20.2.72 NMAC
AIR QUALITY
PERMIT MODIFICATION
APPLICATION

For

NSR PERMIT NO. 8886
MCKINLEY PAPER COMPANY

PREWITT MILL
Prewitt, NM

PREPARED BY
MONTROSE AIR QUALITY SERVICES, LLC
ALBUQUERQUE, NM
JUNE 2022

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 **X** Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC **X** 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:

X 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.

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

X Check No.: 4150 in the amount of $500

X 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.

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

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): 39617	Updating Permit/NOI #:8886
1	Facility Name: McKinley Paper Company – Prewitt Mill	Plant primary SIC Code (4 digits): 2621	
		Plant NAIC code (6 digits): 322121	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 295 County Road 19, Prewitt, NM		
2	Plant Operator Company Name: McKinley Paper Company	Phone/Fax: (505) 972-2100	
a	Plant Operator Address: 295 County Road 19, Prewitt, NM		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 85-0403462	
3	Plant Owner(s) name(s): Bio Pappel S.A.B. de C.V.	Phone/Fax: (505) 972-2146
a	Plant Owner(s) Mailing Address(s): 7850 Jefferson NE, Suite 150, Albuquerque, NM 87109	
4	Bill To (Company): McKinley Paper Company	Phone/Fax: (505) 972-2100
a	Mailing Address: County Road 19, PO Box 100,Prewitt NM, 87045	E-mail: irosas@biopappel.com
5	☐ Preparer: **X** Consultant: Paul Wade, Montrose Air Quality Services, LLC	Phone/Fax: (505) 830-9680 x6 / (505) 830-9678
a	Mailing Address: 3500G Comanche Rd NE, Albuquerque, NM 87110	E-mail: pwade@montrose-env.com
6	Plant Operator Contact: Cesar Soria	Phone/Fax: (505) 972-2110
a	Address: County Road 19, PO Box 100,Prewitt NM, 87045	E-mail: csoria@biopappel.com
7	Air Permit Contact: Michael Hooker	Title: Safety & Environmental Manager
a	E-mail: mhooker@biopappel.com	Phone/Fax: (505) 972-2126
b	Mailing Address: County Road 19, PO Box 100,Prewitt NM, 87045	
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? **X** Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? **X** 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 **X** 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 **X** No
3	Is the facility currently shut down? ☐ Yes **X** 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 **X** 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 **X**N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☐ Yes **X** No	If yes, the permit No. is: P-
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes **X** No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes **X** No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? **X** Yes ☐ No	If yes, the permit No. is: 8886
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☐ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly:	Daily: 900 tons old corrugated cardboard	Annually: 266,450 tons old corrugated cardboard
b	Proposed	Hourly:	Daily: 900 tons old corrugated cardboard	Annually: 266,450 tons old corrugated cardboard
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:	Daily: 828 tons recycled finish product	Annually: 245,134 tons recycled finish product

b	Proposed	Hourly:	Daily: 828 tons recycled finish product	Annually: 245,134 tons recycled finish product

Section 1-D: Facility Location Information

1	Section: 26,27	Range: 12W	Township: 14N	County: McKinley	Elevation (ft): 6,900
2	UTM Zone: **X** 12 or ☐ 13			Datum: ☐ NAD 27 **X** NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 764,580			UTM N (in meters, to nearest 10 meters): 3,922,480	
b	**AND** Latitude (deg., min., sec.): 35°, 24', 38.2050" N			Longitude (deg., min., sec.): 108°, 05', 10.7866" W	
3	Name and zip code of nearest New Mexico town: Prewitt, 87045				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Prewitt travel north on County Road 19 for 3 miles. Turn west at the entrance to McKinley Paper Company and travel to the site.				
5	The facility is 3.9 (distance) miles Northwest (direction) of Prewitt, NM (nearest town).				
6	Status of land at facility (check one): **X** 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: McKinley County, Navajo Indian Reservation				
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 **X** No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:				
9	Name nearest Class I area: San Pedro Parks Wilderness Area				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 129.66 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: The nearest occupied structure is approximately 250 meters east-northeast from the MPC facility boundary. The Tri-State Prewitt Escalante Generating Station office and Salt River Material Group Transloading Facility, another industrial facilities, are located adjacent to the MPC. The nearest residence is 2.3 miles east-northeast of MPC facility boundary.				
12	Method(s) used to delineate the Restricted Area: Area is fenced "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start:		☐AM ☐PM	End:	☐AM ☐PM	
3	Month and year of anticipated start of construction: NA					
4	Month and year of anticipated construction completion: NA					
5	Month and year of anticipated startup of new or modified facility: NA					
6	Will this facility operate at this site for more than one year? **X** 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 **X** 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 **X** 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? **X** 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 **X** No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? **X** 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** **X Minor** (**X** <10 tpy of any single HAP **AND** **X** <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes **X** No		
a	If yes, include the name of company providing commercial electric power to the facility: _____ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

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

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." **X** 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: Laguna Pueblo – 53 km; Acoma Pueblo – 48 km; Ramah Navajo Indian Reservation – 37 km; Zuni Reservation – 42 km; Navajo Nation – 7.5 km

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

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

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

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

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

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

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

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

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

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

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

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

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Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Paved Roads	N/A	N/A	N/A	N/A	70 Trips/Day 25,550 Trips/Year	6/1/1994 6/1/1994	NA NA	30700 499	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit X To Be Modified ☐ To be Replaced		
2	OCP Pulping Process	Various	Various	Various	N/A	900 tons/day	6/1/1994 6/1/1994	NA NA	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
3	Finish Paper Machine	Various	Various	Various	N/A	828 tons/day	6/1/1994 6/1/1994	NA NA	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
4	Plant Water Treatment Chemicals	N/A	N/A	N/A	N/A	Varies	6/1/1994 6/1/1994	NA NA	30700 499	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit X To Be Modified ☐ To be Replaced		
5	Water Recovery Cooling Tower	Marley	NC9221 BS	111007001-NC92218S-97	1,360 gpm	1,360 gpm	6/1/1994 6/1/1994	NA S1	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
6	Vacuum Pump Cooling Tower	Marley	369-102	369-102-35005	1,300 gpm	1,300 gpm	6/1/1994 6/1/1994	NA S2	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
7	Alley Cooling Tower	Marley	Primus	243501-P15F 0 - 2004	850 gpm	850 gpm	6/1/1994 6/1/1994	NA S3	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
8	Soda Ash Silo	N/A	N/A	N/A	25 TPY	3,203 TPY	1984 1984	C1 S4	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
9	Soda Ash Silo Unloading	N/A	N/A	N/A	3,203 TPY	3,203 TPY	1984 1984	C2 NA	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
10	Lime Silo	N/A	N/A	N/A	25 TPY	2,212 TPY	1984 1984	C3 S5	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
11	Lime Silo Unloading	N/A	N/A	N/A	2,212 TPY	2,212 TPY	1984 1984	C4 NA	30700 499	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
12	Main Steam Boiler	Cleaver Brooks	CP-NB-500-95	CP-4653	166.8 MMBtu/hr	166.8 MMBtu/hr	2020 2021	NA S6	30700 499	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit X To Be Modified ☐ To be Replaced		
13	Auxiliary Steam Boiler	ABCO	Fired D-Type	N/A	190 MMBtu/hr	190 MMBtu/hr	1993 1993	NA S7	30700 499	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit X To Be Modified ☐ To be Replaced		

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
T1	Diesel Tank	Hughes Tank Co.	N/A	500	20.2.72.202.B(2)	1994	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	Gallon		1994	
14	Fire Pump Engine	John Deer	6081HF001	375	20.2.72.202.A(4) & 20.2.72.202.B(3)	6/1/1994	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			RG6081H178072	BHP		6/1/1994	
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
C1	Soda Ash Silo Dust Collector	1984	PM	8	99.5%	PEGS Permit Limit
C2	Soda Ash Silo Unloading Building Enclosure	1984	PM	9	80.0%	PEGS Permit Limit
C3	Lime Silo Dust Collector	1984	PM	10	99.5%	PEGS Permit Limit
C4	Lime Silo Unloading Building Enclosure	1984	PM	11	80.0%	PEGS Permit Limit

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	-	-	-	-	-	-	-	-	0.32	1.51	0.063	0.30	0.016	0.074	-	-	-	-
2	-	-	-	-	0.45	1.97	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	2.02	8.86	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	0.011	0.047	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	0.13	0.59	0.11	0.49	0.00031	0.0013	-	-	-	-
6	-	-	-	-	-	-	-	-	0.026	0.11	0.023	0.10	0.00013	0.00059	-	-	-	-
7	-	-	-	-	-	-	-	-	0.096	0.42	0.080	0.35	0.00022	0.0010	-	-	-	-
8	-	-	-	-	-	-	-	-	18.25	1.17	11.75	0.75	1.18	0.075	-	-	-	-
9	-	-	-	-	-	-	-	-	0.0037	0.016	0.0017	0.0076	0.00026	0.0012	-	-	-	-
10	-	-	-	-	-	-	-	-	18.25	0.81	11.75	0.52	1.18	0.052	-	-	-	-
11	-	-	-	-	-	-	-	-	0.0025	0.011	0.0012	0.0053	0.00018	0.00080	-	-	-	-
12	16.7	73.1	6.17	27.0	0.93	4.09	0.36	1.59	1.29	5.65	1.29	5.65	1.29	5.65	-	-	8.50E-05	3.70E-04
13	19.0	83.2	17.4	76.2	1.06	4.66	0.41	1.81	1.47	6.43	1.47	6.43	1.47	6.43	-	-	9.70E-05	4.20E-04
Totals	35.68	156.3	23.57	103.2	4.47	19.63	0.77	3.40	39.84	16.72	26.54	14.60	5.14	12.29	-	-	1.82E-04	7.90E-04

[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 [2]		CO [2]		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	-	-	-	-	-	-	-	-	0.32	1.51	0.063	0.30	0.016	0.074	-	-	-	-
2	-	-	-	-	0.45	1.97	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	2.02	8.86	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	0.011	0.047	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	0.13	0.59	0.11	0.49	0.00031	0.0013	-	-	-	-
6	-	-	-	-	-	-	-	-	0.026	0.11	0.023	0.10	0.00013	0.00059	-	-	-	-
7	-	-	-	-	-	-	-	-	0.096	0.42	0.080	0.35	0.00022	0.0010	-	-	-	-
8	-	-	-	-	-	-	-	-	0.091	0.0058	0.059	0.0038	0.014	0.00092	-	-	-	-
9	-	-	-	-	-	-	-	-	0.00074	0.0032	0.00035	0.0015	5.3E-05	0.00023	-	-	-	-
10	-	-	-	-	-	-	-	-	0.091	0.0040	0.059	0.0026	0.014	0.00064	-	-	-	-
11	-	-	-	-	-	-	-	-	0.00051	0.0022	0.00024	0.0011	3.6E-05	0.00016	-	-	-	-
12	16.7	73.1	6.17	27.0	0.93	4.09	0.36	1.59	1.29	5.65	1.29	5.65	1.29	5.65	-	-	8.50E-05	3.70E-04
13	19.0	83.2	17.4	76.2	1.06	4.66	0.41	1.81	1.47	6.43	1.47	6.43	1.47	6.43	-	-	9.70E-05	4.20E-04
Totals	35.7	<95	23.57	<95	4.47	19.63	0.77	3.40	3.52	14.73	3.15	13.33	2.80	12.16	-	-	1.82E-04	7.90E-04

[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] NOx and CO annual emissions limits will be monitored to less than 95 tons per year by the CEMs for NOx and actual hours of operation for CO.

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

X 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
NA																		
Totals																		

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		□ H_2S or □ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
NA																	
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)			
S1	5	V	N	14	72	3393	NA	NA	30	12.00
S2	6 (2 Cells)	V	N	14	72	1508	NA	NA	30	8.00
S3	7	V	N	14	72	3116	NA	NA	30	11.50
S4	8	H	N	40	ambient	28.2	NA	NA	28	1.13
S5	10	H	N	40	ambient	28.2	NA	NA	28	1.13
S6	12	V	N	50	292	1237	565	10.5	63	5.00
S7	13	V	N	50	330	1237	565	10.5	63	5.00

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

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

Stack No.	Unit No.(s)	Total HAPs		Acetaldehyde X HAP or □ TAP		Formaldehyde X HAP or □ TAP		Hexane X HAP or □ TAP		Methanol X HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP		Provide Pollutant Name Here □ HAP or □ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
	2	0.46	1.62	0.044	0.15	0.0052	0.018			0.095	0.34								
	3	2.16	7.67	0.42	1.48	0.36	1.27			0.75	2.66								
S6	12	0.32	1.40			0.013	0.056	0.31	1.34										
S7	13	0.36	1.60			0.014	0.063	0.35	1.52										
Totals:		3.30	12.29	0.46	1.63	0.39	1.41	0.66	2.86	0.85	3.00								

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
12	Natural Gas	pipeline natural gas	983 Btu/scf	169,685 scf	1486.4 MMscf	0.75 grains/100 scf	Negligible
13	Natural Gas	pipeline natural gas	983 Btu/scf	193,286 scf	1693.2 MMscf	0.75 grains/100 scf	Negligible

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T1		Diesel	Diesel	7.05	130	58	0.0072	66	0.0092

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			
T1	1994	Diesel	FX	NA	11.9	0.045	1.22	0.1	WH	WH	Good	9,650	19

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)**
OCC "Old Corrugated Carboard"	Recycled Cardboard	Solid	900 tons/day 266,450 tons/yr	Finished Paper	Refurbished Cardboard Stock	Solid	828 tons/day 245,134 tons/yr
				Waste	Waste	Solid	72 tons/day 21,316 tons/yr

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
12	NO_X	Teledyne	T200	7028	Continuous	1 to 10 sec.	0 - 500ppm	< 30 sec to 95%	<1 ppb
	CO_2	Teledyne	T360	460	Continuous	3 sec.	0 -20 %	1 % of full scale 25 hr	1% of full scale
13	NO_X	Monitor Labs	ML9841A	4016.4006	Continuous	1 to 10 sec.	0 - 500ppm	< 30 sec to 95%	<1 ppb
	CO_2	California Analytical	ZRH	N3L6050T	Continuous	3 sec.	0 -20 %	1 % of full scale 25 hr	1% of full scale

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
NA								

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
12	mass GHG	85,397	0.16	1.61											85,399	
	CO_2e	85,397	48	40												85,485
13	mass GHG	97,275	0.18	1.83											97,277	
	CO_2e	97,275	55	46												97,376
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
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	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
Total	mass GHG	182,672	0.34	3.4											182,676	
	CO_2e	182,672	103	86												182,861

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

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

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

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

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

Section 3

Application Summary

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

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

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

McKinley Paper Company (MPC) Prewitt Mill is a paper mill located north of Prewitt, New Mexico and has been in commercial production since June 1, 1994. MPC's parent company is Bio Pappel S.A.B. de C.V. MPC's physical location is latitude 35°, 24', 38.21" N and longitude 108°, 05', 10.79" W, NAD83, which is approximately 3.9 miles northwest of Prewitt, NM in McKinley County (see Figure 8-1). Presently, the MPC facility operates under Permit #8886 issued 11/12/2020. With this application, MPC is applying per 20.2.72.200.A(2) NMAC for proposing permit modifications to the facility.

When the PEGS coal-fired boiler, shut-down in October 2020, steam was provided to MPC by a new natural-gas fired boiler, with the auxiliary boiler as backup. Ownership and operation of the auxiliary boiler has now transferred to MPC from Tri-State. In addition to acquiring the auxiliary boiler from Tri-State, MPC obtained the water treatment plant (Unit 75 – Soda Ash Silo & Unit 76 – Lime Silo) from Tri-State. The two (2) natural gas-fired steam boilers are subject to EPA regulation 40 CFR 60 Subpart Db. After nearly a year of operation, MPC is seeking this permit modification to allow:

1. Increased overlapping operation of the main steam boiler and the auxiliary boiler. MPC is requesting that the boilers be allowed to operate in any combination, as long as the total annual emissions of NOx and CO from both boilers are below 95 tons per year for each pollutant.
2. Increase the daily and annual vehicle traffic to 70 truck trips per day and 25,550 trips per year, which will increase PM, PM10 and PM2.5 emissions along the paved roads. The facility has the capacity to warehouse extra old corrugated cardboard (the raw material) and deliver more chemical deliveries, so this permit application reevaluates the maximum vehicle miles traveled in that category.
3. Increase SO2 emission from the natural gas-fired boilers. The increase accounts for the maximum amount of sulfur allowed in natural gas by the New Mexico Regulatory Commission. The sulfur content will increase from 0.5 grains/100 cubic feet of natural gas to 0.75 grains/100 cubic feet of natural gas.
4. Increase the amount of sulfuric acid delivered to the site used for water treatment from 5,300 gallons per year to 108,000 gallons per year. Prepare refined emission calculations for sulfuric acid tank breathing and loading emissions. This goes along with the increase in truck trips per day or year.

Process Summary

The MPC Prewitt Mill is different from most paper mills, because it uses and recycles existing cardboard to make paper. The MPC Prewitt Mill site overview is shown in the of Figure 5-3. MPC Prewitt Mill is a 100% recycle mill that uses waste paper (material that would otherwise go into landfills) as its raw material source. The primary source of waste paper is old corrugated container (OCC), old boxes. Other sources of waste paper include mixed office waste (MOW) and box plant clippings (BPC). MPC's permitted operations include an OCC input capacity of 900 tons of OCC daily and 266,450 tons of OCC annually. From this material, the mill is capable of producing 828 tons daily and 245,134 tons annually of high-quality, lightweight linerboard, which is a brown paper used to make new corrugated boxes.

MPC is a zero-discharge facility. All of the process water is recycled, resulting in zero discharge from the site. In comparison, other paper mills discharge an average of one million gallons of treated water a day.

The MPC Prewitt Mill has four major components: a warehouse/receiving area, a stock preparation area, a paper production area, and a water reclamation plant. The mill receives OCC and shipping linerboard product by either delivery trucks on paved roads or railroad siding from the Santa Fe main line. The siding was extended to the mill's loading dock for receipt of OCC and for shipping of the linerboard, which is produced as rolls weighing two to four tons each.

OCC waste, unusable by-products, is removed from the process at the hydrapulper, the waste is then loaded into the waste storage bin until the waste material is loaded into trucks and removed from the site to a nearby landfill.

Startup, Shutdown, and Maintenance (SSM)

No SSM emissions are proposed for this application. Emission rates from SSM for the two (2) natural gas-fired steam boilers and diesel-fired fire pump engine will be less than or equal to requested permit emission rates during SSM.

For the two (2) natural gas-fired steam boilers, per requirements of 40 CFR 60.48b(b), NOx emission rate will be monitored and recorded using continuous emission monitoring (CEM) systems. CO annual emission rates will be determined by multiplying the annual operating hours for each times the maximum hourly emission rate.

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.

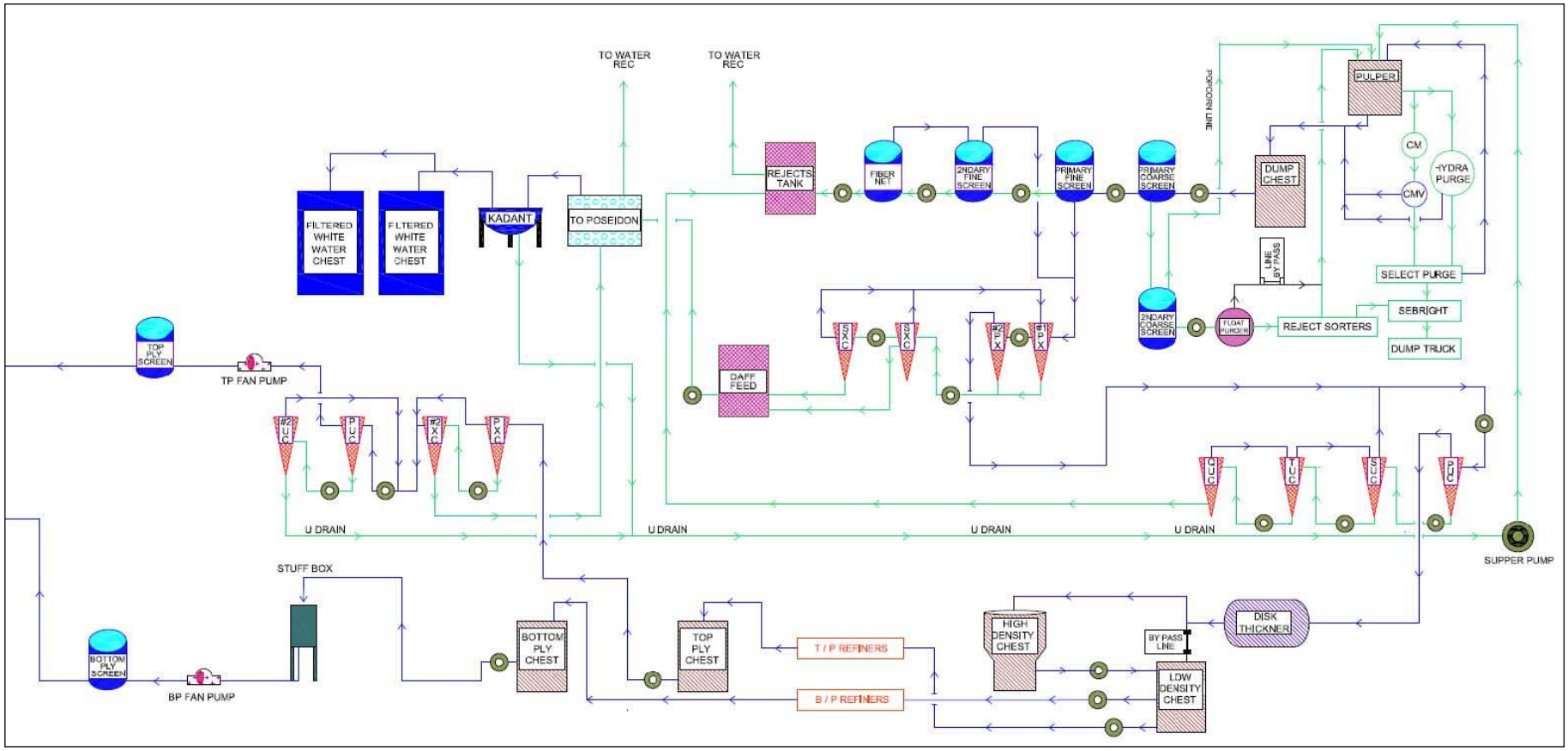

Figure 4-1: Stock Preparation Process Flow (Unit 2)

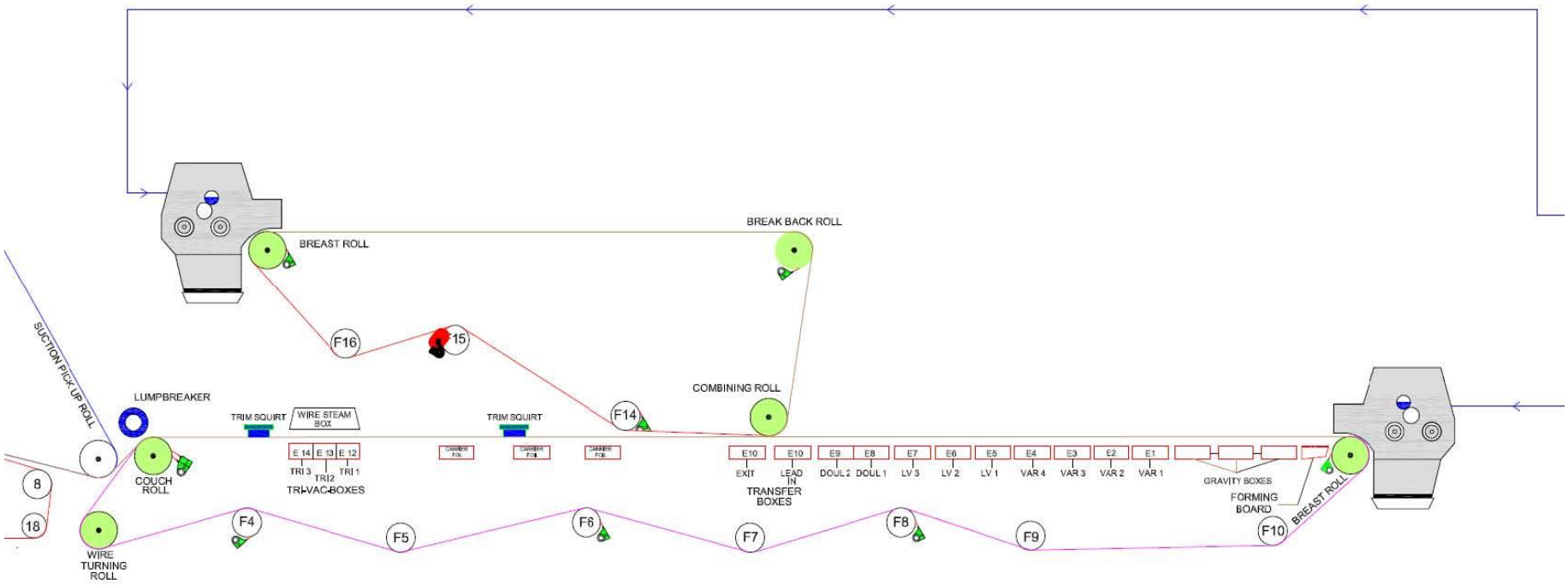

Figure 4-2: Forming Section Process Flow (Unit 3)

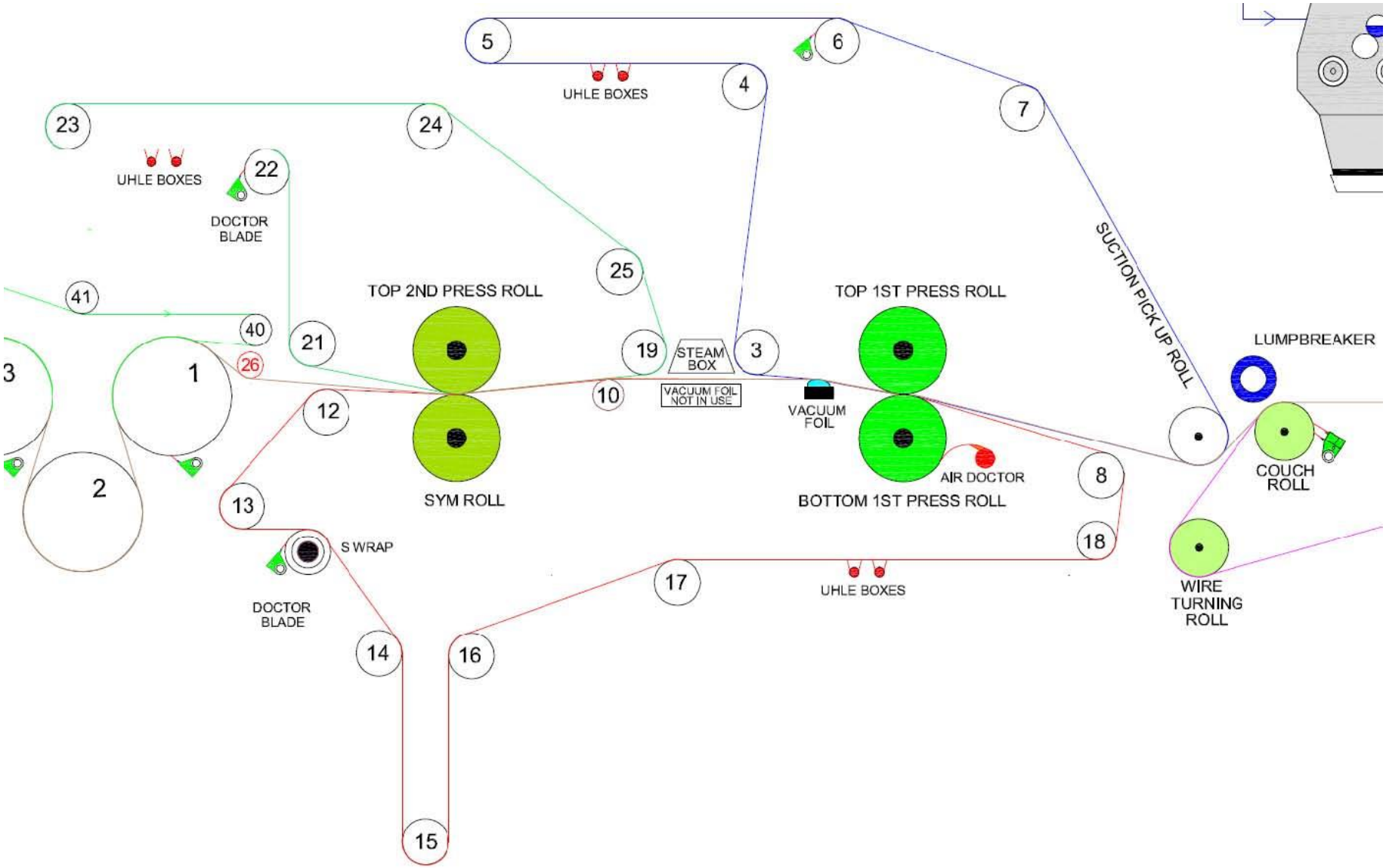

Figure 4-3: Press Section Process Flow (Unit 3)

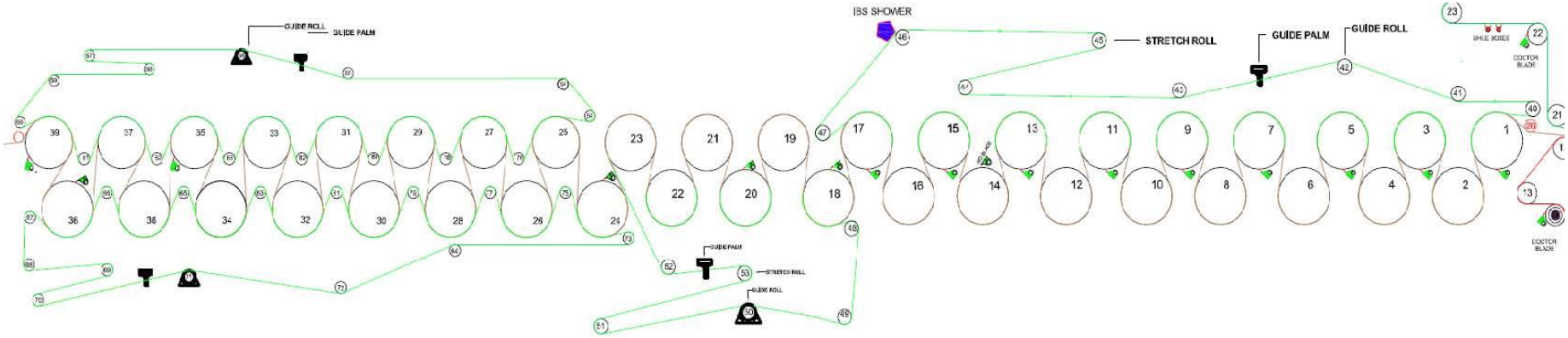

Figure 4-4: Dry End Process Flow (Unit 3)

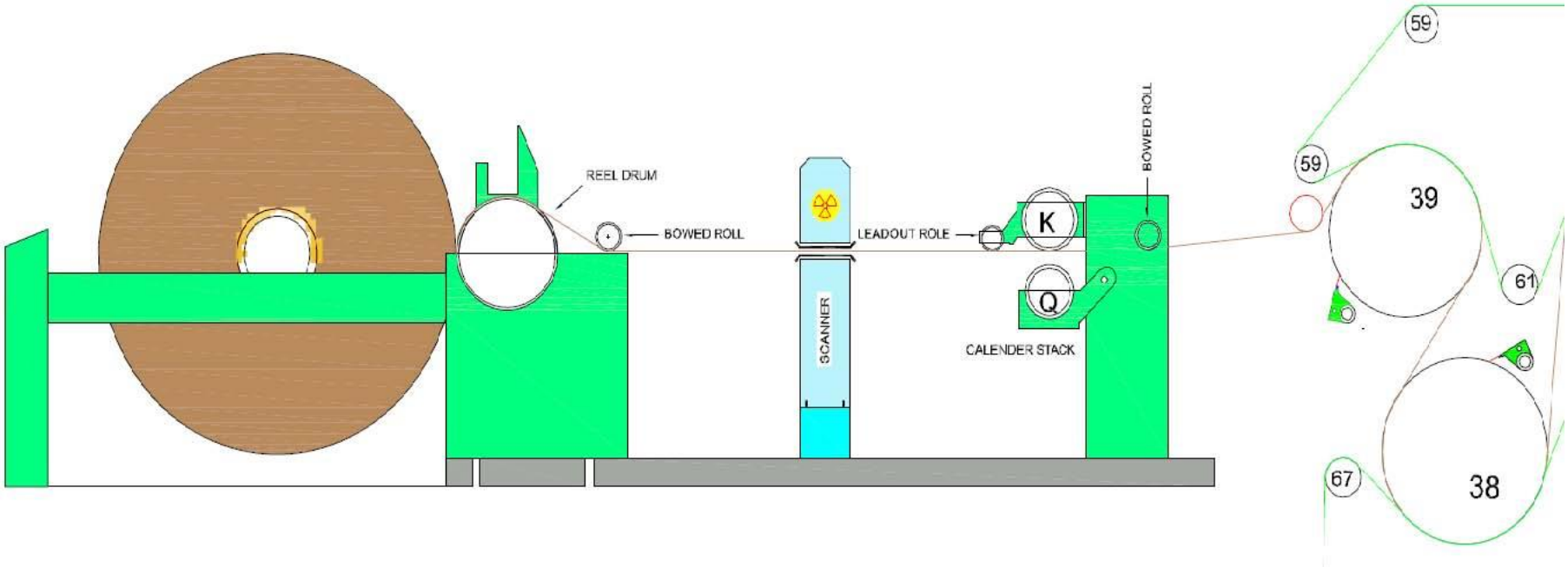

Figure 4-5: Reel Section Process Flow

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.

