAQS_20220407.out	PM2.5 24-hour and Annual	NAAQS output file including 3Bear and nearby sources
	\PM25\NAAQS\3BEARAZTEC_PM25_3BEAR_24HR_NAAQS_20220407.TXT	PM2.5 24-hour	NAAQS MAXDCONT output file for 3Bear sources 1st – 8th high average concentrations (not used)
	\PM25\NAAQS\3BEARAZTEC_PM25_3BEARAZ_ANN_20220407.PLT	PM2.5 Annual	NAAQS plot file for 3Bear sources average of annual concentrations
	\PM25\NAAQS\3BEARAZTEC_PM25_NAAQS_ANN_20220407.PLT	PM2.5 Annual	NAAQS plot file for all sources average of annual concentrations
	\PM25\INC\YYYY\3BearAztec_PM25_24HRANN_INC_20220407_YYYY.inp	PM2.5 24-hour and Annual	Increment input file including 3Bear and nearby increment sources
	\PM25\INC\YYYY\3BearAztec_PM25_24HRANN_INC_20220407_YYYY.out	PM2.5 24-hour and Annual	Increment output file including all 3Bear and nearby increment sources
	\PM25\INC\YYYY\3BEARAZTEC_PM25_3BEARAZ_24HRINC_H2H_20220407_YYYY.PLT	PM2.5 24-hour	Increment output plot file for 3Bear sources 2nd high concentration for each year (not used)
	\PM25\INC\YYYY\3BEARAZTEC_PM25_PSD_24HRINC_H2H_20220407_YYYY.PLT	PM2.5 24-hour	Increment output plot file for 3Bear and nearby sources 2nd high concentration for each year
	\PM25\INC\YYYY\3BEARAZTEC_PM25_3BEARAZ_ANNINC_20220407_YYYY.PLT	PM2.5 Annual	Increment plot file output file for 3Bear sources annual average for each year

	\PM25\INC\YYYY\3BEARAZTEC_ PM25_PSD_ANNINC_20220407_ YYYY.PLT	PM2.5 Annual	Increment plot file for 3Bear and nearby sources annual average for each year
	\H2S\3BearAztec_H2S_1HR_SIL_ NMAAQS_20220419.inp	H2S 1-hour	½-hour SIL/NMAAQS input file – all 5 years
	\H2S\3BearAztec_H2S_1HR_SIL_ NMAAQS_20220419.out	H2S 1-hour	½-hour SIL/NMAAQS output file – all 5 years
	\H2S\3BEARAZTEC_H2S_3BEARAZ_ 1HRSIL_20220418.plt	H2S 1-hour	½-hour SIL output plot file for 3Bear Aztec sources 1st high – all 5 years
	\H2S\3BEARAZTEC_H2S_ALL_ 1HRNMAAQS_20220418.plt	H2S 1-hour	½-hour NMAAQS output plot file for all sources (not used)

16-V: PSD New or Major Modification Applications

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

16-W: Modeling Results

	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes☒	No☐
1	NO_2: 1-hour NAAQS Three receptors to the southwest of 3Bear Aztec predict exceedances of the 1-hour NO_2 NAAQS at a distance of ~22-24 km from 3Bear. The 3Bear Aztec sources have predicted maximum daily 1-hour concentrations less than the SIL at these receptors. Each receptor is located very close to a nearby source: Waste Isolation Pilot Plant (facility ID – 318), Constructors Inc. Crusher 2413 (facility ID – 2302), and Cimarex James (facility ID – 38122). Annual Increment One receptor to the northeast of 3Bear Aztec has a predicted exceedance of the annual NO2 increment standard. This receptor is located very near the Matador – Torque State facility (facility ID – 40330). The 3Bear Aztec source has predicted concentrations less than the SIL at this receptor. The contributions from 3Bear sources are less than the SIL at the location of the predicted exceedances for both 1-hour NAAQS and annual increment NO2 standards.		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

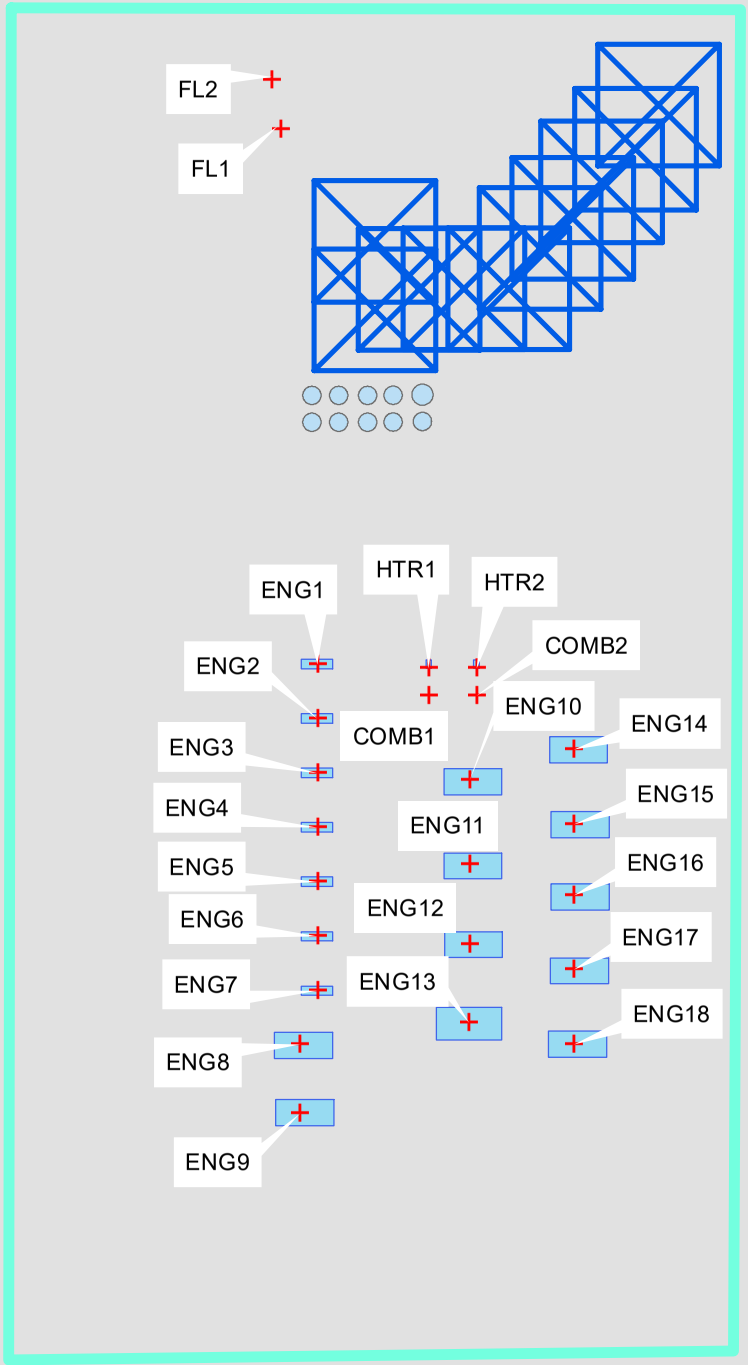
Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
CO,1HR SIL	519.5					2000	26.0	632190	3595445	3865
CO,8HR SIL	282.0					500	56.4	632068	3595294	3871
H_2S, ½HR SIL	1.46					5	29.3	632190	3595445	3865
SO_2,1HR SIL	94.0					7.8	1,204.6	632190	3595445	3865
SO_2, 1HR NAAQS	79.0	All sources				196.4	40.2	632190	3595445	3865
SO2,3HR, SIL	79.7					25	318.7	632190	3595445	3865

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
SO2.3HR Increment	78.2	All sources				512	15.3	632190	3595445	3865
SO2,24HR, SIL	38.9					5	777.7	632190	3595445	3865
SO2.24HR Increment	35.2	All sources				91	38.7	632190	3595445	3865
SO2,ANN, SIL, 2017	4.72					1	472.2	632190	3595445	3865
SO2.ANN Increment, 2017	4.72	0.52			5.24	20	26.2	632190	3595445	3865
PM_{10},24HR SIL	16.8					5	336.6	632190	3595544	3869
PM_{10},24HR NAAQS	19.6	All sources		100.7	120.3	150	80.2	632190	3595544	3869
PM_{10},24HR Increment	19.3	All sources				30	64.5	632190	3595544	3869
PM_{10},ANN SIL, 2018	5.4					1	542.3	632150	3595594	3871
PM_{10},ANN Increment, 2018	5.4	1.0			6.4	17	37.8	632150	3595594	3871
NO_2,1HR SIL	147.7					7.52	1964.6	632028	3595336	3870
NO_2,1HR NAAQS	0.0	383.2	All sources		383.2	188	203.8	613000	3583000	3419
NO_2,1HR NAAQS	135.9	0.1	3Bear Max		136.0	188	72.3	632068	3595294	3871
NO_2,ANN SIL, 2014	20.7					1	2074.5	632190	3595494	3867

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
NO_2, ANN INC, 2014	0.5	26.4	All sources		26.9	25	107.7	630250	3597500	3800
NO_2, ANN INC, 2014	20.7	1.8	3Bear Max		22.5	25	89.9	632190	3595494	3867
$PM_{2.5}$ 24HR SIL	8.5					1.2	706.8	632068	3595294	3871
$PM_{2.5}$ 24HR NAAQS	5.9	All sources		13.4	19.3	35	55.2	632190	3595494	3867
$PM_{2.5}$, 24HR INC, 2014	8.6	0.1			8.7	9	97.1	632028	3595336	3870
$PM_{2.5}$, ANN SIL	1.5					0.2	771.8	632190	3595544	3869
$PM_{2.5}$, ANN NAAQS	1.5	0.6		5.9	8.0	12	66.9	632190	3595544	3869
PM2.5, ANN INC,2014	1.64	0.33			1.97	4	49.3	632190	3595494	3867

16-X: Summary/conclusions

	A statement that modeling requirements have been satisfied and that the permit can be issued.
1	This modeling demonstration includes a SIL analysis for all relevant criteria pollutants, a SIL/NMAAQS analysis for H_2S, and an increment/NAAQS analysis for pollutants that modeled greater than the SILs ($PM_{2.5}$, PM_{10}, NO_2, and SO_2). The analysis included a simple comparison of 3Bear – Aztec sources modeled concentrations being less than the respective SIL impacts when exceeding receptors were discovered for the following cumulative pollutants/averaging times: NO_2 (1-hour NAAQS and annual increment). No unresolved, modeled issues were identified as part of these analyses.



Point Sources

Volume Sources

Structures

Ambient Air Boundary

N

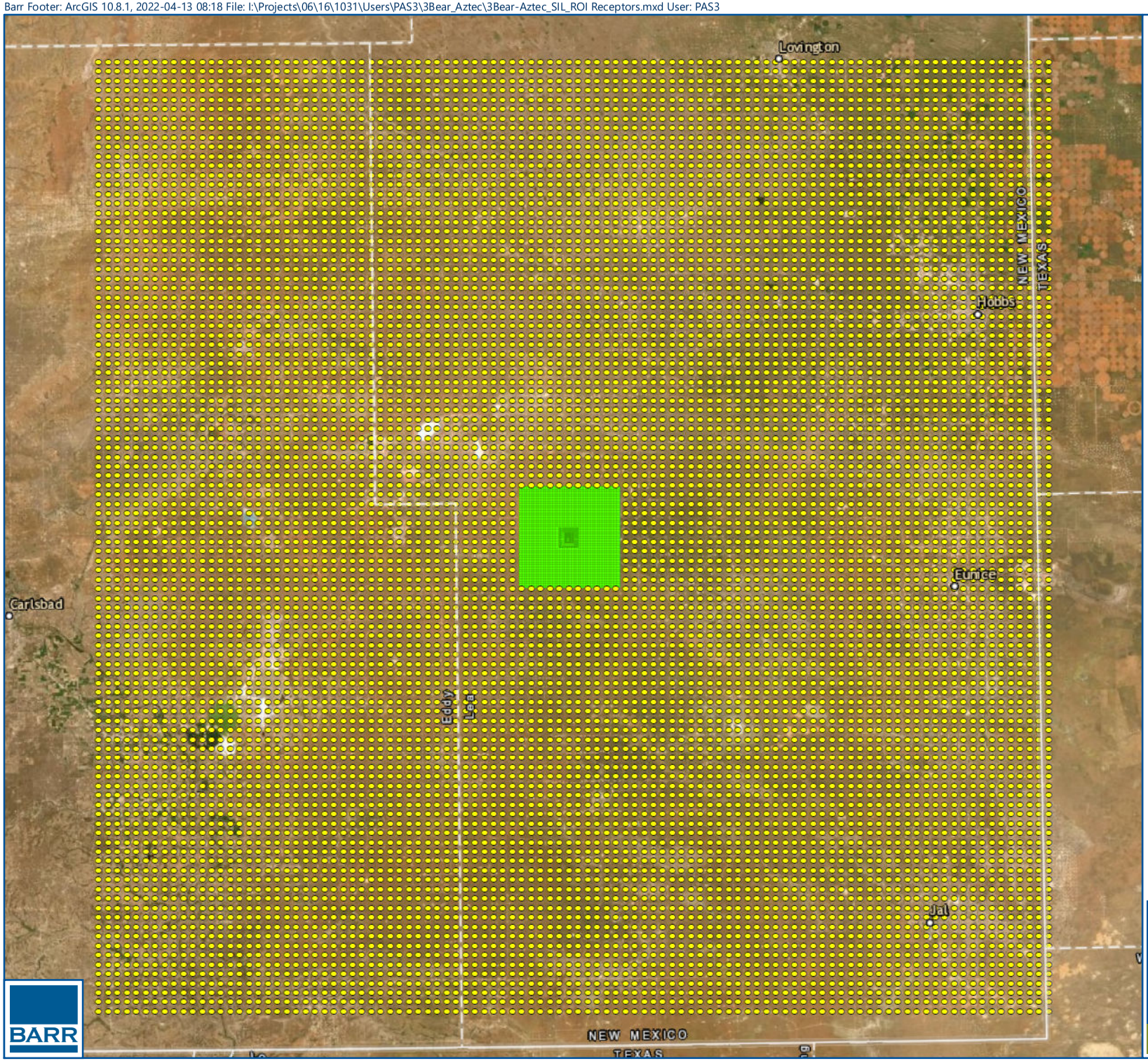
0 15 30 45 60

Meters

3Bear-Aztec CS
Project Sources
Lea County, NM
April 15, 2022

FIGURE 1

BARR



50m, 100m, 250m, 500m SIL Receptors

1 km SIL Receptors

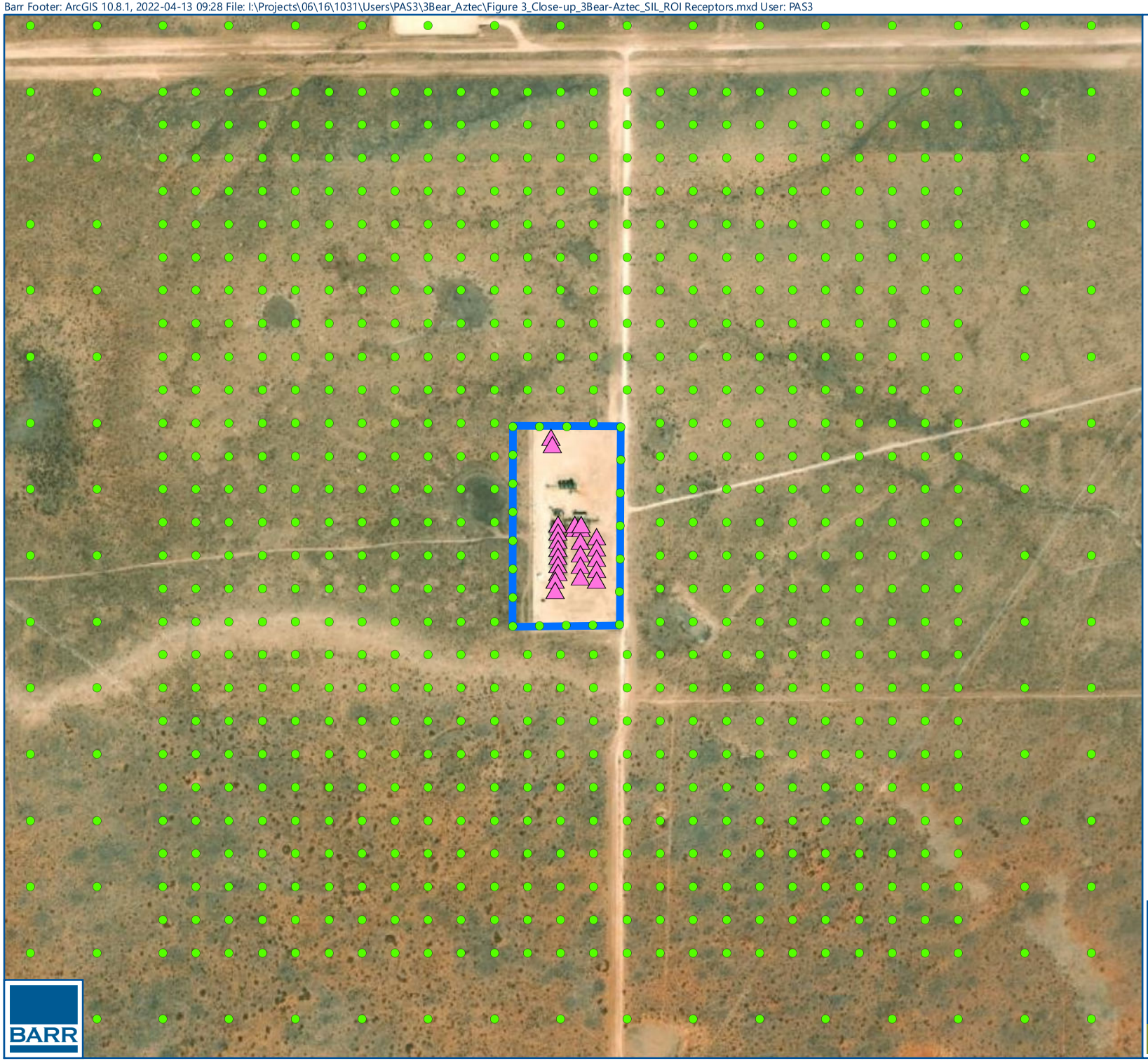
0 7,000 14,000 21,000

Meters

3Bear-Aztec CS
SIL/ROI Receptors
Largest Extent
Lea County, NM
April 15 , 2022

FIGURE 2

Barr Footer: ArcGIS 10.8.1, 2022-04-13 09:28 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 3_Close-up_3Bear-Aztec_SIL_ROI Receptors.mxd User: PAS3



50m, 100m SIL Receptors

Point Sources

N

0 75 150 225 300

Meters

3Bear-Aztec CS
Close-up SIL/ROI Receptors
Lea County, NM
April 15, 2022

FIGURE 3

BARR

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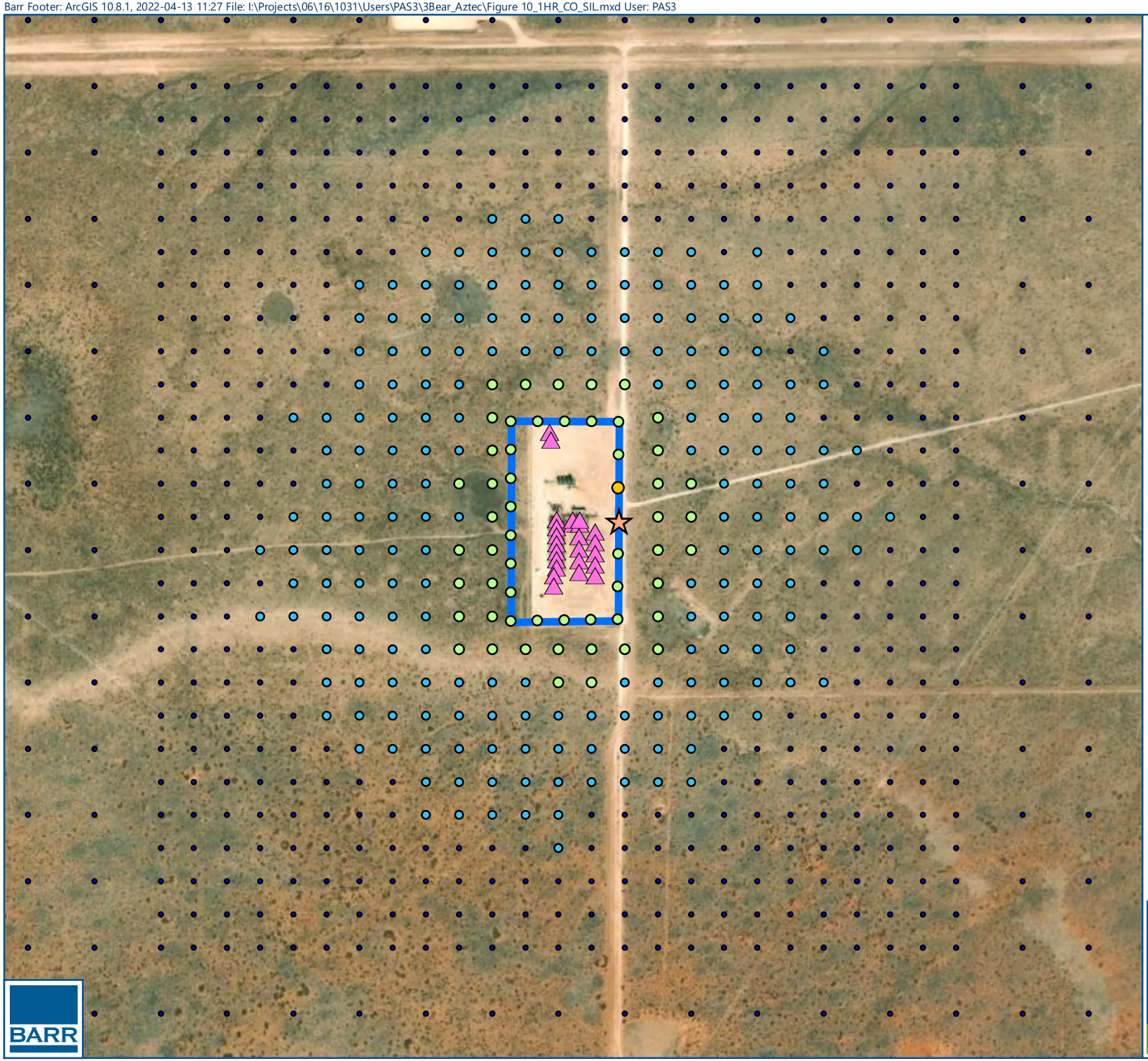

Legend

- 3Bear Aztec-
- Fence Line

SIL

- <5%
- 5% - 10%
- 10% - 20%
- >20%
- Maximum prediction

CO 1-hour SIL
Maximum 1-hour concentration
2,000 µg/m^3

Maximum prediction
519.5 µg/m^3

N

0 75 150 225 300
Meters

3Bear-Aztec CS
1-hour CO Significant
Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 4

BARR

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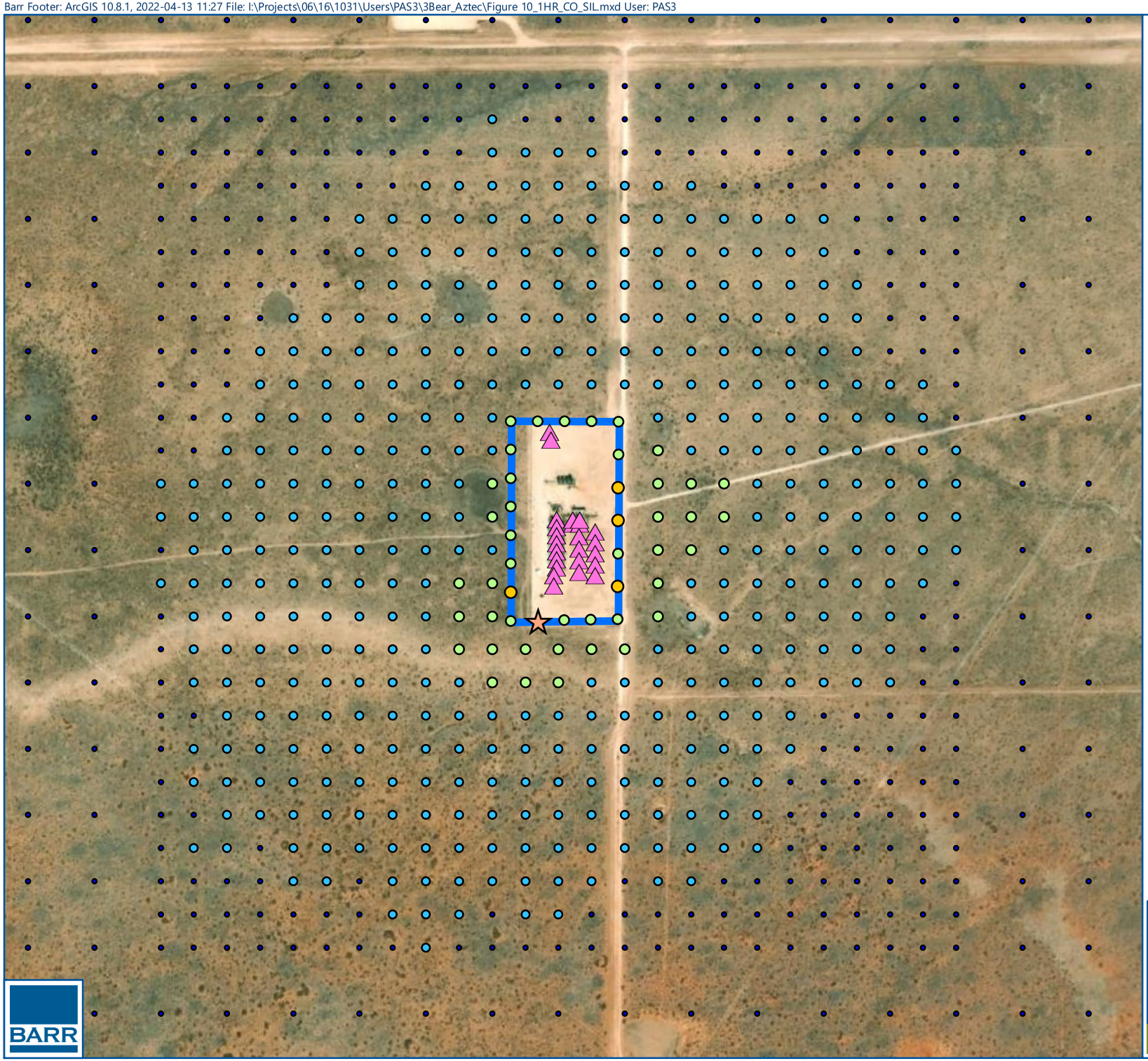

Legend

- 3Bear Aztec- Project
- Fence Line

SIL

- <10%
- 10% - 30%
- 30% - 50%
- >50%
- Maximum prediction

CO 8-hour SIL
Maximum 8-hour concentration
500 µg/m^3

Maximum prediction
282.0 µg/m^3

N

0 75 150 225 300
Meters

3Bear-Aztec CS
8-hour CO Significant
Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 5

BARR

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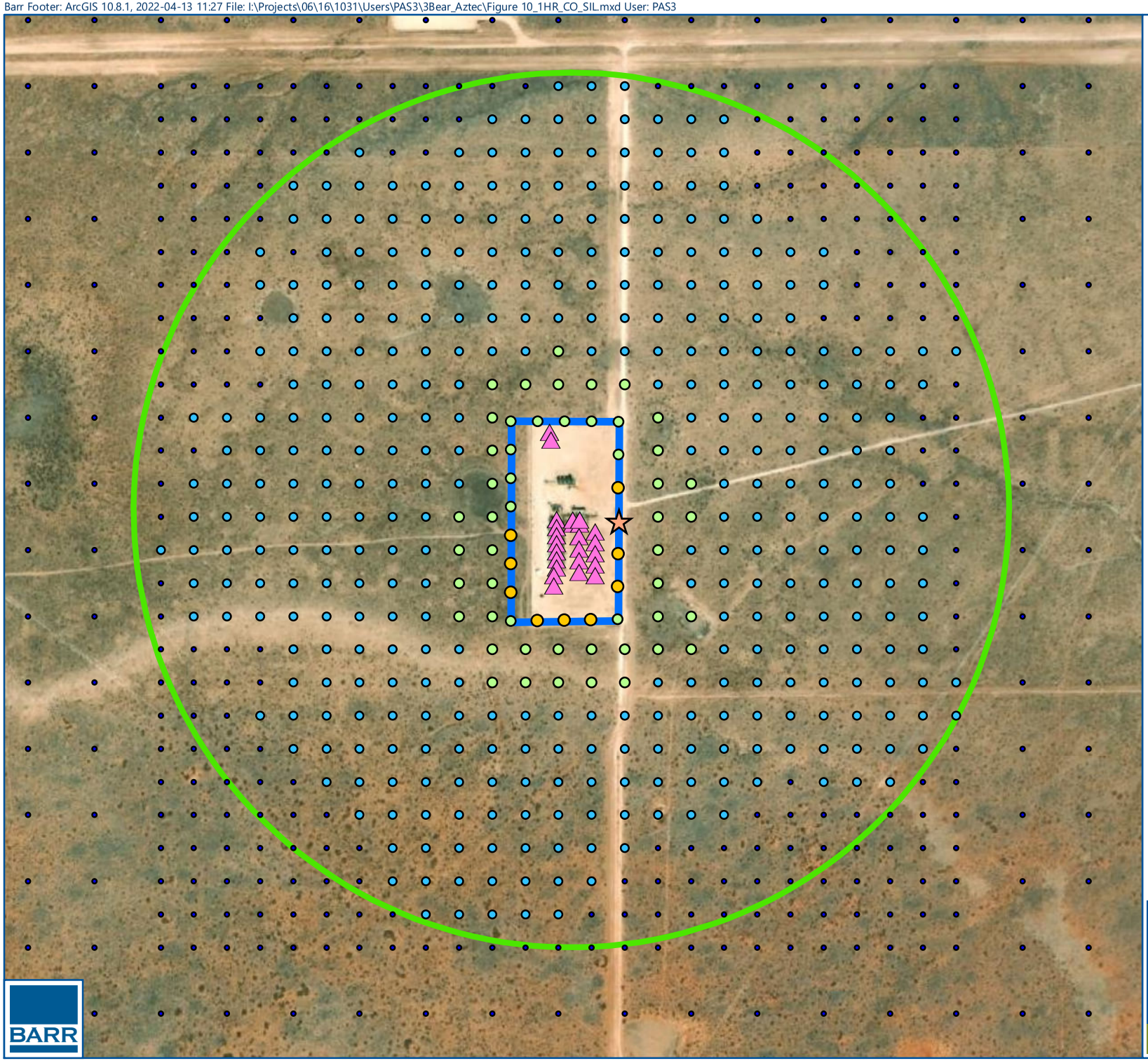

Legend

- 3Bear Aztec- Project
- Fence Line

SIL

- <100%
- 100% - 300%
- 300% - 600%
- >600%
- Maximum prediction
- SO_2 Radius of Impact

SO_2 1-hour SIL
Average of daily maximum 1-hour concentrations
7.8 µg/m^3

Maximum prediction
94.0 µg/m^3

Receptors > SIL
426

Radius of Impact
0.660 km

N

0 75 150 225 300
Meters

3Bear-Aztec CS
1-hour SO_2 Significant Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 6

BARR

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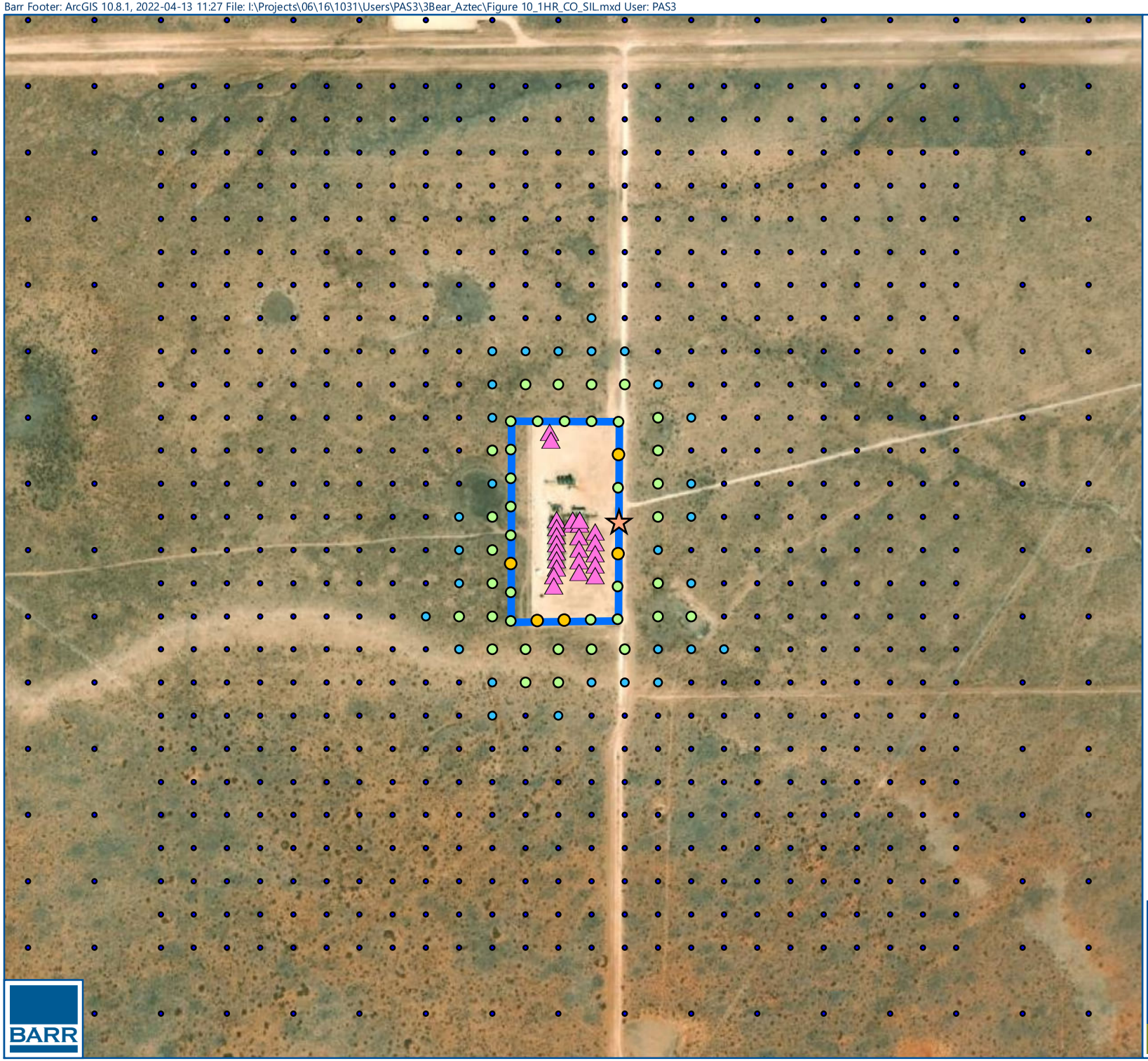