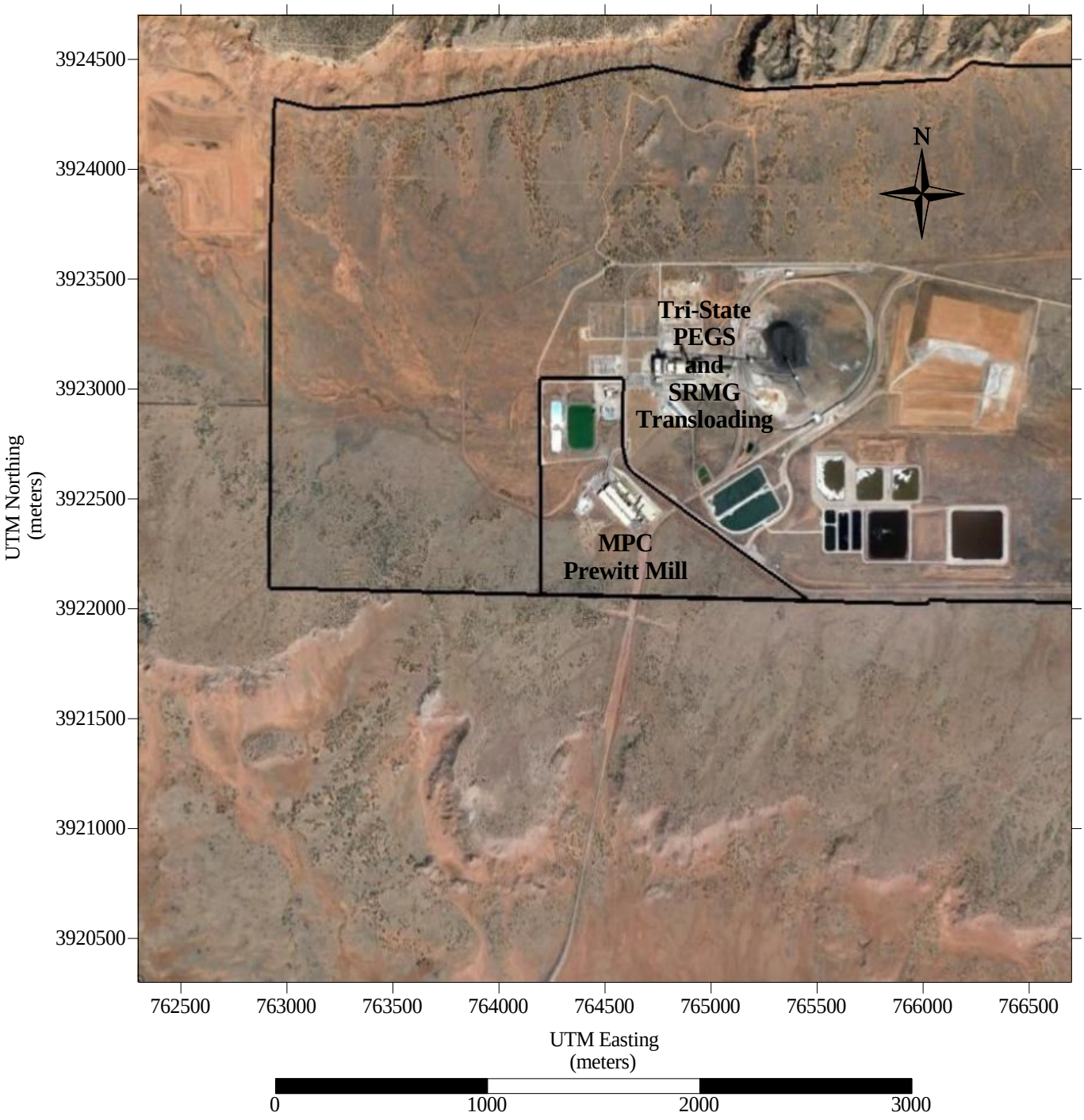

Figure 5-1: Aerial Showing MPC Prewitt Mill in Relation to Tri-State PEGS and SRMG Transloading Facilities

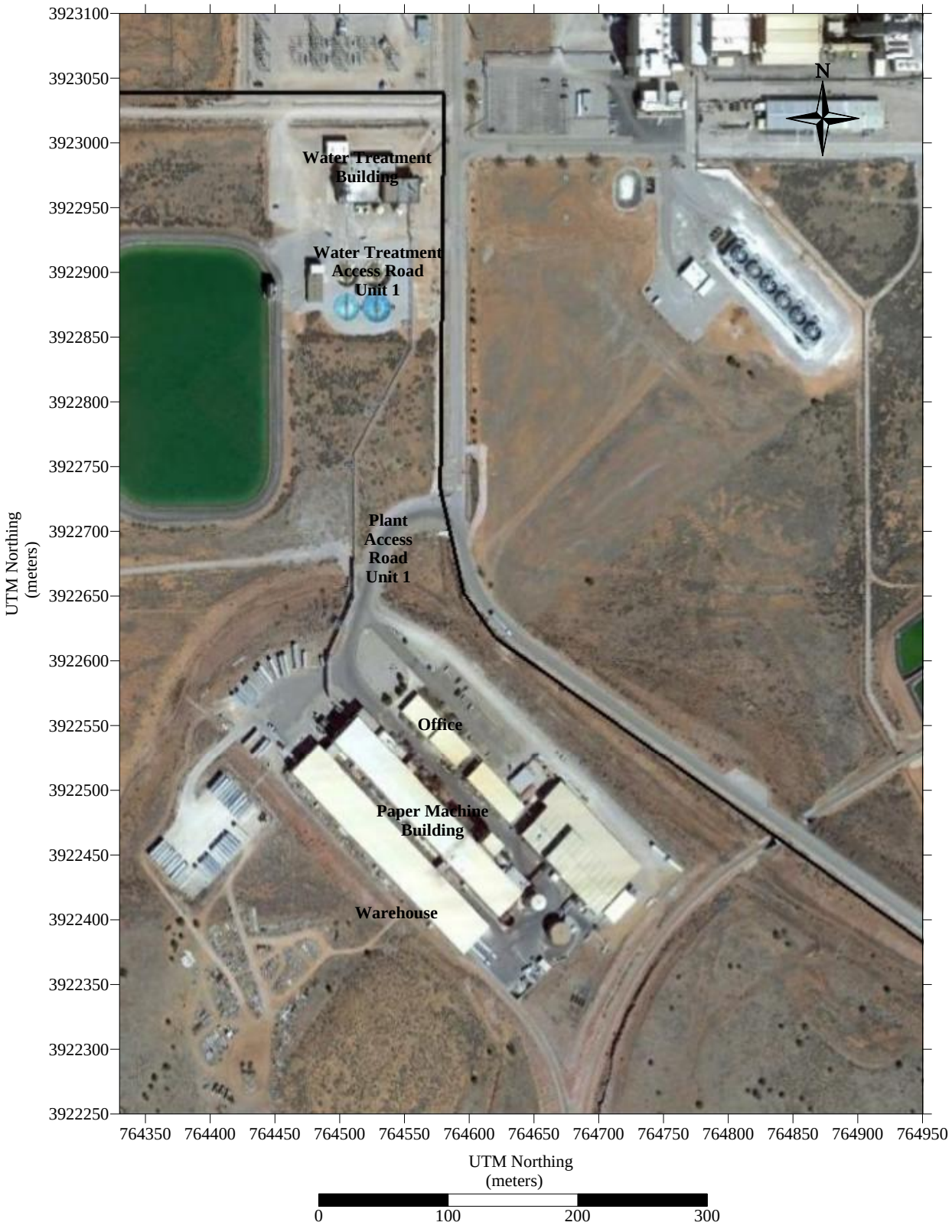

Figure 5-2: Aerial Showing MPC Prewitt Mill Overview

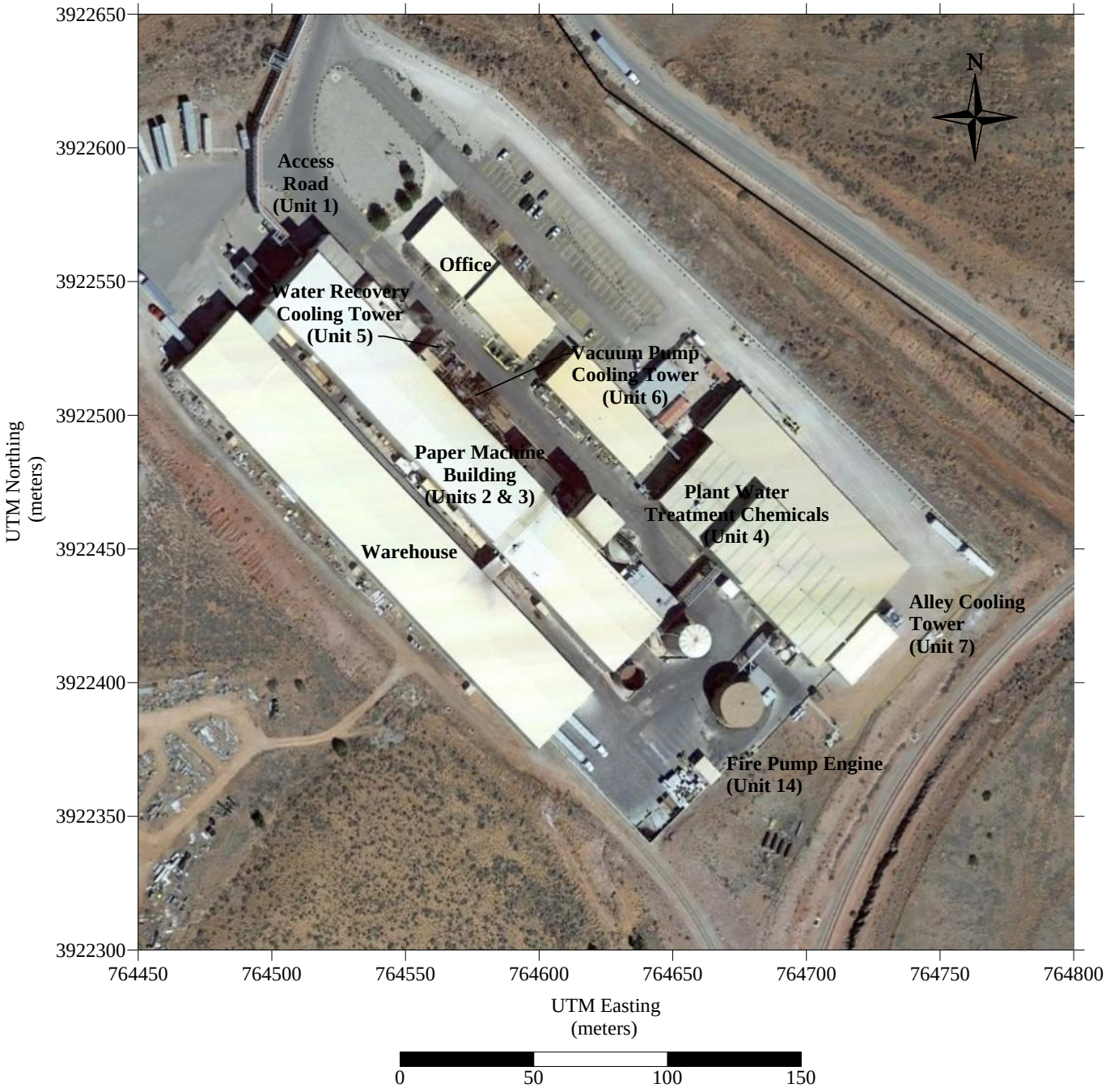

Figure 5-3: Aerial Showing MPC Prewitt Mill Emission Source Locations

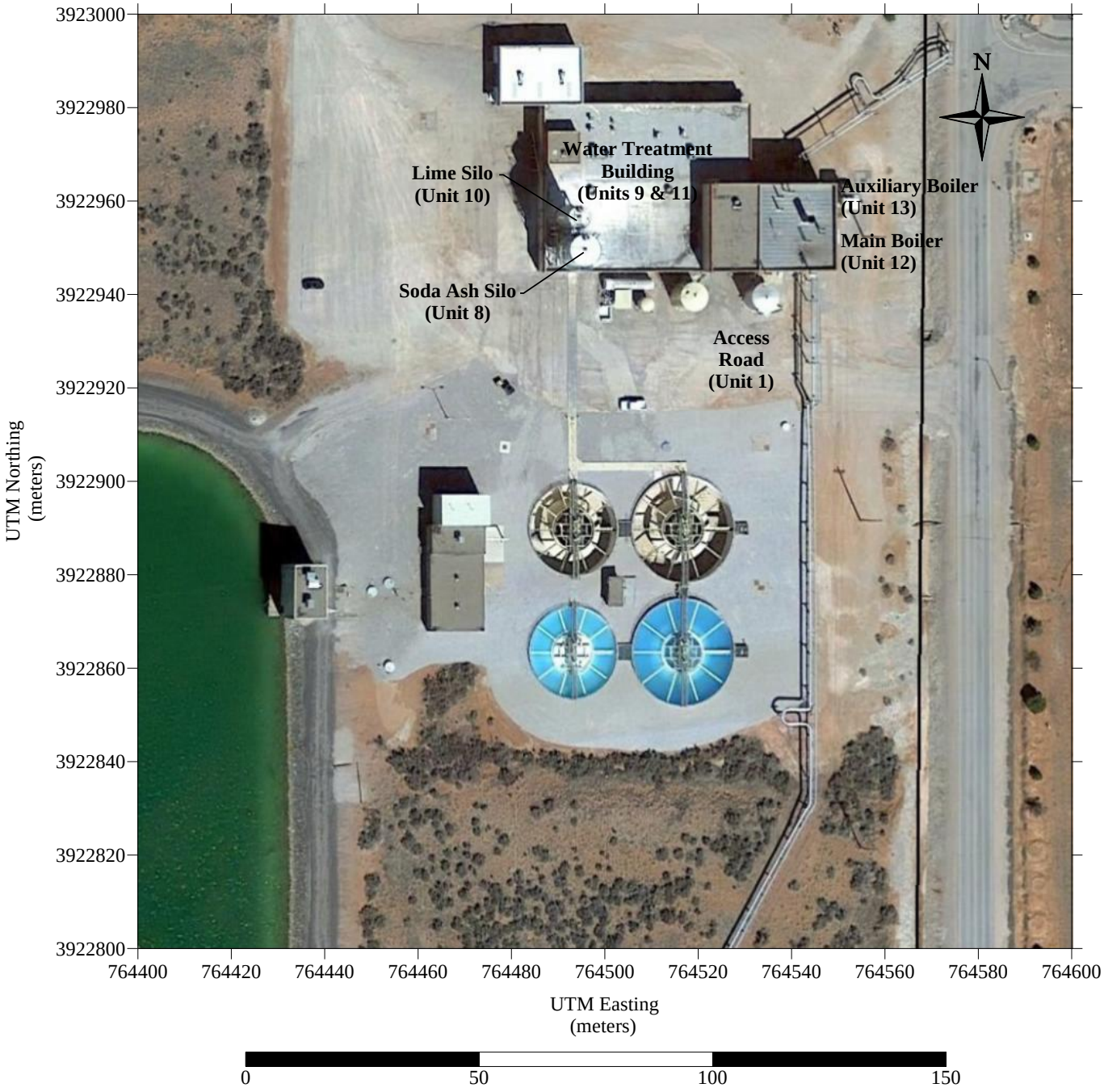

Figure 5-4: Aerial Showing MPC Water Treatment Building Emission Source Locations

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.

McKinley Paper Company (MPC) Prewitt Mill is a paper mill located north of Prewitt, New Mexico and has been in commercial production since June 1, 1994. MPC's parent company is Bio Pappel S.A.B. de C.V. MPC's physical location is latitude 35°, 24', 38.21" N and longitude 108°, 05', 10.79" W, NAD83, which is approximately 3.9 miles northwest of Prewitt, NM in McKinley County (see Figure 8-1). Since initial startup, estimation of facility potential emission rate of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard was below thresholds requiring an air quality permit per New Mexico regulation 20.2.72 NMAC. Prior to 2020, MPC conserved energy resources by purchasing steam from the nearby Tri-State's Prewitt Escalante Generating Station (PEGS) and using the steam's heat from the coal-fired boiler in the mill's paper drying process. If the coal-fired boiler was offline, steam was provided to MPC by PEGS natural gas-fired auxiliary boiler. Tri-State's Prewitt Escalante Generating Station (PEGS) shutdown operations of the auxiliary boiler and MPC took control of its operation. Additionally, MPC installed a new steam boiler as the main producer of steam for MPC operations.

In November 2020, MPC received a 20.2.72.200.A.(2) NMAC permit NSR number 8886. The two (2) natural gas-fired steam boilers are subject to EPA regulation 40 CFR 60 Subpart Db. After nearly a year of operation, MPC is seeking this permit modification to allow increased overlapping operation of the main steam boiler and the auxiliary boiler, increase in truck traffic, increase the fuel sulfur content for the natural gas combusted in the steam boilers to match the allowed sulfur content by the New Mexico Regulatory Commission, and increase in the amount of sulfuric acid delivered to the site. Montrose Air Quality Services has been contracted to prepare this 20.2.72.200.A.(2) NMAC permit modification.

The facility will consist of the following emission sources:

1. Paved Road – soda ash delivery, lime delivery, OCC delivery, waste removal, and warehouse deliveries
2. OCC Pulping Process Fugitive Emissions
3. Finish Paper Machine Fugitive Emissions
4. Plant Water Treatment Chemicals
5. Water Recovery Cooling Tower
6. Vacuum Pump Cooling Tower (2 cells)
7. Alley Cooling Tower
8. Soda Ash Storage Silo Loading
9. Soda Ash Storage Silo Unloading
10. Lime Storage Silo Loading
11. Lime Storage Silo Unloading
12. Main Boiler
13. Auxiliary Boiler
14. Fire Pump Engine

Of these sources only paved roads emission rates, plant water treatment chemical emission rates (sulfuric acid), Units 12 and 13 boiler NO_2, CO, and SO_2 emission rates will be revised. Emission calculations for these source changes only are presented below.

Unit 1: Paved Road

Haul truck travel emissions were estimated using AP-42, Section 13.2.1 (ver.01/11) "Paved Roads" emission. The mill receives OCC and shipping linerboard product by either delivery trucks on paved roads or railroad siding. To determine worst-case emission rate calculations, it is assumed all received OCC and shipping linerboard will be by haul truck on paved roads. The facility has the capacity to warehouse extra OCC, therefore this permit application reevaluates the maximum vehicle miles traveled in that category, versus the current permit (approximately 1/3 more VMT per year). This gives a slight increase in PM, PM10 and PM2.5 emissions along the paved roads, compared to the current permitted limits. Since the facility is permitted to operate at the maximum capacity of the facility and the hours of operation are 8760 hours per year, both potential emission rate (PER) and potential to emit (PTE) are the same.

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AP-42, Section 13.2.1 (ver.01/11) "Paved Roads"

E = k(sL)^0.91*(W)^1.02*[1-P/4N]

k PM	0.011	
k PM10	0.0022	
k PM25	0.00054	
sL	0.6	Ubiquitous Baseline g/m^2 <500
P = days with precipitation over 0.01 inches	60	
N = number of days in averaging period	365	

Truck Routes	Average Weight (W) (tons)	VMT/Year	Normalize Weight	Fleet Average Weight (tons)
Soda Ash Delivery to Plant	26.5	7.3	192.9	
Lime Delivery to Plant	26.5	5.0	133.2	
OCC Delivery Vehicles on Paved Roads	25	11899.5	297487.5	
Waste Removal	25	634.6	15866.0	
Warehouse Deliveries to Plant	25	2539.6	63490.8	
Total		**15086.1**	**377170.3**	**25.00**

Reduction in emissions due to precipitation was only accounted for in the annual emission rate. Particulate emission rate per vehicle mile traveled for each particle size category is:

Hourly Emission Rate Factor

PM = 0.18426 lbs/VMT
PM10 = 0.03685 lbs/VMT
PM2.5 = 0.00905 lbs/VMT

Annual Emission Rate Factor

PM = 0.17669 lbs/VMT
PM10 = 0.03534 lbs/VMT
PM2.5 = 0.00867 lbs/VMT

Table 6-1: PER and PTE Paved Road Fugitive Dust Emission Rates

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
Paved Road	1.722 miles/hr; 15,086.1 miles/yr	0.32	1.51	0.063	0.30	0.016	0.074

Off Property Paved Road

For inclusion in the modeling analysis, off property truck traffic from haul trucks associated with MPC operations were calculated. Haul truck travel emissions were estimated using AP-42, Section 13.2.1 (ver.01/11) "Paved Roads" emission. This emission rate accounts for travel on 0.62 miles of paved roadway within Tri-State's property and includes all roundtrip traffic from MPC. Since the facility is permitted to operate at the maximum capacity of the facility and the hours of operation are 8760 hours per year, both potential emission rate (PER) and potential to emit (PTE) are the same.

.

AP-42, Section 13.2.1 (ver.01/11) "Paved Roads"

E = k(sL)^0.91*(W)^1.02*[1-P/4N]

k PM	0.011	
k PM10	0.0022	
k PM25	0.00054	
sL	0.6	Ubiquitous Baseline g/m^2 <500
P = days with precipitation over 0.01 inches	60	
N = number of days in averaging period	365	

Truck Routes	Average Weight (W) (tons)	VMT/Year	Normalize Weight	Fleet Average Weight (tons)
Off Property Traffic	25	31754.9	793872.0	25

Reduction in emissions due to precipitation was only accounted for in the annual emission rate. Particulate emission rate per vehicle mile traveled for each particle size category is:

Hourly Emission Rate Factor

PM = 0.18426 lbs/VMT
PM10 = 0.03685 lbs/VMT
PM2.5 = 0.00905 lbs/VMT

Annual Emission Rate Factor

PM = 0.17669 lbs/VMT
PM10 = 0.03534 lbs/VMT
PM2.5 = 0.00867 lbs/VMT

Table 6-2: PER and PTE Paved Road Fugitive Dust Emission Rates for Off Property Traffic within Tri-State (Emission Calculations for Dispersion Modeling only)

Process Unit Description	Process Rate	PM Emission Rate (lbs/hr)	PM Emission Rate (tons/yr)	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Rate (tons/yr)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Rate (tons/yr)
Paved Road	3.62 miles/hr; 31,754.9 miles/yr	0.67	2.81	0.13	0.56	0.033	0.14

Unit 4: Plant Water Treatment Chemicals

Chemicals are added into the process system and water treatment system to maintain the correct pH levels of the water. Systems measure the pH levels in the water then meter the needed chemicals. A review of these chemicals found some were VOC emission source and state TAPS emission sources. The following table lists the chemicals used in processing and water treatment processes.

Product	Purpose	Chemical Name	CAS#	% Concentration	VOC	HAPs	State TAP
Process Chemical							
AMA-115	Biocide	5-chloro-2-methyl-2H-isothiazolin-3-one	26172-55-4	2	No	No	No
		Magnesium nitrate	10377-60-3	2	No	No	No
AMA-140	Biocide	Sodium dimethyldithiocarbamate	128-04-1	40	No	No	No
AMA-150	Biocide	2,2-Dibromo-3-nitrilopropionamide	10222-01-2	20	No	No	No
		Polyethyleneglycol	25322-68-3	54.5	No	No	No
		dibromoacetonitrile	3252-43-5	3	No	No	No
		Sodium Bromide	7647-15-6	4	No	No	No
CIO2	Chlorine Dioxide, Aqueous Solution, 500 - 5,000 mg/L	Chlorine oxide	0010049-04-4	1	No	No	No
Fennoslip 50					No	No	No
Fennotech 2543	Deformer				No	No	No
Fennobond 3300	Additive in paper industry, Modified polyacrylamide	Glyoxal	107-22-2	1	Yes	No	No
Fennofloc ZN 029	Water treatment chemical	Polyaluminium chloride	1327-41-9	40	No	No	No
Fennopol K 7905	Flocculating agent	Adipic acid	124-04-9	5	No	No	No
FennoSil 2185	Amorphous Silica, aqueous colloidal solution				No	No	No
FennoSize KD 166MB	Internal sizing agent	Aluminium sulphate	10043-01-3	3	No	No	No
FennoPas 8850	Process aid for industrial applications				No	No	No
FennoSan Q-10	Biocide	Alkyldimethylbenzyl ammonium chloride	68391-01-5	10	No	No	No
		Isopropanol (Isopropyl Alcohol)	67-63-0	2	Yes	No	Yes
FennoSurf 586	Precursor for biocide generation	Ammonium sulphate	7783-20-2	29.5	No	No	No
Water Treatment Chemicals							
Citric Acid		Citric Acid, Anhydrous	77-92-9	10	No	No	No
MEMCLEAN EXA2	caustic soda	sodium hydroxide	1310-73-2	50	No	No	Yes
		Citric Acid	77-92-9	5	No	No	No
		Sodium Gluconate	527-07-1	5	No	No	No

Product	Purpose	Chemical Name	CAS#	% Concentration	VOC	HAPs	State TAP
PerForm™ PC1448	Flocculating agent	ALIPHATIC HYDROCARBON			No	No	No
		ALCOHOL ALKOXYLATES			No	No	No
PerForm™ PC1370	Retention/Drainage/Clarification Aid				No	No	No
Sodium Chlorite Solution	Bleaching of textiles and other fibers	Sodium Chlorite	7758-19-2	41	No	No	No
Spectrum™ XD9400	Microbiocide Agent				No	No	No
Spectrum™ RX5080	Microbiocide Agent	2,2 DIBROMO-3-NITRILOPROPIONAMIDE	10222-01-2	30	No	No	No
		DIBROMOACETONITRILE	3252-43-5	5	No	No	No
Sulfuric Acid 93%		Sulfuric Acid	7664-93-9	93	No	No	Yes
Urea Solution	Diesel exhaust fluid	Urea	57-13-6	40	No	No	No
		Ammonia	7664-41-7	0.1	No	No	Yes

The chemicals that have components that are regulated pollutants were calculated based on the annual usage of these chemicals, the percent of concentration for the component, the density of the chemical, and the percentage consumed in the process. Since the chemicals are only added as needed to maintain the correct chemical composition of the treated water, it is estimated that 99 percent of the chemical will be consumed in the process. Example equation:

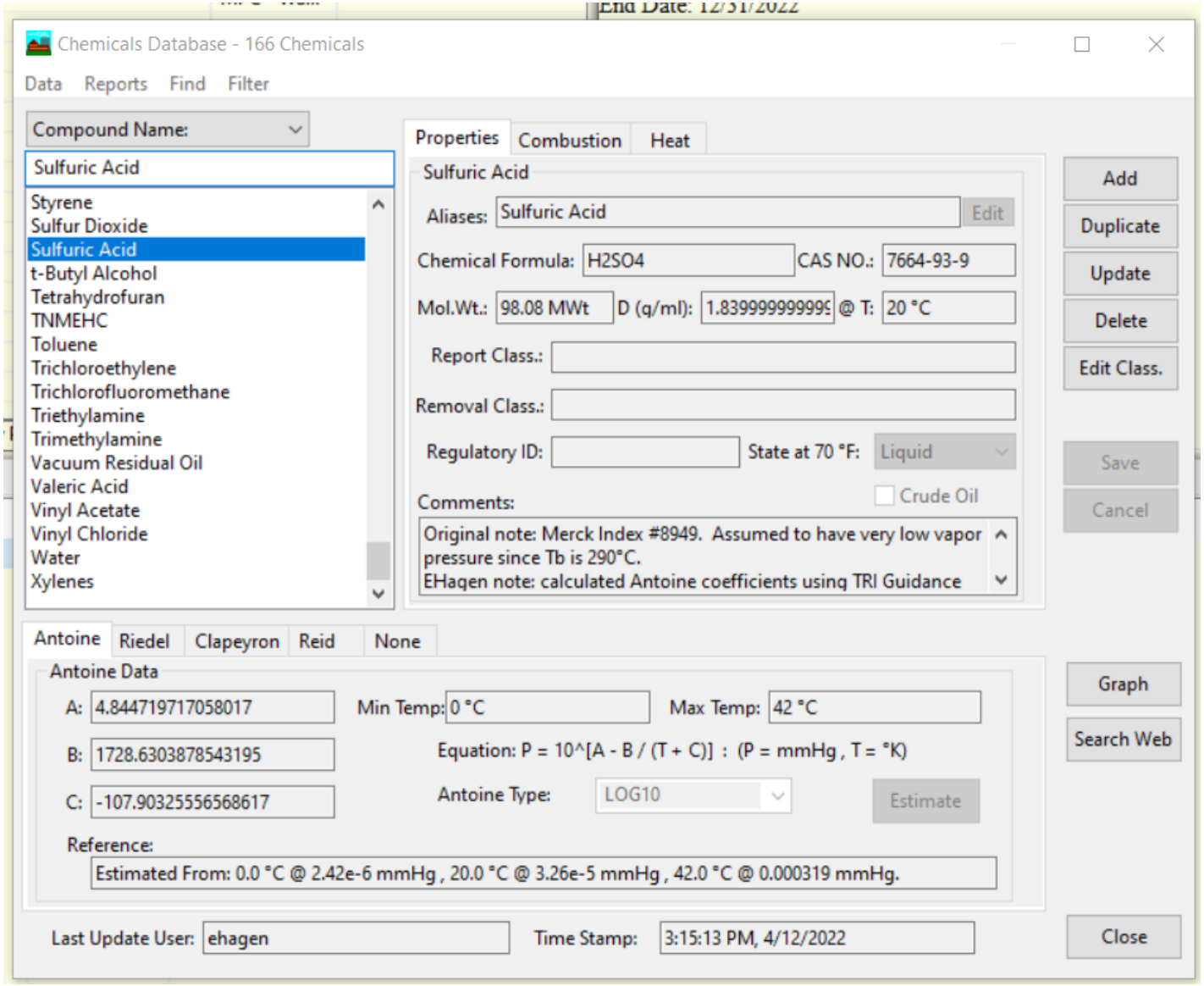
Chemical Annual Usage (gallons/yr) * percent of component (%)/100 * density (lbs/gal) * percentage consumed (100 - %)/100 = Emission Rate (lbs/yr)

Fennobond 3300 Usage - 105,000 gallons/yr * percent of component 1%/100 * density 8.345 lbs/gal * percentage consumed (100-99%)/100 = 87.62 lbs/yr

Table 6-3: PER and PTE Chemical Usage Fugitive Emission Rates

Product	Regulated Pollutant	Annual Usage (gallons)	Component Usage (gallons)	Density (lbs/gal)	Mass Usage (lbs/yr)	Percentage Consumed	Emission Rate (lbs/yr)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
Fennobond 3300	VOC	105,000	1,050	8.345	8762.3	99	87.62	0.010	0.044
FennoSan Q-10	VOC, State TAP	4,350	87	8	696.0	99	6.96	0.00079	0.0035
MEMCLEAN EXA2	State TAP	1,550	775	8.345	6467.4	99	64.67	0.0074	0.032
Urea Solution	State TAP	55,000	55	9.4	517.0	99	5.17	0.00059	0.0026

For sulfuric acid emission during storage tank standing (breathing) and working (loading) emissions were calculated using AP-42 Section 7.1. Inputs to the EPA tanks worksheet included the following:



Tank ID	Storage Tank Parameters									
	Vessel Type	Diameter (ft)	Straight Side (ft)	Roof Height (ft)	Effective Tank Height (ft)	Void Volume (gal)	Maximum Working Volume (gal)	Isothermal Yes/No	Conservation Vent Low (psig)	Conservation Vent High (psig)	Paint Solar Absorptance dimensonless
MPC - Water Recycle Tank	Dome Roof Storage	10	11	1.3397	11.686	6865.74	6200	Normal	0	0	0.17
MPC - Water Treatment Tank	Dome Roof Storage	9	12	1.2058	12.617	6004.31	4500	Normal	0	0	0.17

Tank ID	Material Stored		
	Material Type	Material Name	Composition Reference
MPC - Water Recycle Tank	Mixture	Sulfuric Acid (93%, aq)	Sulfuric Acid, Water
MPC - Water Treatment Tank	Mixture	Sulfuric Acid (93%, aq)	Sulfuric Acid, Water

Tank ID	Annual Standing Storage Losses (Uncontrolled)				
	Vapor Space Vv	Vapor Density Wv	Vapor Space Expansion Factor KE	Vented Vapor Saturation Factor Ks	Other Standing Losses Ls
MPC - Water Recycle Tank	88.9965	1.96E-04	0.059925	0.996425	0
MPC - Water Treatment Tank	201.097	1.96E-04	0.059925	0.990116667	0

Tank ID	Annual Working Losses (Uncontrolled)							
	Tla (°F)	Vapor Molecular Weight Mv (lb/lb-mole)	VP at Tla Pva (psia)	Throughput Q (gal/yr)	Throughput Q (bbl/yr)	Turnover Factor Kn dimensionless	Crude Oil Factor Kp dimensionless	Working Losses Other Lw (lb/yr)
MPC - Water Recycle Tank	50.721125	18.01563287	0.05986	48600	1157.1429	1	1	0
MPC - Water Treatment Tank	50.721125	18.01563287	0.05986	59400	1414.2857	1	1	0

After the calculations were run the annual emissions in pounds per year were in insignificant. Worksheet calculations and results can be found in Permit Application Section 7 or in the included support files.

Table 6-4: PER and PTE Chemical Usage Fugitive Sulfuric Acid Emission Rates

Product	Regulated Pollutant	Annual Usage (gallons)	Component Usage (gallons)	Emission Rate (lbs/yr)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
Sulfuric Acid (93%) Water Recycle Tank	State TAP	48,600	45,198	3.300E-05	3.767E-09	1.650E-08
Sulfuric Acid (93%) Water Treatment Tank	State TAP	59,400	55,242	4.840E-05	5.525E-09	2.420E-08
			Total	8.140E-05	9.292E-09	4.070E-08

Unit 12: Main Boiler

The main boiler is the main source of steam for MPC. The main boiler is rated at 166.8 MMBtu per hour. It will be permitted to operate 8760 hours per year. Emission rates are based on the worst-case of either regulatory emission limits or manufacturer. For NOx, Subpart Db emission limits were used in the application.

Hours per year	8760	hour/year		
Heat Input	166.8	MMBtu/yr	1461168.0	MMBtu/yr
Natural Gas Usage	169,685	scf/hr	Based on 983 LHV Btu/scf	
Natural Gas Usage	0.1697	MMscf/hr		
Natural Gas Usage	1486.4	MMscf/yr		

Manufacturer's specifications:

NOx	30	PPM
	0.036	lbs/MMBtu
NOx	6.00	lbs/hr
	26.30	tons/yr

EPA Subpart Db Limit	
0.10	lbs/MMBtu
16.68	lbs/hr
73.1	tons/yr

Manufacturer's specifications:

CO	50	PPM
	0.037	lbs/MMBtu
CO	6.17	lbs/hr
	27.03	tons/yr

SO_2 emission rate is based on a sulfur (S) content for natural gas of 0.75 grains S/100 scf gas

SO_2 = 0.75 grains S/100 scf * 169.685 100 scf/hr / 7000grain/lb * 2 S/SO2 = 0.36 lbs/hr
0.24 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 1.59 tons/yr

These emission factors are based on AP-42 Section 1.4 Natural Gas Utility Boilers >100 MMbtu/hr input and Manufacturer's specifications.

AP-42 Section 1.4:
PM_{10} (filterable) = 1.9 lb/million cu. ft. gas (filterable)
PM_{10} (total) = 7.6 lb/million cu. ft. gas (filterable plus condensable)
VOC = 5.5 lb/million cu. ft. gas

Based on the above emission numbers and the maximum heat input of 166.8 MMbtu/hr and 0.1697 MMscf/hr gas flow rate the following are the emissions calculations using AP-42.

PM (filterable) = 1.9 lb/million cu. ft. gas * 0.1697 million cu. ft. gas/hr = 0.32 lbs/hr
0.32 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 1.41 tons/yr

PM (total) = 7.6 lb/million cu. ft. gas *0.1697 million cu. ft. gas/hr = 1.29 lbs/hr
1.29 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 4.09 tons/yr

PM = PM_{10} = $PM_{2.5}$

VOC = 5.5 lb/million cu. ft. gas *0.1697 million cu. ft. gas/hr = 0.93 lbs/hr
0.93 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 4.09 tons/yr

HAP Emissions

Main boiler HAP emissions have been calculated using AP42 emission factors (AP42 1.4, 7/98) and 0. 1697 million cu. ft. gas/hr.

HAPs	Emission Factor million cu. ft. gas	Emissions lb/hr	Emissions tpy
SPECIATED ORGANIC COMPOUNDS			
Benzene	2.10E-03	0.00036	0.00156
Formaldehyde	7.50E-02	0.01273	0.05574
Hexane	1.80E+00	0.30543	1.33779
Naphthalene	6.10E-04	0.00010	0.00045
Toluene	3.40E-03	0.00058	0.00253
METALS			
Arsenic	2.00E-04	0.00003	0.00015
Beryllium	1.20E-05	0.00000	0.00001
Cadmium	1.10E-03	0.00019	0.00082
Chromium	1.40E-03	0.00024	0.00104
Cobalt	8.40E-05	0.00001	0.00006
Lead	5.00E-04	0.00008	0.00037
Manganese	3.80E-04	0.00006	0.00028
Mercury	2.60E-04	0.00004	0.00019
Nickel	2.10E-03	0.00036	0.00156
Selenium	2.40E-05	0.00000	0.00002
	Total HAPs	**0.32**	**1.40**

TAP Emissions

Main boiler state TAP emissions have been calculated using AP42 emission factors (AP42 1.4, 7/98) and 0. 1697 million cu. ft. gas/hr.

State TAPs	Emission Factor million cu. ft. gas	Emissions lb/hr	Emissions tpy
Barium	4.40E-03	0.00075	0.00327
Copper	8.50E-04	0.00014	0.00063
Molybdenum	1.10E-03	0.00019	0.00082
Vanadium	2.30E-03	0.00039	0.00171
Zinc	2.90E-02	0.00492	0.02155
	Total TAPs	**0.0064**	**0.028**

Unit 13: Auxiliary Boiler

The auxiliary boiler will provide a backup source of steam for MPC if the main boiler is offline. The auxiliary boiler is rated at 190.0 MMBtu per hour. It will be permitted to operate 8760 hours per year, but primarily only one boiler (either Unit 12 or Unit 13) will operate at any one time. However, after one year of operating, the facility has determined that there are infrequent instances where overlapping operations of both boilers are required. As both boilers have CEMS, MPC is requesting a permit limit of <95 tpy of NOx and CO from the boilers. For NOx, Subpart Db emission limits were used in the application.

Hours per year	8760	hour/year		
Heat Input	190.0	MMBtu/yr	1664400.0	MMBtu/yr
Natural Gas Usage	193,286	scf/hr	Based on 983 LHV Btu/scf	
Natural Gas Usage	0.1933	MMscf/hr		
Natural Gas Usage	1693.2	MMscf/yr		

Present Permit Emission Rate per PEGS Permit:

NOx	11.4	lbs/hr	
	49.9	tons/yr	

EPA Subpart Db Limit	
0.10	lbs/MMBtu
19.00	lbs/hr
83.2	tons/yr

Manufacturer's specifications:

CO	100	PPM
Mass Rate of Flue Gas	174000	lbs/hr

CO	17.4	lbs/hr
	76.2	tons/yr

SO_2 emission rate is based on a sulfur (S) content for natural gas of 0.75 grains S/100 scf gas

SO_2 = 0.75 grains S/100 scf * 193.286 100 scf/hr / 7000grain/lb * 2 S/SO2 = 0.41 lbs/hr
0.28 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 1.81 tons/yr

These emission factors are based on AP-42 Section 1.4 Natural Gas Utility Boilers >100 MMbtu/hr input and Manufacturer's specifications.

AP-42 Section 1.4:
PM_{10} (filterable) = 1.9 lb/million cu. ft. gas (filterable)
PM_{10} (total) = 7.6 lb/million cu. ft. gas (filterable plus condensable)
VOC = 5.5 lb/million cu. ft. gas

Based on the above emission numbers and the maximum heat input of 190.0 MMbtu/hr and 0.1933 MMscf/hr gas flow rate the following are the emissions calculations using AP-42.

PM (filterable) = 1.9 lb/million cu. ft. gas * 0. 1933 million cu. ft. gas/hr = 0.37 lbs/hr
0.32 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 1.61 tons/yr

PM (total) = 7.6 lb/million cu. ft. gas *0. 1933 million cu. ft. gas/hr = 1.47 lbs/hr
1.29 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 6.43 tons/yr

PM = PM_{10} = $PM_{2.5}$

VOC = 5.5 lb/million cu. ft. gas *0. 1933 million cu. ft. gas/hr = 1.06 lbs/hr
0.93 lbs/hr * 8760 hrs/yr / 2000 lbs/ton = 4.66 tons/yr

HAP Emissions

Main boiler HAP emissions have been calculated using AP42 emission factors (AP42 1.4, 7/98) and 0.1933 million cu. ft. gas/hr.

HAPs	Emission Factor million cu. ft. gas	Emissions lb/hr	Emissions tpy
SPECIATED ORGANIC COMPOUNDS			
Benzene	2.10E-03	0.00041	0.00178
Formaldehyde	7.50E-02	0.01450	0.06349
Hexane	1.80E+00	0.34791	1.52387
Naphthalene	6.10E-04	0.00012	0.00052
Toluene	3.40E-03	0.00066	0.00288
METALS			
Arsenic	2.00E-04	0.00004	0.00017
Beryllium	1.20E-05	0.00000	0.00001
Cadmium	1.10E-03	0.00021	0.00093
Chromium	1.40E-03	0.00027	0.00119
Cobalt	8.40E-05	0.00002	0.00007
Lead	5.00E-04	0.00010	0.00042
Manganese	3.80E-04	0.00007	0.00032
Mercury	2.60E-04	0.00005	0.00022
Nickel	2.10E-03	0.00041	0.00178
Selenium	2.40E-05	0.00000	0.00002
	Total HAPs	**0.36**	**1.60**

TAP Emissions

Main boiler state TAP emissions have been calculated using AP42 emission factors (AP42 1.4, 7/98) and 0.1933 million cu. ft. gas/hr.

State TAPs	Emission Factor million cu. ft. gas	Emissions lb/hr	Emissions tpy
Barium	4.40E-03	0.00085	0.00373
Copper	8.50E-04	0.00016	0.00072
Molybdenum	1.10E-03	0.00021	0.00093
Vanadium	2.30E-03	0.00044	0.00195
Zinc	2.90E-02	0.00561	0.02455
	Total TAPs	**0.0064**	**0.028**

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)

Unit 12: Main Boiler

Greenhouse Gas Emissions

Greenhouse gas emissions were calculated using emission factors found in EPA's Emission Factors for Greenhouse Gas Inventories (Modified 03/09/2018) Table 1.

Pollutant	Emission Factor (kg/MMBtu)	Equivalence Factor
Carbon Dioxide	53.02	1
Methane	0.001	25
Nitrous Oxide	0.0001	298

The maximum heat input rating of the main boiler is 1,461,168 MMBtu/yr. To convert from kg to pounds, a factor of 2.20462 kg/lbs was used. The maximum operating hours is 8760 hour/year.

Pollutant	Emission Factor (kg/MMBtu)	Emission (lbs/hr)	Emission (tons/year)	CO_2e Emissions (tons/yr)
Carbon Dioxide	53.02	19497	85397	85397
Methane	0.001	0.37	1.61	40
Nitrous Oxide	0.0001	0.037	0.16	48
	Total GHGs	**19497**	**85399**	**85485**

Unit 13: Auxiliary Boiler

Greenhouse Gas Emissions

Greenhouse gas emissions were calculated using emission factors found in EPA's Emission Factors for Greenhouse Gas Inventories (Modified 03/09/2018) Table 1.

Pollutant	Emission Factor (kg/MMBtu)	Equivalence Factor
Carbon Dioxide	53.02	1
Methane	0.001	25
Nitrous Oxide	0.0001	298

The maximum heat input rating of the auxiliary boiler is 1,664,400 MMBtu/yr. To convert from kg to pounds, a factor of 2.20462 kg/lbs was used. The maximum operating hours is 8760 hour/year.

Pollutant	Emission Factor (kg/MMBtu)	Emission (lbs/hr)	Emission (tons/year)	CO_2e Emissions (tons/yr)
Carbon Dioxide	53.02	22209	97275	97275
Methane	0.001	0.42	1.83	46
Nitrous Oxide	0.0001	0.042	0.18	55
	Total GHGs	**22209**	**97277**	**97376**

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- **X** 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.
- **X** 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.
- **X** If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- **X** 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.

A-8886-7-AP42S7-1	EPA Organic Liquid Storage Tanks Emission Factors
A-8886-7-AP42S13-2-1	Paved Road Emission Factors
A-8886-7-SulfuricAcidInput.xls	Sulfuric Acid Tank Calculations
A-8886-7-SulfuricAcidOutput	Sulfuric Acid Tank Calculations
A-8886-7-MainBoiler	Main Boiler Manufacturer Spec Sheet
A-8886-7-SulfurContent	NM Gas Company Transportation Contract
A-8886-7-EI.xls	MPC Emissions Spreadsheet (Electronic File)

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A-8886-7-AP42S7-1

7.1 Organic Liquid Storage Tanks

7.1.1 Process Description[1-2]

Storage vessels containing organic liquids can be found in many industries, including (1) petroleum producing and refining, (2) petrochemical and chemical manufacturing, (3) bulk storage and transfer operations, and (4) other industries consuming or producing organic liquids. Organic liquids in the petroleum industry, usually called petroleum liquids, generally are mixtures of hydrocarbons having dissimilar true vapor pressures (for example, gasoline and crude oil). Organic liquids in the chemical industry, usually called volatile organic liquids, are composed of pure chemicals or mixtures of chemicals with similar true vapor pressures (for example, benzene or a mixture of isopropyl and butyl alcohols).

Six basic tank designs are used for organic liquid storage vessels: fixed roof (vertical and horizontal), external floating roof, domed external (or covered) floating roof, internal floating roof, variable vapor space, and pressure (low and high). A brief description of each tank is provided below. Loss mechanisms associated with each type of tank are provided in Section 7.1.2.

The emission estimating equations presented in Section 7.1 were developed by the American Petroleum Institute (API). API retains the copyright to these equations. API has granted permission for the nonexclusive; noncommercial distribution of this material to governmental and regulatory agencies. However, API reserves its rights regarding all commercial duplication and distribution of its material. Therefore, the material presented in Section 7.1 is available for public use, but the material cannot be sold without written permission from the American Petroleum Institute and the U. S. Environmental Protection Agency.

7.1.1.1 Fixed Roof Tanks –

A typical vertical fixed roof tank is shown in Figure 7.1-1. This type of tank consists of a cylindrical steel shell with a permanently affixed roof, which may vary in design from cone- or dome-shaped to flat. Losses from fixed roof tanks are caused by changes in temperature, pressure, and liquid level.

Fixed roof tanks are either freely vented or equipped with a pressure/vacuum vent. The latter allows the tanks to operate at a slight internal pressure or vacuum to prevent the release of vapors during very small changes in temperature, pressure, or liquid level. Of current tank designs, the fixed roof tank is the least expensive to construct and is generally considered the minimum acceptable equipment for storing organic liquids.

Horizontal fixed roof tanks are constructed for both above-ground and underground service and are usually constructed of steel, steel with a fiberglass overlay, or fiberglass-reinforced polyester. Horizontal tanks are generally small storage tanks with capacities of less than 40,000 gallons. Horizontal tanks are constructed such that the length of the tank is not greater than six times the diameter to ensure structural integrity. Horizontal tanks are usually equipped with pressure-vacuum vents, gauge hatches and sample wells, and manholes to provide access to these tanks. In addition, underground tanks may be

cathodically protected to prevent corrosion of the tank shell. Cathodic protection is accomplished by placing sacrificial anodes in the tank that are connected to an impressed current system or by using galvanic anodes in the tank. However, internal cathodic protection against corrosion is no longer widely used in the petroleum industry, due to corrosion inhibitors that are now found in most refined petroleum products.

The potential emission sources for above-ground horizontal tanks are the same as those for vertical fixed roof tanks. Emissions from underground storage tanks are associated mainly with changes in the liquid level in the tank. Losses due to changes in temperature or barometric pressure are minimal for underground tanks because the surrounding earth limits the diurnal temperature change, and changes in the barometric pressure result in only small losses.

7.1.1.2 External Floating Roof Tanks –

A typical external floating roof tank (EFRT) consists of an open- topped cylindrical steel shell equipped with a roof that floats on the surface of the stored liquid. The floating roof consists of a deck, fittings, and rim seal system. Floating decks that are currently in use are constructed of welded steel plate and are of two general types: pontoon or double-deck. Pontoon-type and double-deck-type external floating roof tanks are shown in Figures 7.1-2 and 7.1-3, respectively. With all types of external floating roof tanks, the roof rises and falls with the liquid level in the tank. External floating decks are equipped with a rim seal system, which is attached to the deck perimeter and contacts the tank wall. The purpose of the floating roof and rim seal system is to reduce evaporative loss of the stored liquid. Some annular space remains between the seal system and the tank wall. The seal system slides against the tank wall as the roof is raised and lowered. The floating deck is also equipped with fittings that penetrate the deck and serve operational functions. The external floating roof design is such that evaporative losses from the stored liquid are limited to losses from the rim seal system and deck fittings (standing storage loss) and any exposed liquid on the tank walls (withdrawal loss).

7.1.1.3 Internal Floating Roof Tanks –

An internal floating roof tank (IFRT) has both a permanent fixed roof and a floating roof inside. There are two basic types of internal floating roof tanks: tanks in which the fixed roof is supported by vertical columns within the tank, and tanks with a self-supporting fixed roof and no internal support columns. Fixed roof tanks that have been retrofitted to use a floating roof are typically of the first type. External floating roof tanks that have been converted to internal floating roof tanks typically have a self-supporting roof. Newly constructed internal floating roof tanks may be of either type. The deck in internal floating roof tanks rises and falls with the liquid level and either floats directly on the liquid surface (contact deck) or rests on pontoons several inches above the liquid surface (noncontact deck). The majority of aluminum internal floating roofs currently in service have noncontact decks. A typical internal floating roof tank is shown in Figure 7.1-4.

Contact decks can be (1) aluminum sandwich panels that are bolted together, with a honeycomb aluminum core floating in contact with the liquid; (2) pan steel decks floating in contact with the liquid, with or without pontoons; and (3) resin-coated, fiberglass reinforced polyester (FRP), buoyant panels floating in contact with the liquid. The majority of internal contact floating decks currently in service are aluminum sandwich panel-type or pan steel-type. The FRP decks are less common. The panels of pan steel decks are usually welded together.

Noncontact decks are the most common type currently in use. Typical noncontact decks are constructed of an aluminum deck and an aluminum grid framework supported above the liquid surface by tubular aluminum pontoons or some other buoyant structure. The noncontact decks usually have bolted

deck seams. Installing a floating roof minimizes evaporative losses of the stored liquid. Both contact and noncontact decks incorporate rim seals and deck fittings for the same purposes previously described for external floating roof tanks. Evaporative losses from floating roofs may come from deck fittings, nonwelded deck seams, and the annular space between the deck and tank wall. In addition, these tanks are freely vented by circulation vents at the top of the fixed roof. The vents minimize the possibility of organic vapor accumulation in the tank vapor space in concentrations approaching the flammable range. An internal floating roof tank not freely vented is considered a pressure tank. Emission estimation methods for such tanks are not provided in AP-42.

7.1.1.4 Domed External Floating Roof Tanks –

Domed external (or covered) floating roof tanks have the heavier type of deck used in external floating roof tanks as well as a fixed roof at the top of the shell like internal floating roof tanks. Domed external floating roof tanks usually result from retrofitting an external floating roof tank with a fixed roof. This type of tank is very similar to an internal floating roof tank with a welded deck and a self supporting fixed roof. A typical domed external floating roof tank is shown in Figure 7.1-5.

As with the internal floating roof tanks, the function of the fixed roof is not to act as a vapor barrier, but to block the wind. The type of fixed roof most commonly used is a self supporting aluminum dome roof, which is of bolted construction. Like the internal floating roof tanks, these tanks are freely vented by circulation vents at the top of the fixed roof. The deck fittings and rim seals, however, are identical to those on external floating roof tanks. In the event that the floating deck is replaced with the lighter IFRT-type deck, the tank would then be considered an internal floating roof tank.

7.1.1.5 Variable Vapor Space Tanks –

Variable vapor space tanks are equipped with expandable vapor reservoirs to accommodate vapor volume fluctuations attributable to temperature and barometric pressure changes. Although variable vapor space tanks are sometimes used independently, they are normally connected to the vapor spaces of one or more fixed roof tanks. The two most common types of variable vapor space tanks are lifter roof tanks and flexible diaphragm tanks.

Lifter roof tanks have a telescoping roof that fits loosely around the outside of the main tank wall. The space between the roof and the wall is closed by either a wet seal, which is a trough filled with liquid, or a dry seal, which uses a flexible coated fabric.

Flexible diaphragm tanks use flexible membranes to provide expandable volume. They may be either separate gasholder units or integral units mounted atop fixed roof tanks.

Variable vapor space tank losses occur during tank filling when vapor is displaced by liquid. Loss of vapor occurs only when the tank's vapor storage capacity is exceeded.

7.1.1.6 Pressure Tanks –

Two classes of pressure tanks are in general use: low pressure (2.5 to 15 psig) and high pressure (higher than 15 psig). Pressure tanks generally are used for storing organic liquids and gases with high vapor pressures and are found in many sizes and shapes, depending on the operating pressure of the tank. Pressure tanks are equipped with a pressure/vacuum vent that is set to prevent venting loss from boiling and breathing loss from daily temperature or barometric pressure changes. High-pressure storage tanks can be operated so that virtually no evaporative or working losses occur. In low-pressure tanks, working

losses can occur with atmospheric venting of the tank during filling operations. No appropriate correlations are available to estimate vapor losses from pressure tanks.

7.1.2 Emission Mechanisms And Control

Emissions from organic liquids in storage occur because of evaporative loss of the liquid during its storage and as a result of changes in the liquid level. The emission sources vary with tank design, as does the relative contribution of each type of emission source. Emissions from fixed roof tanks are a result of evaporative losses during storage (known as breathing losses or standing storage losses) and evaporative losses during filling and emptying operations (known as working losses). External and internal floating roof tanks are emission sources because of evaporative losses that occur during standing storage and withdrawal of liquid from the tank. Standing storage losses are a result of evaporative losses through rim seals, deck fittings, and/or deck seams. The loss mechanisms for fixed roof and external and internal floating roof tanks are described in more detail in this section. Variable vapor space tanks are also emission sources because of evaporative losses that result during filling operations. The loss mechanism for variable vapor space tanks is also described in this section. Emissions occur from pressure tanks, as well. However, loss mechanisms from these sources are not described in this section.

7.1.2.1 Fixed Roof Tanks –

The two significant types of emissions from fixed roof tanks are storage and working losses. Storage loss is the expulsion of vapor from a tank through vapor expansion and contraction, which are the results of changes in temperature and barometric pressure. This loss occurs without any liquid level change in the tank.

The combined loss from filling and emptying is called working loss. Evaporation during filling operations is a result of an increase in the liquid level in the tank. As the liquid level increases, the pressure inside the tank exceeds the relief pressure and vapors are expelled from the tank. Evaporative loss during emptying occurs when air drawn into the tank during liquid removal becomes saturated with organic vapor and expands, thus exceeding the capacity of the vapor space.

Fixed roof tank emissions vary as a function of vessel capacity, vapor pressure of the stored liquid, utilization rate of the tank, and atmospheric conditions at the tank location.

Several methods are used to control emissions from fixed roof tanks. Emissions from fixed roof tanks can be controlled by installing an internal floating roof and seals to minimize evaporation of the product being stored. The control efficiency of this method ranges from 60 to 99 percent, depending on the type of roof and seals installed and on the type of organic liquid stored.

Vapor balancing is another means of emission control. Vapor balancing is probably most common in the filling of tanks at gasoline stations. As the storage tank is filled, the vapors expelled from the storage tank are directed to the emptying gasoline tanker truck. The truck then transports the vapors to a centralized station where a vapor recovery or control system is used to control emissions. Vapor balancing can have control efficiencies as high as 90 to 98 percent if the vapors are subjected to vapor recovery or control. If the truck vents the vapor to the atmosphere instead of to a recovery or control system, no control is achieved.

Vapor recovery systems collect emissions from storage vessels and convert them to liquid product. Several vapor recovery procedures may be used, including vapor/liquid absorption, vapor compression, vapor cooling, vapor/solid adsorption, or a combination of these. The overall control

efficiencies of vapor recovery systems are as high as 90 to 98 percent, depending on the methods used, the design of the unit, the composition of vapors recovered, and the mechanical condition of the system.

In a typical thermal oxidation system, the air/vapor mixture is injected through a burner manifold into the combustion area of an incinerator. Control efficiencies for this system can range from 96 to 99 percent.

7.1.2.2 Floating Roof Tanks[2-7] –

Total emissions from floating roof tanks are the sum of withdrawal losses and standing storage losses. Withdrawal losses occur as the liquid level, and thus the floating roof, is lowered. Some liquid remains on the inner tank wall surface and evaporates. For an internal floating roof tank that has a column supported fixed roof, some liquid also clings to the columns and evaporates. Evaporative loss occurs until the tank is filled and the exposed surfaces are again covered. Standing storage losses from floating roof tanks include rim seal and deck fitting losses, and for internal floating roof tanks also include deck seam losses for constructions other than welded decks. Other potential standing storage loss mechanisms include breathing losses as a result of temperature and pressure changes.

Rim seal losses can occur through many complex mechanisms, but for external floating roof tanks, the majority of rim seal vapor losses have been found to be wind induced. No dominant wind loss mechanism has been identified for internal floating roof or domed external floating roof tank rim seal losses. Losses can also occur due to permeation of the rim seal material by the vapor or via a wicking effect of the liquid, but permeation of the rim seal material generally does not occur if the correct seal fabric is used. Testing has indicated that breathing, solubility, and wicking loss mechanisms are small in comparison to the wind-induced loss. The rim seal factors presented in this section incorporate all types of losses.

The rim seal system is used to allow the floating roof to rise and fall within the tank as the liquid level changes. The rim seal system also helps to fill the annular space between the rim and the tank shell and therefore minimize evaporative losses from this area. A rim seal system may consist of just a primary seal or a primary and a secondary seal, which is mounted above the primary seal. Examples of primary and secondary seal configurations are shown in Figures 7.1-6, 7.1-7, and 7.1-8.

The primary seal serves as a vapor conservation device by closing the annular space between the edge of the floating deck and the tank wall. Three basic types of primary seals are used on external floating roofs: mechanical (metallic) shoe, resilient filled (nonmetallic), and flexible wiper seals. Some primary seals on external floating roof tanks are protected by a weather shield. Weather shields may be of metallic, elastomeric, or composite construction and provide the primary seal with longer life by protecting the primary seal fabric from deterioration due to exposure to weather, debris, and sunlight. Internal floating roofs typically incorporate one of two types of flexible, product-resistant seals: resilient foam-filled seals or wiper seals. Mechanical shoe seals, resilient filled seals, and wiper seals are discussed below.

A mechanical shoe seal uses a light-gauge metallic band as the sliding contact with the shell of the tank, as shown in Figure 7.1-7. The band is formed as a series of sheets (shoes) which are joined together to form a ring, and are held against the tank shell by a mechanical device. The shoes are normally 3 to 5 feet deep, providing a potentially large contact area with the tank shell. Expansion and contraction of the ring can be provided for as the ring passes over shell irregularities or rivets by jointing narrow pieces of fabric into the ring or by crimping the shoes at intervals. The bottoms of the shoes extend below the liquid surface to confine the rim vapor space between the shoe and the floating deck.

The rim vapor space, which is bounded by the shoe, the rim of the floating deck, and the liquid surface, is sealed from the atmosphere by bolting or clamping a coated fabric, called the primary seal fabric, which extends from the shoe to the rim to form an "envelope". Two locations are used for attaching the primary seal fabric. The fabric is most commonly attached to the top of the shoe and the rim of the floating deck. To reduce the rim vapor space, the fabric can be attached to the shoe and the floating deck rim near the liquid surface. Rim vents can be used to relieve any excess pressure or vacuum in the vapor space.

A resilient filled seal can be mounted to eliminate the vapor space between the rim seal and liquid surface (liquid mounted) or to allow a vapor space between the rim seal and the liquid surface (vapor mounted). Both configurations are shown in Figures 7.1-6 and 7.1-7. Resilient filled seals work because of the expansion and contraction of a resilient material to maintain contact with the tank shell while accommodating varying annular rim space widths. These rim seals allow the roof to move up and down freely, without binding.

Resilient filled seals typically consist of a core of open-cell foam encapsulated in a coated fabric. The seals are attached to a mounting on the deck perimeter and extend around the deck circumference. Polyurethane-coated nylon fabric and polyurethane foam are commonly used materials. For emission control, it is important that the attachment of the seal to the deck and the radial seal joints be vapor-tight and that the seal be in substantial contact with the tank shell.