Legend

- 3Bear Aztec- Project
- Fence Line

SIL

- <75%
- 75% - 100%
- 100% - 200%
- >200%
- Maximum prediction

SO_2 3-hour SIL
Maximum 3-hour concentration
25 µg/m^3

Maximum prediction
79.7 µg/m^3

Receptors > SIL
45

N

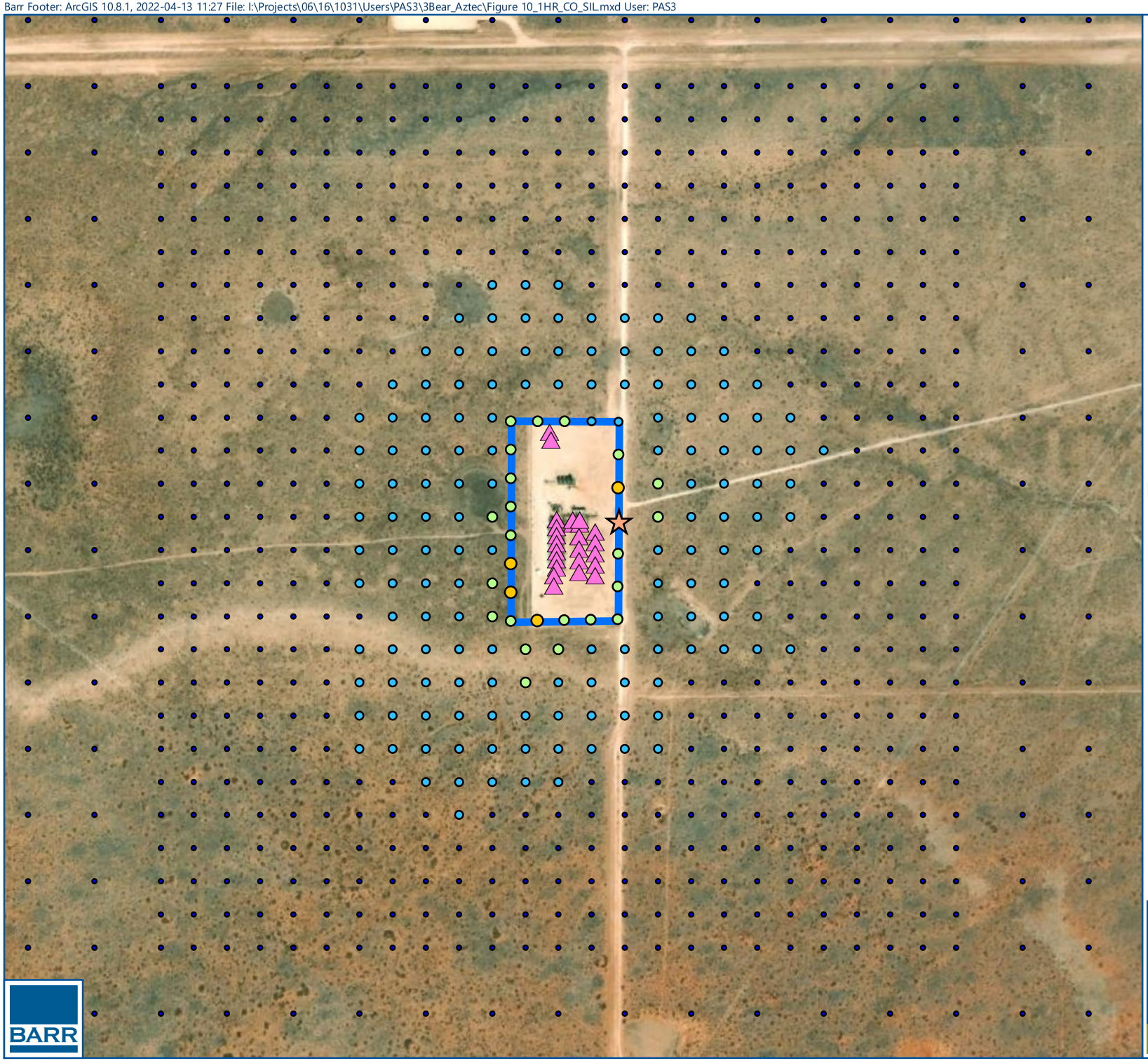
0 75 150 225 300
Meters

3Bear-Aztec CS
3-hour SO_2 Significant Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 7

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



Legend

SIL

- <100%
- 100% - 300%
- 300% - 500%
- >500%
- Maximum prediction
- 3Bear Aztec- Project
- Fence Line

SO_2 3-hour SIL
Maximum 24-hour concentration
5 µg/m^3

Maximum prediction
38.9 µg/m^3

Receptors > SIL
170

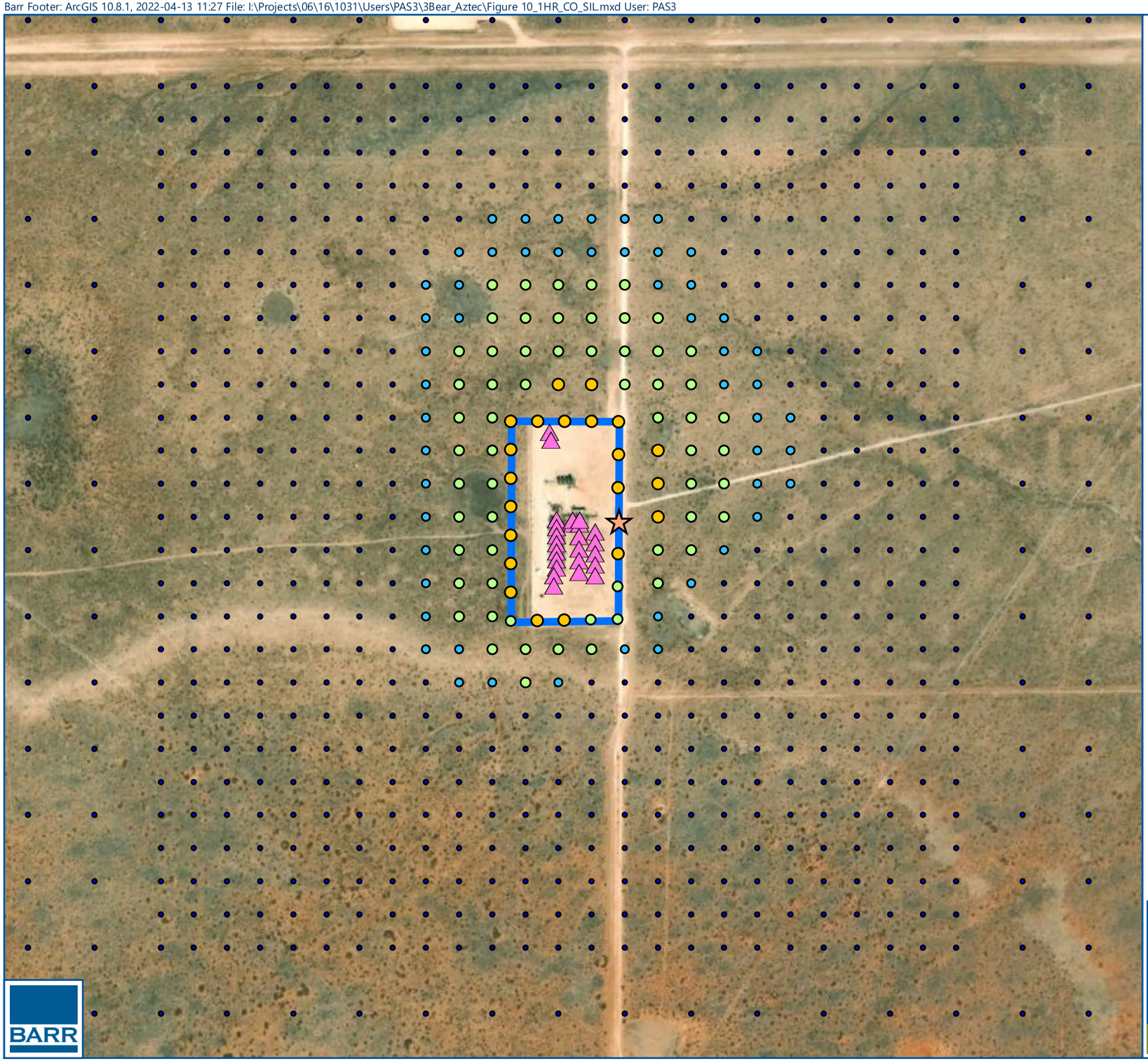
N

0 75 150 225 300
Meters

3Bear-Aztec CS
24-hour SO_2 Significant
Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 8

BARR



Legend

- 3Bear Aztec-
- Fence Line

SIL

- <75%
- 75% - 100%
- 100% - 200%
- >200%
- Maximum prediction

SO_2 Annual SIL
Maximum annual concentration
1 µg/m^3

Maximum prediction
4.72 µg/m^3

Receptors > SIL
82

N

0 75 150 225 300
Meters

3Bear-Aztec CS
Annual SO_2 Significant Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 9

BARR

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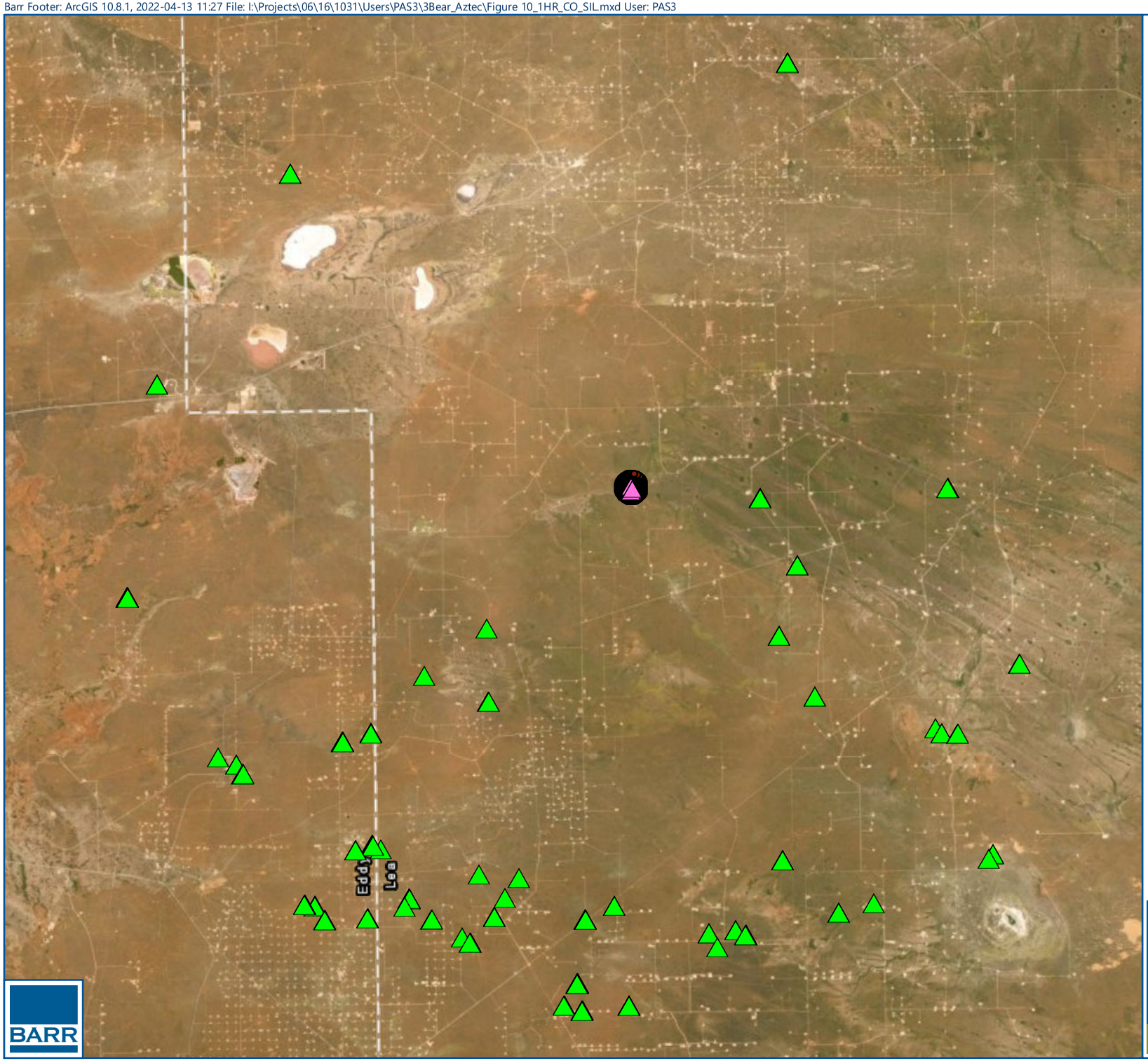

Legend

- SO_2 Nearby Sources
- 3Bear Aztec-
- SO_2 ROI Receptors

SO_2 1-hour NAAQS and 3-hour, 24-hour, and Annual Increment Receptors
532

N

0 2.5 5 7.5 10

Kilometers

3Bear-Aztec CS
Nearby SO_2 Sources
and Cumulative Receptors
Lea County, NM
April 15, 2022

FIGURE 10

BARR

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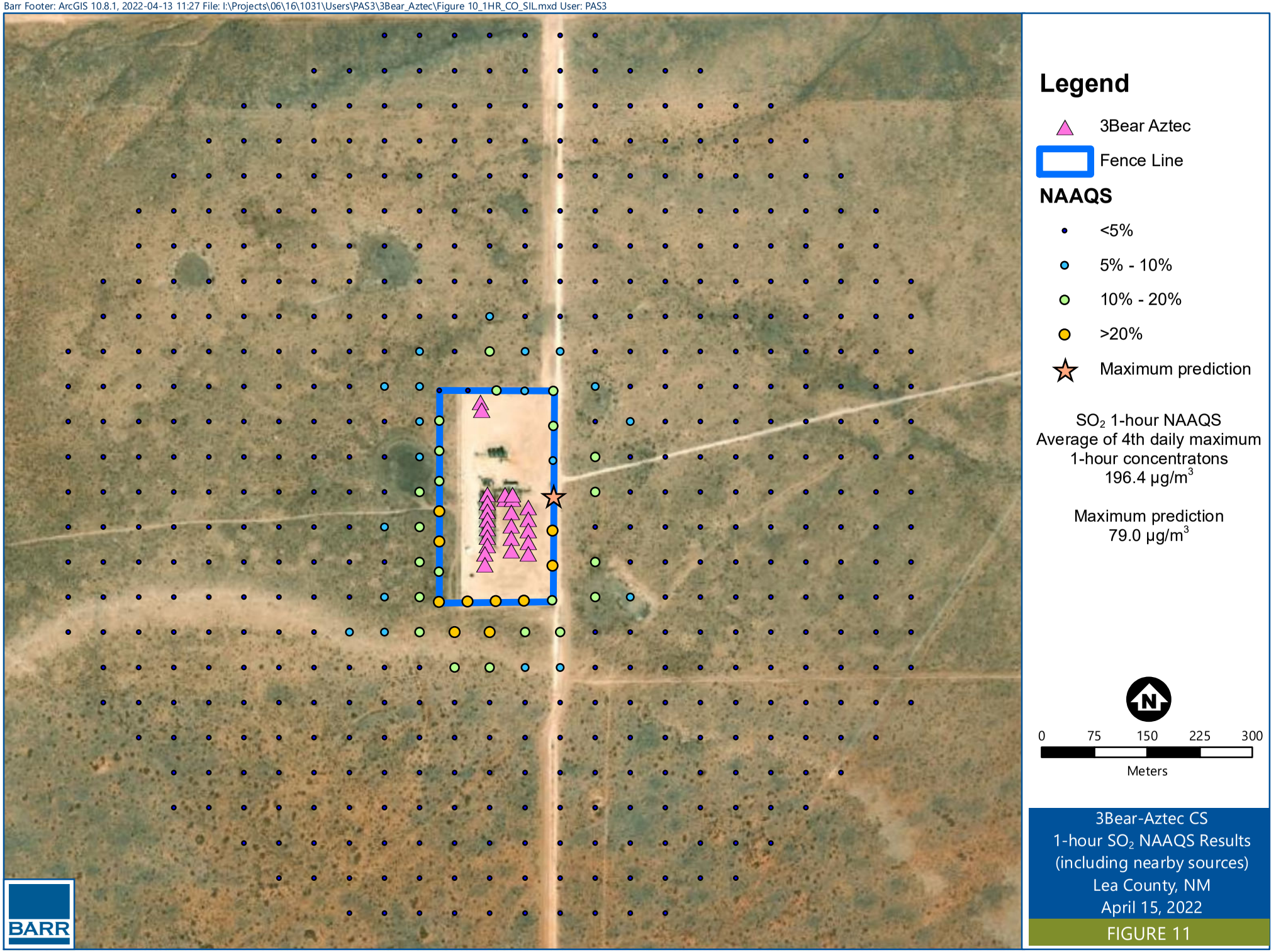