Wiper seals generally consist of a continuous annular blade of flexible material fastened to a mounting bracket on the deck perimeter that spans the annular rim space and contacts the tank shell. This type of seal is depicted in Figure 7.1-6. New tanks with wiper seals may have dual wipers, one mounted above the other. The mounting is such that the blade is flexed, and its elasticity provides a sealing pressure against the tank shell.

Wiper seals are vapor mounted; a vapor space exists between the liquid stock and the bottom of the seal. For emission control, it is important that the mounting be vapor-tight, that the seal extend around the circumference of the deck and that the blade be in substantial contact with the tank shell. Two types of materials are commonly used to make the wipers. One type consists of a cellular, elastomeric material tapered in cross section with the thicker portion at the mounting. Rubber is a commonly used material; urethane and cellular plastic are also available. All radial joints in the blade are joined. The second type of material that can be used is a foam core wrapped with a coated fabric. Polyurethane on nylon fabric and polyurethane foam are common materials. The core provides the flexibility and support, while the fabric provides the vapor barrier and wear surface.

A secondary seal may be used to provide some additional evaporative loss control over that achieved by the primary seal. Secondary seals can be either flexible wiper seals or resilient filled seals. For external floating roof tanks, two configurations of secondary seals are available: shoe mounted and rim mounted, as shown in Figure 7.1-8. Rim mounted secondary seals are more effective in reducing losses than shoe mounted secondary seals because they cover the entire rim vapor space. For internal floating roof tanks, the secondary seal is mounted to an extended vertical rim plate, above the primary seal, as shown in Figure 7.1-8. However, for some floating roof tanks, using a secondary seal further limits the tank's operating capacity due to the need to keep the seal from interfering with fixed roof rafters or to keep the secondary seal in contact with the tank shell when the tank is filled.

The deck fitting losses from floating roof tanks can be explained by the same mechanisms as the rim seal losses. However, the relative contribution of each mechanism is not known. The deck fitting losses identified in this section account for the combined effect of all of the mechanisms.

Numerous fittings pass through or are attached to floating roof decks to accommodate structural support components or allow for operational functions. Internal floating roof deck fittings are typically of different configuration than those for external floating roof decks. Rather than having tall housings to avoid rainwater entry, internal floating roof deck fittings tend to have lower profile housings to minimize the potential for the fitting to contact the fixed roof when the tank is filled. Deck fittings can be a source of evaporative loss when they require openings in the deck. The most common components that require openings in the deck are described below.

1. Access hatches. An access hatch is an opening in the deck with a peripheral vertical well that is large enough to provide passage for workers and materials through the deck for construction or servicing. Attached to the opening is a removable cover that may be bolted and/or gasketed to reduce evaporative loss. On internal floating roof tanks with noncontact decks, the well should extend down into the liquid to seal off the vapor space below the noncontact deck. A typical access hatch is shown in Figure 7.1-9.

2. Gauge-floats. A gauge-float is used to indicate the level of liquid within the tank. The float rests on the liquid surface and is housed inside a well that is closed by a cover. The cover may be bolted and/or gasketed to reduce evaporation loss. As with other similar deck penetrations, the well extends down into the liquid on noncontact decks in internal floating roof tanks. A typical gauge-float and well are shown in Figure 7.1-9.

3. Gauge-hatch/sample ports. A gauge-hatch/sample port consists of a pipe sleeve equipped with a self-closing gasketed cover (to reduce evaporative losses) and allows hand-gauging or sampling of the stored liquid. The gauge-hatch/sample port is usually located beneath the gauger's platform, which is mounted on top of the tank shell. A cord may be attached to the self-closing gasketed cover so that the cover can be opened from the platform. A typical gauge-hatch/sample port is shown in Figure 7.1-9.

4. Rim vents. Rim vents are used on tanks equipped with a seal design that creates a vapor pocket in the seal and rim area, such as a mechanical shoe seal. A typical rim vent is shown in Figure 7.1-10. The vent is used to release any excess pressure or vacuum that is present in the vapor space bounded by the primary-seal shoe and the floating roof rim and the primary seal fabric and the liquid level. Rim vents usually consist of weighted pallets that rest on a gasketed cover.

5. Deck drains. Currently two types of deck drains are in use (closed and open deck drains) to remove rainwater from the floating deck. Open deck drains can be either flush or overflow drains. Both types consist of a pipe that extends below the deck to allow the rainwater to drain into the stored liquid. Only open deck drains are subject to evaporative loss. Flush drains are flush with the deck surface. Overflow drains are elevated above the deck surface. Typical overflow and flush deck drains are shown in Figure 7.1-10. Overflow drains are used to limit the maximum amount of rainwater that can accumulate on the floating deck, providing emergency drainage of rainwater if necessary. Closed deck drains carry rainwater from the surface of the deck though a flexible hose or some other type of piping system that runs through the stored liquid prior to exiting the tank. The rainwater does not come in contact with the liquid, so no evaporative losses result. Overflow drains are usually used in conjunction with a closed drain system to carry rainwater outside the tank.

6. Deck legs. Deck legs are used to prevent damage to fittings underneath the deck and to allow for tank cleaning or repair, by holding the deck at a predetermined distance off the tank bottom. These supports consist of adjustable or fixed legs attached to the floating deck or hangers suspended from the fixed roof. For adjustable legs or hangers, the load-carrying element passes through a well or sleeve into the deck. With noncontact decks, the well should extend into the liquid. Evaporative losses may occur in the annulus between the deck leg and its sleeve. A typical deck leg is shown in Figure 7.1-10.

7. Unslotted guidepoles and wells. A guidepole is an antirotational device that is fixed to the top and bottom of the tank, passing through a well in the floating roof. The guidepole is used to prevent adverse movement of the roof and thus damage to deck fittings and the rim seal system. In some cases, an unslotted guidepole is used for gauging purposes, but there is a potential for differences in the pressure, level, and composition of the liquid inside and outside of the guidepole. A typical guidepole and well are shown in Figure 7.1-11.

8. Slotted (perforated) guidepoles and wells. The function of the slotted guidepole is similar to the unslotted guidepole but also has additional features. Perforated guidepoles can be either slotted or drilled hole guidepoles. A typical slotted guidepole and well are shown in Figure 7.1-11. As shown in this figure, the guide pole is slotted to allow stored liquid to enter. The same can be accomplished with drilled holes. The liquid entering the guidepole is well mixed, having the same composition as the remainder of the stored liquid, and is at the same liquid level as the liquid in the tank. Representative samples can therefore be collected from the slotted or drilled hole guidepole. However, evaporative loss from the guidepole can be reduced by modifying the guidepole or well or by placing a float inside the guidepole. Guidepoles are also referred to as gauge poles, gauge pipes, or stilling wells.

9. Vacuum breakers. A vacuum breaker equalizes the pressure of the vapor space across the deck as the deck is either being landed on or floated off its legs. A typical vacuum breaker is shown in Figure 7.1-10. As depicted in this figure, the vacuum breaker consists of a well with a cover. Attached to the underside of the cover is a guided leg long enough to contact the tank bottom as the floating deck approaches. When in contact with the tank bottom, the guided leg mechanically opens the breaker by lifting the cover off the well; otherwise, the cover closes the well. The closure may be gasketed or ungasketed. Because the purpose of the vacuum breaker is to allow the free exchange of air and/or vapor, the well does not extend appreciably below the deck.

Fittings used only on internal floating roof tanks include column wells, ladder wells, and stub drains.

1. Columns and wells. The most common fixed-roof designs are normally supported from inside the tank by means of vertical columns, which necessarily penetrate an internal floating deck. (Some fixed roofs are entirely self-supporting and, therefore, have no support columns.) Column wells are similar to unslotted guide pole wells on external floating roofs. Columns are made of pipe with circular cross sections or of structural shapes with irregular cross sections (built-up). The number of columns varies with tank diameter, from a minimum of 1 to over 50 for very large diameter tanks. A typical fixed roof support column and well are shown in Figure 7.1-9.

The columns pass through deck openings via peripheral vertical wells. With noncontact decks, the well should extend down into the liquid stock. Generally, a closure device exists between the top of the well and the column. Several proprietary designs exist for this closure, including sliding covers and fabric sleeves, which must accommodate the movements of the deck relative to the column as the liquid level changes. A sliding cover rests on the upper rim of the column well (which is normally fixed to the deck) and bridges the gap or space between the column well and the column. The cover, which has a cutout, or opening, around the column slides vertically relative to the column as the deck raises and lowers. At the same time, the cover slides horizontally relative to the rim of the well. A gasket around the rim of the well reduces emissions from this fitting. A flexible fabric sleeve seal between the rim of the well and the column (with a cutout or opening, to allow vertical motion of the seal relative to the columns) similarly accommodates limited horizontal motion of the deck relative to the column.

2. Ladders and wells. Some tanks are equipped with internal ladders that extend from a manhole in the fixed roof to the tank bottom. The deck opening through which the ladder passes is constructed

with similar design details and considerations to deck openings for column wells, as previously discussed. A typical ladder well is shown in Figure 7.1-12.

3. Stub drains. Bolted internal floating roof decks are typically equipped with stub drains to allow any stored product that may be on the deck surface to drain back to the underside of the deck. The drains are attached so that they are flush with the upper deck. Stub drains are approximately 1 inch in diameter and extend down into the product on noncontact decks.

Deck seams in internal floating roof tanks are a source of emissions to the extent that these seams may not be completely vapor tight if the deck is not welded. Generally, the same loss mechanisms for fittings apply to deck seams. The predominant mechanism depends on whether or not the deck is in contact with the stored liquid. The deck seam loss equation accounts for the effects of all contributing loss mechamisms.

7.1.3 Emission Estimation Procedures

The following section presents the emission estimation procedures for fixed roof, external floating roof, domed external floating roof, and internal floating roof tanks. These procedures are valid for all petroleum liquids, pure volatile organic liquids, and chemical mixtures with similar true vapor pressures. It is important to note that in all the emission estimation procedures the physical properties of the vapor do not include the noncondensibles (e. g., air) in the gas but only refer to the condensible components of the stored liquid. To aid in the emission estimation procedures, a list of variables with their corresponding definitions was developed and is presented in Table 7.1-1.

The factors presented in AP-42 are those that are currently available and have been reviewed and approved by the U. S. Environmental Protection Agency. As storage tank equipment vendors design new floating decks and equipment, new emission factors may be developed based on that equipment. If the new emission factors are reviewed and approved, the emission factors will be added to AP-42 during the next update.

The emission estimation procedures outlined in this chapter have been used as the basis for the development of a software program to estimate emissions from storage tanks. The software program entitled "TANKS" is available through the EPA’s website at www.epa.gov/ttn/chief/software/tanks/.

7.1.3.1 Total Losses From Fixed Roof Tanks[4,8-14] –

The following equations, provided to estimate standing storage and working loss emissions, apply to tanks with vertical cylindrical shells and fixed roofs. These tanks must be substantially liquid- and vapor-tight and must operate approximately at atmospheric pressure. The equations are not intended to be used in estimating losses from unstable or boiling stocks or from mixtures of hydrocarbons or petrochemicals for which the vapor pressure is not known or cannot be readily predicted. Total losses from fixed roof tanks are equal to the sum of the standing storage loss and working loss:

$$L_T = L_S + L_W \quad (1\text{-}1)$$

where:

L_T = total losses, lb/yr
L_S = standing storage losses, lb/yr, see Equation 1-2
L_W = working losses, lb/yr, see Equation 1-29

7.1.3.1.1 Standing Storage Loss

The standing storage loss, L_S, refers to the loss of stock vapors as a result of tank vapor space breathing. Fixed roof tank standing storage losses can be estimated from Equation 1-2, which comes from the previous edition of Chapter 7 of AP-42.

$$L_S = 365\ V_V\ W_V\ K_E\ K_S \quad (1\text{-}2)$$

where:

L_S = standing storage loss, lb/yr
V_V = vapor space volume, ft^3, see Equation 1-3
W_V = stock vapor density, lb/ft^3
K_E = vapor space expansion factor, dimensionless
K_S = vented vapor saturation factor, dimensionless
365 = constant, the number of daily events in a year, $(year)^{-1}$

Tank Vapor Space Volume, V_V - The tank vapor space volume is calculated using the following equation:

$$V_V = \left(\frac{\pi}{4} D^2\right) H_{VO} \quad (1\text{-}3)$$

where:

V_V = vapor space volume, ft^3
D = tank diameter, ft, see Equation 1-13 for horizontal tanks
H_{VO} = vapor space outage, ft, see Equation 1-15

The standing storage loss equation can be simplified by combining Equation 1-2 with Equation 1-3. The result is Equation 1-4.

$$L_S = 365 K_E \left(\frac{\pi}{4} D^2 \right) H_{VO} K_S W_V \quad (1\text{-}4)$$

where:

L_S = standing storage loss, lb/yr
K_E = vapor space expansion factor, dimensionless, see Equation 1-5, 1-6, or 1-7
D = diameter, ft, see Equation 1-13 for horizontal tanks
H_{VO} = vapor space outage, ft, see Equation 1-15; use $H_E/2$ from Equation 1-14 for horizontal tanks
K_S = vented vapor saturation factor, dimensionless, see Equation 1-20
W_V = stock vapor density, lb/ft^3, see Equation 1-21
365 = constant, the number of daily events in a year, (year)$^{-1}$

Vapor Space Expansion Factor, K_E

The calculation of the vapor space expansion factor, K_E, depends upon the properties of the liquid in the tank and the breather vent settings. If the liquid stock has a true vapor pressure greater than 0.1 psia, or if the breather vent settings are higher than the typical range of ±0.03 psig, see Equation 1-7. If the liquid stored in the fixed roof tank has a true vapor pressure less than 0.1 psia and the tank breather vent settings are ±0.03 psig, use either Equation 1-5 or Equation 1-6.

If the tank location and tank color and condition are known, K_E is calculated using the following equation:

$$K_E = 0.0018 \Delta T_V = 0.0018 \left[0.72 (T_{AX} - T_{AN}) + 0.028 \alpha I \right] \quad (1\text{-}5)$$

where:

K_E = vapor space expansion factor, dimensionless
ΔT_V = daily vapor temperature range, °R
T_{AX} = daily maximum ambient temperature, °R
T_{AN} = daily minimum ambient temperature, °R
α = tank paint solar absorptance, dimensionless
I = daily total solar insolation on a horizontal surface, Btu/(ft^2 day)
0.0018 = constant, (°R)$^{-1}$
0.72 = constant, dimensionless
0.028 = constant, (°R ft^2 day)/Btu

If the tank location is unknown, a value of K_E can be calculated using typical meteorological conditions for the lower 48 states. The typical value for daily solar insolation is 1,370 Btu/(ft^2 day), the daily range of ambient temperature is 21°R, the daily minimum ambient temperature is 473.5 °R, and the tank paint solar absorptance is 0.17 for white paint in good condition. Substituting these values into Equation 1-5 results in a value of 0.04, as shown in Equation 1-6.

$$K_E = 0.04 \quad (1\text{-}6)$$

When the liquid stock has a true vapor pressure greater than 0.1 psia, a more accurate estimate of the vapor space expansion factor, K_E, is obtained by Equation 1-7. As shown in the equation, K_E is greater than zero. If K_E is less than zero, standing storage losses will not occur.

$$K_E = \frac{\Delta T_V}{T_{LA}} + \frac{\Delta P_V - \Delta P_B}{P_A - P_{VA}} > 0 \quad (1\text{-}7)$$

where:

ΔT_V = daily vapor temperature range, °R; see Note 1
ΔP_V = daily vapor pressure range, psi; see Note 2
ΔP_B = breather vent pressure setting range, psi; see Note 3
P_A = atmospheric pressure, psia
P_{VA} = vapor pressure at daily average liquid surface temperature, psia; see Notes 1 and 2 for Equation 1-21
T_{LA} = daily average liquid surface temperature, °R; see Note 3 for Equation 1-21

Notes:

1. The daily vapor temperature range, ΔT_V, is calculated using the following equation:

$$\Delta T_V = 0.72\ \Delta T_A + 0.028\ \alpha\ I \quad (1\text{-}8)$$

where:

ΔT_V = daily vapor temperature range, °R
ΔT_A = daily ambient temperature range, °R; see Note 4
α = tank paint solar absorptance, dimensionless; see Table 7.1-6
I = daily total solar insolation factor, Btu/ft^2 d; see Table 7.1-7

2. The daily vapor pressure range, ΔP_V, can be calculated using the following equation:

$$\Delta P_V = P_{VX} - P_{VN} \quad (1\text{-}9)$$

where:

ΔP_V = daily vapor pressure range, psia
P_{VX} = vapor pressure at the daily maximum liquid surface temperature, psia; see Note 5
P_{VN} = vapor pressure at the daily minimum liquid surface temperature, psia; see Note 5

The following method can be used as an alternate means of calculating ΔP_V for petroleum liquids:

$$\Delta P_V = \frac{0.50\, B\, P_{VA}\, \Delta T_V}{T_{LA}^{\,2}} \qquad (1\text{-}10)$$

where:

ΔP_V = daily vapor pressure range, psia
B = constant in the vapor pressure equation, °R; see Note 2 to Equation 1-21
P_{VA} = vapor pressure at the daily average liquid surface temperature, psia; see Notes 1 and 2 to Equation 1-21
T_{LA} = daily average liquid surface temperature, °R; see Note 3 to Equation 1-21
ΔT_V = daily vapor temperature range, °R; see Note 1

3. The breather vent pressure setting range, ΔP_B, is calculated using the following equation:

$$\Delta P_B = P_{BP} - P_{BV} \qquad (1\text{-}11)$$

where:

ΔP_B = breather vent pressure setting range, psig
P_{BP} = breather vent pressure setting, psig
P_{BV} = breather vent vacuum setting, psig

If specific information on the breather vent pressure setting and vacuum setting is not available, assume 0.03 psig for P_{BP} and -0.03 psig for P_{BV} as typical values. If the fixed roof tank is of bolted or riveted construction in which the roof or shell plates are not vapor tight, assume that $\Delta P_B = 0$, even if a breather vent is used.

4. The daily ambient temperature range, ΔT_A, is calculated using the following equation:

$$\Delta T_A = T_{AX} - T_{AN} \qquad (1\text{-}12)$$

where:

ΔT_A = daily ambient temperature range, °R
T_{AX} = daily maximum ambient temperature, °R
T_{AN} = daily minimum ambient temperature, °R

Table 7.1-7 gives values of T_{AX} and T_{AN} for selected cities in the United States.

5. The vapor pressures associated with daily maximum and minimum liquid surface temperature, P_{VX} and P_{VN}, respectively, are calculated by substituting the corresponding temperatures, T_{LX} and T_{LN}, into the vapor pressure function discussed in Notes 1 and 2 to Equation 1-21. If T_{LX} and T_{LN} are unknown, Figure 7.1-17 can be used to calculate their values.

Diameter

For vertical tanks, the diameter is straightforward. If a user needs to estimate emissions from a horizontal fixed roof tank, some of the tank parameters can be modified before using the vertical tank emission estimating equations. First, by assuming that the tank is one-half filled, the surface area of the liquid in the tank is approximately equal to the length of the tank times the diameter of the tank. Next, assume that this area represents a circle, i.e., that the liquid is an upright cylinder. Therefore, the effective diameter, D_E, is then equal to:

$$D_E = \sqrt{\frac{L\,D}{\frac{\pi}{4}}} \qquad (1\text{-}13)$$

where:

D_E = effective tank diameter, ft
L = length of the horizontal tank, ft (for tanks with rounded ends, use the overall length)
D = diameter of a vertical cross-section of the horizontal tank, ft

By assuming the volume of the tank to be approximately equal to the cross-sectional area of the tank times the length of the tank, an effective height, H_E, of an equivalent upright cylinder may be calculated as:

$$H_E = \frac{\pi}{4} D \qquad (1\text{-}14)$$

D_E should be used in place of D in Equation 1-4 for calculating the standing storage loss (or in Equation 1-3, if calculating the tank vapor space volume). One-half of the effective height, H_E, should be used as the vapor space outage, H_{VO}, in these equations. This method yields only a very approximate value for emissions from horizontal storage tanks. For underground horizontal tanks, assume that no breathing or standing storage losses occur ($L_S = 0$) because the insulating nature of the earth limits the diurnal temperature change. No modifications to the working loss equation are necessary for either above-ground or underground horizontal tanks.

Vapor Space Outage

The vapor space outage, H_{VO} is the height of a cylinder of tank diameter, D, whose volume is equivalent to the vapor space volume of a fixed roof tank, including the volume under the cone or dome roof. The vapor space outage, H_{VO}, is estimated from:

$$H_{VO} = H_S - H_L + H_{RO} \qquad (1\text{-}15)$$

where:

H_{VO} = vapor space outage, ft; use $H_E/2$ from Equation 1-14 for horizontal tanks
H_S = tank shell height, ft
H_L = liquid height, ft
H_{RO} = roof outage, ft; see Note 1 for a cone roof or Note 2 for a dome roof

Notes:

1. For a cone roof, the roof outage, H_{RO}, is calculated as follows:

$$H_{RO} = 1/3\ H_R \quad (1\text{-}16)$$

where:

H_{RO} = roof outage (or shell height equivalent to the volume contained under the roof), ft
H_R = tank roof height, ft

$$H_R = S_R\ R_S \quad (1\text{-}17)$$

where:

S_R = tank cone roof slope, ft/ft; if unknown, a standard value of 0.0625 is used
R_S = tank shell radius, ft

2. For a dome roof, the roof outage, H_{RO}, is calculated as follows:

$$H_{RO} = H_R \left[\frac{1}{2} + \frac{1}{6} \left[\frac{H_R}{R_S} \right]^2 \right] \quad (1\text{-}18)$$

where:

H_{RO} = roof outage, ft
R_S = tank shell radius, ft
H_R = tank roof height, ft

$$H_R = R_R - \left(R_R^2 - R_S^2 \right)^{0.5} \quad (1\text{-}19)$$

H_R = tank roof height, ft
R_R = tank dome roof radius, ft
R_S = tank shell radius, ft

The value of R_R usually ranges from 0.8D - 1.2D, where D = 2 R_S. If R_R is unknown, the tank diameter is used in its place. If the tank diameter is used as the value for R_R, Equations 1-18 and 1-19 reduce to H_{RO} = 0.137 R_S and H_R = 0.268 R_S.

Vented Vapor Saturation Factor, K_S

The vented vapor saturation factor, K_S, is calculated using the following equation:

$$K_S = \frac{1}{1 + 0.053\, P_{VA}\, H_{VO}} \quad (1\text{-}20)$$

where:

K_S = vented vapor saturation factor, dimensionless
P_{VA} = vapor pressure at daily average liquid surface temperature, psia; see Notes 1 and 2 to Equation 1-21
H_{VO} = vapor space outage, ft, see Equation 1-15
0.053 = constant, $(\text{psia-ft})^{-1}$

Stock Vapor Density, W_V - The density of the vapor is calculated using the following equation:

$$W_V = \frac{M_V \ P_{VA}}{R \ T_{LA}} \quad (1\text{-}21)$$

where:

W_V = vapor density, lb/ft^3
M_V = vapor molecular weight, lb/lb-mole; see Note 1
R = the ideal gas constant, 10.731 psia ft^3/lb-mole °R
P_{VA} = vapor pressure at daily average liquid surface temperature, psia; see Notes 1 and 2
T_{LA} = daily average liquid surface temperature, °R; see Note 3

Notes:

1. The molecular weight of the vapor, M_V, can be determined from Table 7.1-2 and 7.1-3 for selected petroleum liquids and volatile organic liquids, respectively, or by analyzing vapor samples. Where mixtures of organic liquids are stored in a tank, M_V can be calculated from the liquid composition. The molecular weight of the vapor, M_V, is equal to the sum of the molecular weight, M_i, multiplied by the vapor mole fraction, y_i, for each component. The vapor mole fraction is equal to the partial pressure of component i divided by the total vapor pressure. The partial pressure of component i is equal to the true vapor pressure of component i (P) multiplied by the liquid mole fraction, (x_i). Therefore,

$$M_V = \sum M_i \ y_i = \sum M_i \left(\frac{P x_i}{P_{VA}} \right) \quad (1\text{-}22)$$

where:

P_{VA}, total vapor pressure of the stored liquid, by Raoult's Law, is:

$$P_{VA} = \sum P x_i \quad (1\text{-}23)$$

For more detailed information, please refer to Section 7.1.4.

2. True vapor pressure is the equilibrium partial pressure exerted by a volatile organic liquid, as defined by ASTM-D 2879 or as obtained from standard reference texts. Reid vapor pressure is the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases, as determined by ASTM-D-323. True vapor pressures for organic liquids can be determined from Table 7.1-3. True vapor pressure can be determined for crude oils using Figures 7.1-13a and 7.1-13b. For refined stocks (gasolines and naphthas), Table 7.1-2 or Figures 7.1-14a and 7.1-14b can be used. In order to use Figures 7.1-13a, 7.1-13b, 7.1-14a, or 7.1-14b, the stored liquid surface temperature, T_{LA}, must be determined in degrees Fahrenheit. See Note 3 to determine T_{LA}.

Alternatively, true vapor pressure for selected petroleum liquid stocks, at the stored liquid surface temperature, can be determined using the following equation:

$$P_{VA} = \exp\left[A - \left(\frac{B}{T_{LA}} \right) \right] \quad (1\text{-}24)$$

where:

exp = exponential function
A = constant in the vapor pressure equation, dimensionless
B = constant in the vapor pressure equation, °R
T_{LA} = daily average liquid surface temperature, °R
P_{VA} = true vapor pressure, psia

For selected petroleum liquid stocks, physical property data are presented in Table 7.1-2. For refined petroleum stocks, the constants A and B can be calculated from the equations presented in Figure 7.1-15 and the distillation slopes presented in Table 7.1-4. For crude oil stocks, the constants A and B can be calculated from the equations presented in Figure 7.1-16. Note that in Equation 1-24, T_{LA} is determined in degrees Rankine instead of degrees Fahrenheit.

The true vapor pressure of organic liquids at the stored liquid temperature can be estimated by Antoine's equation:

$$\log P_{VA} = A - \left(\frac{B}{T_{LA} + C} \right) \quad (1\text{-}25)$$

where:

A = constant in vapor pressure equation
B = constant in vapor pressure equation
C = constant in vapor pressure equation
T_{LA} = daily average liquid surface temperature, °C
P_{VA} = vapor pressure at average liquid surface temperature, mm Hg

For organic liquids, the values for the constants A, B, and C are listed in Table 7.1-5. Note that in Equation 1-25, T_{LA} is determined in degrees Celsius instead of degrees Rankine. Also, in Equation 1-25, P_{VA} is determined in mm of Hg rather than psia (760 mm Hg = 14.7 psia).

3. If the daily average liquid surface temperature, T_{LA}, is unknown, it is calculated using the following equation:

$$T_{LA} = 0.44T_{AA} + 0.56T_B + 0.0079\ \alpha\ I \quad (1\text{-}26)$$

where:

T_{LA} = daily average liquid surface temperature, °R
T_{AA} = daily average ambient temperature, °R; see Note 4
T_B = liquid bulk temperature, °R; see Note 5
α = tank paint solar absorptance, dimensionless; see Table 7.1-6
I = daily total solar insolation factor, Btu/(ft^2 day); see Table 7.1-7

If T_{LA} is used to calculate P_{VA} from Figures 7.1-13a, 7.1-13b, 7.1-14a, or 7.1-14b, T_{LA} must be converted from degrees Rankine to degrees Fahrenheit (°F = °R - 460). If T_{LA} is used to calculate P_{VA} from Equation 1-25, T_{LA} must be converted from degrees Rankine to degrees Celsius (°C = [°R - 492]/1.8). Equation 1-26 should not be used to estimate liquid surface temperature from insulated tanks.

In the case of insulated tanks, the average liquid surface temperature should be based on liquid surface temperature measurements from the tank.

4. The daily average ambient temperature, T_{AA}, is calculated using the following equation:

$$T_{AA} = \left(\frac{T_{AX} + T_{AN}}{2} \right) \quad (1\text{-}27)$$

where:

T_{AA} = daily average ambient temperature, °R
T_{AX} = daily maximum ambient temperature, °R
T_{AN} = daily minimum ambient temperature, °R

Table 7.1-7 gives values of T_{AX} and T_{AN} for selected U.S. cities.

5. The liquid bulk temperature, T_B, is calculated using the following equation:

$$T_B = T_{AA} + 6\alpha - 1 \quad (1\text{-}28)$$

where:

T_B = liquid bulk temperature, °R
T_{AA} = daily average ambient temperature, °R, as calculated in Note 4
α = tank paint solar absorptance, dimensionless; see Table 7.1-6.

7.1.3.1.2 Working Loss

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

$$L_W = 0.0010\, M_V\, P_{VA}\, Q\, K_N\, K_P \quad (1\text{-}29)$$

where:

L_W = working loss, lb/yr
M_V = vapor molecular weight, lb/lb-mole; see Note 1 to Equation 1-21
P_{VA} = vapor pressure at daily average liquid surface temperature, psia; see Notes 1 and 2 to Equation 1-21
Q = annual net throughput (tank capacity [bbl] times annual turnover rate), bbl/yr
K_N = working loss turnover (saturation) factor, dimensionless; see Figure 7.1-18
for turnovers >36, $K_N = (180 + N)/6N$
for turnovers ≤36, $K_N = 1$

N = number of turnovers per year, dimensionless

$$N = \frac{5.614\, Q}{V_{LX}} \quad (1\text{-}30)$$

where:

V_{LX} = tank maximum liquid volume, ft^3

$$V_{LX} = \frac{\pi}{4} D^2 \, H_{LX} \tag{1-31}$$

where:

D = diameter, ft
H_{LX} = maximum liquid height, ft
K_P = working loss product factor, dimensionless
for crude oils $K_P = 0.75$
for all other organic liquids, $K_P = 1$

Using the following steps, Equation 1-29 can be simplified to combine all variables into one equation.

Using Equation 1-21, the term "$M_V P_{VA}$" can be replaced with Equation 1-32.

$$M_V \, P_{VA} = W_V \, R \, T_{LA} \tag{1-32}$$

Using a combination of Equation 1-30 and Equation 1-31, the term "Q" can be replaced with Equation 1-33.

$$Q = \frac{N \, H_{LX}}{5.614} \left(\frac{\pi}{4} \right) D^2 \tag{1-33}$$

Assuming a standard value of R to be 10.731 ft^3 psia/(lb-mole °R), the result is Equation 1-34.

$$L_W = \left(\frac{0.0010}{5.614} \right) (10.731) \, T_{LA} \, N \, H_{LX} \left(\frac{\pi}{4} \right) D^2 \, K_N \, K_P \, W_V \tag{1-34}$$

By assuming the temperature to be 60°F (520°R), and adding the vent setting correction factor, K_B, the result is Equation 1-35. The vent setting correction factor accounts for any reduction in emissions due to the condensation of vapors prior to the opening of the vent. This correction factor will only affect the calculation if the vent settings are greater than ±0.03 psig.

$$L_W = N\ H_{LX} \left(\frac{\pi}{4}\right) D^2\ K_N\ K_P\ W_V\ K_B \quad (1\text{-}35)$$

where:

L_W = working loss, lb/yr
N = number of turnovers per year, $(year)^{-1}$
H_{LX} = maximum liquid height, ft
D = diameter, ft
K_N = working loss turnover (saturation) factor, dimensionless; see Figure 7.1-18
for turnovers > 36, $K_N = (180 + N)/6N$
for turnovers ≤ 36, $K_N = 1$
K_P = working loss product factor, dimensionless
for crude oils $K_P = 0.75$
for all other organic liquids, $K_P = 1$
W_V = vapor density, lb/ft^3, see Equation 1-21
K_B = vent setting correction factor, dimensionless
for open vents and for a vent setting range up to ± 0.03 psig, $K_B = 1$

Vent Setting Correction Factor

When the breather vent settings are greater than the typical values of ± 0.03 psig, and the condition expressed in Equation 1-36 is met, a vent setting correction factor, K_B, must be determined using Equation 1-37. This value of K_B will be used in Equation 1-35 to calculate working losses.

When:

$$K_N \left[\frac{P_{BP} + P_A}{P_I + P_A}\right] > 1.0 \quad (1\text{-}36)$$

Then:

$$K_B = \left[\frac{\frac{P_I + P_A}{K_N} - P_{VA}}{P_{BP} + P_A - P_{VA}} \right] \quad (1\text{-}37)$$

where:

K_B = vent setting correction factor, dimensionless

P_I = pressure of the vapor space at normal operating conditions, psig
P_I is an actual pressure reading (the gauge pressure). If the tank is held at atmospheric pressure (not under a vacuum or held at a steady pressure) P_I would be 0.

P_A = atmospheric pressure, psia

K_N = working loss turnover (saturation) factor (dimensionless)
for turnovers > 36, $K_N = (180 + N)/6N$
for turnovers ≤ 36, $K_N = 1$

P_{VA} = vapor pressure at the daily average liquid surface temperature, psia; see Notes 1 and 2 to Equation 1-21

P_{BP} = breather vent pressure setting, psig.

7.1.3.2 Total Losses From Floating Roof Tanks[3-5,13,15-17] –

Total floating roof tank emissions are the sum of rim seal, withdrawal, deck fitting, and deck seam losses. The equations presented in this subsection apply only to floating roof tanks. The equations are not intended to be used in the following applications:

1. To estimate losses from unstable or boiling stocks or from mixtures of hydrocarbons or petrochemicals for which the vapor pressure is not known or cannot readily be predicted;

2. To estimate losses from closed internal or closed domed external floating roof tanks (tanks vented only through a pressure/vacuum vent); or

3. To estimate losses from tanks in which the materials used in the rim seal and/or deck fittings are either deteriorated or significantly permeated by the stored liquid.

This section contains equations for estimating emissions from floating roof tanks in two situations: during normal operation, and during roof landings.

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13.2.1 Paved Roads

13.2.1.1 General

Particulate emissions occur whenever vehicles travel over a paved surface such as a road or parking lot. Particulate emissions from paved roads are due to direct emissions from vehicles in the form of exhaust, brake wear and tire wear emissions and resuspension of loose material on the road surface. In general terms, resuspended particulate emissions from paved roads originate from, and result in the depletion of, the loose material present on the surface (i.e., the surface loading). In turn, that surface loading is continuously replenished by other sources. At industrial sites, surface loading is replenished by spillage of material and trackout from unpaved roads and staging areas. Figure 13.2.1-1 illustrates several transfer processes occurring on public streets.

Various field studies have found that public streets and highways, as well as roadways at industrial facilities, can be major sources of the atmospheric particulate matter within an area.[1-9] Of particular interest in many parts of the United States are the increased levels of emissions from public paved roads when the equilibrium between deposition and removal processes is upset. This situation can occur for various reasons, including application of granular materials for snow and ice control, mud/dirt carryout from construction activities in the area, and deposition from wind and/or water erosion of surrounding unstabilized areas. In the absence of continuous addition of fresh material (through localized track out or application of antiskid material), paved road surface loading should reach an equilibrium value in which the amount of material resuspended matches the amount replenished. The equilibrium surface loading value depends upon numerous factors. It is believed that the most important factors are: mean speed of vehicles traveling the road; the average daily traffic (ADT); the number of lanes and ADT per lane; the fraction of heavy vehicles (buses and trucks); and the presence/absence of curbs, storm sewers and parking lanes.[10]

The particulate emission factors presented in a previous version of this section of AP-42, dated October 2002, implicitly included the emissions from vehicles in the form of exhaust, brake wear, and tire wear as well as resuspended road surface material. EPA included these sources in the emission factor equation for paved roads since the field testing data used to develop the equation included both the direct emissions from vehicles and emissions from resuspension of road dust.

This version of the paved road emission factor equation only estimates particulate emissions from resuspended road surface material[28]. The particulate emissions from vehicle exhaust, brake wear, and tire wear are now estimated separately using EPA's MOVES [29] model. This approach eliminates the possibility of double counting emissions. Double counting results when employing the previous version of the emission factor equation in this section and MOVES to estimate particulate emissions from vehicle traffic on paved roads. It also incorporates the decrease in exhaust emissions that has occurred since the paved road emission factor equation was developed. Earlier versions of the paved road emission factor equation includes estimates of emissions from exhaust, brake wear, and tire wear based on emission rates for vehicles in the 1980 calendar year fleet. The amount of PM released from vehicle exhaust has decreased since 1980 due to lower new vehicle emission standards and changes in fuel characteristics.

13.2.1.3 Predictive Emission Factor Equations[10,29]

The quantity of particulate emissions from resuspension of loose material on the road surface due to vehicle travel on a dry paved road may be estimated using the following empirical expression:

$$E = k\,(sL)^{0.91} \times (W)^{1.02} \qquad (1)$$

where: E = particulate emission factor (having units matching the units of k),

k = particle size multiplier for particle size range and units of interest (see below),

sL = road surface silt loading (grams per square meter) (g/m^2), and

W = average weight (tons) of the vehicles traveling the road.

It is important to note that Equation 1 calls for the average weight of all vehicles traveling the road. For example, if 99 percent of traffic on the road are 2 ton cars/trucks while the remaining 1 percent consists of 20 ton trucks, then the mean weight "W" is 2.2 tons. More specifically, Equation 1 is *not* intended to be used to calculate a separate emission factor for each vehicle weight class. Instead, only one emission factor should be calculated to represent the "fleet" average weight of all vehicles traveling the road.

The particle size multiplier (k) above varies with aerodynamic size range as shown in Table 13.2.1-1. To determine particulate emissions for a specific particle size range, use the appropriate value of k shown in Table 13.2.1-1.

To obtain the total emissions factor, the emission factors for the exhaust, brake wear and tire wear obtained from either EPA's MOBILE6.2 [27] or MOVES2010 [29] model should be added to the emissions factor calculated from the empirical equation.

Table 13.2.1-1. PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Size range[a]	Particle Size Multiplier k[b]		
	g/VKT	g/VMT	lb/VMT
PM-2.5[c]	0.15	0.25	0.00054
PM-10	0.62	1.00	0.0022
PM-15	0.77	1.23	0.0027
PM-30[d]	3.23	5.24	0.011

[a] Refers to airborne particulate matter (PM-x) with an aerodynamic diameter equal to or less than x micrometers.

[b] Units shown are grams per vehicle kilometer traveled (g/VKT), grams per vehicle mile traveled (g/VMT), and pounds per vehicle mile traveled (lb/VMT). The multiplier k includes unit conversions to produce emission factors in the units shown for the indicated size range from the mixed units required in Equation 1.

[c] The k-factors for $PM_{2.5}$ were based on the average $PM_{2.5}$:PM_{10} ratio of test runs in Reference 30.

[d] PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

Equation 1 is based on a regression analysis of 83 tests for PM-10.[3, 5-6, 8, 27-29, 31-36] Sources tested include public paved roads, as well as controlled and uncontrolled industrial paved roads. The majority of tests involved freely flowing vehicles traveling at constant speed on relatively level roads. However, 22 tests of slow moving or "stop-and-go" traffic or vehicles under load were available for inclusion in the data base.[32-36] Engine exhaust, tire wear and break wear were subtracted from the emissions measured in the test programs prior to stepwise regression to determine Equation 1.[37, 39] The equations retain the quality rating of A (D for PM-2.5), if applied within the range of source conditions that were tested in developing the equation as follows:

Silt loading:	0.03 - 400 g/m^2 0.04 - 570 grains/square foot (ft^2)
Mean vehicle weight:	1.8 - 38 megagrams (Mg) 2.0 - 42 tons
Mean vehicle speed:	1 - 88 kilometers per hour (kph) 1 - 55 miles per hour (mph)

The upper and lower 95% confidence levels of equation 1 for PM_{10} is best described with equations using an exponents of 1.14 and 0.677 for silt loading and an exponents of 1.19 and 0.85 for weight. Users are cautioned that application of equation 1 outside of the range of variables and operating conditions specified above, e.g., application to roadways or road networks with speeds above 55 mph and average vehicle weights of 42 tons, will result in emission estimates with a higher level of uncertainty. In these situations, users are encouraged to consider an assessment of the impacts of the influence of extrapolation to the overall emissions and alternative methods that are equally or more plausible in light of local emissions data and/or ambient concentration or compositional data.

To retain the quality rating for the emission factor equation when it is applied to a specific paved road, it is necessary that reliable correction parameter values for the specific road in question be determined. With the exception of limited access roadways, which are difficult to sample, the collection and use of site-specific silt loading (sL) data for public paved road emission inventories are strongly recommended. The field and laboratory procedures for determining surface material silt content and surface dust loading are summarized in Appendices C.1 and C.2. In the event that site-specific values cannot be obtained, an appropriate value for a paved public road may be selected from the values in Table 13.2.1-2, but the quality rating of the equation should be reduced by 2 levels.

Equation 1 may be extrapolated to average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual (or other long-term) average emissions are inversely proportional to the frequency of measurable (> 0.254 mm [0.01 inch]) precipitation by application of a precipitation correction term. The precipitation correction term can be applied on a daily or an hourly basis [26, 38].

For the daily basis, Equation 1 becomes:

$$E_{ext} = [\, k\,(sL)^{0.91} \times (W)^{1.02} \,]\,(1 - P/4N) \qquad (2)$$

where k, sL, W, and S are as defined in Equation 1 and

E_{ext} = annual or other long-term average emission factor in the same units as k,

P = number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period, and

N = number of days in the averaging period (e.g., 365 for annual, 91 for seasonal, 30 for monthly).

Note that the assumption leading to Equation 2 is based on analogy with the approach used to develop long-term average unpaved road emission factors in Section 13.2.2. However, Equation 2 above incorporates an additional factor of "4" in the denominator to account for the fact that paved roads dry more quickly than unpaved roads and that the precipitation may not occur over the complete 24-hour day.

For the hourly basis, equation 1 becomes:

$$E_{ext} = [\, k\,(sL)^{0.91} \times (W)^{1.02} \,]\,(1 - 1.2P/N) \qquad (3)$$

where k, sL, W, and S are as defined in Equation 1 and

E_{ext} = annual or other long-term average emission factor in the same units as k,

P = number of hours with at least 0.254 mm (0.01 in) of precipitation during the averaging period, and

N = number of hours in the averaging period (e.g., 8760 for annual, 2124 for season 720 for monthly)

Note: In the hourly moisture correction term (1-1.2P/N) for equation 3, the 1.2 multiplier is applied to account for the residual mitigative effect of moisture. For most applications, this equation will produce satisfactory results. Users should select a time interval to include sufficient "dry" hours such that a reasonable emissions averaging period is evaluated. For the special case where this equation is used to calculate emissions on an hour by hour basis, such as would be done in some emissions modeling situations, the moisture correction term should be modified so that the moisture correction "credit" is applied to the first hours following cessation of precipitation. In this special case, it is suggested that this 20% "credit" be applied on a basis of one hour credit for each hour of precipitation up to a maximum of 12 hours.

Note that the assumption leading to Equation 3 is based on analogy with the approach used to develop long-term average unpaved road emission factors in Section 13.2.2.

Figure 13.2.1-2 presents the geographical distribution of "wet" days on an annual basis for the United States. Maps showing this information on a monthly basis are available in the *Climatic Atlas of the United States*[23] . Alternative sources include other Department of Commerce publications (such as local climatological data summaries). The National Climatic Data Center (NCDC) offers several products that provide hourly precipitation data. In particular, NCDC offers *Solar and Meteorological Surface Observation Network 1961-1990* (SAMSON) CD-ROM, which contains 30 years worth of hourly meteorological data for first-order National Weather Service locations. Whatever meteorological data are used, the source of that data and the averaging period should be clearly specified.

It is emphasized that the simple assumption underlying Equations 2 and 3 has not been verified in any rigorous manner. For that reason, the quality ratings for Equations 2 and 3 should be downgraded one letter from the rating that would be applied to Equation 1.

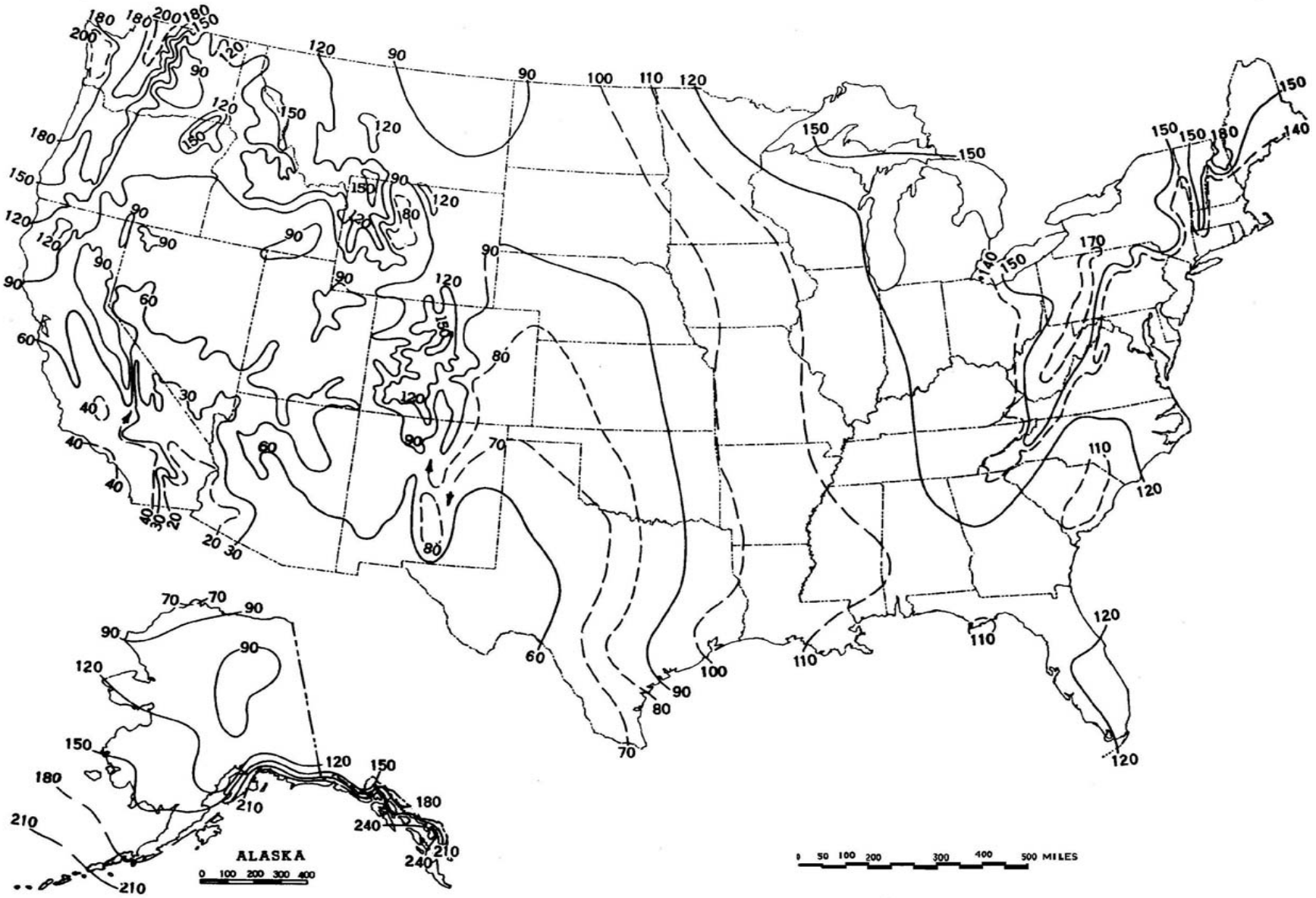

Figure 13.2.1-2. Mean number of days with 0.01 inch or more of precipitation in the United States.

Table 13.2.1-2 presents recommended default silt loadings for normal baseline conditions and for wintertime baseline conditions in areas that experience frozen precipitation with periodic application of antiskid material[24]. The winter baseline is represented as a multiple of the non-winter baseline, depending on the ADT value for the road in question. As shown, a multiplier of 4 is applied for low volume roads (< 500 ADT) to obtain a wintertime baseline silt loading of 4 X 0.6 = 2.4 g/m^2.

Table 13.2.1-2. Ubiquitous Silt Loading Default Values with Hot Spot Contributions from Anti-Skid Abrasives (g/m^2)

ADT Category	< 500	500-5,000	5,000-10,000	> 10,000
Ubiquitous Baseline g/m^2	0.6	0.2	0.06	0.03 0.015 limited access
Ubiquitous Winter Baseline Multiplier during months with frozen precipitation	X4	X3	X2	X1
Initial peak additive contribution from application of antiskid abrasive (g/m^2)	2	2	2	2
Days to return to baseline conditions (assume linear decay)	7	3	1	0.5

It is suggested that an additional (but temporary) silt loading contribution of 2 g/m^2 occurs with each application of antiskid abrasive for snow/ice control. This was determined based on a typical application rate of 500 lb per lane mile and an initial silt content of 1 % silt content. Ordinary rock salt and other chemical deicers add little to the silt loading, because most of the chemical dissolves during the snow/ice melting process.

To adjust the baseline silt loadings for mud/dirt trackout, the number of trackout points is required. It is recommended that in calculating PM_{10} emissions, six additional miles of road be added for each active trackout point from an active construction site, to the paved road mileage of the specified category within the county. In calculating $PM_{2.5}$ emissions, it is recommended that three additional miles of road be added for each trackout point from an active construction site.

It is suggested the number of trackout points for activities other than road and building construction areas be related to land use. For example, in rural farming areas, each mile of paved road would have a specified number of trackout points at intersections with unpaved roads. This value could be estimated from the unpaved road density (mi/sq. mi.).

The use of a default value from Table 13.2.1-2 should be expected to yield only an order-of-magnitude estimate of the emission factor. Public paved road silt loadings are dependent

A-8886-7-SulfuricAcidOutput

Title Page

Product: Sulfuric Acid Tank
Process: Sulfuric Acid Tank
Process Cycle Time: 365 days
Final Product Amount: 108000 gal
Evaluation Date: 4/4/2022
File Name: G:\MPC\MPC - Emission Master Tanks.emm
Connected Database: Emaster = \\s059vfs01\Emission Master\Emaster
Calculation type: MACT98
Condenser Calc. type: Single Stage
Charge Calc. type: Average Composition
Material Balance: Subtract Emissions
Last Saved User: ehagen
Last Saved Time: 1:55:59 PM, 4/13/2022
Comment:

Defined Activities

1) [Storage] MPC - Water Recycle Tank
2) [Storage] MPC - Water Treatment Tank

1: Storage Tank Activity

Title: MPC - Water Recycle Tank
Start Date: 1/1/2022
End Date: 12/31/2022
Elapsed Time: 365.0 days
Vent ID:
Noncondensable: Air @ 0 scfh Saturation: 100% Pressure: 601.2789 mmHg
Using Monthly Avg. Temp.
Location: New Mexico, Gallup Volume Throughput: 48600.0 gal
Crude Oil Factor-Kc: 1

Vessel Name: MPC - Water Recycle Tank
Void Vol.: 6,865.74 gal Work Vol.: 6,200 gal
No Control Devices

Final Contents 6200.0 gal 89917.2561 lb -1.19 °C

[Aqueous Phase]	Weight (lb)	Pure-Vp (mmHg)	W[i]	X[i]	A[i]	X*Vp*A (mmHg)
Sulfuric Acid	83623.0481	2.0e-6	0.93	0.709	1	1.41866e-6
Water	6294.2079	4.0707	0.07	0.291	1	1.1832

Emissions From Vessel: MPC - Water Recycle Tank

[Non Condensables]	Effective Vp (mm Hg)	Working (lb)	Breathing (lb)	Total (lb)	Rate (lb/hr)
Air	598.2031	397.8072	118.9154	516.7226	0.059
[Condensables]	(mm Hg)	(lb)	(lb)	(lb)	(lb/hr)
Sulfuric Acid	1.12931e-5	2.51227e-5	7.90321e-6	3.30259e-5	3.77008e-9
Water	3.0758	1.2615	0.3906	1.6522	2.0e-4

2: Storage Tank Activity

Title: MPC - Water Treatment Tank
Start Date: 1/1/2022
End Date: 12/31/2022
Elapsed Time: 365.0 days
Vent ID:
Noncondensable: Air @ 0 scfh Saturation: 100% Pressure: 601.2789 mmHg
Using Monthly Avg. Temp.
Location: New Mexico, Gallup Volume Throughput: 59400 gal
Crude Oil Factor-Kc: 1

Vessel Name: MPC - Water Treatment Tank
Void Vol.: 6,004.31 gal Work Vol.: 4,500 gal
No Control Devices

Final Contents 4500 gal 65262.5246 lb -1.19 °C

[Aqueous Phase]	Weight (lb)	Pure-Vp (mmHg)	W[i]	X[i]	A[i]	X*Vp*A (mmHg)
Sulfuric Acid	60694.1478	2.0e-6	0.93	0.709	1	1.41866e-6
Water	4568.3767	4.0707	0.07	0.291	1	1.1832

Emissions From Vessel: MPC - Water Treatment Tank

[Non Condensables]	Effective Vp (mm Hg)	Working (lb)	Breathing (lb)	Total (lb)	Rate (lb/hr)	
Air	598.1987	486.2088	268.702	754.9108	0.0862	
[Condensables]	(mm Hg)	(lb)	(lb)	(lb)	(lb/hr)	
Sulfuric Acid	1.1327e-5	3.07055e-5	1.76891e-5	4.83946e-5		5.52449e-9
Water	3.0802	1.5419	0.8754	2.4173	3.0e-4	

Summary Page

Emissions for (Unspecified Vent):

	CAS	Avg. Rate	Max. Rate	Total Weight
Air	132259-10-0	0.1452 lb/hr	0.0862 lb/hr	1271.6335 lb
Sulfuric Acid	7664-93-9	9.29457e-9 lb/hr	5.52449e-9 lb/hr	8.14205e-5 lb
Water	7732-18-5	5.0e-4 lb/hr	3.0e-4 lb/hr	4.0694 lb

Total emissions for all vents:

	CAS	Avg. Rate	Max. Rate	Total Weight
Air	132259-10-0	0.1452 lb/hr	0.0862 lb/hr	1271.6335 lb
Sulfuric Acid	7664-93-9	9.29457e-9 lb/hr	5.52449e-9 lb/hr	8.14205e-5 lb
Water	7732-18-5	5.0e-4 lb/hr	3.0e-4 lb/hr	4.0694 lb

A-8886-7-MainBoiler

		SPECIFICATIONS	BOILER 2	BOILER 3	BOILER 4	BOILER 5
SUPPLIER			CLEVER BROOKS	BABCOCK & WILCOX ME MEXICO	LOCKE AMI	VICTORY
CONTACT			Steve Dunaway	Alberto Hernandez	Michael Harrington	Gabrielle Yuliana
PHONE			214 637 0020	5260 5075	913 782 8500 e105 cel: 816 863 1758	918-382-4834
BRAND/ MANUFACTURER			CLEAVER BROOKS Sales & Service	BABCOCK & WILCOX	BABCOCK & WILCOX	VICTORY ENERGY
MODEL			NB-500D-95	DS- 106/97	FM120-97	DT-4-81
TYPE	more usual	" D "	"D"	"D"	D"	"D"
MANUFACTURING YEAR						
CAPACITY	Pound / h	132,000	132,000	132,000	132,000	130,000
CAPACITY	TON / h	60				
EFICIENCY (WARRANTY)	%	AS DESIGN	83.90%	81.63% BC / 90.46% AC	83.6%	84.22%
STEAM TEMPERATURE	°F	AS DESIGN	459 ° F	459 ° F	459 ° F	466 ° F
STEAM PRESSURE	kg / cm²	14				
DESIGN STEAM PRESSURE	PSI	200	300	300	250	
OPERATION PRESSURE	PSI	170	200	170	170	250
OPERATION TEMPERATURE	° F	459	459 ° F	459 ° F	459°F	466 ° F
ECONOMIZER		YES	YES	YES	YES	YES
FAN			Forced Draft Fan		YES	FD Fan
FAN MOTOR	HP		350 HP 4160V 3PH		500 / 4160	250 HP 460v
SUPER HEATER			YES	YES	YES/Horizontal	YES
ATOMIZING TYPE		STEAM / MECHANIC				
BURNER (S)	No.	2 A 4	CB Low Nox Burner	BABCOCK	BABCOCK	VEO Vision
			P-167-G37-2328			
REQUIRED STEAM		OVERHEATED	OVERHEATED	OVERHEATED	OVERHEATED	OVERHEATED
EXHAUST GASES	°C / °F	DISEÑO				
N0x / CO2, EMISIONS	Lowest poss.		Nox 30 ppm CO2 50 PPMVD	Low Nox 30 ppm CO2 80 ppm	Nox 30 ppm CO2 50 PPMVD	Low NOx 30 ppm CO2 80 ppm
FUEL	NATURAL GAS	NATURAL GAS	Yes / Single	Yes / Single		YES
PACK BOILER		SI	YES	YES		YES
WATER TUBE				YES	YES	YES
COMBUSTION CONTROL				PLC Allen Bradley		Allen Bradley
SIZE (LONG / WIDTH / HIGHT)			48' X 12' 6" X 14' 11"		42.67' X 16.73' X12.53	40" x 12 ' /15" 10"
WEIGHT	POUNDS				145,000	

Saul,
Please see below our response to your request. Let us know if there are any additional questions or if you need any additional data.

Here are values at 100% MCR

Do you have information on either the exhaust gas lbs/hour or cubic feet/minute? 147,626 lb/hr

I would also need the exhaust gas temperature at stack exit? 292°F

Also need to know what Cleaver Brooks estimates as the amount of natural gas that will be combusted at maximum capacity or the burner Btu rating. 7,443 lb/hr of natural gas

This information is not as urgent as the previous ones but if is possible, With this last data, what is the estimated amount of NOx and CO that would be emitted per day at maximum capacity.

We have proposed a 30 ppm NOx and 50 ppm CO burner, which correspond to 0.036 lb/btu NOx and 0.037 lb/mmbtu CO. Your boiler has a heat input of 166.8 mmbtu/hr, thus we can calculate the emissions per day, based on 24 hour operation.

NOx:

0.036	lb	166.8	~~mmbtu~~	24	~~hr~~	=	144.1	lb
	~~mmbtu~~		~~hr~~		day			day

CO:

0.037	lb	166.8	~~mmbtu~~	24	~~hr~~	=	144.1	lb
	~~mmbtu~~		~~hr~~		day			day

A-8886-7-SulfurContent

NEW MEXICO GAS COMPANY

FIRST REVISED SAMPLE FORM NO. 46
CANCELLING ORIGINAL SAMPLE FORM NO. 46

RESIDENTIAL AND SMALL VOLUME END-USER TRANSPORTATION CONTRACT

Please see attached Residential and Small Volume End-User Transportation Contract Form.

Advice Notice No. 5

John M. Fernald
Director, Regulatory Affairs

FIRST REVISED SAMPLE FORM NO. 46
CANCELLING ORGINAL SAMPLE FORM NO. 46

RESIDENTIAL AND SMALL VOLUME END-USER TRANSPORTATION CONTRACT

CONTRACT NO. _____

DATE _____

TRANSPORTATION CUSTOMER

AND

NEW MEXICO GAS COMPANY

TABLE OF CONTENTS

EXHIBITS

NOTE: This page is not considered a part of the Contract but is for the convenience of the parties only and may be removed at any time by either party hereto.

FIRST REVISED SAMPLE FORM NO. 46
CANCELLING ORIGINAL SAMPLE FORM NO. 46
RESIDENTIAL AND SMALL VOLUME END-USER TRANSPORTATION CONTRACT

THIS GAS TRANSPORTATION CONTRACT is entered into this ____ day of _____, by and between _____ hereinafter referred to as "Transportation Customer", and NEW MEXICO GAS COMPANY hereinafter referred to as "NMGC".

W I T N E S S E T H

WHEREAS, NMGC operates facilities for the transportation of Gas within the State of New Mexico;

WHEREAS, Transportation Customer has proper authority to transport certain Gas which is currently connected to NMGC's system or which can be tendered at mutually agreeable Receipt Points and Transportation Customer wishes NMGC to transport such Gas within the State of New Mexico to one or more Delivery Points as specified in Exhibit B which during the life of the Contract may, by mutual agreement of the parties, be altered to mutually acceptable Receipt and Delivery Points for consumption within New Mexico;

WHEREAS, NMGC, subject to the terms and conditions set forth herein, is willing to receive such Gas from Transportation Customer for transportation and delivery as herein provided; and

WHEREAS, this Gas Transportation Contract ("Contract") is entered into pursuant to the terms and conditions of the New Mexico Public Regulation Commission's Rule 660, NMPRC Case No. 2760 and NMGC Rate No. 115 as approved by the New Mexico Public Utility Commission, and all services provided for hereunder are subject to such regulation.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, Transportation Customer and NMGC agree as follows:

I. DEFINITIONS

1.1 Balancing Rule shall mean NMGC Rule No. 33 *Residential and Small Volume End-User Transportation Balancing Rule* attached as Attachment 2.

1.2 British Thermal Unit (Btu) shall mean the quantity of heat required to raise the temperature of one (1) pound of water one degree Fahrenheit (1°F) at sixty degrees Fahrenheit (60°F).

1.3 Day shall mean a period of twenty-four (24) consecutive hours commencing at 8:01 a.m., Mountain Standard Time (MST) or Mountain Daylight Savings Time (MDST) collectively Mountain Time (MT).

1.4 Delivery Point(s) shall mean the point(s) specified in Exhibit B attached hereto. Change Order shall mean an order attached as Exhibit C which adds or deletes Delivery Points.

1.5 Diligent Efforts shall mean the constant effort to accomplish an undertaking; the constancy or steadiness of purpose or labor which is usual with people engaged in like enterprises, who desire speedy accomplishment of their designs; the doing of an act or series of acts with practical expediency and without delay.

1.6 EBB shall mean NMGC's electronic bulletin board.

EFFECTIVE
DEC 15 2009
REPLACED BY NMPRC
BY Operation of Law

(b) Shall be commercially free of water in their liquid state at the temperature and pressure at which delivered, and in no event contain water vapor in excess of seven (7) pounds per million cubic feet. The water vapor content shall be determined by use of dew-point apparatus approved by the Bureau of Mines, or by any other method that is deemed appropriate for the conditions.

(c) Shall not contain more than three quarters (3/4) grains of total sulfur per one hundred (100) standard cubic feet, which includes hydrogen sulfide, carbonyl sulfide, carbon disulfide, mercaptans, and mono-, di- and poly-sulfides. The Gas shall also meet the following individual specifications for hydrogen sulfide (H_2S) and mercaptans:

i. Hydrogen Sulfide: The Gas shall not contain more than one-quarter (1/4) grain per one hundred (100) standard cubic feet.

ii. Mercaptan Sulfur: The Gas shall not have mercaptan sulfur content greater than three tenths (0.3) grain per one hundred (100) standard cubic feet.

(d) Shall not contain in excess of 2-mol% of Carbon Dioxide (CO_2).

(e) Shall not contain in excess of 0.2-mol% of Oxygen (O_2). Every effort shall be made to keep the Gas free of oxygen.

(f) Shall not contain in excess of 5-mol% of total inert gasses.