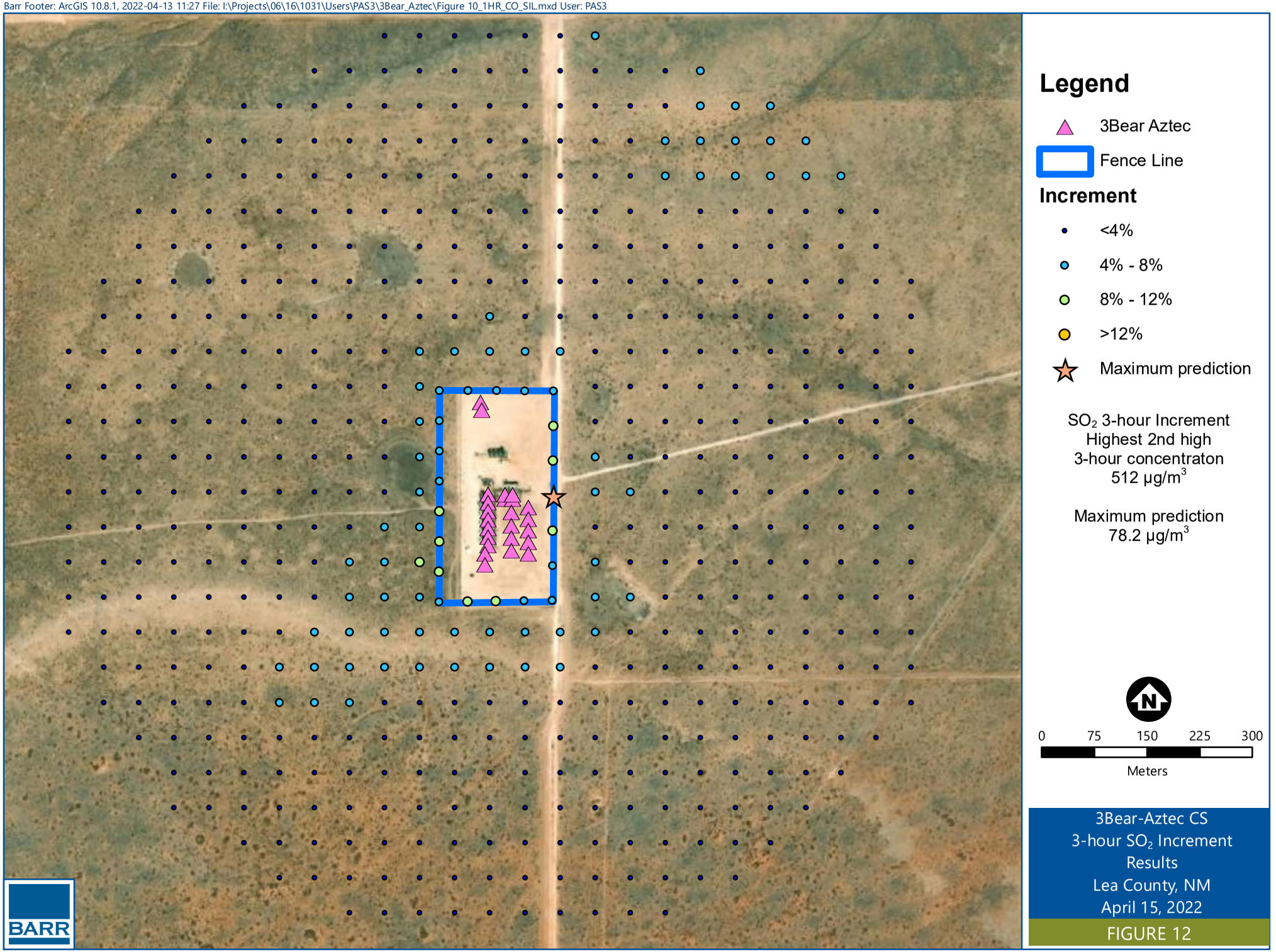
Legend
3Bear Aztec
Fence Line
Increment
<4%
4% - 8%
8% - 12%
>12%
Maximum prediction
SO2 3-hour Increment
Highest 2nd high
3-hour concentraton
512 µg/m3
Maximum prediction
78.2 µg/m3
N
0
75
150
225
300
Meters
3Bear-Aztec CS
3-hour SO2 Increment
Results
Lea County, NM
April 15, 2022
FIGURE 12
BARR

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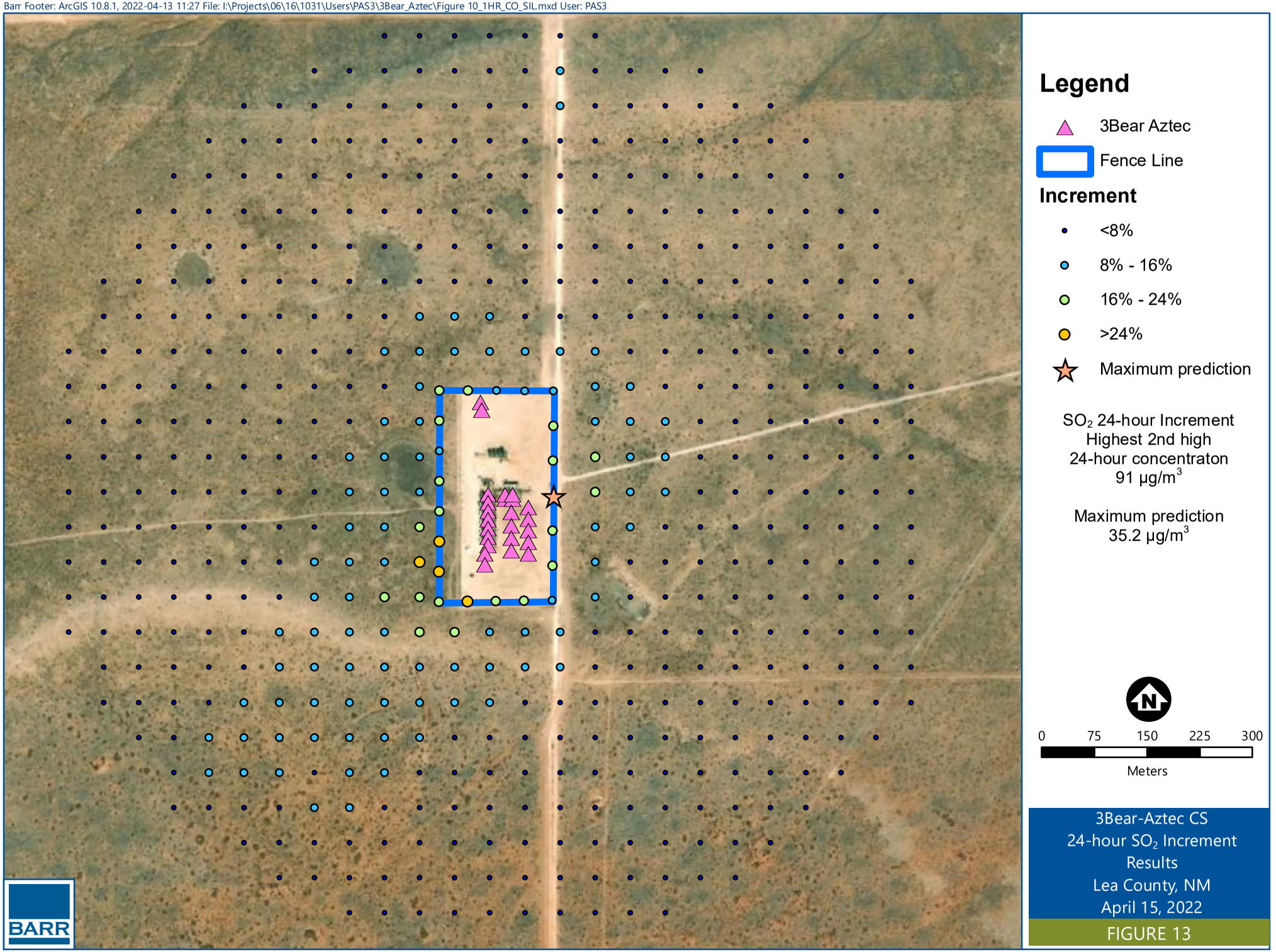

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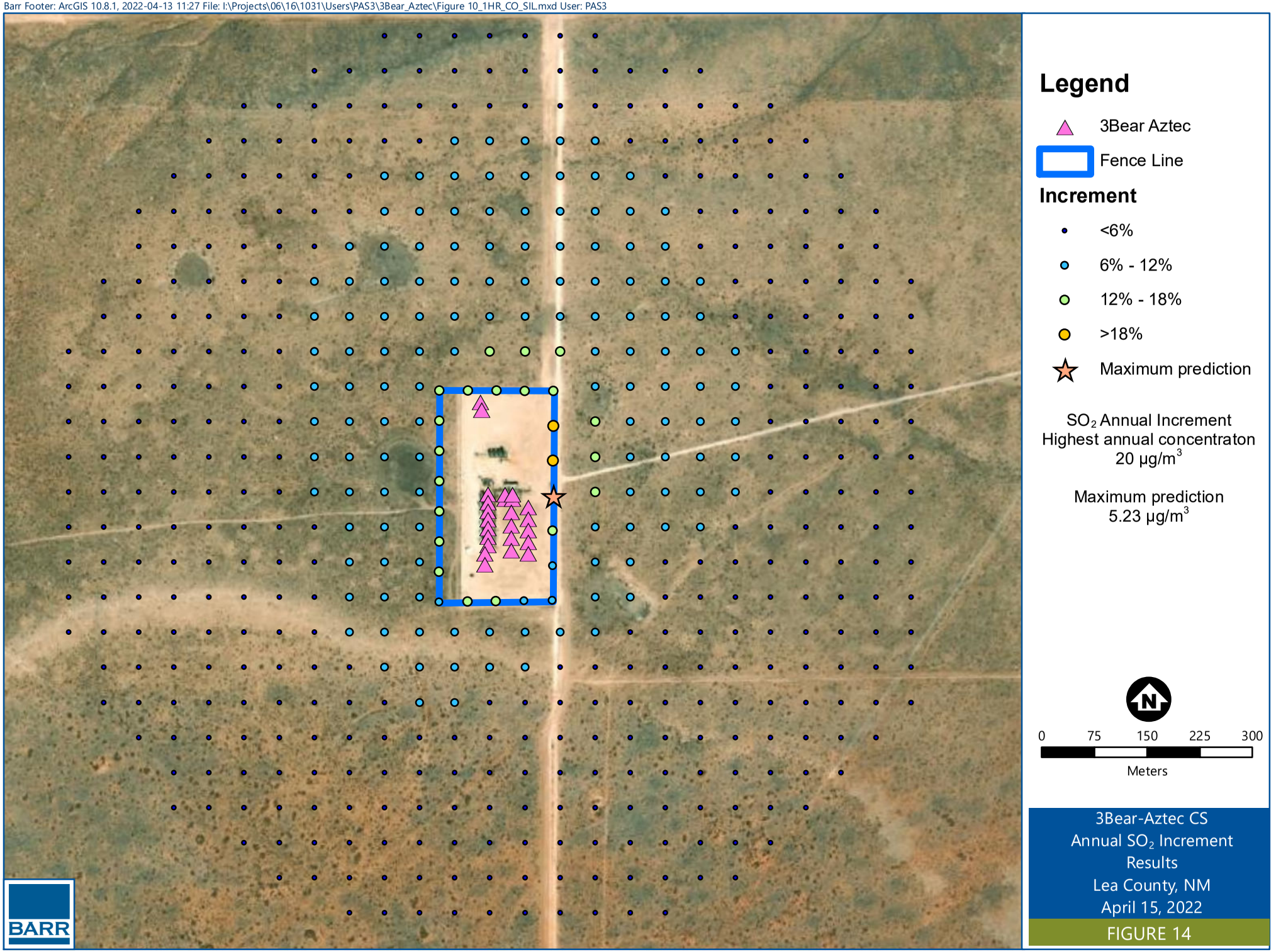
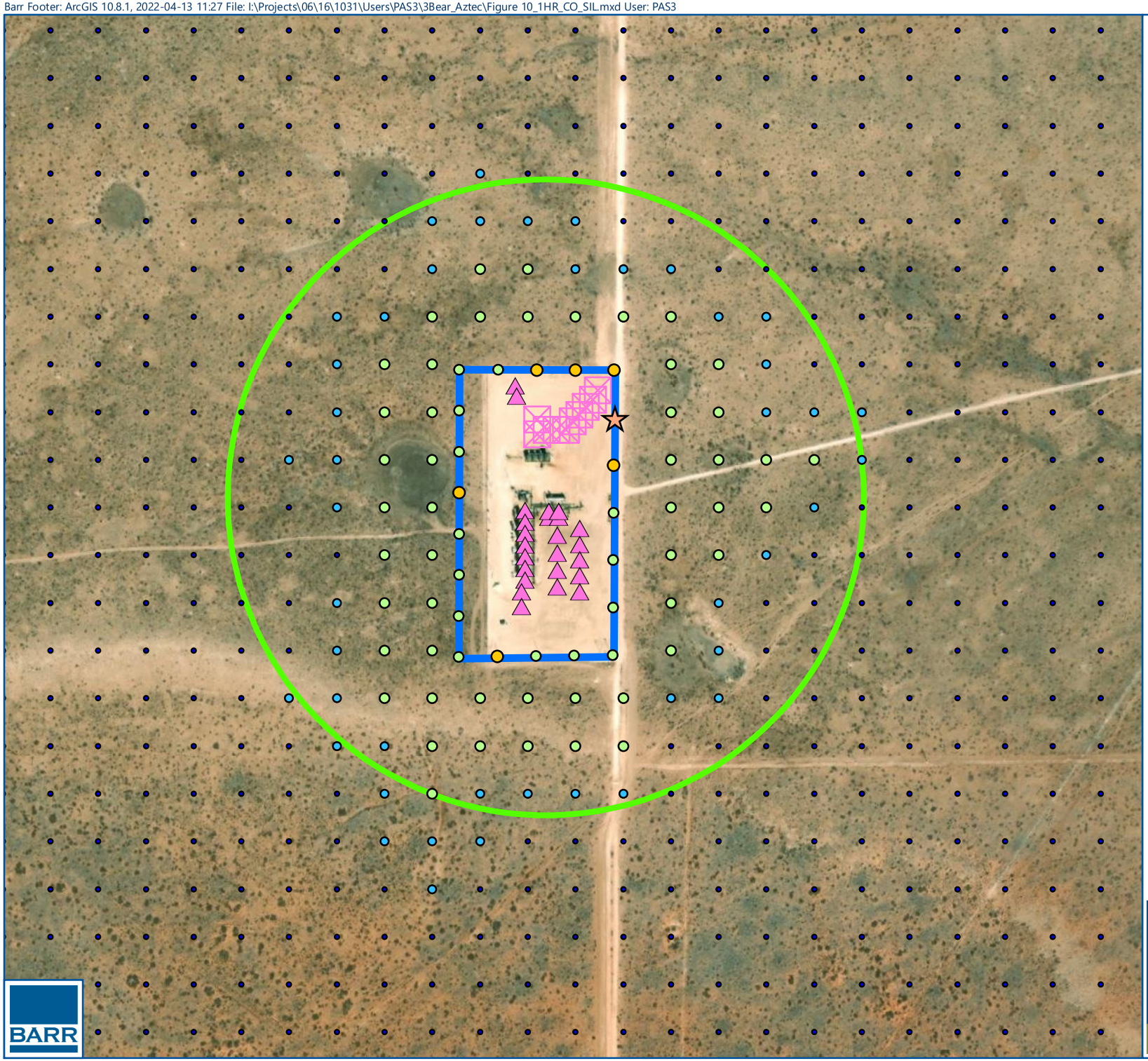




Legend

- 3Bear Aztec- Project
- 3Bear Aztec Road Sources
- Fence Line

SIL

- <75%
- 75% - 100%
- 100% - 200%
- >200%
- Maximum prediction
- PM_{10} Radius of Impact

PM_{10} 24-hour SIL
Maximum concentration
5 µg/m^3

Maximum prediction
16.8 µg/m^3

Receptors > SIL
70

Radius of Impact
0.333 km

N

0 50 100 150 200
Meters

3Bear-Aztec CS
24-hour PM_{10} Significant Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 15