(g) Shall be commercially free of hydrocarbons and not have a hydrocarbon dew point that exceeds fifteen degrees Fahrenheit (15° F) between 100 and 1000 Psia.

(h) Shall not be delivered into any of the Company's transmission or distribution pipeline systems at a temperature less than forty degrees Fahrenheit (40° F) nor greater than one hundred twenty degrees Fahrenheit (120° F).

(h) Have a minimum heating value of not less than nine hundred fifty (950) British thermal units (Btu) per cubic foot, and not to exceed greater than eleven hundred (1100) Btu per standard cubic foot.

(i) Shall not contain hydrocarbons with a molecular carbon content of C_5 and above (C_5+) in excess of 0.2 gallon per one thousand (1000) standard cubic feet.

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REPLACED BY NMPRC
BY Operation of Law

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	

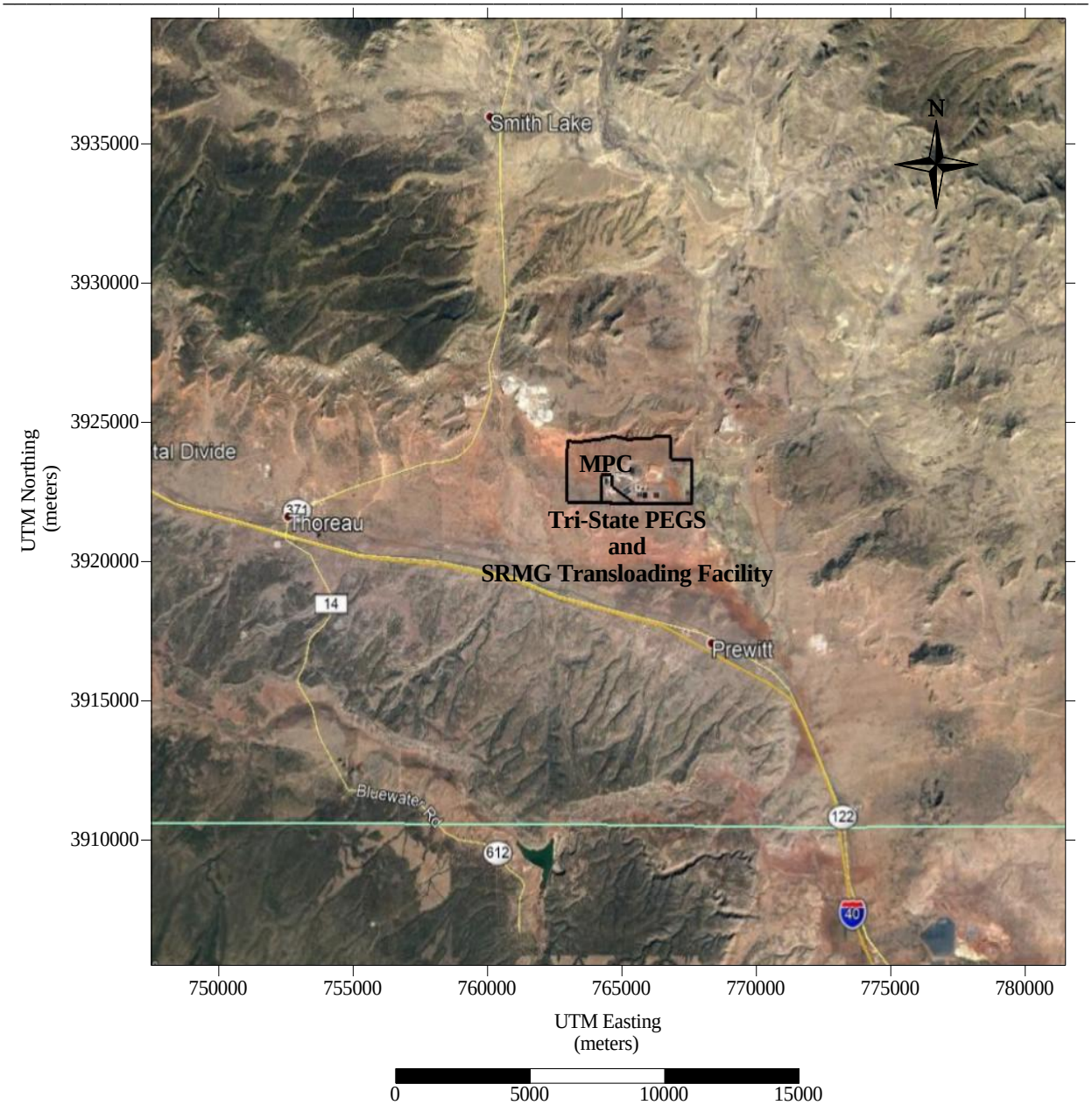

Figure 8-1: Aerial Map Showing MPC Restricted Boundary along with Tri-State PEGS and SRMG Transloading Facility Boundary in Relation to the Surrounding Area

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. X A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. X 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. X A copy of the property tax record (20.2.72.203.B NMAC).
4. X A sample of the letters sent to the owners of record.
5. X A sample of the letters sent to counties, municipalities, and Indian tribes.
6. X A sample of the public notice posted and a verification of the local postings.
7. X A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. X A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. X 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. X 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. X 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.

Lists of Government and Tribal Entities Sent a Public Notice

Government Entity	Official	Mail Address	City	State	Zip Code
McKinley County	Jacqueline Sloan, County Clerk	207 West Hill St.	Gallup	NM	87301
Cibola County	Michelle Dominguez, County Clerk	700 East Roosevelt, Suite 50	Grants	NM	87020
Navajo Nation	Office of the President	PO Box 7440	Window Rock	AZ	86515
Baca-Prewitt Chapter		PO Box 563	Prewitt	NM	87045
Casamero Lake Chapter		PO Box 549	Prewitt	NM	87045
Crownpoint Chapter		PO Box 336	Crownpoint	NM	87313
Littlewater Chapter		PO Box 1898	Crownpoint	NM	87313
Mariano Lake Chapter		PO Box 164	Smith Lake	NM	87365
Smith Lake Chapter		PO Box 60	Smith Lake	NM	87365
Thoreau Chapter		PO Box 899	Thoreau	NM	87323

Lists of Landowners within 0.5 miles Sent a Public Notice

All landowners located within 0.5 miles of MPC Prewitt Mill.

Account No.	Owner Name	Address	City	State	Zip
C216145	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R182923	ELKINS, DAVID P. REVOCABLE TRUST	PO BOX 100	GAMERCO	NM	87317-0100
R183032	ELKINS, DONALD J. AND DAVID P.	PO BOX 1326	AZTEC	NM	87410-0000
R211147	SAN ANTONE FLAGSTONE INC.	PO BOX 100	GAMERCO	NM	87317-0100
R212592	BIO PAPPEL INTERNATIONAL, INC.	7850 JEFFERSON ST. NE STE 150	ALBUQUERQUE	NM	87109-5911
R301829	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R301830	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R301831	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R301864	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
	STATE OF NEW MEXICO	310 OLD SANTA FE TRAIL	SANTA FE	NM	87501-0000

May 16, 2022

Baca-Prewitt Chapter
PO Box 562
Prewitt NM 87045

To Whom it May Concern

Bio-PAPPEL's McKinley Paper Company (MPC) announces its intent to apply to the New Mexico Environment Department (NMED) for significant modification of 20.2.72 NMAC Air Quality Permit #8886 for its existing paper recycling and mill facility in Prewitt, New Mexico. The date the notarized MPC revision permit application will be submitted to the NMED Air Quality Bureau is estimated to be May 20, 2022.

The exact location for MPC is latitude 35°, 24', 38.21" N and longitude 108°, 05', 10.79" W, NAD83. The approximate location of MPC is 3.9 miles northwest of Prewitt, NM in McKinley County.

MPC is a small paper mill physically located in Prewitt, New Mexico and has been in commercial production since June 1, 1994. The facility processes a maximum of 900 tons per day of recycled old corrugated cardboard (OCC) into new cardboard stock. With this permit modification, MPC is seeking to increase overlapping operation of the main steam boiler and the auxiliary boiler. MPC is requesting that the boilers be allowed to operate in any combination, as long as the total annual emissions of NOx and CO are each below 95 tons per year for the facility. The amount of sulfuric acid delivered will increase from 5,300 gallons per year to 108,000 gallons per year. The only other emission increase proposed is a slight increase in PM, PM_{10} and $PM_{2.5}$ emissions along the paved roads and recalculation of SO_2 emissions from the two steam boilers to allow 0.75 grains per 100 standard cubic feet of natural gas (New Mexico Public Regulatory Commission regulatory limit).

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

Pollutant:	Pounds per hour	Tons per year
PM_{10} (Total Facility)	3.15 pph	13.3 tpy
$PM_{2.5}$ (Total Facility)	2.80 pph	12.2 tpy
Sulfur Dioxide (SO_2)	0.78 pph	3.41 tpy
Nitrogen Oxides (NO_x)	35.7 pph	<95.0 tpy
Carbon Monoxide (CO)	23.6 pph	<95.0 tpy
Volatile Organic Compounds (VOC)	4.48 pph	19.6 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	3.32 pph	12.3 tpy
Toxic Air Pollutant (TAP)	0.11 pph	0.10 tpy
Green House Gas Emissions as Total CO_2e	n/a	182,861 tpy

The maximum and standard operating schedule of the plant is 24 hours per day, 7 days a week, and a maximum of 52 weeks per year for annual operating hours of 8760 hours per year.

The owner and operator is:

McKinley Paper Company (MPC)
4600 Williams St SE
Albuquerque, New Mexico 87105

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

With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención

Este es un aviso de la Agencia de Calidad de Aire del Departamento de Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor de comunicarse con la oficina de Calidad de Aire al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non- discrimination programs, policies or procedures, you may contact: Kristine Pintado, Non-Discrimination Coordinator, New Mexico Environment Department, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. If you believe that you have been discriminated against with respect to a NMED program or activity, you may contact the Non-Discrimination Coordinator identified above or visit our website at https://www.env.nm.gov/NMED/EJ/index.html to learn how and where to file a complaint of discrimination.

Sincerely,

McKinley Paper Company
4600 Williams St SE
Albuquerque, NM 87105

McKinley County Governement Entities within 10 Miles
May 2022

McKinley County	Jacqueline Sloan, County Clerk	207 West Hill St.	Gallup	NM	87301
Cibola County	Michelle Dominguez, County Clerk	700 East Roosevelt, Suite 50	Grants	NM	87020
Navajo Nation	Office of the President	PO Box 7440	Window Rock	AZ	86515
Baca-Prewitt Chapter		PO Box 563	Prewitt	NM	87045
Casamero Lake Chapter		PO Box 549	Prewitt	NM	87045
Crownpoint Chapter		PO Box 336	Crownpoint	NM	87313
Littlewater Chapter		PO Box 1898	Crownpoint	NM	87313
Mariano Lake Chapter		PO Box 164	Smith Lake	NM	87365
Smith Lake Chapter		PO Box 60	Smith Lake	NM	87365
Thoreau Chapter		PO Box 899	Thoreau	NM	87323

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207 West Hill St.
Gallup, NM 87301-4615

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700 E. Roosevelt, Suite 50
Grants, NM 87020-2184

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- ☐ Adult Signature Required $ ____
- ☐ Adult Signature Restricted Delivery $ ____

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Total Postage and Fees
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Prewitt, NM 87045-0549

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- ☐ Return Receipt (electronic) $ ____
- ☐ Certified Mail Restricted Delivery $ ____
- ☐ Adult Signature Required $ ____
- ☐ Adult Signature Restricted Delivery $ ____

Postage
$ 0.53

Total Postage and Fees
$ 4.28

Postmark Here

Sent To
Crownpoint Chapter
Street and Apt
PO Box 336
City, State, ZI
Crownpoint, NM 87313-0336

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- ☐ Certified Mail Restricted Delivery $ ____
- ☐ Adult Signature Required $ ____
- ☐ Adult Signature Restricted Delivery $ ____

Postage
$ 0.53

Total Postage and Fees
$ 4.28

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MAY 18 2022

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Littlewater Chapter
Street and Apt.
PO Box 1898
City, State, ZIP
Crownpoint, NM 87313-1898

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- ☐ Return Receipt (hardcopy) $ ____
- ☐ Return Receipt (electronic) $ ____
- ☐ Certified Mail Restricted Delivery $ ____
- ☐ Adult Signature Required $ ____
- ☐ Adult Signature Restricted Delivery $ ____

Postage
$ 0.53

Total Postage and Fees
$ 4.28

Postmark Here

Sent To
Mariano Lake Chapter
Street and Apt. N
PO Box 164
City, State, ZIP+4
Smith Lake, NM 87365-0164

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7022 0410 0001 4205 3937

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Certified Mail Fee
$ 3.75

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

Postage
$ 0.53

Total Postage and Fees
$ 4.28

Postmark Here

Sent To
Smith Lake Chapter
Street and Ap
PO Box 60
City, State, ZI
Smith Lake, NM 87365-0060

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7022 0410 0001 4205 3944

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Certified Mail Fee
$ 3.75

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

Postage
$ 0.53

Total Postage and Fees
$ 4.28

Postmark Here
MAY 18 2022

Sent To
Thoreau Chapter
Street and Apt.
PO Box 899
City, State, ZIP+
Thoreau, NM 87323-0899

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

McKinley Paper Company Nearby Property Ownership (within 0.5 miles)
McKinley Co. New Mexico
May 2022

Account No.	Owner Name	Address	City	State	Zip
C216145	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R182923	ELKINS, DAVID P. REVOCABLE TRUST	PO BOX 100	GAMERCO	NM	87317-0100
R183032	ELKINS, DONALD J. AND DAVID P.	PO BOX 1326	AZTEC	NM	87410-0000
R211147	SAN ANTONE FLAGSTONE INC.	PO BOX 100	GAMERCO	NM	87317-0100
R212592	BIO PAPPEL INTERNATIONAL, INC.	7850 JEFFERSON ST. NE STE 150	ALBUQUERQUE	NM	87109-5911
R301829	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R301830	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R301831	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695
R301864	TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.	P.O. BOX 33695	DENVER	CO	80233-3695

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

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OFFICIAL USE

7020 2450 0001 4169 0601

Certified Mail Fee	$ 3.75
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ 0.53
Total Postage and Fees	$ 4.28
Sent To	TRI-STATE G & T.
Street and Apt. No	P.O. BOX 33695
City, State, ZIP+4®	DENVER, CO 80233-0695

Postmark Here

MAY 18 2022

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

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

OFFICIAL USE

7020 2450 0001 4169 0618

Certified Mail Fee	$ 3.75
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ 0.53
Total Postage and Fees	$ 4.28
Sent To	ELKINS, DAVID P. REV. TRUST
Street and A	PO BOX 100
City, State, Z	GAMERCO, NM 87317-0100

Postmark Here

MAY 18 2022

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

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

OFFICIAL USE

7020 2450 0001 4169 0625

Certified Mail Fee	$ 3.75
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ 0.53
Total Postage and Fees	$ 4.28
Sent To	ELKINS, DONALD J. & DAVID P.
Street and Apt. No., or P	PO BOX 1326
City, State, ZIP+4®	AZTEC, NM 87410-1326

Postmark Here

MAY 18 2022

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

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

OFFICIAL USE

7020 2450 0001 4169 0632

Certified Mail Fee	$ 3.75
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ 0.53
Total Postage and Fees	$ 4.28
Sent To	SAN ANTONE FLAGSTONE INC.
Street and Apt. No., or	PO BOX 100
City, State, ZIP+4®	GAMERCO, NM 87317-0100

Postmark Here

MAY 18 2022

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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

OFFICIAL USE

7020 2450 0001 4169 0649

Certified Mail Fee	$ 3.75
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ 0.53
Total Postage and Fees	$ 4.28
Sent To	BIO PAPPEL INT'l, INC.
Street and Apt. N	7850 JEFFERSON ST. NE STE 150
City, State, ZIP+4	ALBUQUERQUE, NM 87109-5911

Postmark Here

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

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

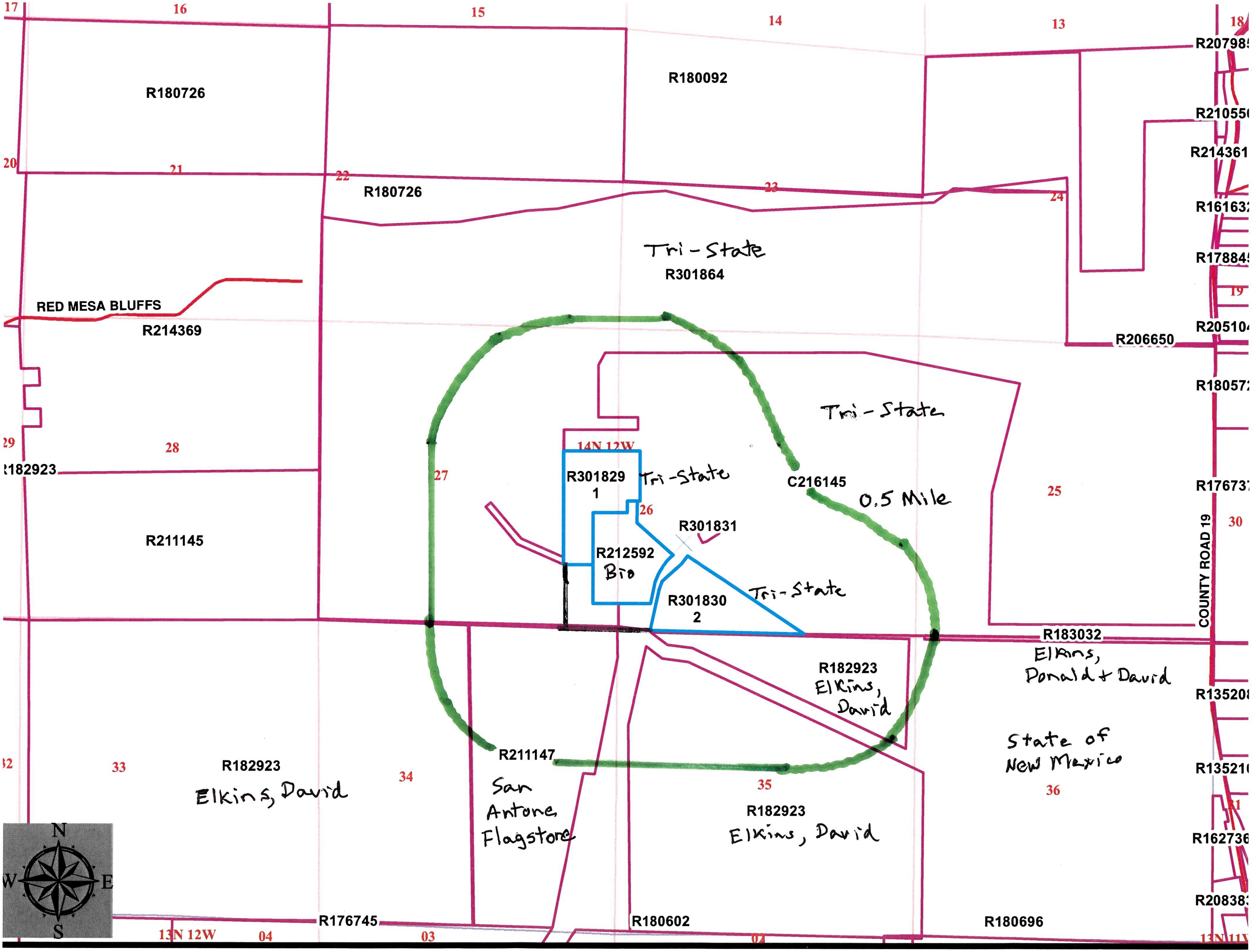
OFFICIAL USE

7020 2450 0001 4169 0656

Certified Mail Fee	$ 3.75
Extra Services & Fees *(check box, add fee as appropriate)*	
☐ Return Receipt (hardcopy)	$
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ 0.53
Total Postage and Fees	$ 4.28
Sent To	STATE OF NEW MEXICO
Street and Ap	310 OLD SANTA FE TRAIL
City, State, Z	SANTA FE, NM 87501-2708

Postmark Here

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions


RED MESA BLUFFS
R180726
R180726
R180092
R214369
R301864
Tri-State
Tri-State
Tri-State
Tri-State
R211145
R301829
1
R212592
Bio
R301831
R301830
2
C216145
0.5 Mile
14N 12W
R182923
Elkins, David
R211147
San Antone Flagstone
R182923
Elkins, David
R182923
Elkins, David
R183032
Elkins, Donald + David
State of New Mexico
R176745
R180602
R180696
13N 12W
COUNTY ROAD 19
R206650
R207985
R214361
R178845
R205104
R180572
R176737
R135208
R162736
N
S
E
W

Property Record Card

McKinley County, NM

TRI-STATE GENERATION &

TRANSMISSION ASSOCIATION, INC.
P.O. BOX 33695
DENVER, CO 80233-3695

Account: C216145

Tax Area: 221 - OUT NON-RES RSJ - 221

Acres: 0.000

Parcel:

Situs Address:

Legal Description

S: 25, 26, 27 T: 14N R: 12W LAND, STRUCTURES & IMPROVEMENTS, ELECTRIC PLANT, CWIP, SEE CORPORATES PAGES 14 THRU 16 CAB ID 220-012 A PARCEL OF LAND SITUATED IN PORTIONS OF SECTION 25, 26 & 27, T14N R12W, SUMMARY EXEMPTION PLAT, CONT. 699.933 ACS M/L PLAT DOC 395058 01/26/21 COE DOC 395057 01/26/21 EASEMENT AGREEMENT DOC 395081 01/28/21 EASEMENT DOC 395076 01/28/21 PLAT DOC 397226 7/20/2021 CODE 2-068-080-177-277

Public Remarks

Entry Date	Model	Remark
		699.933 ACS

Abstract Summary

Code	Classification	Actual Value	Taxable Value	Actual Override	Taxable Override
Total		$0	$0	NA	NA

Property Record Card

McKinley County, NM

ELKINS, WADE TRUSTEE
OF THE DAVID P. ELKINS
REVOCABLE TRUST
P.O. BOX 100
GAMERCO, NM 87317-0100

Account: R182923
Tax Area: 221 - OUT NON-RES RSJ - 221
Acres: 3123.530

Parcel: 2-071-080-264-264
Situs Address:
NORTH OF THOREAU

Value Summary

Value By:	Market	Override
Land (1)	$3,280	N/A
Total	**$3,280**	**$3,280**

Legal Description

109.18 ACS M/L, E. HWY 56 IN SEC.19 T14 R12, SW1/4 OF
SEC 20, SECS.29,31,33, W1/2 OF SEC.34,ALL
OF SEC.35 LESS 4.96 ACS TO PLAINS ELEC LESS 3 ACS FOR HOMESITE IN SEC.20 LESS 3.71 ACS M/L TO NAVAJO TRIBAL UTILITY AUTHORITY 3,123.53 TOTAL ACS M/L D.B. 32-676 & 690 D.B. 34-809-811 BK 2 PGS 2432-2435 8/3/90 BK 20 PG 7846 7/16/03
CODE #2-071-080-264-264 RSJFCD LIVESTOCK ON R057266

Land Occurrence 1

Abstract Code 0010 - GRAZING - ALL ONE CLASS Land Use Code 1001 - GRAZING ALL

SubArea	ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A	3123.53			
Total	3,123.53			
	Value	**Rate**	**Rate**	**Rate**	**Rate**
	$3,280	1.05			

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override
0010	GRAZING - ALL ONE CLASS	$3,280	$3,280	NA	NA

Property Record Card

McKinley County, NM

ELKINS, DONALD J. &
DAVID P.
P.O. BOX 1326
AZTEC, NM 87410-0000

Account: R183032
Tax Area: 221 - OUT NON-RES RSJ - 221
Acres: 6.182

Parcel: 2-067-080-264-004
Situs Address:
NORTH OF THOREAU

Value Summary

Value By:	Market	Override
Land (1)	$15,460	N/A
Total	**$15,460**	**$15,460**

Legal Description

6.182 ACS M/L IN SEC 25& 14 12, BLOCK 26 D.B. 32-766 10/30/81 CODE 2-067-080-264-004

Land Occurrence 1

Abstract Code 0260 - VACANT SUB - ACRES Land Use Code 26093 - VAC. SUB. ACRES

SubArea		ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A		6.182			
Total		6.182			
	Value	**Rate**	**Rate**	**Rate**	**Rate**
	$15,460	2,501.62			

Abstract Summary

Code	Classification	Actual Value	Value	Taxable Value	Actual Value Override	Taxable Override
0260	SUB - ACRES		$15,460	$5,153	NA	NA
Total			**$15,460**	**$5,153**	**NA**	**NA**

Property Record Card

McKinley County, NM

SAN ANTONE FLAGSTONE INC.

P.O. BOX 100
GAMERCO, NM 87317-0100

Account: R211147

Tax Area: 221 - OUT NON-RES RSJ - 221

Acres: 306.030

Parcel: 2-069-079-132-264

Situs Address:
NEAR THROEAU

Value Summary

Value By:	Market	Override
Land (1)	$320	N/A
Total	**$320**	**$320**

Legal Description

E1/2 OF 34 14 12, LESS EASEMENT CONT. 13.97 TOTAL ACS 306.03 M/L BK.2 PG.445 5/24/90 CODE #2-069-079-132-264 RSJFCD LIVESTOCK ON ACCT.#057266

Land Occurrence 1

Abstract Code 0010 - GRAZING - ALL ONE CLASS Land Use Code 1001 - GRAZING ALL

SubArea	ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A	306.03			
Total	306.03			
	Value	**Rate**	**Rate**	**Rate**	**Rate**
	$320	1.05			

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override
0010	GRAZING - ALL ONE CLASS	$320	$320	NA	NA
Total		**$320**	**$320**	**NA**	**NA**

Property Record Card

McKinley County, NM

BIO PAPPEL INTERNATIONAL, INC.

7850 JEFFERSON ST. NE STE 150
ALBUQUERQUE, NM 87109-5911

Account: R212592

Tax Area: 221 - OUT NON-RES RSJ - 221

Acres: 41.386

Parcel: 2-068-080-481-284

Situs Address:

Value Summary

Value By:	Market	Override
Land (1)	$206,930	N/A
Commercial (1)	$10,738,452	N/A
Total	**$10,945,382**	**$10,945,382**

Legal Description

A TRACT OF LAND SITUATED IN THE W1/2 OF THE SW1/4 26 14 12, & THE E1/2SE1/4 27 14 12, CONT 41.386 ACS M/L DOC 368520 09/10/14 DOC 371656 05/15/15 EASEMENT AGREEMENT DOC 395081 01/28/21 PLAT DOC 395058 01/26/21 CODE 2-068-080-481-284 RSJFCD (PAPER PLANT)

Public Remarks

Entry Date	Model	Remark

Land Occurrence 1

Abstract Code	0220 - COMMERCIAL LAND IMPROVED	Land Use Code	23067 - COMM. L.V. ACRES

SubArea	ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A	41.386			
Total	41.386			
Value	**Rate**	**Rate**	**Rate**	**Rate**
$206,930	4,999.52			

Commercial Occurrence 1

Property Code	0310 - COMMERCIAL IMPROVEMENT	Actual Year Built	2002
Effective Year Built	2002		

Property Record Card

McKinley County, NM

TRI-STATE GENERATION &

TRANSMISSION ASSOCIATION, INC.
P.O. BOX 33695
DENVER, CO 80233-3695

Account: R301829

Tax Area: 221 - OUT NON-RES RSJ - 221

Acres: 43.268

Parcel: 2-069-080-047-223

Situs Address:

PREWITT AREA

Value Summary

Value By:	Market	Override
Land (1)	$216,340	N/A
Total	**$216,340**	**$216,340**

Legal Description

MPC SITE ADDITION 1, SUMMARY EXEMPTION PLAT, PORTIONS OF SECTIONS 26 & 27 T14N R12W, CONT. 43.268 ACS M/L PLAT DOC 395058 01/26/21 COE DOC 395057 01/26/21 EASEMENT AGREEMENT DOC 395081 01/28/21 CODE 2-069-080-017-223

Public Remarks

Entry Date	Model	Remark
		43.268 ACS M/L

Land Occurrence 1

Abstract Code 0230 - COMMERCIAL LAND VACANT Land Use Code 23067 - COMM. L.V. ACRES

SubArea	ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A	43.268			
Total	43.268			
	Value	**Rate**	**Rate**	**Rate**	**Rate**
	$216,340	4,999.77			

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override
0230	COMMERCIAL LAND VACANT	$216,340	$72,113	NA	NA

Property Record Card

McKinley County, NM

TRI-STATE GENERATION &

TRANSMISSION ASSOCIATION, INC.
P.O. BOX 33695
DENVER, CO 80233-3695

Account: R301830

Tax Area: 221 - OUT NON-RES RSJ - 221

Acres: 44.959

Parcel: 2-068-080-159-059

Situs Address:

PREWITT AREA

Value Summary

Value By:	Market	Override
Land (1)	$224,800	N/A
Total	**$224,800**	**$224,800**

Legal Description

MPC SITE ADDITION 2, SUMMARY EXEMPTION PLAT, PORTIONS OF SECTIONS 26 & 27 T14N R12W, CONT. 44.959 ACS M/L PLAT DOC 395058 01/26/21 COE DOC 395057 01/26/21 EASEMENT AGREEMENT DOC 395081 01/28/21 CODE 2-068-080-159-059

Public Remarks

Entry Date	Model	Remark
		44.959 ACS M/L

Land Occurrence 1

Abstract Code	0220 - COMMERCIAL LAND IMPROVED	Land Use Code	23067 - COMM. L.V. ACRES

SubArea		ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A		44.959			
Total		44.959			
	Value	Rate	Rate	Rate	Rate
	$224,800	5,000.00			

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override

Property Record Card

McKinley County, NM

TRI-STATE GENERATION &

TRANSMISSION ASSOCIATION, INC.
P.O. BOX 33695
DENVER, CO 80233-3695

Account: R301831

Tax Area: 221 - OUT NON-RES RSJ - 221

Acres: 1.998

Parcel: 2-068-080-157-180

Situs Address:

PREWITT AREA

Value Summary

Value By:	Market	Override
Land (1)	$9,990	N/A
Total	**$9,990**	**$9,990**

Legal Description

LAGOONS TRACT, SUMMARY EXEMPTION PLAT, PORTIONS OF SECTIONS 26 & 27 T14N R12W, CONT. 1.998 ACS M/L PLAT DOC 395058 01/26/21 COE DOC 395057 01/26/21 EASEMENT AGREEMENT DOC 395081 01/28/21 CODE 2-068-080-157-180

Public Remarks

Entry Date	Model	Remark
		1.998 ACS M/L

Land Occurrence 1

Abstract Code	0220 - COMMERCIAL LAND IMPROVED	Land Use Code	23067 - COMM. L.V. ACRES

SubArea		ACTUAL	EFFECTIVE	HEATED	FOOTPRINT
Land A		1.998			
Total		1.998			
	Value	Rate	Rate	Rate	Rate
	$9,990	4,995.00			

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override

Property Record Card

McKinley County, NM

TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.

P.O. BOX 33695
DENVER, CO 80233-3695

Account: R301864

Tax Area: 220 - OUTSIDE NON-RES - 220

Acres: 0.000

Parcel: 2-068-081-254-112

Situs Address:

Legal Description

TRACT 1, SUMMARY EXEMPTION PLAT, PORTIONS OF SECTIONS 22, 23, 24, 25, 26 AND 27 T14N R12W, CONT. 1,731.785 ACS M/L (LEASEHOLD PROPERTY) PLAT DOC 397226 7/20/2021 CODE 2-068-081-254-112

Public Remarks

Entry Date	Model	Remark
		NEW ACCOUNT FOR TY 2022
		SPLIT OUT OF C214263
		1,731.785 ACS

Abstract Summary

Code	Classification	Actual Value Value	Taxable Value	Actual Value Override	Taxable Override
Total		**$0**	**$0**	**NA**	**NA**

NOTICE OF AIR QUALITY PERMIT APPLICATION

Bio-PAPPEL's McKinley Paper Company (MPC) announces its intent to apply to the New Mexico Environment Department (NMED) for significant modification of 20.2.72 NMAC Air Quality Permit #8886 for its existing paper recycling and mill facility in Prewitt, New Mexico. The date the notarized MPC revision permit application will be submitted to the NMED Air Quality Bureau is estimated to be May 20, 2022.

The exact location for MPC is latitude 35°, 24', 38.21" N and longitude 108°, 05', 10.79" W, NAD83. The approximate location of MPC is 3.9 miles northwest of Prewitt, NM in McKinley County.

MPC is a small paper mill physically located in Prewitt, New Mexico and has been in commercial production since June 1, 1994. The facility processes a maximum of 900 tons per day of recycled old corrugated cardboard (OCC) into new cardboard stock. With this permit modification, MPC is seeking to increase overlapping operation of the main steam boiler and the auxiliary boiler. MPC is requesting that the boilers be allowed to operate in any combination, as long as the total annual emissions of NOx and CO are each below 95 tons per year for the facility. The amount of sulfuric acid delivered will increase from 5,300 gallons per year to 108,000 gallons per year. The only other emission increase proposed is a slight increase in PM, PM_{10} and $PM_{2.5}$ emissions along the paved roads and recalculation of SO2 emissions from the two steam boilers will allow 0.75 grains per 100 standard cubic feet of natural gas (New Mexico Public Regulatory Commission regulatory limit).

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

Pollutant:	Pounds per hour	Tons per year
PM_{10} (Total Facility)	3.15 pph	13.3 tpy
$PM_{2.5}$ (Total Facility)	2.80 pph	12.2 tpy
Sulfur Dioxide (SO_2)	0.78 pph	3.41 tpy
Nitrogen Oxides (NO_x)	35.7 pph	<95.0 tpy
Carbon Monoxide (CO)	23.6 pph	<95.0 tpy
Volatile Organic Compounds (VOC)	4.48 pph	19.6 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	3.32 pph	12.3 tpy
Toxic Air Pollutant (TAP)	0.11 pph	0.10 tpy
Green House Gas Emissions as Total CO_2e	n/a	182,861 tpy

The maximum and standard operating schedule of the plant is 24 hours per day, 7 days a week, and a maximum of 52 weeks per year for annual operating hours of 8760 hours per year.

The owner and operator is:

McKinley Paper Company (MPC)
4600 Williams St SE
Albuquerque, New Mexico 87105

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

With your comments, please refer to the company name and facility name, or send a copy of this notice along with your comments. This information is necessary since the Department may have not yet received the permit application. Please include a legible return mailing address. Once the Department has completed its preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención

Este es un aviso de la Agencia de Calidad de Aire del Departamento de Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor de comunicarse con la oficina de Calidad de Aire al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non- discrimination programs, policies or procedures, you may contact: Kristine Pintado, Non-Discrimination Coordinator, New Mexico Environment Department, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. If you believe that you have been discriminated against with respect to a NMED program or activity, you may contact the Non-Discrimination Coordinator identified above or visit our website at https://www.env.nm.gov/NMED/EJ/index.html to learn how and where to file a complaint of discrimination.

PROOF OF PUBLICATION AFFIDAVIT

County of McKinley, Babette Hermann being duly sworn, testifies that she is the Publisher of Gallup Sun Publishing, a weekly newspaper circulated in the above county and that he/she is familiar with the facts and that the notice, a copy of which is attached, was published in said newspaper one week for one consecutive week (one publication) prior to the time fixed for the hearing thereof, and that the publication was made on the:

_____20_____ day of May, 2022

Dated 5/20/2022

Signature of Affiant

State of New Mexico)
) ss
County of McKinley)

On the 20th day of May 20 22,

the foregoing instrument was acknowledged

before me by Valerie Smith.

Erica Palomino

Notary Public

STATE OF NEW MEXICO
NOTARY PUBLIC
ERICA PALOMINO
Commission # 1129007
Expiration Date: 07/01/2024

My Commission expires July 1 2024

NOTICE OF AIR QUALITY PERMIT APPLICATION

Bio-PAPPEL's McKinley Paper Company (MPC) announces its intent to apply to the New Mexico Environment Department (NMED) for significant modification of 20.2.72 NMAC Air Quality Permit #8886 for its existing paper recycling and mill facility in Prewitt, New Mexico. The date the notarized MPC revision permit application will be submitted to the NMED Air Quality Bureau is estimated to be May 20, 2022.

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the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
PM_{10} (Total Facility)	3.15 pph	13.3 tpy
$PM_{2.5}$ (Total Facility)	2.80 pph	12.2 tpy
Sulfur Dioxide (SO_2)	0.78 pph	3.41 tpy
Nitrogen Oxides (NO_x)	35.7 pph	<95.0 tpy
Carbon Monoxide (CO)	23.6 pph	<95.0 tpy
Volatile Organic Compounds (VOC)	4.48 pph	19.6 tpy
Total sum of all Hazardous Air Pollutants (HAPs)	3.32 pph	12.3 tpy
Toxic Air Pollutant (TAP)	0.11 pph	0.10 tpy
Green House Gas Emissions as Total CO_2e	n/a	182,861 tpy

The maximum and standard operating schedule of the plant is 24 hours per day, 7 days a week, and a maximum of 52 weeks per year for annual operating hours of 8760 hours per year.

The owner and operator is: McKinley Paper Company (MPC)
4600 Williams St SE
Albuquerque, New Mexico 87105

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.

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Attención

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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, you may contact: Kristine Pintado, Non-Discrimination Coordinator, New Mexico Environment Department, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. If you believe that you have been discriminated against with respect to a NMED program or activity, you may contact the Non-Discrimination Coordinator identified above or visit our website at https://www.env.nm.gov/NMED/EJ/index.html to learn how and where to file a complaint of discrimination.

Publication by: Gallup Sun
May 20, 2022

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General Posting of Notices – Certification

I, Michael W. Hooker, the undersigned, certify that on **{5.27.2022},** posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in the Prewitt, Thoreau, and Grants of McKinley County, State of New Mexico on the following dates:

1. MPC's Facility entrance {5.18.2022}
2. US Post Office in Prewitt, NM at 1692 State Highway 122 {5.17.2022}
3. US Post Office in Thoreau, NM at 3 Prewitt St {5.17.2022}
4. US Post Office in Bluewater, NM at 75 Main St{5.24.2022}

Signed this 27th day of May, 2022,

Signature

5.27.2022
Date

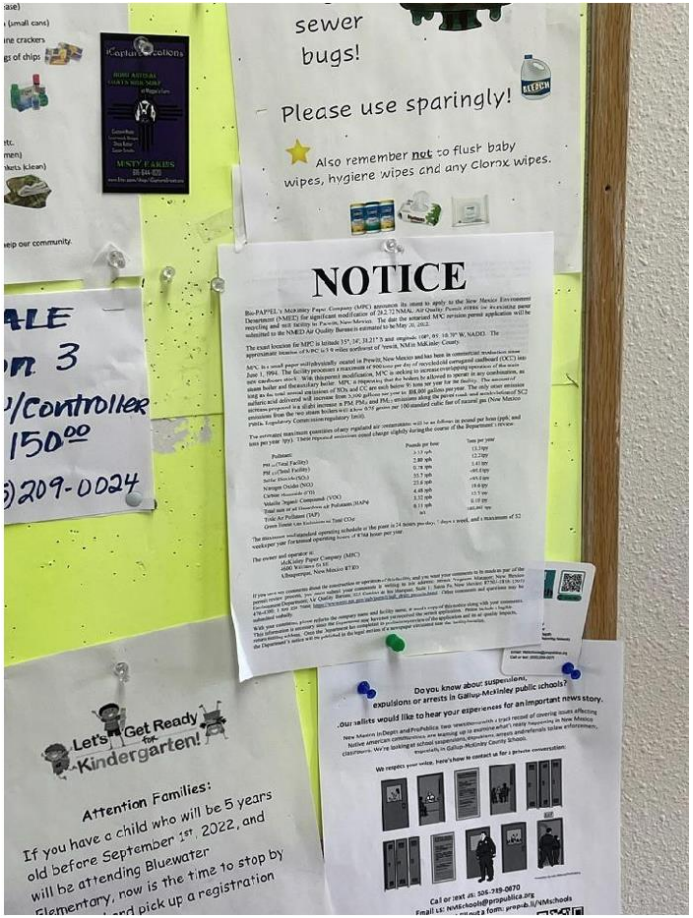
Michael W. Hooker
Printed Name

TES Manager
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Air Quality Permit

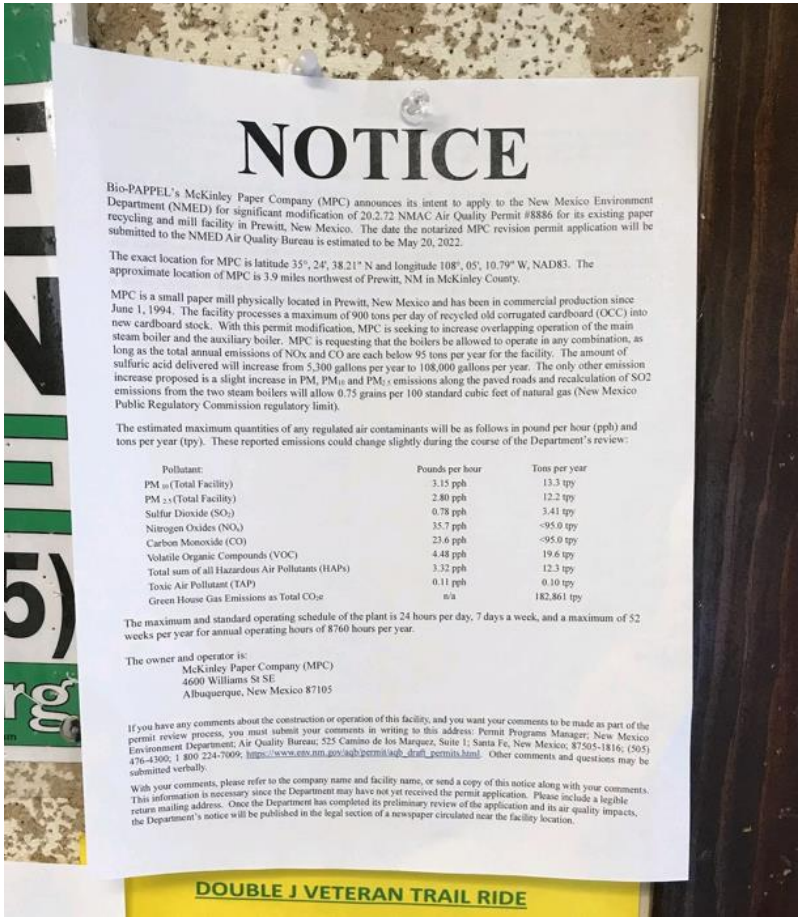
Public Notices 2022

Bluewater
75 Main St
5.24.2022



Prewitt Mill
County Road 19
5.18.2022

Thoreau
3 Prewitt St
5.17.2022



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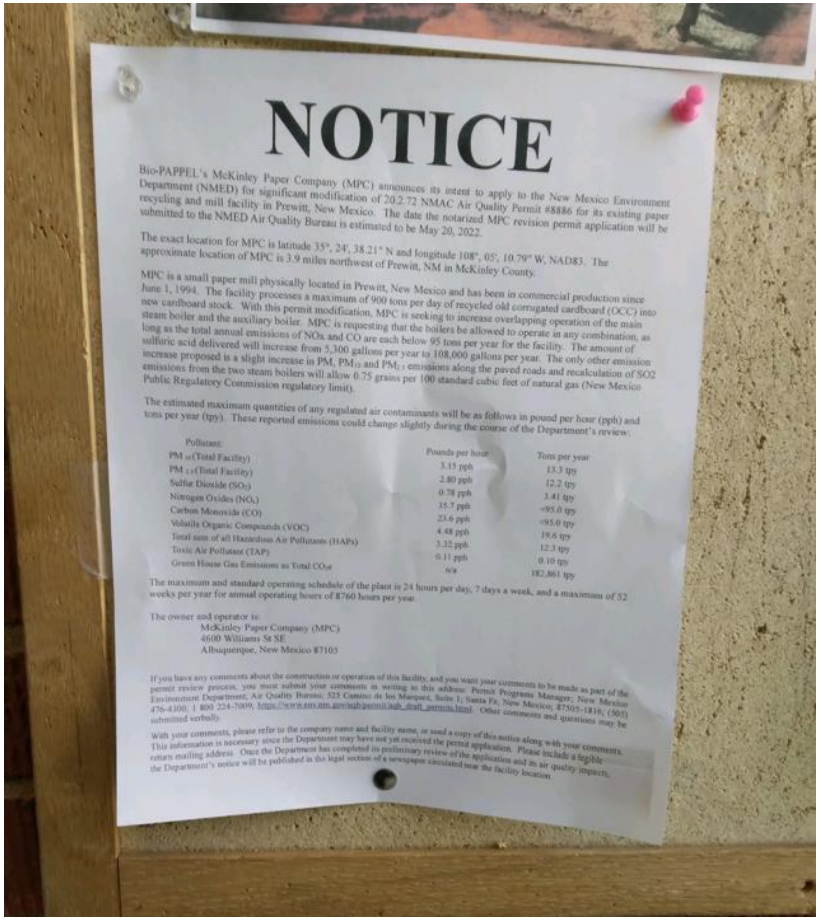
DOUBLE J VETERAN TRAIL RIDE

Prewitt
1692 State Highway 122



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June 9, 2022

KYVA Radio
300 W Aztec Ave.
Suite 200
Gallup, NM 87301

CERTIFIED MAIL

Dear KYVA Radio:

SUBJECT: PSA Request - Proposed Air Quality Construction Permit Application for McKinley Paper Company

Attached is a copy of a public service announcement regarding a proposed air quality construction permit application for McKinley Paper Company. This announcement is being submitted by Montrose Air Quality Services, Albuquerque, NM on behalf of McKinley Paper Company.

The announcement request is being made to fulfill the requirements of the New Mexico Environmental Department air quality permitting regulations. Please consider reading the attached announcement as a public service message.

If you have any questions or need additional information, please contact me at (505) 830-9680 ext 6 (voice), (505) 830-9678 (fax) or email at pwade@montrose-env.com. You may also contact Mr. Isaac Rosas, McKinley Paper Company at (505) 972-2146. Thank you.

Sincerely,

Paul Wade

Paul Wade
Senior Project Engineer

Montrose Air Quality Services, LLC
3500 Comanche Road NE Suite G
Albuquerque, NM 87107-4546

T: 505.830.9680 ext. 6
F: 505.830.9678
Pwade@montrose-env.com
www.montrose-env.com

PUBLIC SERVICE ANNOUNCEMENT

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Public notices have been posted in the following locations for review by the public:

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2. At the Prewitt Post Office at 1692 State Highway 122;
3. At the Bluewater Post Office at 75 Main St.; and
4. At the main entrance to McKinley Paper Company

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7022 0410 0001 4205 3968

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

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

OFFICIAL USE

Certified Mail Fee
$ 3.75

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

Postage
$ 0.53

Total Postage and Fees
$ 4.28

Postmark Here
JUN 10 2022
ALBUQUERQUE NM 87110-3801 USPS

Sent To

Street and Apt. N KYVA Radio
300 W. Aztec Ave. Ste. 200

City, State, ZIP+4 Gallup, NM 87301-6324

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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.

OCC Pulping, Cleaning, Pressing, and Drying Process (Units 2 and 3)

The mill receives the OCC either by truck (Unit 1) or railcar in the form of bales. At the receiving area of the warehouse, the baling wire is cut off the bales and the bales of OCC are placed on an inclined conveyor. The conveyor carries the bales from the warehouse to the hydrapulper, which is located in the paper machine building.

The hydrapulper is an 18-foot diameter tub filled with water, much like a giant washing machine with an agitator. In addition to water, steam is also added to the pulper. The pulper reduces the OCC to a fiber slurry, also known as stock. Most of the contaminants found in the OCC, such as plastic, strings, and strands of tape, come out of the stock at this point.

The stock is moved into the stock preparation area where it first passes through the coarse cleaning and screening systems, and then through the fine cleaning and screening systems. Here, the stock is cleaned and screened to remove dirt, grit, glue, staples, glass, and other debris collected in the box during its original use.

In the next step of the process, the stock moves through centrifugal cleaners. These cleaners remove very small contaminants from the stock. At this point in the process, the stock is about 99% water and 1% fibers.

After cleaning, the stock is thickened. Water is strained from the stock to increase its consistency from nearly 1% to 12%. The thickened stock is then stored in a large holding tank, called the high-density tank.

From the high-density tank, the stock is diluted with water to a consistency of about 4.75%. The stock is then refined to create the desired fiber properties for making paper.

The cleaned and refined pulp, consisting of 1% fiber and 99% water, is then moved to the paper machine. Here, it flows onto an endless moving screen of woven polyester, which collects the fiber and removes water by gravity and vacuum. During the OCC process from hydrapulper to cleaners, off-gassing of VOC and HAPS are emitted as fugitive emissions (Unit 2).

The fiber is then carried to a press section. Here, the paper is squeezed between large rotating rolls and felts at progressively higher pressures to remove more water. The paper is now 50% water and 50% dry material.

From the presses, the paper goes onto the dryers, which are rotating drums heated by steam. In the dryers, the remaining moisture is evaporated from the sheet.

From the dryers, the paper is wound onto large reel spools. The spools of paper are taken to the winder, which unwinds, then slits the sheet of paper to smaller widths. The smaller widths of paper are rewound onto paper cores. During the furnish paper machine process from press section to paper rolls, off-gassing of VOC and HAPS are emitted as fugitive emissions (Unit 3).

The paper leaves the plant as large rolls, up to 100 inches wide and 58 inches in diameter, weighing between two and four tons.

After processing, about 8% of the raw material remain as solid waste that leaves the mill in two forms:

- Staples, glass, plastic, waxes, and other debris removed from the boxes.
- Paper fines or cellulose fines, which are small particles of fiber that remain in the wastewater. These fines are collected and removed during the water clarification process.

The solid waste from the mill, about 72 tons a day or 21,316 tons a year, are loaded into trucks (Unit 1) and is placed in a landfill at Thoreau in McKinley County.

Water Recovery System (Unit 4)

MPC Prewitt Mill is a zero-discharge facility, so all process water is treated and recycled. As part of the recycling process, chemicals are added to maintain the correct chemical properties. These chemicals include biocides, caustic sodas, acids, flocculating agents, aqueous colloidal solutions, bleaches, and microbiocide agents (Unit 4)

Cooling Towers (Units 5, 6, and 7)

There are 3 small cooling towers (Units 5, 6, and 7) located at MPC Prewitt Mill. These cooling towers release heat generated in the facility processes.

Water Treatment System (Units 8, 9, 10, and 11)

The water treatment facility treats water to be sent to the steam boilers to generate steam for the paper recycle process. Additives in the process include soda ash and lime. These materials are delivered to the site and pneumatically loaded to the storage silos (Units 8 and 10). Particulate emissions during silo loading is controlled by silo dust collectors with a control efficiency of 99.5%. Metered unloading of the storage silos (Units 9 and 11) occurs within the water treatment building. Particulate emissions from silo unloading is controlled by being enclosed in a building. Estimated control efficiency for enclosure is 80%.

Natural Gas-Fired Steam Boilers (Unit 12 and 13)

Two natural gas-fired steam boilers are present at the site. These boilers (Units 12 and 13) provide steam for the paper drying process. MPC Prewitt Mill primarily operates the main steam boiler (unit 12) with some overlapping operation of the auxiliary steam boiler (unit 13). The boilers both have CEMS and emissions are limited by permit conditions to less than 95 tpy of NOx and CO as requested in this permit modification.

Fire Pump Engine (Unit 14)

A 375 bhp engine is installed to provide sufficient water in the case of emergency. The engine is defined as an emergency engine that will take an operating limit of 500 hours per year. The engine is tested weekly for ½ hour during the hours of 10 AM to 1 PM.

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)**:** MPC Prewitt Mill, Tri-State Prewitt Escalante Generating Station, and Salt River Materials Group Transloading Facility

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** **X No**

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

☐ **Yes** **X No**

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

X Yes ☐ **No**

C. Make a determination:

X 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:

- **X** **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 project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

a. **NOx: <95 TPY**
b. **CO: <95 TPY**
c. **VOC: 19.6 TPY**
d. **SOx: 3.4 TPY**
e. **PM: 13.2 TPY**
f. **PM10: 13.0 TPY**
g. **PM2.5: 12.1 TPY**
h. **Fluorides: 0 TPY**
i. **Lead: 7.9E-4 TPY**
j. **Sulfur compounds (listed in Table 2): 0 TPY**
k. **GHG: 182,961 TPY**

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

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

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

This stationary source is not a PSD source, but a minor NSR source.

Section 13

Determination of State & Federal Air Quality Regulations

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

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

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

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

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

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

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

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

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

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

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	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	MPC Prewitt Mill will be subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, after issuance of this new air quality permit.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This facility has new gas fired boilers having a heat input of less 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 will not have oil burning equipment.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	14	The MPC Prewitt Mill's fire pump engine must meet opacity limits per 20.2.61 NMAC.
20.2.70 NMAC	Operating Permits	No		MPC Prewitt Mill is not a Title V source.
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	MPC Prewitt Mill is a 20.2.72 NMAC permitted sources and is required under 20.2.73.300 NMAC to follow emission inventory reporting requirements.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		MPC Prewitt Mill is a minor NSR source.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This facility is subject to 20.2.72 NMAC and is in turn subject to 20.2.75 NMAC.
20.2.77 NMAC	New Source Performance	Yes	12, 13	The facility steam boilers are stationary sources subject to the requirements of 40 CFR Part 60, Subpart Db.
20.2.78 NMAC	Emission Standards for HAPS	No		No MPC Prewitt Mill source emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.80 NMAC	Stack Heights	Yes	12, 13	Steam Boiler stacks will not exceed good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	14	The fire pump engine is subject to the requirements of 40 CFR Part 63, Subpart ZZZZ.

Table for Applicable FEDERAL REGULATIONS

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	If subject, this would normally apply to the entire facility. This applies if you are subject to 20.2.70, 20.2.72, 20.2.74, and/or 20.2.79 NMAC.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	12, 13	Applies if any other Subpart in 40 CFR 60 applies. MPC is subject to Subpart Db
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No		MPC is not an electric utility.
NSPS 40 CFR60.40b Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Yes	12, 13	The affected facility to which this subpart applies is each steam generating unit that commences 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 MW (100 million Btu/hour). Establishes NOx emission limit for Units 12 and 13. The boiler (unit 12) has a 166.8 MMBtu/hr heat input, which exceeds the 100 MMBtu/hr threshold. The boiler (unit 13) has a 190 MMBtu/hr heat input, which exceeds the 100 MMBtu/hr threshold. Construction commenced after the 6/19/1984 applicability date.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		This facility has steam generating units for which construction, modification or reconstruction is commenced after June 9, 1989 but have a maximum design heat input capacity greater than 29 MW (100 MMBtu/hr).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	No		This facility was constructed after July 23, 1984.
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	No		This facility has no storage vessels with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Commenced **After** July 23, 1984			
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No		Facility has no Subpart IIII applicable CI engines.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		Facility has no Subpart JJJJ applicable CI engines.
NESHAP 40 CFR 61 Subpart A	General Provisions	No		Applies if any other Subpart in 40 CFR 61 applies.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		MPC is not a major source of HAPS.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	No		MPC fire pump engine, Unit 14, is an emergency stationary RICE. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year.
40 CFR 68	**Chemical Accident Prevention**	No		MPC stores no chemicals listed no section 112(r) substances.

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.

X 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.

X 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.

No alternative operating scenarios are proposed for this facility.

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.

X Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.

☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.

☐ No modeling is required.

AIR QUALITY DISPERSION MODEL PROTOCOL FOR MCKINLEY PAPER COMPANY PERMIT #8886 REVISION APPLICATION

McKinley County, New Mexico

PREPARED FOR

Dated October 26, 2021

Prepared by

Montrose Air Quality Services, LLC

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1.0 INTRODUCTION

McKinley Paper Company (MPC) Prewitt Mill will be submitting a revision to their existing 20.2.72 NMAC Permit #8886 for its existing paper recycling and mill facility in Prewitt, New Mexico. MPC presently operates two steam boilers that provides steam for the plants process. The existing permit restricts only one boiler operating at any one time. After several months of operation, MPC has determined that they will need the option to operate both boilers at the same time during boiler change overs. The other issue that has come up is the need to increase the amount of truck traffic that is allowed onsite. To remove this condition and increase the amount of truck traffic, MPC is submitting a permit modification. This document presents a modeling protocol for the Dispersion Model Analysis that will be performed to evaluate potential air quality impacts from McKinley Paper Company Prewitt Mill with these revisions.

MPC's paper mill has been in commercial production since June 1, 1994 and obtain an NSR air quality Permit #8886 on November 12, 2020 after taking control of the auxiliary boiler from Tri-State's PEGS. The facility processes a maximum of 900 tons per day of recycled "old corrugated cardboard" (OCC) into new cardboard paper stock. With this revision application, the facility is applying for the operation of the auxiliary 190 MMBtu/hr natural gas-fired steam boiler (Unit 13), and main 166.8 MMBtu/hr natural gas-fired steam boiler (Unit 12) can operate at the same time. The initial modeling analysis with all MPC sources alone will be run to determine if there are an exceedance of significant impact levels (SILs). If initial modeling shows exceedance of SILs for a pollutant and averaging period, refined modeling will be performed including MPC sources, all applicable sources at neighboring Tri-State's PEGS, all applicable sources at neighboring Salt Rivers Material Group (SRMG)'s Transloading Facility, any applicable neighboring source, and/or background. These determinations will be addressed in the final dispersion modeling analysis submitted with the NSR permit revision application for the MPC Prewitt Mill. The objective of this evaluation is to determine if ambient air concentrations from the maximum operation of MPC for nitrogen dioxide (NO_2); carbon monoxide (CO); sulfur dioxide (SO_2); particulate matter; both 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$); are below Class II federal and state ambient air quality standards (NAAQS and NMAAQS) found in EPA's 40 CFR part 50 and New Mexico air quality regulation 20.2.3 NMAC. The NAAQS were designed by the Environmental Protection Agency (EPA) to protect public health (Primary NAAQS) and welfare (Secondary NAAQS) from the effects of criteria pollutants. This will be accomplished by determining the radius of impact (ROI) for each pollutant model along with the applicable averaging period. The receptor grids determined from the ROI modeling for each pollutant will then be modeled with a refined grid, complex terrain, building downwash, and appropriate regional background concentrations as discussed in Section 2.9 of this report. The most recent version of AERMOD (*Version 21112*) will be used in the dispersion model analysis.

The exact location of MPC's Prewitt Mill is latitude 35°, 24', 38.21" N and longitude 108°, 05', 10.79" W, NAD83, which is approximately 3.9 miles northwest of Prewitt, NM in McKinley

County. MPC is located in Air Quality Control Region (AQCR) 156 where the minor source baseline dates have been triggered for SO_2 (8/4/1978) and PM_{10} (8/4/1978). Figure 1 presents an aerial view of both MPC's Prewitt Mill and Tri-State's PEGS.

Dispersion modeling inputs and settings are presented Section 2.

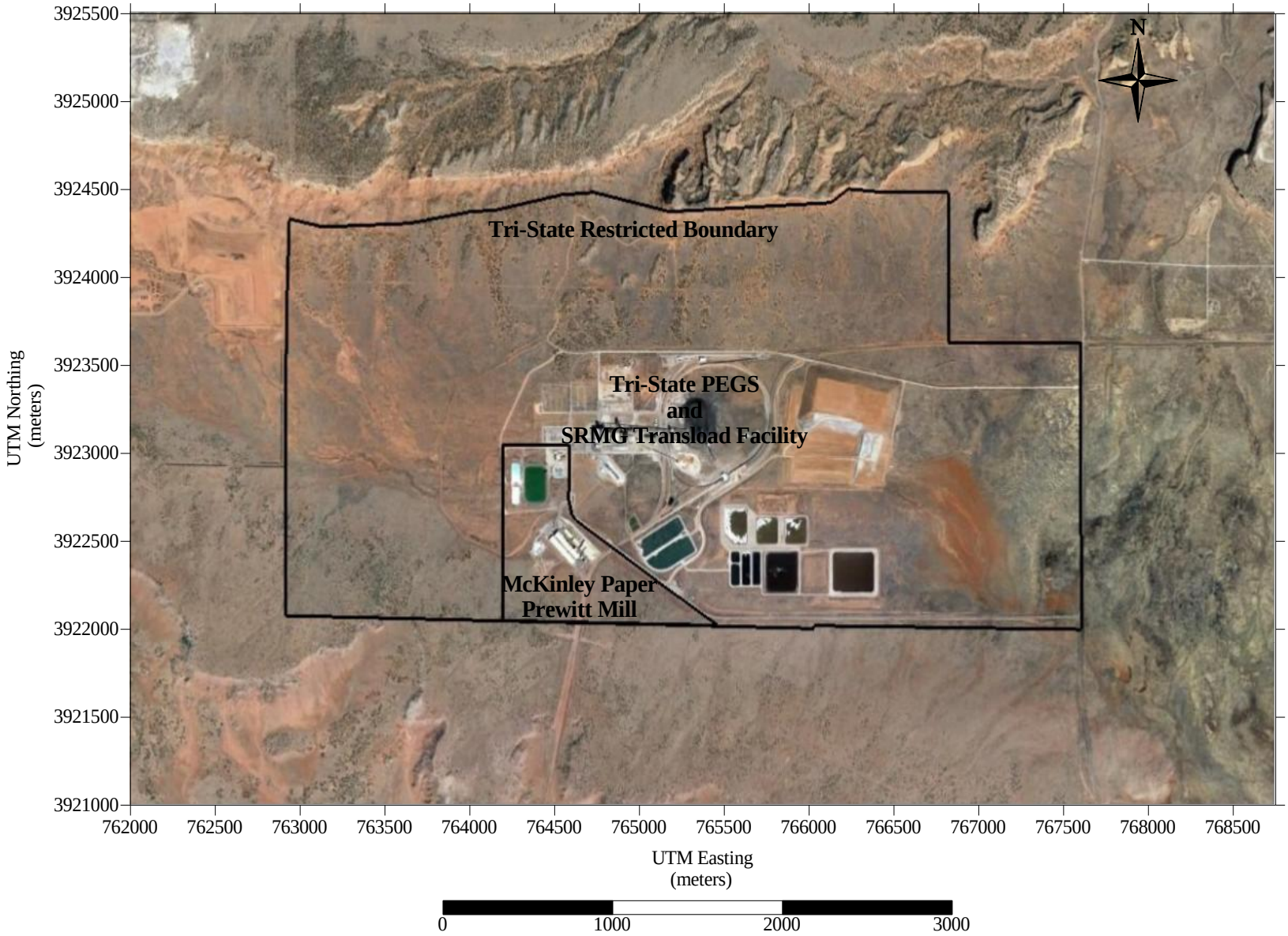

Figure 1: MPC Prewitt Mill, PEGS, and SRMG Location Overview - Aerial View

2.0 SIGNIFICANT MONITORING AIR QUALITY IMPACT ANALYSIS

This section identifies the technical approach proposed for Class II federal and state ambient air quality standards for the facility. New Mexico Environmental Department, Air Quality Bureau requires that all applicable criteria pollutant emissions be modeled using the most recent versions of US EPA approved models and compared with National Ambient Air Quality Standards (NAAQS) and New Mexico Ambient Air Quality Standards (NMAAQS). Table 2-1 shows the NAAQS and NMAAQS that the facility must comply with in order to obtain an air quality permit. Table 2-1 also lists the Class II Significant Impact Levels (SILs) which are used to assess whether a facility has a significant impact at downwind receptors. Table 2-2 lists ambient air quality standards where modeling is not required by the state.