BARR

Legend

- 3Bear Aztec- Project
- 3Bear Aztec Road Sources
- Fence Line

SIL

- <75%
- 75% - 100%
- 100% - 200%
- >200%
- Maximum prediction

PM_{10} Annual SIL
Maximum concentration
1 µg/m^3

Maximum prediction
5.42 µg/m^3

Receptors > SIL
40

N

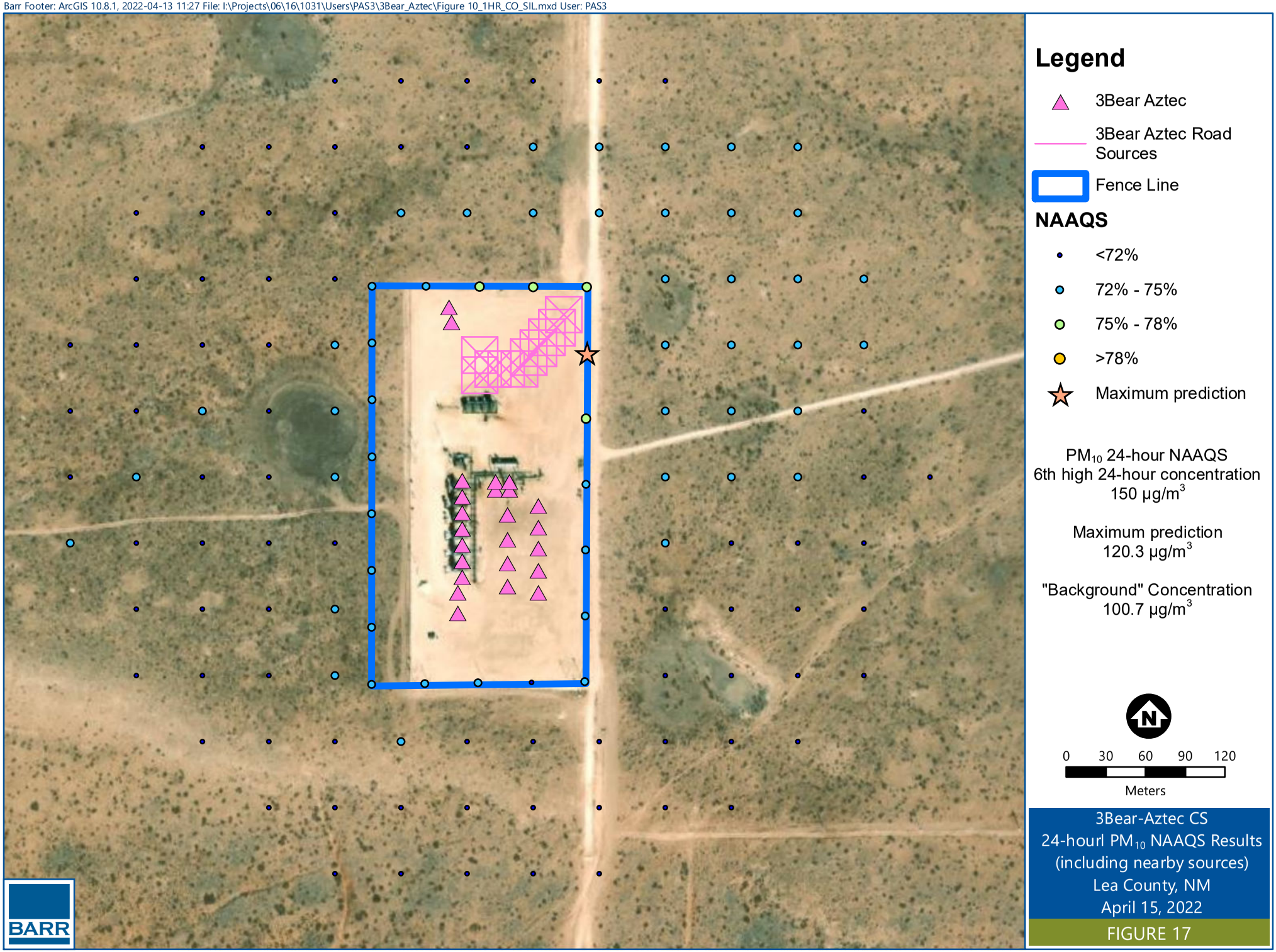
0 50 100 150 200
Meters

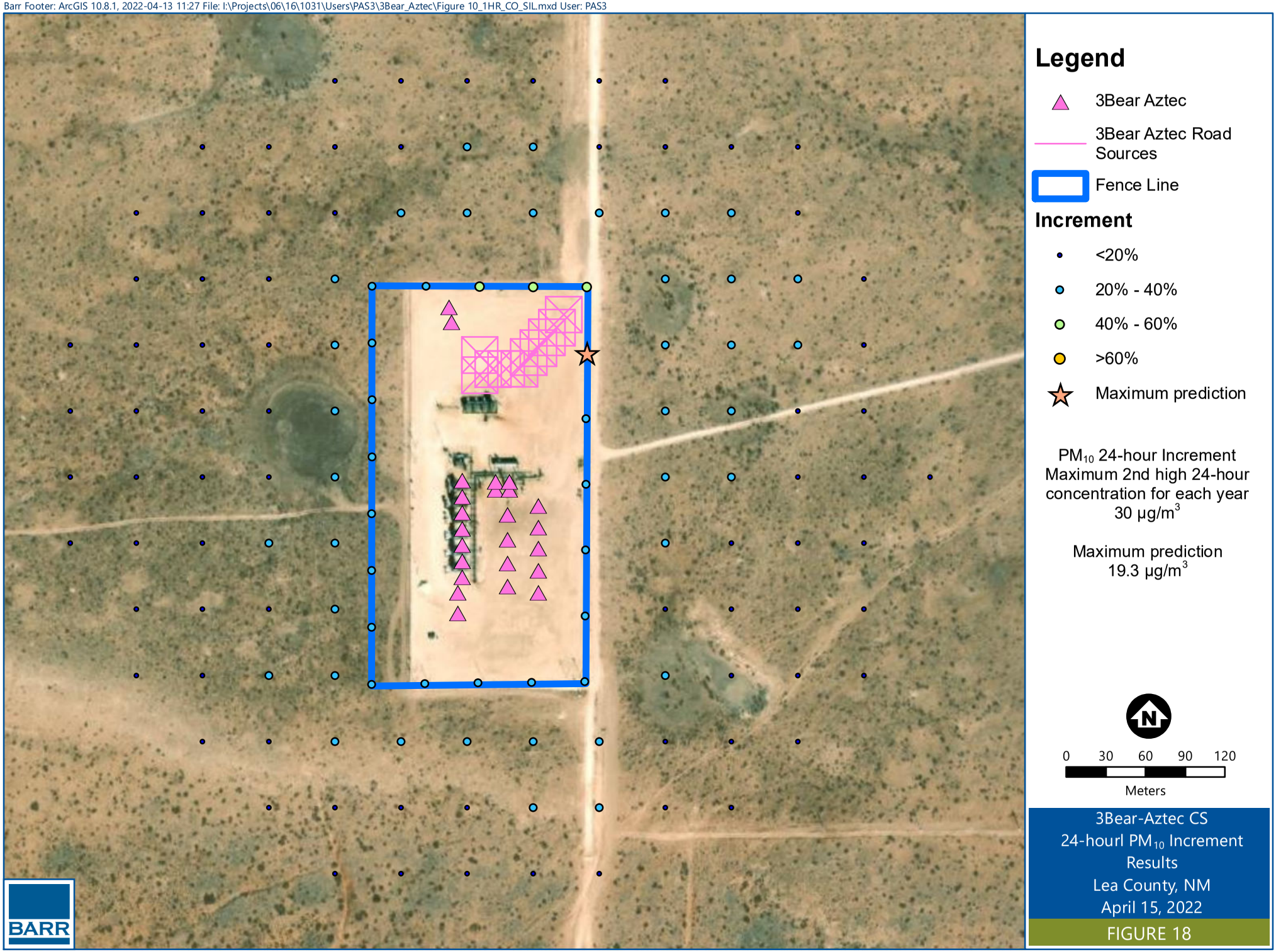
3Bear-Aztec CS
Annual PM_{10} Significant Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 16

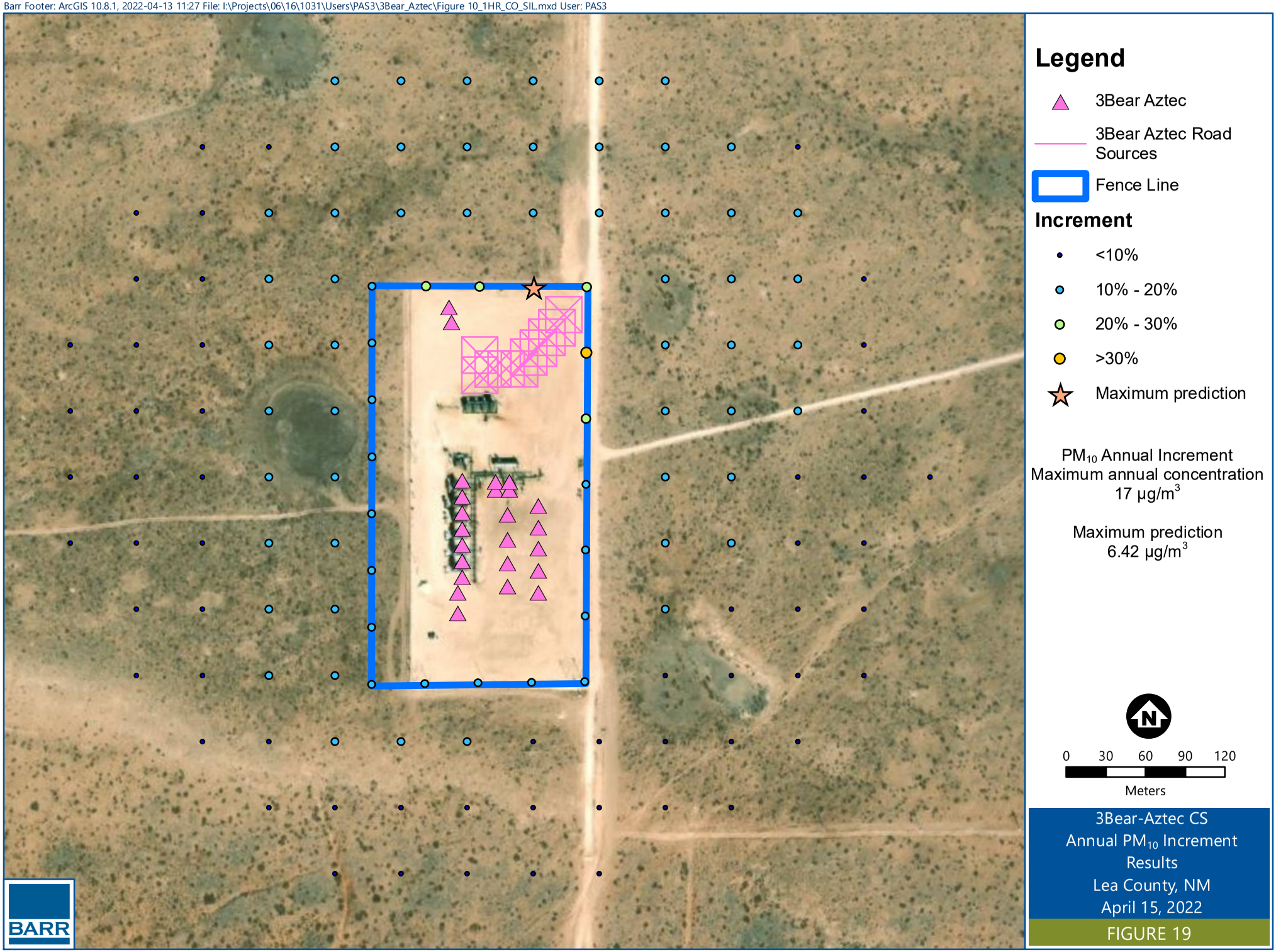
BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3




Legend
3Bear Aztec
3Bear Aztec Road Sources
Fence Line
Increment
<20%
20% - 40%
40% - 60%
>60%
Maximum prediction
PM10 24-hour Increment
Maximum 2nd high 24-hour concentration for each year
30 µg/m3
Maximum prediction
19.3 µg/m3
N
0 30 60 90 120
Meters
3Bear-Aztec CS
24-hourl PM10 Increment Results
Lea County, NM
April 15, 2022
FIGURE 18
BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



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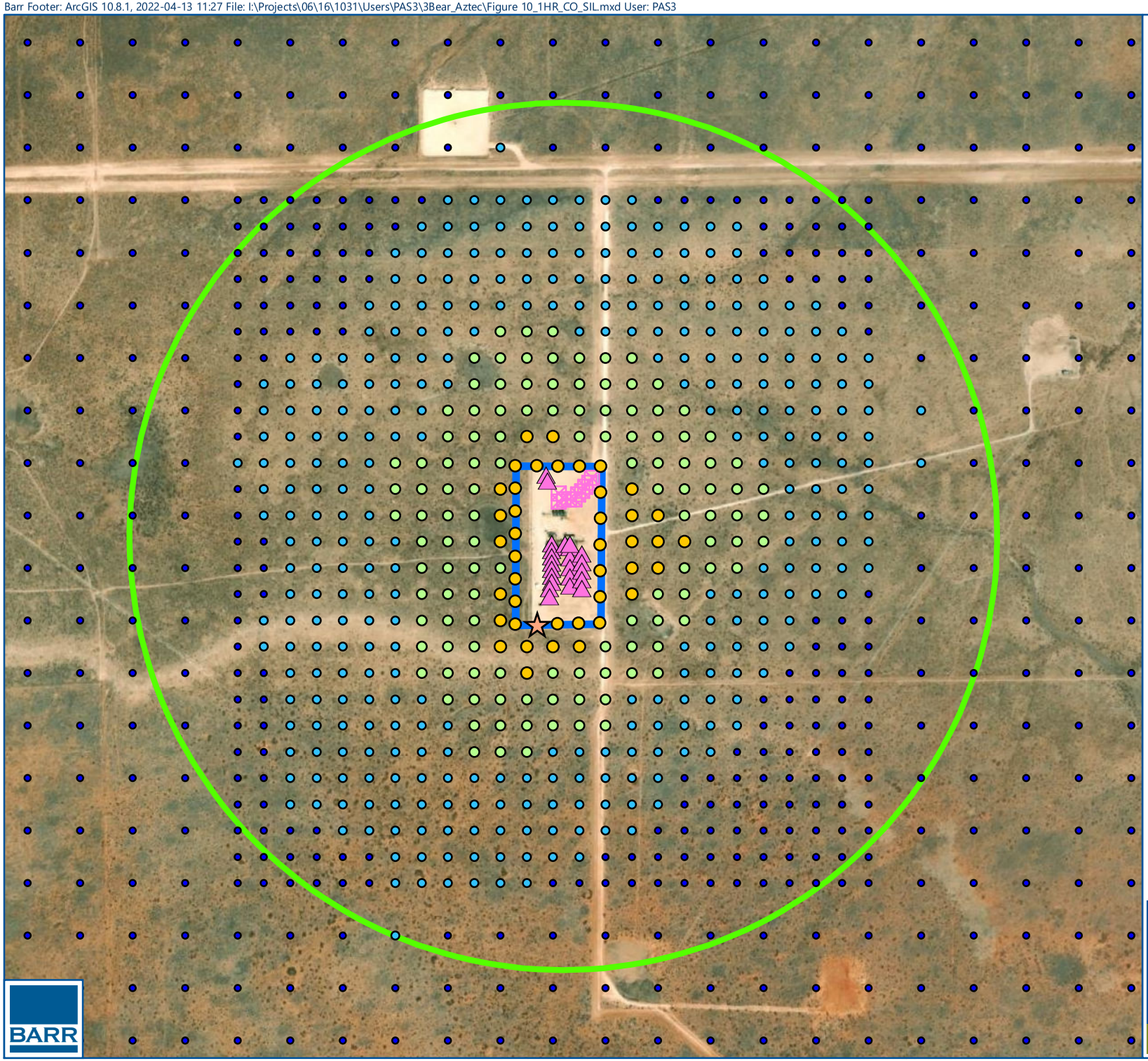


Legend

- 3Bear Aztec - Project
- 3Bear Aztec Road Sources
- Fence Line

SIL

- <100%
- 100% - 200%
- 200% - 400%
- >400%
- Maximum prediction
- $PM_{2.5}$ Radius of Impact

$PM_{2.5}$ 24-hour SIL
Averge of maximum 24-hour concentrations
1.2 µg/m^3

Maximum prediction
6.42 µg/m^3

Receptors > SIL
490

Radius of Impact
0.825 km

N

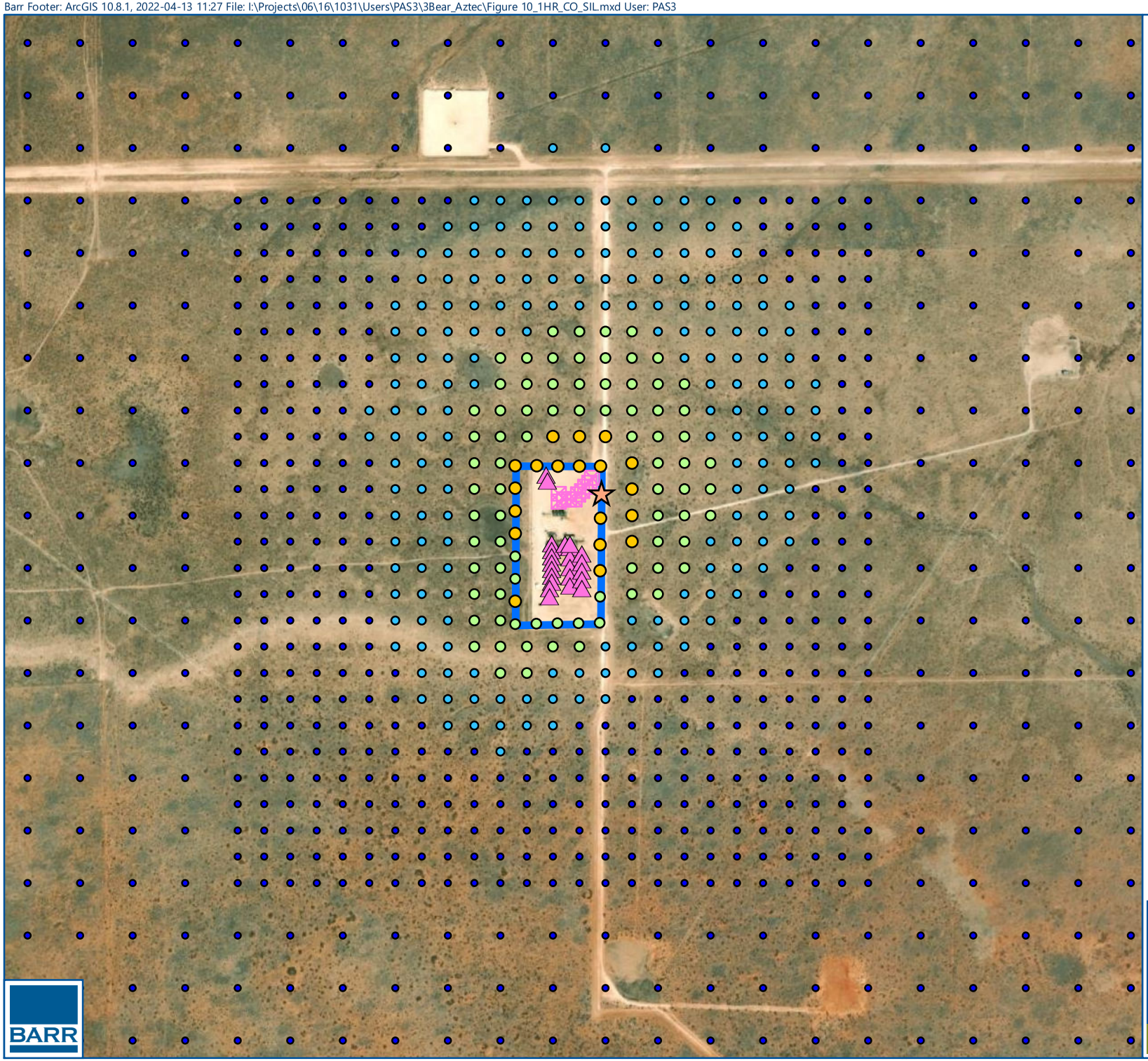
0 100 200 300 400
Meters

3Bear-Aztec CS
24-hourl $PM_{2.5}$
SIL/ROI Results
Lea County, NM
April 15, 2022

FIGURE 20

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



Legend

- 3Bear Aztec - Project
- 3Bear Aztec Road Sources
- Fence Line

SIL

- <100%
- 100% - 200%
- 200% - 400%
- >400%
- Maximum prediction

$PM_{2.5}$ Annual SIL
Averge of annual concentrations
0.2 µg/m^3

Maximum prediction
1.54 µg/m^3

Receptors > SIL
288

N

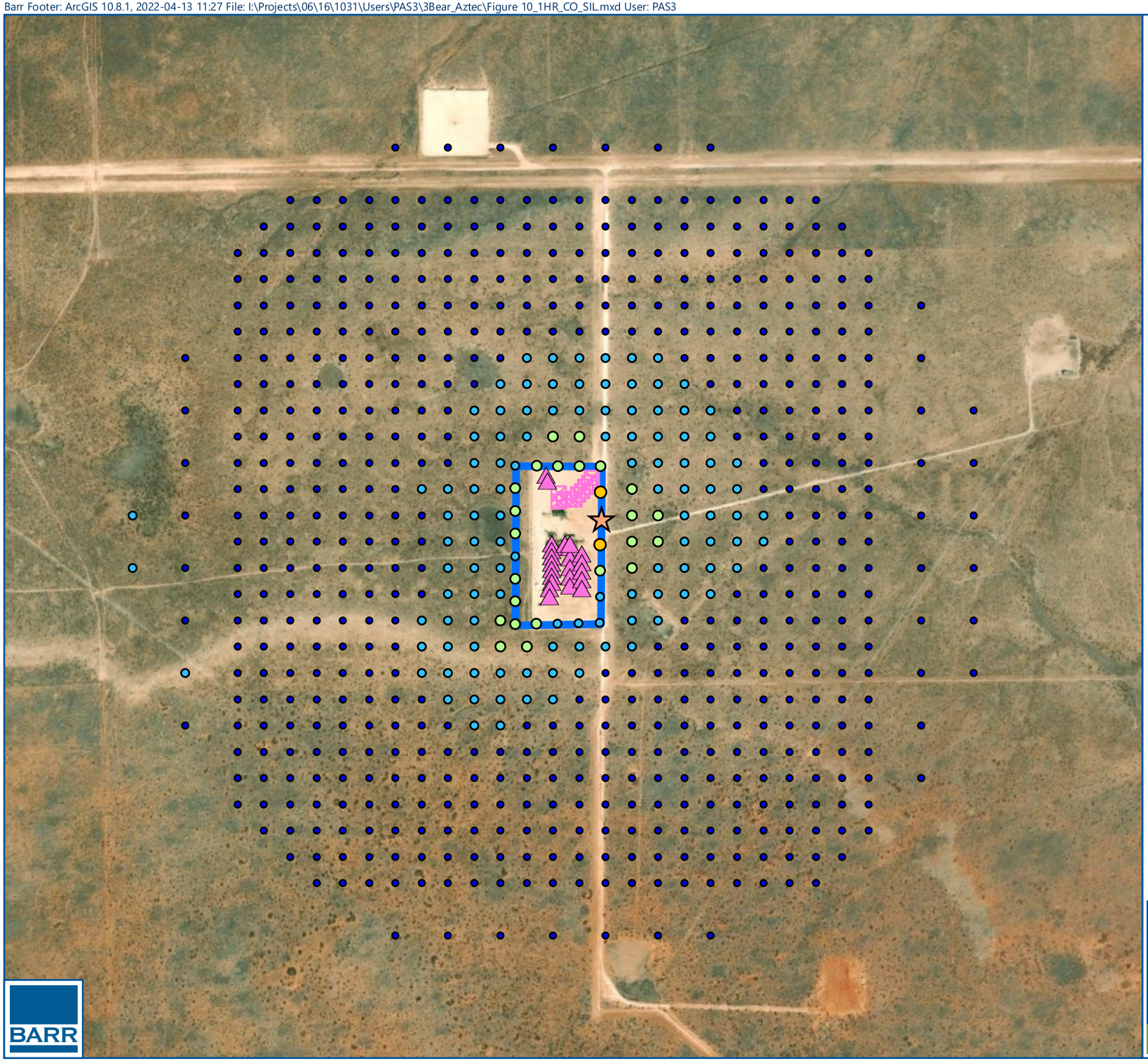
0 100 200 300 400
Meters

3Bear-Aztec CS
Annual $PM_{2.5}$
SIL Results
Lea County, NM
April 15, 2022

FIGURE 21

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



Legend

- 3Bear Aztec - Project
- 3Bear Aztec Road Sources
- Fence Line

NAAQS

- <46%
- 46% - 50%
- 50% - 54%
- >54%
- Maximum prediction

$PM_{2.5}$ 24-hour NAAQS
Average of 8th high
24-hour concentrations
35 µg/m^3

Background concentration
13.4 µg/m^3 (38%)

Maximum prediction
19.3 µg/m^3

N

0 100 200 300 400

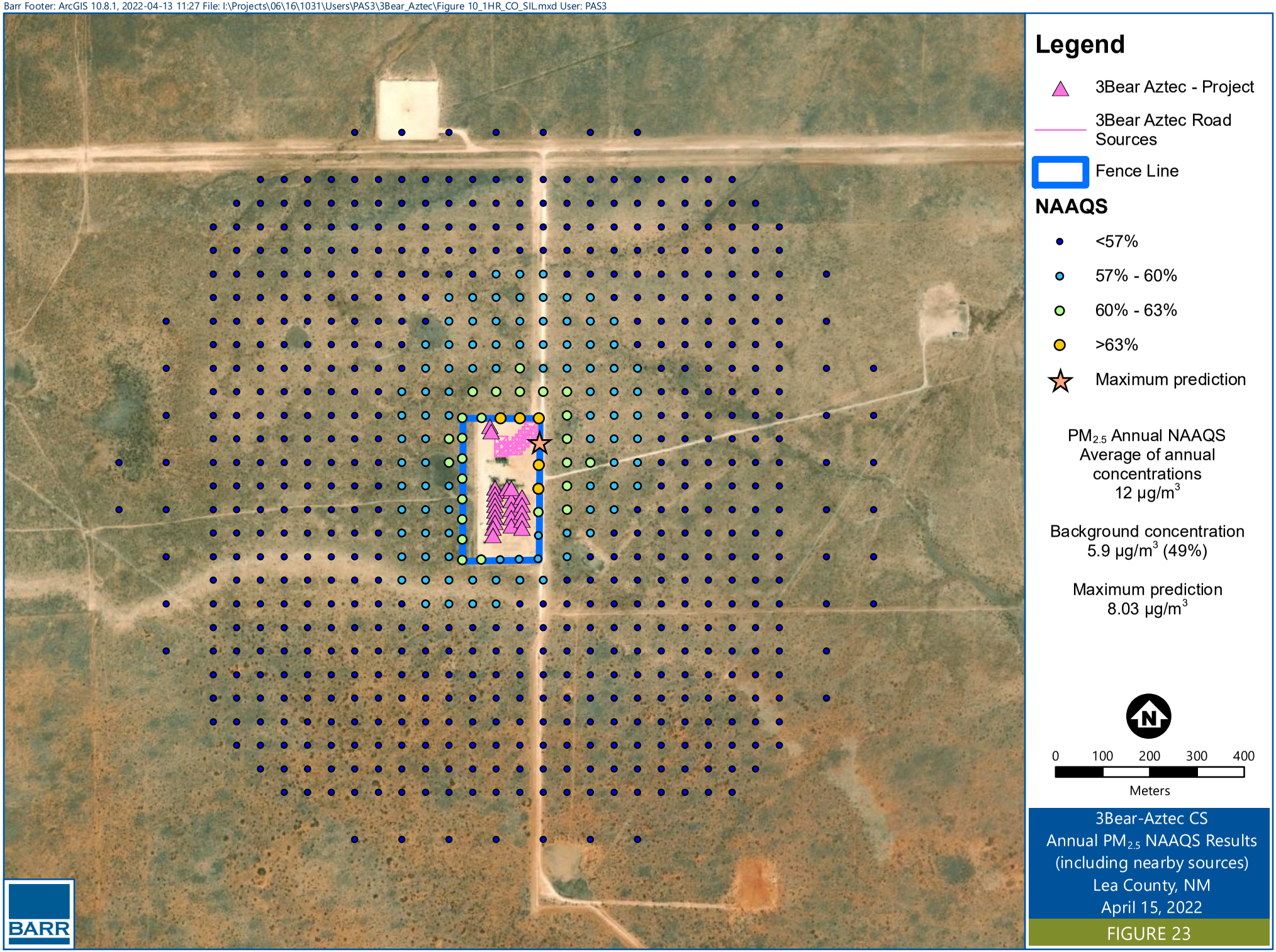
Meters

3Bear-Aztec CS
24-hour $PM_{2.5}$ NAAQS Results
(including nearby sources)
Lea County, NM
April 15, 2022

FIGURE 22

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



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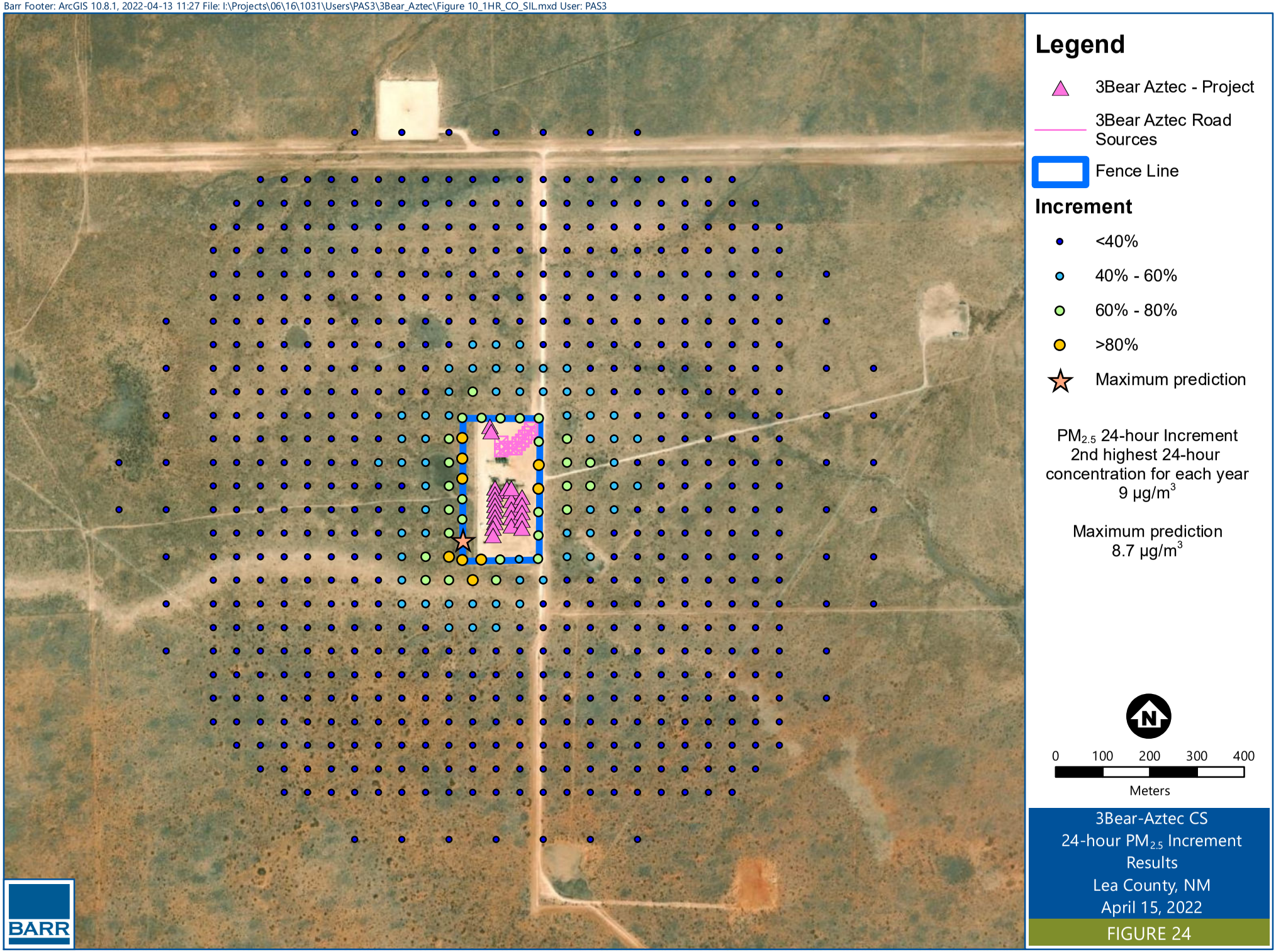

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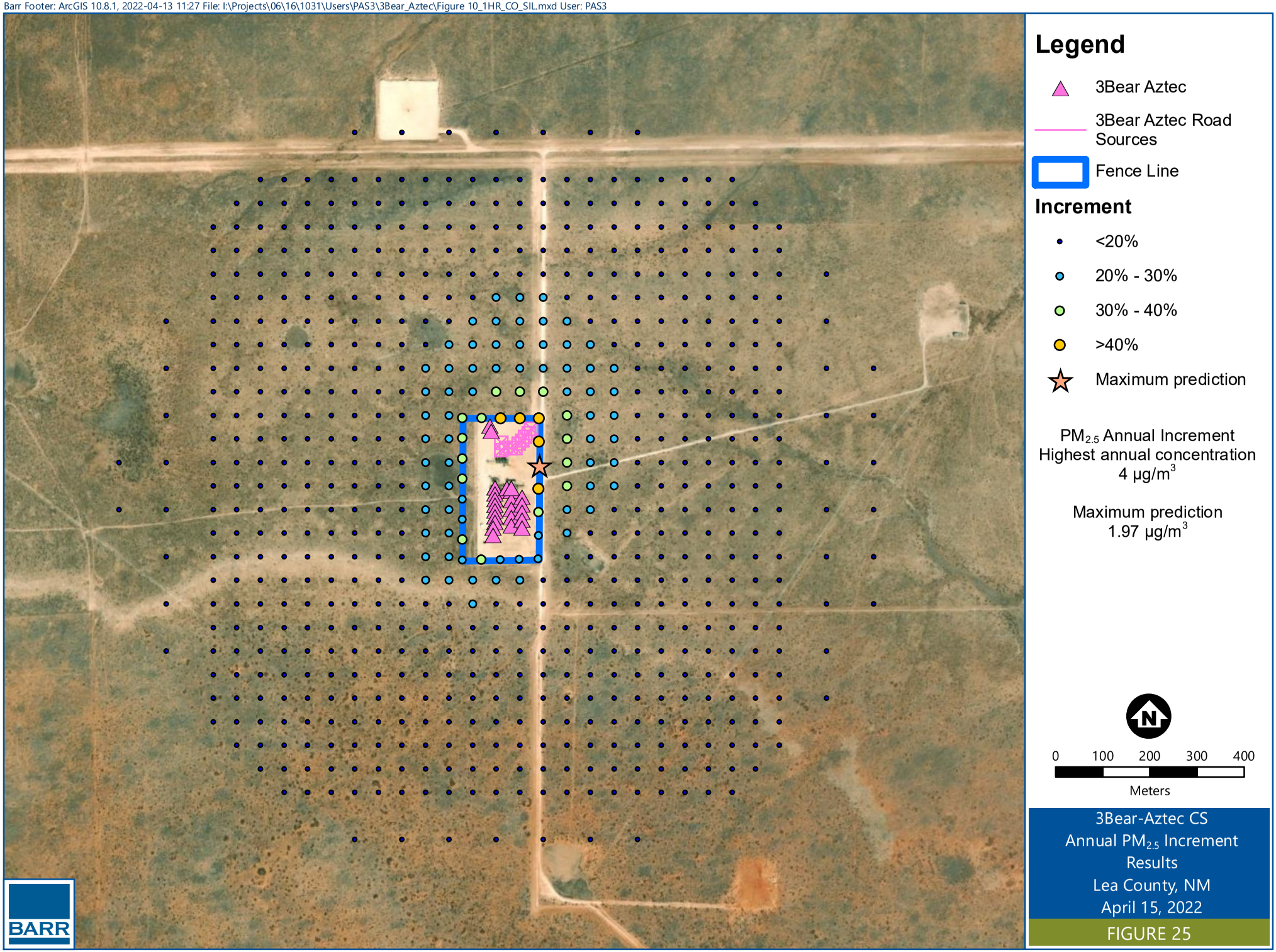
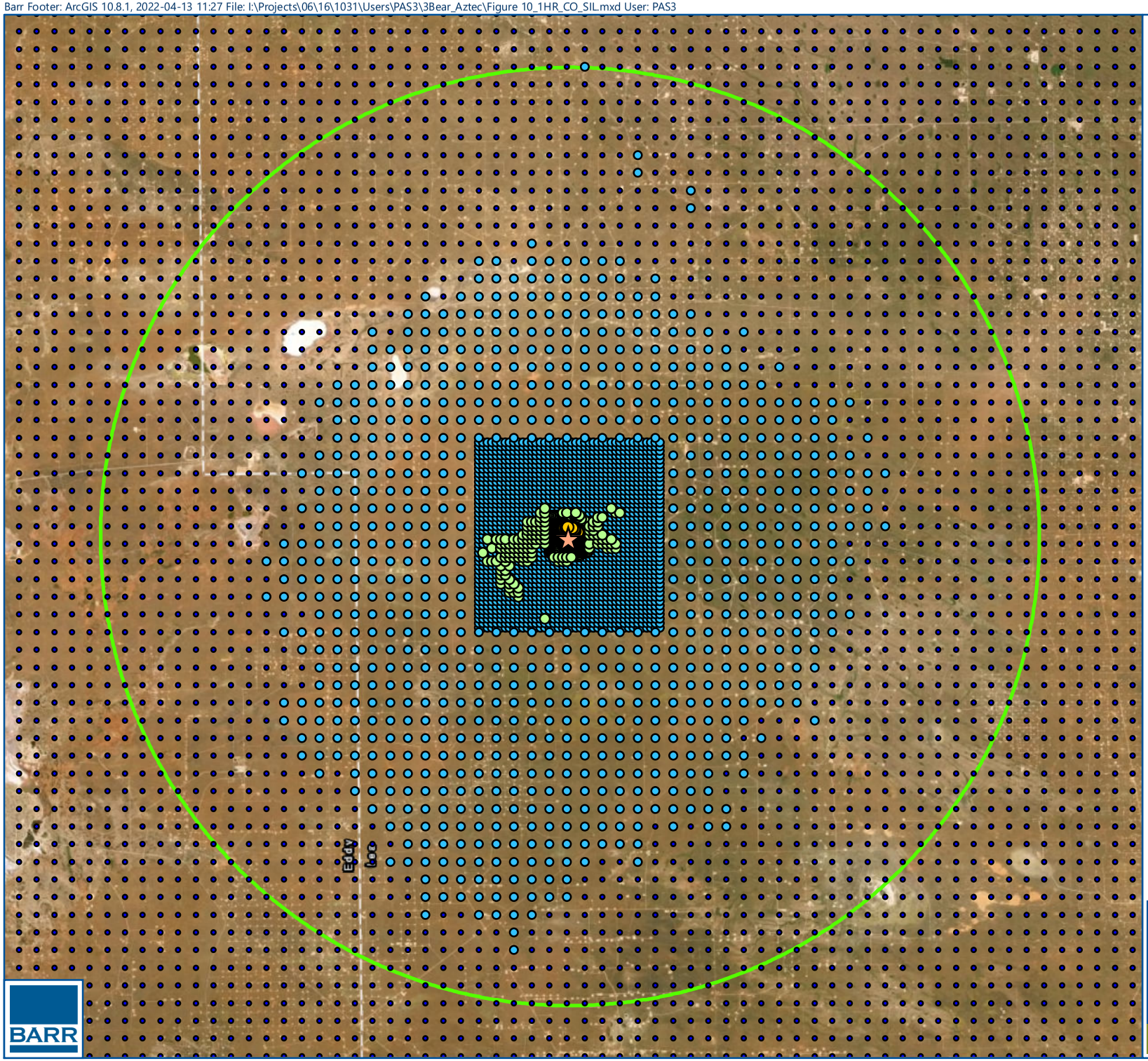




Legend

- 3Bear Aztec- Project

SIL

- <100%
- 100% - 300%
- 300% - 800%
- >800%
- Maximum prediction
- NO_2 Radius of Impact

NO_2 1-hour SIL
Average of daily maximum
1-hour concentrations
7.52 µg/m^3

Maximum prediction
147.7 µg/m^3

Receptors > SIL
3,575

Radius of Impact
26.55 km

N

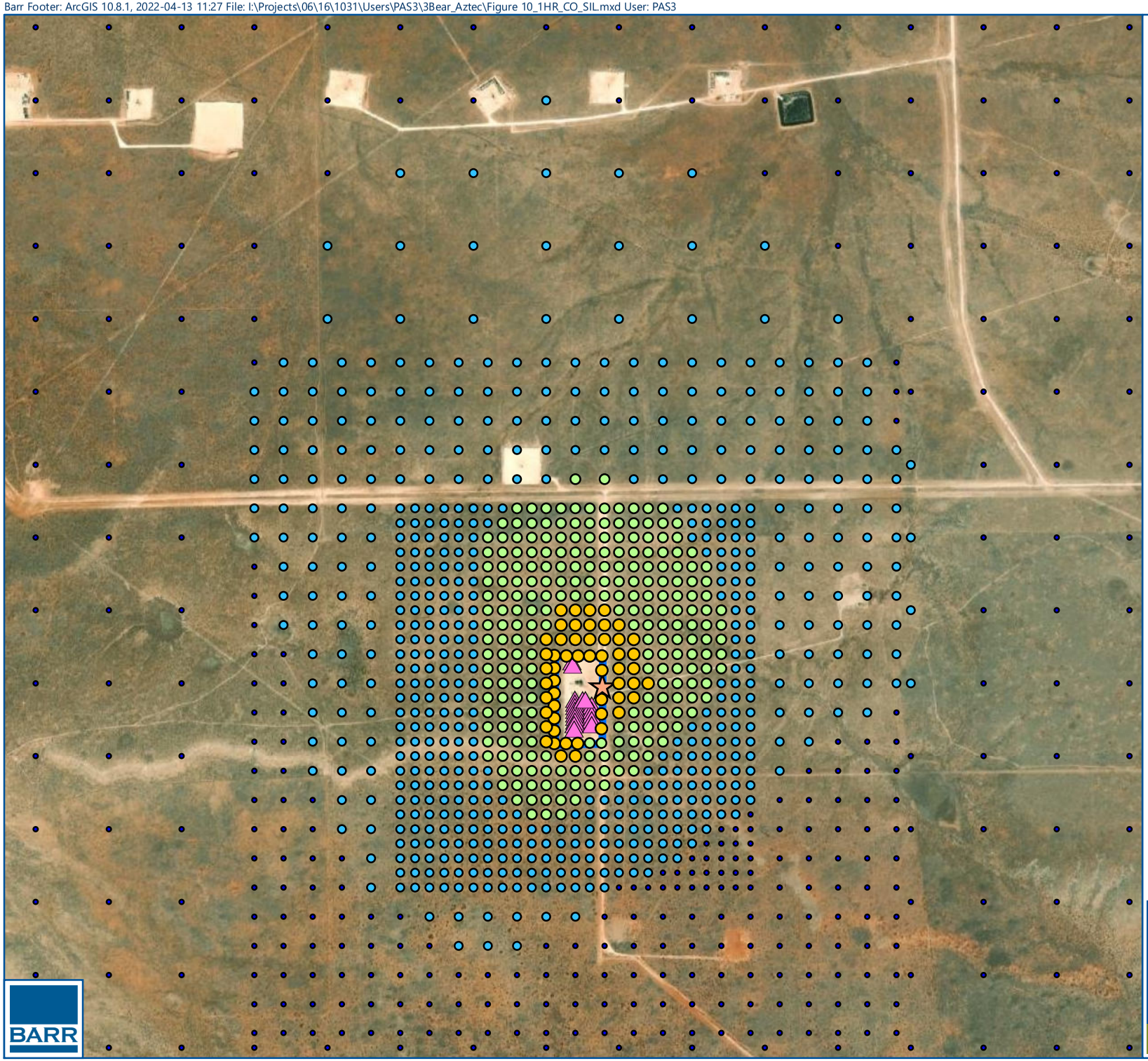
0 3 6 9 12
Kilometers

3Bear-Aztec CS
1-hour NO_2 Significant
Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 26

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



Legend

- 3Bear Aztec-
- Fence Line

SIL

- <100%
- 100% - 300%
- 300% - 800%
- >800%
- Maximum prediction

NO_2 Annual SIL
Maximum annual concentration
1 µg/m^3

Maximum prediction
20.74 µg/m^3

Receptors > SIL
868

N

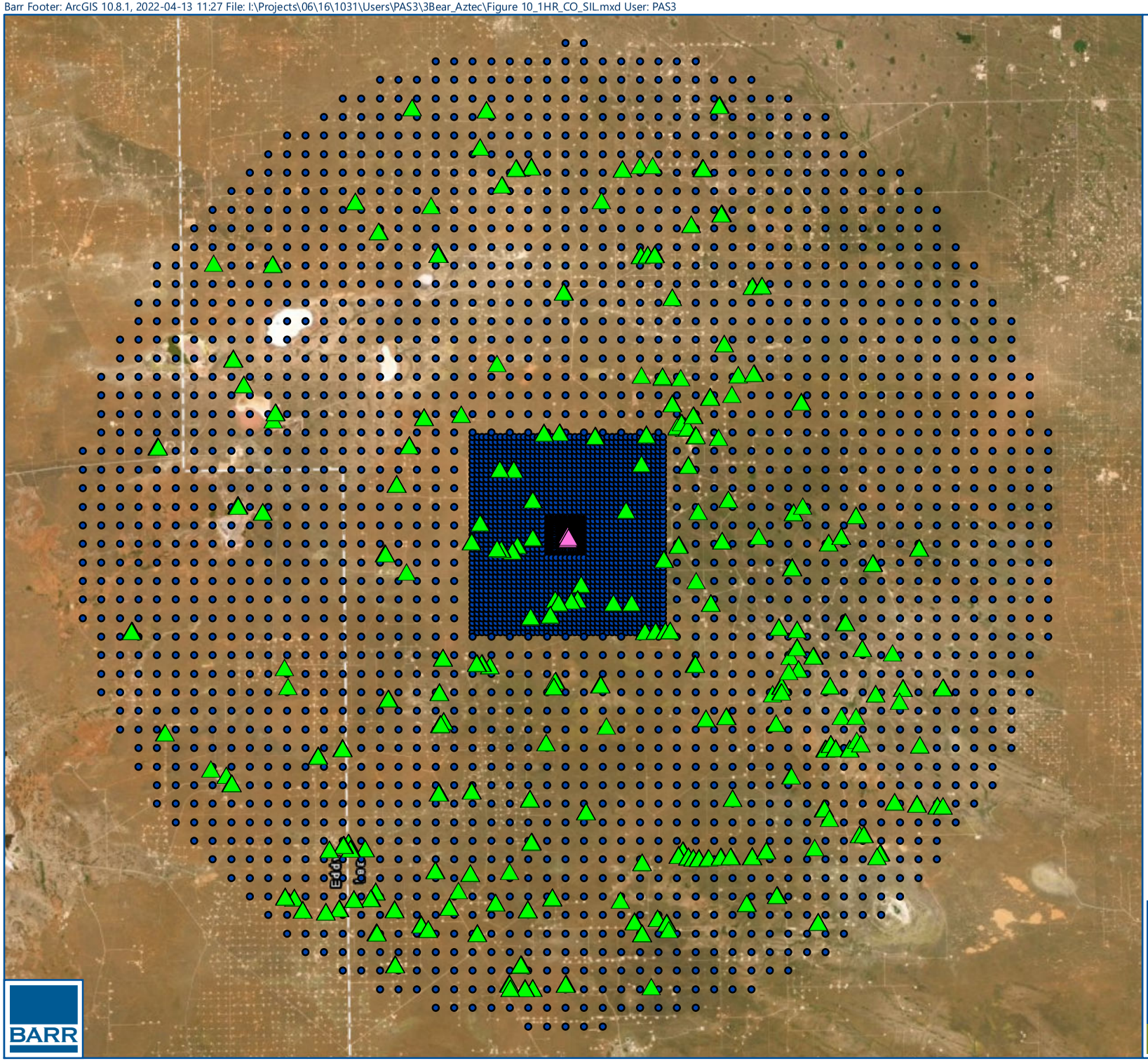
0 200 400 600 800
Meters

3Bear-Aztec CS
Annual NO_2 Significant Impact Level Results
Lea County, NM
April 15, 2022

FIGURE 27

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



Legend

- 3Bear Aztec
- NO_2 Nearby Sources
- NO_2 Cumulative Receptors

NO_2 1-hour NAAQS and Annual Increment Receptors
4,871

N

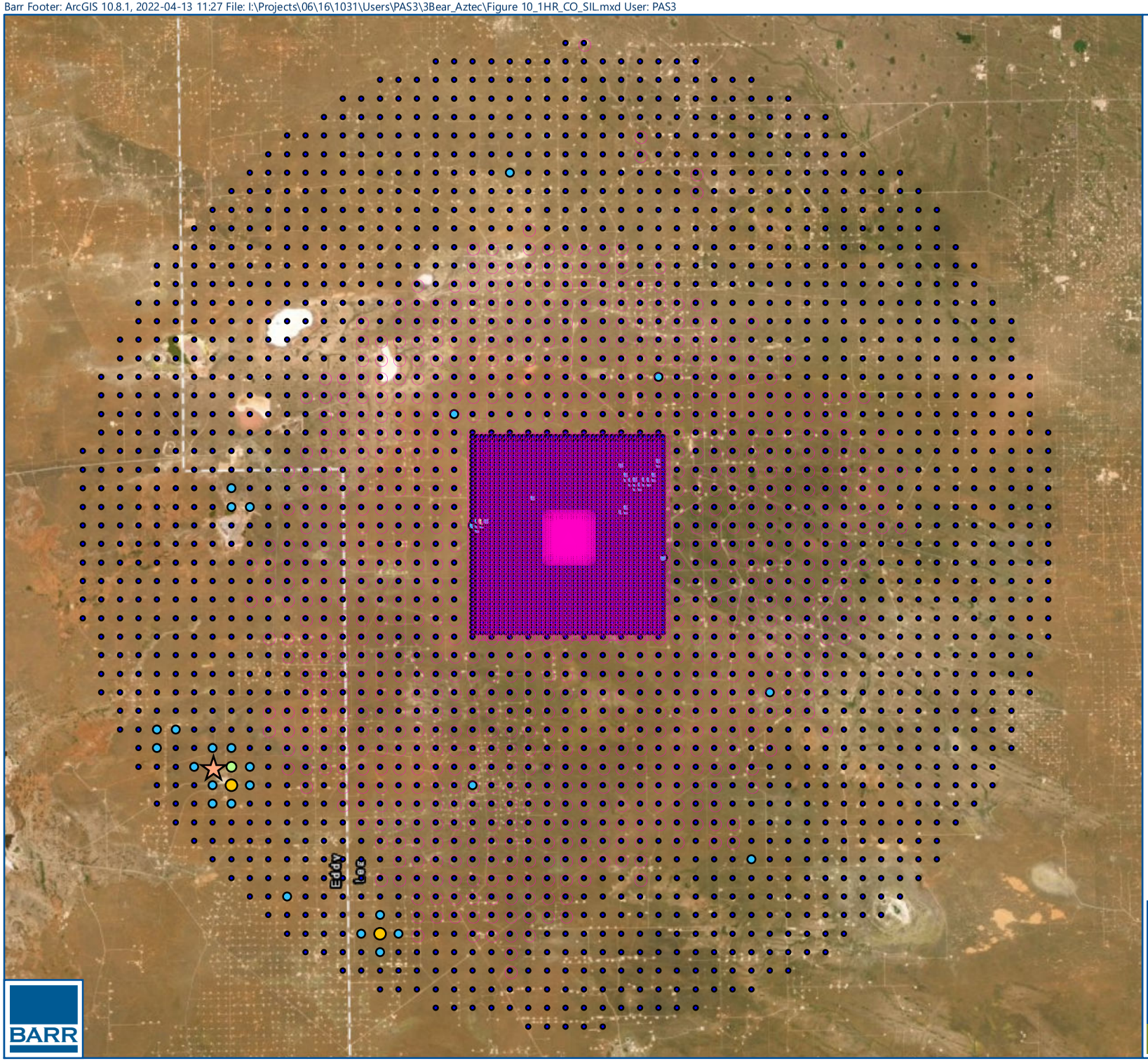
0 3 6 9 12
Kilometers

3Bear-Aztec CS
Nearby NO_2 Sources
and Cumulative Receptors
Lea County, NM
April 15, 2022

FIGURE 28

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



Legend

- 3Bear Aztec

NAAQS

- <50%
- 50% - 75%
- 75% - 100%
- >100%
- Maximum prediction
- 3Bear > SIL

NO_2 1-hour NAAQS
Average of 8th high maximum daily 1-hour concentrations
188 µg/m^3

Maximum prediction
383.2 µg/m^3

Receptors > NAAQS
3

N

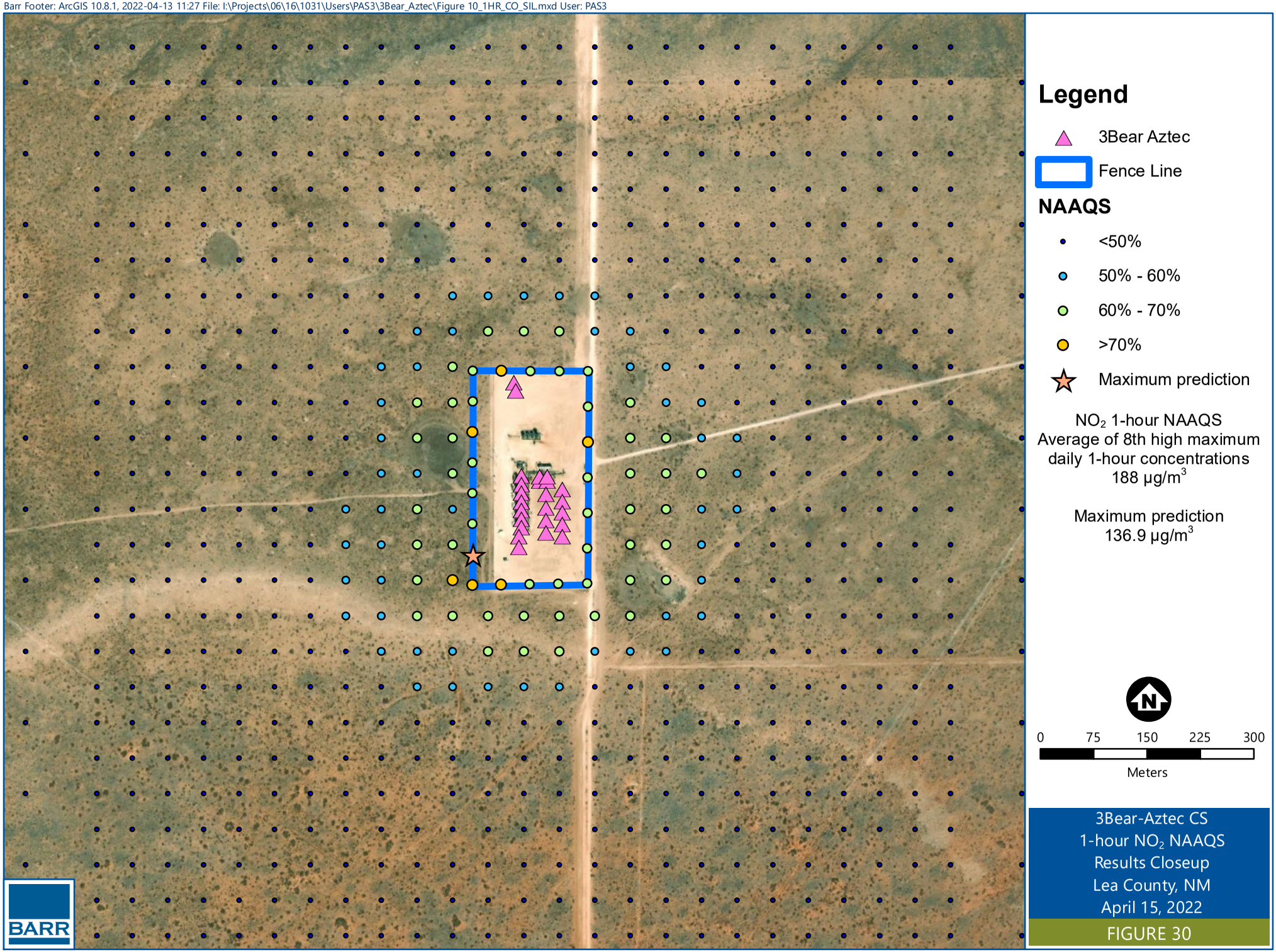
0 3 6 9 12
Kilometers

3Bear-Aztec CS
1-hour NO_2 NAAQS Results
(including nearby sources)
Lea County, NM
April 15, 2022

FIGURE 29

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



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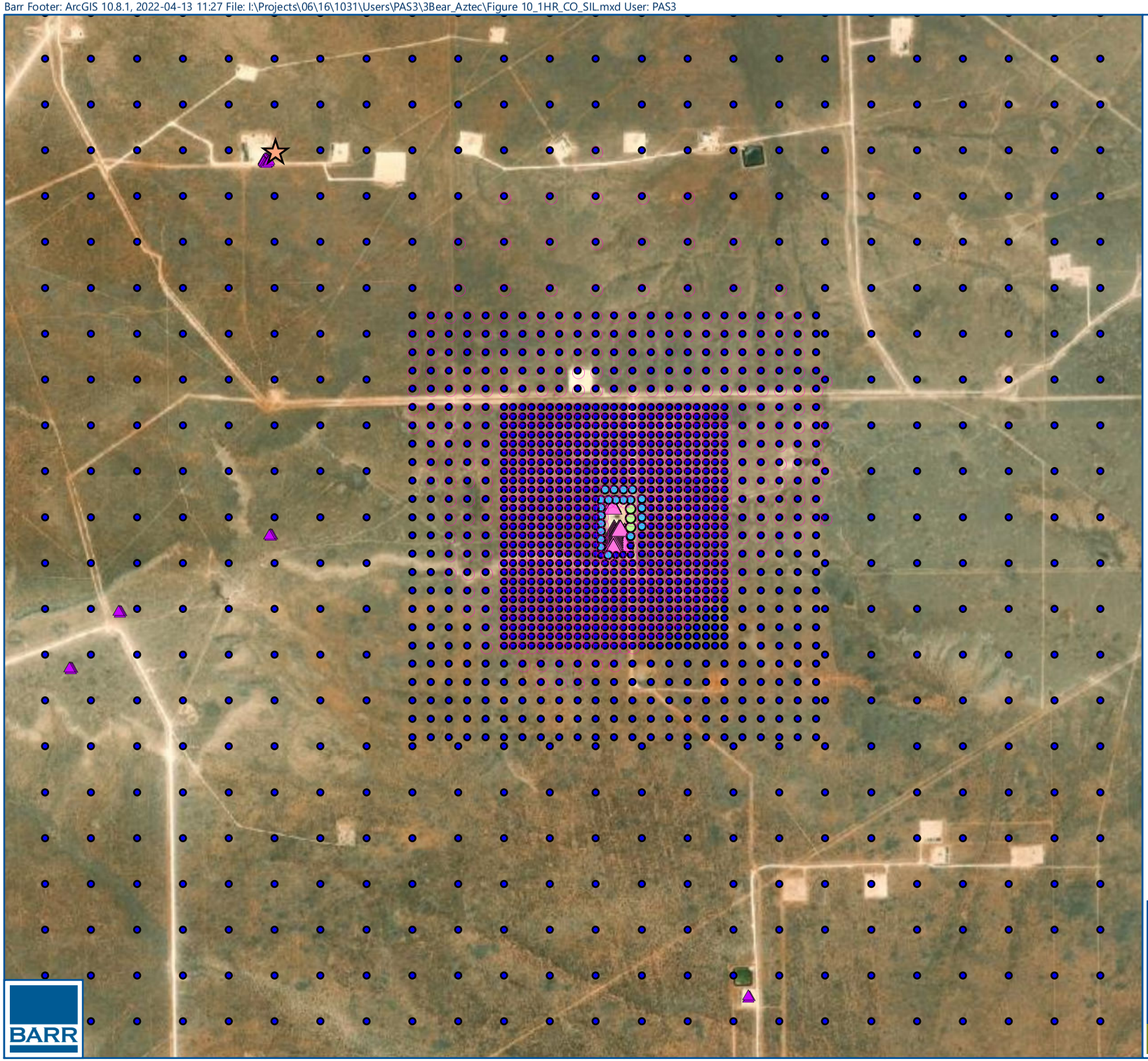


Legend

- 3Bear Aztec
- NO_2 Nearby Sources

Increment

- <50%
- 50% - 75%
- 75% - 100%
- >100%
- Maximum prediction
- 3Bear > SIL

NO_2 Annual Increment
Highest annual concentration
25 µg/m^3

Maximum prediction
26.92 µg/m^3

Receptors > Increment
1

N

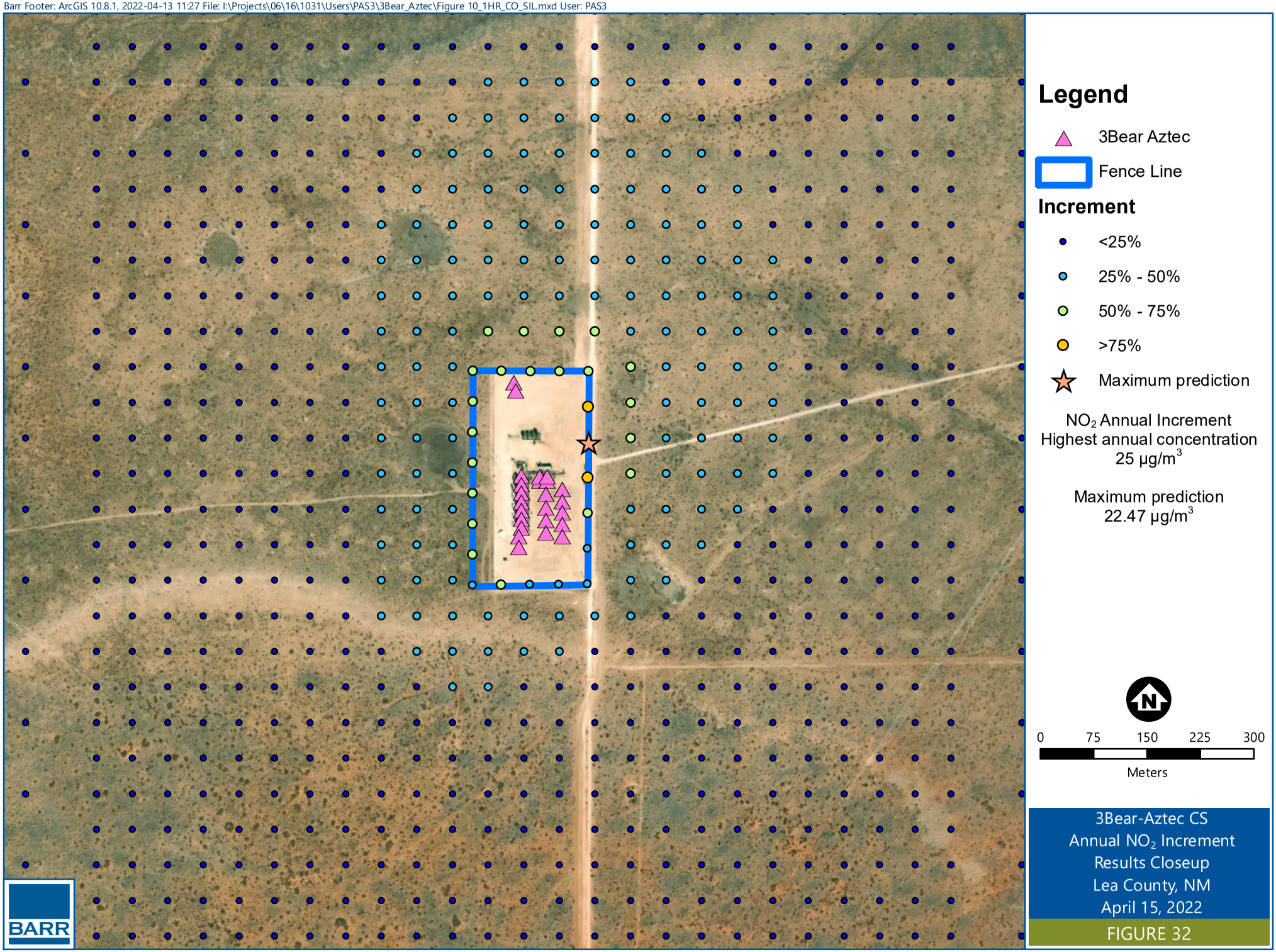
0 300 600 900 1,200
Meters

3Bear-Aztec CS
Annual NO_2 Increment
Results
Lea County, NM
April 15, 2022

FIGURE 32

BARR

Barr Footer: ArcGIS 10.8.1, 2022-04-13 11:27 File: I:\Projects\06\16\1031\Users\PAS3\3Bear_Aztec\Figure 10_1HR_CO_SIL.mxd User: PAS3



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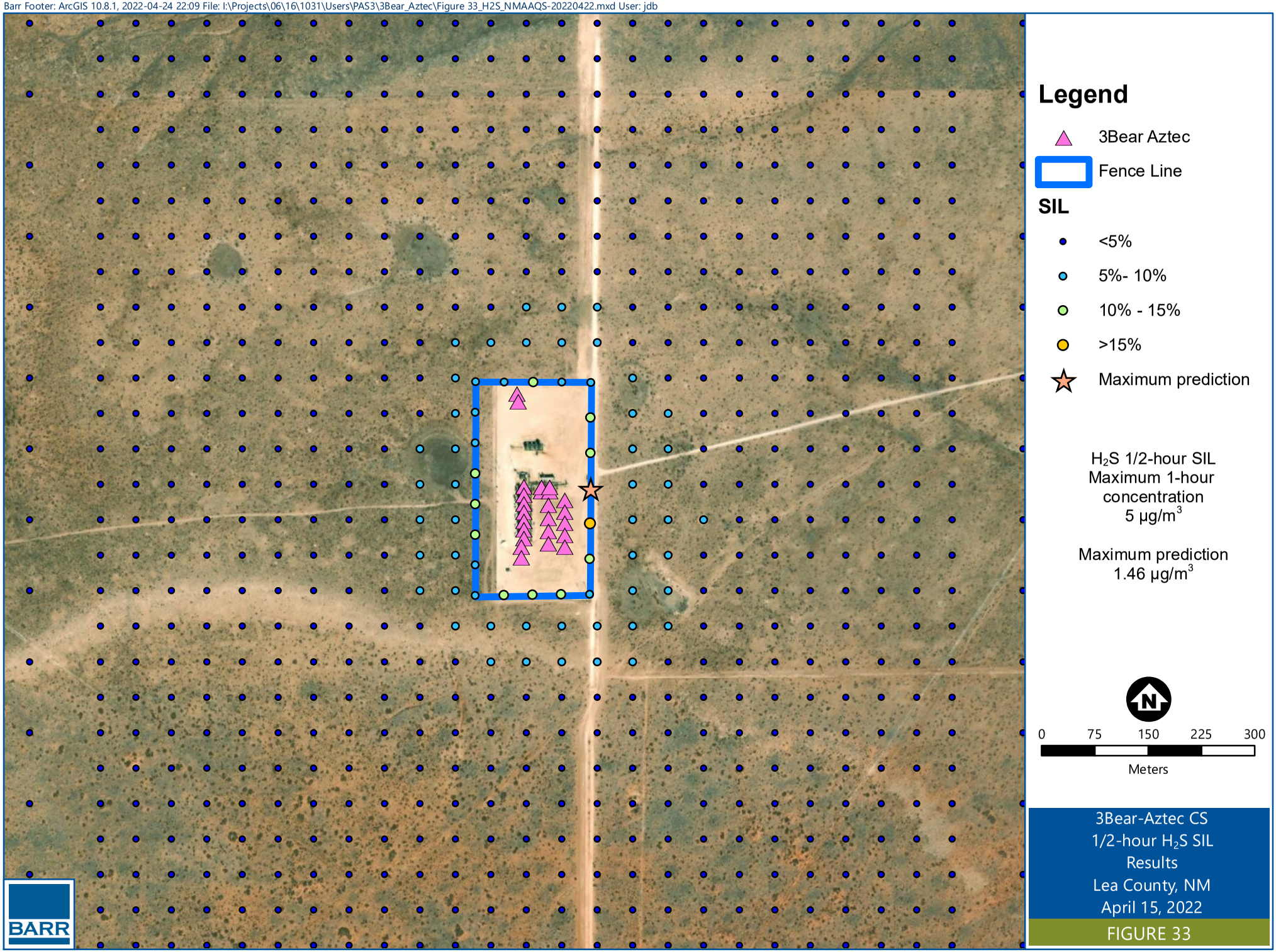

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
ENG-1	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	9/3/2019
ENG-1	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	7/14/2020
ENG-2	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	7/14/2020
ENG-3	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	7/14/2020
ENG-4	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	11/10/2020
ENG-5	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	11/10/2020
ENG-6	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	11/10/2020
ENG-1	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	7/13/2021
ENG-2	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	7/13/2021
ENG-3	Tested in accordance with EPA test methods for NOx and CO as required by NSR permit 7496M1.	7/13/2021

Section 20

Other Relevant Information

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

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

.
None.

Section 22: Certification

Company Name: 3 Bear Delaware Operating – NM, LLC

I, Liz Klein, 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 19 day of APRIL, 2022 upon my oath or affirmation, before a notary of the State of

_____.

*Signature

Date 4/19/2022

Liz Klein
Printed Name

Director, EHS Regulatory Compliance
Title

Scribed and sworn before me on this 19th day of April, 2022.

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

8th day of May, 2022.

Notary's Signature

Date 4.19.2022

Robin G. Machholz
Notary's Printed Name

Robin G Machholz
Notary Public
State of Colorado
Notary ID 20024015288
My Commission Expires May 08, 2022

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