The dispersion modeling analysis will be performed to estimate the total pollutant concentrations resulting from maximum proposed emission rates and hours of operation. The modeling will determine maximum off site concentrations for each criteria pollutant and applicable averaging periods for carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter with aerodynamic diameter less than 10 micrometers (PM_{10}) and particulate matter with aerodynamic diameter less than 2.5 micrometers ($PM_{2.5}$), for comparison with modeling significance impact levels (SILs). For pollutants and averaging periods above the SILs, cumulative impact analysis (CIA) modeling will be performed for those pollutants and averaging periods above the SILs for comparison with national/New Mexico ambient air quality standards (AAQS). The modeling will follow the guidance and protocols outlined in the NMED - AQB "Air Dispersion Modeling Guidelines", and the most up to date EPA's *Guideline on Air Quality Models.*

During CIA modeling, all the Prewitt Mill emission sources will be modeled together to determine worst-case impacts from the facility. Step 1 in the analysis will be determining the ROI. The ROI for each modeled pollutant and averaging period will be compared with the applicable SIL. Once a receptor grid is determined from the ROI modeling, CIA modeling will include; applicable Prewitt Escalante Generating Station and SRMG sources, applicable neighboring sources within 20 kilometers for particulate sources, and background concentrations for all pollutants over the significant impact levels (SILs).

TABLE 2-1: National and New Mexico Ambient Air Quality Standard Summary

Pollutant	Avg. Period	Sig. Lev. ($\mu g/m^3$)	Class I Sig. Lev. ($\mu g/m^3$)	NAAQS	NMAAQS	PSD Increment Class I	PSD Increment Class II
CO	8-hour	500		9,000 ppb(1)	8,700 ppb(2)		
	1-hour	2,000		35,000 ppb(1)	13,100 ppb(2)		
NO_2	annual	1.0	0.1	53 ppb(3)	50 ppb(2)	2.5 $\mu g/m^3$	25 $\mu g/m^3$
	24-hour	5.0			100 ppb(2)		
	1-hour	7.52		100 ppb(4)			
$PM_{2.5}$	annual	0.2	0.05	12 $\mu g/m^3$(5)		1 $\mu g/m^3$	4 $\mu g/m^3$
	24-hour	1.2	0.27	35 $\mu g/m^3$(6)		2 $\mu g/m^3$	9 $\mu g/m^3$
PM_{10}	annual	1.0	0.2			4 $\mu g/m^3$	17 $\mu g/m^3$
	24-hour	5.0	0.3	150 $\mu g/m^3$(7)		8 $\mu g/m^3$	30 $\mu g/m^3$
SO_2	annual	1.0	0.1		20 ppb(2)	2 $\mu g/m^3$	20 $\mu g/m^3$
	24-hour	5.0	0.2		100 ppb(2)	5 $\mu g/m^3$	91 $\mu g/m^3$
	3-hour	25.0	1.0	500 ppb(1)		25 $\mu g/m^3$	512 $\mu g/m^3$
	1-hour	7.8		75 ppb(8)			

Standards converted from ppb to $\mu g/m^3$ use a reference temperature of 25° C and a reference pressure of 760 millimeters of mercury.
(1) Not to be exceeded more than once each year.
(2) Not to be exceeded.
(3) Annual mean.
(4) 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
(5) Annual mean, averaged over 3 years.
(6) 98th percentile, averaged over 3 years.
(7) Not to be exceeded more than once per year on average over 3 years.
(8) 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

TABLE 2-2: Standards for Which Modeling Is Not Required by NMED AQB.

Standard not Modeled	Surrogate that Demonstrates Compliance
CO 8-hour NAAQS	CO 8-hour NMAAQS
CO 1-hour NAAQS	CO 1-hour NMAAQS
NO_2 annual NAAQS	NO_2 annual NMAAQS
NO_2 24-hour NMAAQS	NO_2 1-hour NAAQS
O_3 8-hour	Regional modeling
SO_2 annual NMAAQS	SO_2 1-hour NAAQS
SO_2 24-hour NMAAQS	SO_2 1-hour NAAQS
SO_2 3-hour NAAQS	SO_2 1-hour NAAQS

2.1 DISPERSION MODEL SELECTION

The dispersion modeling will be conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), *Version 21112*. This model is recommended by EPA for determining Class II impacts within 50 km of the facility being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD will be used to estimate pollutant concentrations of CO, NO_2, PM_{10}, $PM_{2.5}$ and SO_2 in the ambient air from the MPC facility modeled emission sources.

AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principles for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD modeling system has three components: AERMAP, AERMET, and AERMOD. AERMAP is the terrain preprocessor program. AERMET is the meteorological data preprocessor. AERMOD includes the dispersion modeling algorithms and was developed to handle simple and complex terrain issues using improved algorithms. AERMOD uses the dividing streamline concept to address plume interactions with elevated terrain.

AERMOD CIA modeling will be run using all the regulatory default options including use of:

- Gradual Plume Rise
- Stack-tip Downwash
- Buoyancy-induced Dispersion
- Calms and Missing Data Processing Routine
- Upper-bound downwash concentrations for super-squat buildings
- Default wind speed profile exponents
- Calculate Vertical Potential Temperature Gradient
- No use of gradual plume rise
- Rural Dispersion

These regulatory default options are found in the AERMOD User's Manual. The model will incorporate local terrain into the calculations.

2.2 BUILDING WAKE EFFECTS

The Prewitt Mill has several buildings and will be located adjacent to PEGS which has multiple buildings. Evaluation of building downwash in CIA modeling on adjacent stack sources is deemed necessary, since most (if not all) of the stack source heights will be below Good Engineering Practice (GEP) heights. The formula for GEP height estimation is:

$H_s = H_b + 1.50L_b$

where: H_s = GEP stack height

H_b = building height

L_b = the lesser building dimension of the height, length, or width

The effects of aerodynamic downwash due to buildings and other structures will be accounted for by using wind direction-specific building parameters calculated by the USEPA-approved Building Parameter Input Program Prime (BPIP-Prime (*Version 04274*)) and the algorithms included in the AERMOD air dispersion model. Based on examination of plot plans for the relationship of sources to the location of facility structures, the locations and dimensions of emission sources and facility structures will be input to the BPIP-Prime software package, which calculates the direction-specific building dimensions for input into the AERMOD model. A downwash analysis will be performed for each point source. MPC and PEGS buildings dimensions will be input into the dispersion model to assess the potential for downwash effects on emissions from nearby point sources. A building downwash analysis, using the latest version of BPIP-Prime, will be conducted and incorporated into the modeling analysis to account for potential effluent downwash due to the tanks and buildings. Output from BPIP-Prime will be incorporated into the AERMOD modeling input files.

2.3 METEOROLOGICAL DATA

Meteorological data used for modeling McKinley Paper Company was obtained from two primary sources: an on-site 10-meter meteorological monitoring site operated at Tri-State's Prewitt Escalante Generating Station and both upper air and surface observations from Albuquerque NWS data. This data has been previously used in dispersion modeling analysis for Tri-State's Prewitt Escalante Generating Station. For this analysis, the existing data was re-processed using the latest version of AERMET (*Version 21112*). These data sources are described in more detail below.

On-Site 10-Meter Tower Data

Hourly on-site surface (i.e. 10-meter) meteorological data is available for 1999 through 2000 (June through May). This meteorological tower site is located approximately 1.4 miles east-northeast of the MPC facility. The following parameters were available from this site:

Wind Speed at 10 meters
Wind Direction at 10 meters
Sigma Theta at 10 meters
Temperature at 10 meters
Net Radiation at 2 meters

NWS Albuquerque Data

Two parameters, cloud cover and mixing heights, were not available from the on-site monitoring. Cloud cover data are contained in the NWS "surface" data files and the mixing heights are contained in the "upper air" data files. The NWS upper air data contains two mixing heights per day. These data were obtained from collected meteorological parameters by the NWS at Albuquerque for the same period, 1999 - 2000.

The meteorological tower data will be processed using AERMET (*Version 21112*), upper air data from Albuquerque, New Mexico and surface air data from Albuquerque, New Mexico for the same time period.

2.4 RECEPTORS AND TOPOGRAPHY

Modeling will be completed using as many receptor locations necessary to ensure that the maximum estimated impacts are identified. Following EPA guidelines, receptor locations will be identified with sufficient density and spatial coverage to isolate the area with the highest impacts.

ROI model receptor grid will include fence line receptor spacing at 50 meters apart, receptors located 50 meters apart out to 500 kilometer from the property line and 100 meters apart out to 1 kilometers from property line, 250 meters apart out to 3 kilometers from property line, 500 meters apart out to 5 kilometers from property line, and 1000 meters apart out to 10 kilometers from property line. Fence line receptor spacing will be 50 meters.

All refined model receptors will be preprocessed using the AERMAP (*Version 18081*) software associated with AERMOD. The AERMAP software establishes a base elevation and a height scale for each receptor location. The height scale is a measure of the receptor's location and base elevation and its relation to the terrain feature that has the greatest influence in dispersion for that receptor. AERMAP will be run using U.S. Geological Survey (USGS) digital elevation model (DEM) data. Output from AERMAP will be used as input to the AERMOD runstream file for each model run. For fugitive sources of particulate (Volume sources), the CIA model will be run using the "FLAT" source mode option.

2.5 MODELED EMISSION SOURCES INPUTS

NO_2, CO, SO_2, and PM (PM_{10} and $PM_{2.5}$) emissions were input using permitted emission rates or the main boiler, permitted emission rates for the existing auxiliary boiler, and MPC water treatment facility, AP-42 Section 3.1 emission factors for the fire pump engine, NMED cooling tower procedure for cooling tower PM emissions, AP-42 emission factors for loading storage silos, AP-42 emission factors for unloading storage silos, and AP-42 emission factors for paved road emissions. The emission sources modeled for this analysis will include all potential emission sources expected from this project. For long-term averaging periods (24-hour and annual), the fire pump will be included in the model at its annual emission rate operating during the hours of 10 AM to 1 PM. For short-term averaging period (1-hour, 3-hour, 8-hour) dispersion modeling analysis, the fire pump engine will be input into the model at its maximum hourly emission rate during the hours of 10 AM to 1 PM. The fire pump engine will be limited to 500 hours per year in the permit. Typical maintenance checks for the engine is 30 minutes per week for less than 100 hours per year.

No startup or shutdown emissions are expected for this facility.

2.6 NO_2 MODELING – MULTI-TIERED SCREENING APPROACH

The AERMOD model predicts ground-level concentrations of any generic pollutant without chemical transformations. Thus, the modeled NO_X emission rate will give ground-level modeled concentrations of NO_X. NAAQS values are presented as NO_2. For NO_X, NAAQS and NMAAQS applicable averaging periods include 1-hour, 24-hour, and annual averages.

EPA has a three-tier approach to modeling NO_2 concentrations.

- Tier I – total conversion, or all NOx = NO_2
- Tier II – Ambient Ratio Method 2 (ARM2)
- Tier III – case-by-case detailed screening methods, such as OLM and Plume Volume Molar Ratio Method (PVMRM) and NO_2/NO_X in-stack ratio

Initial modeling will be performed using Tier II methodology. If these modeling iterations demonstrate that less conservative methods for determining 1-hour and annual NO_2 compliance would be needed for this project, then ambient impact of 1-hour and annual NOx predicted by the model will use Tier III – OLM or PVMRM.

For PVMRM, three inputs can be selected in the model, the ISR, the NO_2/NO_X equilibrium ratio for the ambient air, and the ambient ozone concentration. The ISR will be determined for each source or group of sources. The NO_2/NO_X equilibrium ratio will be the EPA default of 0.90.

It is evident from modeling experience that at distances close to a modeled source, the modeled NO_2/NO_X ratio (and, thus, the NO_2 concentration) is highly dependent upon the assumed in-stack ratio. The use of the default ratio of 0.5 can result in large over predictions at a facility fence line. Table 8 summarizes the ISR selected for each NO_X source in the NO_2 1-hour modeling.

TABLE 2-3: Summary of Selected ISR

Source Description	Selected ISR
Natural Gas Fired Steam Boiler Stack	0.20
Fire Pump Engine	0.15
Neighboring Sources	0.20

Ozone 1-hour Background data

Ozone 1-hour background data used in the PVMRM NO_2 modeling on the Navajo Lake Monitoring Station.

2.7 $PM_{2.5}$ SECONDARY FORMATION IMPACT ANALYSIS

Particles are made up of different chemical components. The major components, or species, are carbon, sulfate and nitrate compounds, and crustal materials such as soil and ash. The different components that make up particle pollution come from specific sources and are often formed in the atmosphere. Particulate matter includes both "primary" PM, which is directly emitted into the air, and "secondary" PM, which forms indirectly from fuel combustion and other sources. Primary PM consists of carbon (soot)—emitted from cars, trucks, heavy equipment, forest fires, and burning waste—and crustal material from unpaved roads, stone crushing, construction sites, and metallurgical operations. Secondary PM forms in the atmosphere from gases. Some of these reactions require sunlight and/or water vapor. Secondary PM includes:

- Sulfates formed from sulfur dioxide emissions from power plants and industrial facilities;
- Nitrates formed from nitrogen oxide emissions from cars, trucks, industrial facilities, and power plants; and
- Carbon formed from reactive organic gas emissions from cars, trucks, industrial facilities, forest fires, and biogenic sources such as trees.

AERMOD does not account for secondary formation of $PM_{2.5}$ for near-field modeling. Any secondary contribution from MPC's source emissions is not explicitly accounted for in the model results. While representative background monitoring data for $PM_{2.5}$ should adequately account for secondary contribution from existing background sources, if the facility emits significant quantities of $PM_{2.5}$ precursors (NO_X, SO_2, VOC), some assessment of their potential contribution to cumulative impacts as secondary $PM_{2.5}$ is necessary. In determining whether such contributions may be important, keep in mind that peak impacts due to facility primary and secondary $PM_{2.5}$ are not likely to be well-correlated in space or time, and these relationships may vary for different precursors. Total MPC emissions of precursors include:

- Nitrogen Oxides (NO_X) – 95 tons per year (exceeds significant emission rates (SER))
- Sulfur Dioxides (SO_2) – 2.3 tons per year (below SER)
- Volatile Organic Carbon (VOC) – 19.9 tons per year (below SER).

$PM_{2.5}$ secondary emission concentration analysis will follow EPA guidelines. Following recent EPA guidelines for conversion of NO_X and SO_2 emission rates to secondary $PM_{2.5}$ emissions, MPC's Prewitt Mill emissions are compared to appropriate western MERPs values (NO_X 24 Hr – 1155 tpy; NO_X Annual – 3184 tpy; SO_2 24 Hr – 225 tpy; SO_2 Annual – 2289 tpy). The following equation, found in NMED AQB modeling guidance document on MERPs, will be used to determine if secondary emission would cause violation with $PM_{2.5}$ NAAQS.

$PM_{2.5}$ annual = ((NO_X emission rate (tpy)/3184 + (SO_2 emission rate (tpy)/2289)) x 0.2 $\mu g/m^3$
$PM_{2.5}$ 24 hour = ((NO_X emission rate (tpy)/1155 + (SO_2 emission rate (tpy)/225)) x 1.2 $\mu g/m^3$

Results of the secondary formation from the facility will be added to the modeled value.

2.8 REGIONAL BACKGROUND CONCENTRATIONS

Ambient background concentrations represent the contribution of pollutant sources that are not included in the modeling analysis, including naturally occurring sources. If the modeled concentration of a criteria pollutant is above the modeling significance level, the background concentration for each criteria pollutant will be added to the maximum modeled concentration to calculate the total estimated pollutant concentration for comparison with the AAQS. For neighboring sources within 50 kilometers of the MPC, the latest neighboring sources will be obtained from the NMED Air Quality Bureau, Modeling Section.

Modeling will include MPC's Prewitt Mill, the remaining Tri-State's PEGS sources, and the new SRMG's Transloading Facility Permit sources, along with neighboring sources or background per NMED Modeling Guidelines Section 4.

The ambient background concentrations listed in the Air Quality Bureau Guidelines for Navajo Lake and Santa Fe will be used. For particulate matter, PM_{10} and $PM_{2.5}$, MPC is proposing using backgrounds from Santa Fe (Monitor ID 3HM). For NO_2 and Ozone, MPC is proposing using backgrounds from Navajo Lake (Monitor ID 1NL). For SO_2, background concentrations from rest of the state of New Mexico (Monitor ID 1ZB) will be used. For CO, the background value will be the default for the rest of the state of New Mexico.

	1 Hour ($\mu g/m^3$)	**3 Hour ($\mu g/m^3$)**	**8 Hour ($\mu g/m^3$)**	**24 Hour ($\mu g/m^3$)**	**Annual ($\mu g/m^3$)**
NO_2	62.2				11.0
CO	2203		1526		
SO_2	8.84				
Ozone	156.9				
$PM_{2.5}$				16.55	4.32
PM_{10}				23.0	

2.9 CLASS II PSD INCREMENT ANALYSIS

If the results of the ROI analysis show an exceedance of the significance levels, Class II PSD increment analysis will be conducted. The PSD analysis will be conducted including all PSD increment consuming sources with the surrounding area within 50 km plus the ROI or 65 km of the facility (whichever is greater). Unlike the CIA, a predicted maximum concentration will be compared with the Class II PSD standards.

2.10 CLASS I AREA ANALYSIS

No Class 1 areas are located within 100 kilometers of the site. The closest Class 1 area is San Pedro Wilderness Area at 127 kilometers. Following the modeling guidance, MPC will not demonstrate compliance with Class I PSD standards.

MONTROSE ENVIRONMENTAL

Paul Wade <pwade@montrose-env.com>

McKinley Paper Company Modeling Protocol

3 messages

Paul Wade <pwade@montrose-env.com> Tue, Oct 26, 2021 at 1:45 PM
To: Eric Peters <eric.peters@state.nm.us>
Cc: Sufi Mustafa <sufi.mustafa@state.nm.us>

Eric
Since you did the original review I am sending this to you. This modeling protocol is for a revision to McKinley Paper's Permit 8886. The change to the permit will allow operation of both steam boilers at the same time. I will also be increasing the amount of delivery truck traffic into the facility. Additionally, I will be including the particulate emissions from the new permit issued to Salt River Materials Group.

Please let me know if you have any questions or concerns.

Thanks

--

MEG Logo_Signature

Paul Wade

Principal

Montrose Air Quality Services, LLC

3500 G Comanche Rd. NE, Albuquerque, NM 87107

T: 505.830.9680 x6 | F: 505.830.9678

PWade@montrose-env.com

www.montrose-env.com

MPC Modeling Protocol 102621.pdf
519K

Peters, Eric, NMENV <eric.peters@state.nm.us> Thu, Dec 2, 2021 at 3:23 PM
To: Paul Wade <pwade@montrose-env.com>
Cc: "Mustafa, Sufi A., NMENV" <sufi.mustafa@state.nm.us>

Paul,

I have the following comments on the modeling protocol.

Regarding this statement:

> For long-term averaging periods (24-hour and annual), the fire pump will be included in the model at its annual emission rate operating during the hours of 10 AM to 1 PM. For short-term averaging period (1-hour, 3-hour, 8-hour) dispersion modeling analysis, the fire pump engine will be input into the model at its maximum hourly emission rate during the hours of 10 AM to 1 PM.

NMED considers 24-hour averaging periods to be short-term. Only annual is considered a long-term averaging period. If a 24-hour period requires modeling, it should use the maximum hourly emission rate for hours that it is permitted to operate.

I approve the remainder of the protocol.

Eric

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:	Prewitt Mill
2	Name of company:	McKinley Paper Company (MPC)
3	Current Permit number:	Permit #8886
4	Name of applicant's modeler:	Paul Wade, Montrose Air Quality Services, LLC
5	Phone number of modeler:	(505) 830-9680 ext 6
6	E-mail of modeler:	pwade@montrose-env.com

16-B: Brief

1	Was a modeling protocol submitted and approved?	Yes☒	No☐
2	Why is the modeling being done?	Other (describe below)	
3	Describe the permit changes relevant to the modeling.		
	MPC presently operates two steam boilers that provides steam for the plants process. The existing permit restricts only one boiler operating at any one time. After several months of operation, MPC has determined that they will need the option to operate both boilers at the same time during boiler change overs. The amount of sulfuric acid delivered will increase from 5,300 gallons per year to 108,000 gallons per year. The other issue that has come up is the need to increase the daily amount of truck traffic that is allowed onsite. To remove restrictive conditions and increase the amount of sulfuric acid and truck traffic, MPC is submitting a permit modification.		
4	What geodetic datum was used in the modeling?	NAD83	

5	How long will the facility be at this location?	Permanent	
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	156	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	Not Established	
	SO2	Minor – 8/4/1978	
	PM10	Minor – 8/4/1978	
	PM2.5	Not Established	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	No Class I Areas within 50 km.		
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.		
	None		

16-C: Modeling History of Facility

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

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	Permit 8886	12/11/2020	
NO_2	Permit 8886	12/11/2020	
SO_2	Permit 8886	12/11/2020	
H_2S	None		
PM2.5	Permit 8886	12/11/2020	
PM10	Permit 8886	12/11/2020	
Lead	None		
Ozone (PSD only)	N/A		
NM Toxic Air Pollutants (20.2.72.402 NMAC)	Permit 8886	12/11/2020	Was run for Sulfuric Acid. Previously, a very conservative method was used to determine an emission rate. For this permit revision a more refined EPA approach was used which reduced sulfuric acid emission are below 20.2.72 NMAC Table 502 emission limit.

16-D: Modeling performed for this application

For each pollutant, indicate the modeling performed and submitted with this application.

1

Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
CO	☒	☐	☐	☐	☐
NO_2	☒	☒	☐	☐	☐
SO_2	☒	☐	☐	☐	☐
H_2S	☐	☐	☐	☐	☒
PM2.5	☒	☒	☐	☐	☐
PM10	☒	☒	☒	☐	☐
Lead	☐	☐	☐	☐	☐
Ozone	☐	☐	☐	☐	☐
State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

16-E: New Mexico toxic air pollutants modeling

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

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

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

1

The dispersion modeling will be conducted using the American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee Dispersion Model (AERMOD), *Version 21112*. This model is recommended by EPA for determining Class II impacts within 50 km of the facility being assessed. Additionally, AERMOD was developed to handle complex terrain. In this analysis, AERMOD will be used to estimate pollutant concentrations of CO, NO_2, PM_{10}, $PM_{2.5}$ and SO_2 in the ambient air from the MPC facility modeled emission sources.

AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principles for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD modeling system has three components: AERMAP, AERMET, and AERMOD. AERMAP is the terrain preprocessor program. AERMET is the meteorological data preprocessor. AERMOD includes the dispersion modeling algorithms and was developed to handle simple and complex terrain issues using improved algorithms. AERMOD uses the dividing streamline concept to address plume interactions with elevated terrain.

AERMOD CIA modeling will be run using all the regulatory default options including use of:

- Gradual Plume Rise
- Stack-tip Downwash
- Buoyancy-induced Dispersion

- Calms and Missing Data Processing Routine
- Upper-bound downwash concentrations for super-squat buildings
- Default wind speed profile exponents
- Calculate Vertical Potential Temperature Gradient
- No use of gradual plume rise
- Rural Dispersion

These regulatory default options are found in the AERMOD User's Manual. The model will incorporate local terrain into the calculations.

For ROI modeling, the model was run in non-default mode using complex terrain mode. Additionally, for ROI modeling building downwash was included.

NO_2 1-hour and annual modeling includes ARM2 default ratio. Approved by EPA and NMED Modeling Section.

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	12/1/2021

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.

For Tri-Sate PEGS sources that will be permitted after the coal-fired boiler is shut down, model inputs for these sources were retrieved from the last dispersion modeling analysis submitted to the NMED Model Section in July 2013. Salt River Material Group was issued Permit #9149 on 08/24/2021and will be included in this modeling analysis.

AQB Source ID	UTME	UTMN		Description
E81	764794.0	3923077.0		PEGS July 2013 Model Submittal
RR1_0001-0100	Varies			PEGS July 2013 Model Submittal
RR2_0001-0059	Varies			PEGS July 2013 Model Submittal
RR3_0001-0043	Varies			PEGS July 2013 Model Submittal
RR4_0001-0044	Varies			PEGS July 2013 Model Submittal
RR5_0001-0122	Varies			PEGS July 2013 Model Submittal
RR6_0001-0102	Varies			PEGS July 2013 Model Submittal
SRMG_2	764961.0	3923109.0		Salt River Material Group Unit 2 Material Storage Silo
SRMG_3	764961.0	3923100.0		Salt River Material Group Unit 3 Material Storage Silo to Truck Loading
SRMG_4	764961.0	3923096.0		Salt River Material Group Unit 4 Material Storage Silo to Truck Loading
SRM_0001-0293	Varies			Salt River Material Group Haul Road

16-H: Building and structure downwash

1	How many buildings are present at the facility?	16	
2	How many above ground storage tanks are present at the facility?	4	
	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes☒	No☐

3		
4	Building comments	Includes both MPC and PEGS buildings and tanks.

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.						
	Fencing, restricted access						
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	
	Very fine	Cartesian	50 meters	Model Boundary	0.5 km		
	Fine	Cartesian	100 meters	0.5 km	1 km		
	Fine	Cartesian	250 meters	1 km	3 km		
	Course	Cartesian	500 meters	3 km	5 km		
	Very Course	Cartesian	1000 meters	5 km	10 km		
	Very Course	Cartesian	2500 meters	10 km	50 km		
5	Describe receptor spacing along the fence line.						
	50 meters						
6	Describe the PSD Class I area receptors.						
	Not Applicable						

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).		
	Modeling was performed with maximum emissions for all MPC sources operating continuously. The exception is the fire pump engine, which is tested once a week between the hours of 10 AM to 1 PM.		
2	Which scenario produces the highest concentrations? Why?		
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: For FIREP (Fire Pump) weekly testing of fire pump engine assumed test was run between the hours of 10 AM to 1 PM		

5

Hour of Day	Factor	Hour of Day	Factor								
1	0	13	1								
2	0	14	0								
3	0	15	0								
4	0	16	0								
5	0	17	0								
6	0	18	0								
7	0	19	0								
8	0	20	0								
9	0	21	0								
10	0	22	0								
11	1	23	0								
12	1	24	0								

	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 ROI for All Averaging Periods, CIA 1 hour and Annual
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	EPA has a three-tier approach to modeling NO_2 concentrations. • Tier I – total conversion, or all NOx = NO_2 • Tier II – Ambient Ratio Method 2 (ARM2) • Tier III – case-by-case detailed screening methods, such as OLM and Plume Volume Molar Ratio Method (PVMRM) and NO_2/NO_X in-stack ratio Initial ROI modeling and CIA 1-huor and annual averaging periods were performed using Tier II methodologies.	
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.	
	1-hour: High eighth high Annual: One Year Annual Average	

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.	
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☒ No☐
4	Was secondary PM modeled for PM2.5?	Yes☒ No☐

5	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.			
	NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-}hour}$
	95	3.4	0.0063 µg/m^3	0.12 µg/m^3

	Following recent EPA guidelines for conversion of NO_X and SO_2 emission rates to secondary $PM_{2.5}$ emissions, MPC emission rates are compared to appropriate western MERPs values (NO_X 24 Hr – 1155 tpy; NO_X Annual – 3184 tpy; SO_2 24 Hr – 225 tpy; SO_2 Annual – 2289 tpy). The following equation, found in NMED AQB modeling guidance document on MERPs, was used to determine if secondary emission would cause violation with $PM_{2.5}$ NAAQS. $PM_{2.5}$ annual = ((NO_X emission rate (tpy)/3184 + (SO_2 emission rate (tpy)/2289)) x 0.2 µg/m^3 $PM_{2.5}$ 24 hour = ((NO_X emission rate (tpy)/1155 + (SO_2 emission rate (tpy)/225)) x 1.2 µg/m^3 $PM_{2.5}$ Annual 0.0063 µg/m^3 = (95/3184 + 3.4/2289) x 0.2 µg/m^3 $PM_{2.5}$ 24 Hour 0.12 µg/m^3 = (95/1155 + 3.4/225) x 1.2 µg/m^3

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.
	Permanent Stationary Source
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.
	NA

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	
	5	CT_1	
	6	CT_2	
		CT_3	
	7	CT_4	
	12	BOILER	
	13	AUX	
	8	SODA	
	10	LIME	
	14	FIREP	
	9 and 11	WT	
	1	HR1_	
		HR2_	
	MPC haul road outside their boundary on Tri-State property	HR3_	

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☐
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?

Unit ID	NO_2	SO_2	PM10	PM2.5
CT_1			X	
CT_2			X	
CT_3			X	
CT_4			X	
BOILER		X	X	
AUX		X	X	
SODA			X	
LIME			X	
FIREP		X	X	
WT			X	
HR1_			X	
HR2_			X	

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	Increment consuming source

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)
	N/A			

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☐
	Volume source is a building where the water treatment plant silos are unloading in to the water treatment plant.		
	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		

2	Sigma-Y is based on the smallest width of the building. Sigma-Z is based on the height of the building.
3	Describe how the volume sources are related to unit numbers. Or say they are the same.
	The volume source (WT) is a combined emission source for soda ash silo unloading (Unit 9) and lime silo unloading (Unit 11) inside the building.
4	Describe any open pits.
5	Describe emission units included in each open pit.

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: Del Norte High School (350010023)		
	NO_2: Navajo Dam (350450018)		
	PM2.5: Santa Fe (350490020)		
	PM10: Santa Fe (350490020)		
	SO_2: Bloomfield(350450009)		
	Other:		
	Comments: For NO_2 CIA modeling, only significant neighboring sources were included in the model analysis without adding in background into the model results per Modeling Guidelines Table 6C.		
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.	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.		
	Meteorological data used for modeling McKinley Paper Company was obtained from two primary sources: an on-site 10-meter meteorological monitoring site operated at Tri-State's Prewitt Escalante Generating Station and both upper air and surface observations from Albuquerque NWS data. This data has been previously used in dispersion modeling analysis for Tri-State's Prewitt Escalante Generating Station (last updated July 2013). For this analysis, the existing data was re-processed using the latest version of AERMET (version 21112). These data sources are described in more detail below.		

	On-Site 10-Meter Tower Data Hourly on-site surface (i.e. 10-meter) meteorological data is available for 1999 through 2000. This meteorological tower site is located approximately 1.4 miles east-northeast of the MPC facility. The following parameters were available from this site: Wind Speed at 10 meters Wind Direction at 10 meters Sigma Theta at 10 meters Temperature at 10 meters Net Radiation at 2 meters *NWS Albuquerque Data* Two parameters, cloud cover and mixing heights, were not available from the on-site monitoring. Cloud cover data are contained in the NWS "surface" data files and the mixing heights are contained in the "upper air" data files. The NWS upper air data contains two mixing heights per day. These data were obtained from collected meteorological parameters by the NWS at Albuquerque for the same period, 1999 - 2000. The meteorological tower data will be processed using AERMET (version 21112), upper air data from Albuquerque, New Mexico and surface air data from Albuquerque, New Mexico for the same time period.

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?		
	NED files		

16-U: Modeling Files

Describe the modeling files:

	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
1	MPC Combustion ROI	NOx, CO, and SO2	ROI
	MPC PM ROI	PM10 and PM2.5	ROI
	MPC NOx 1hr	NOx	Cumulative 1-Hour
	MPC NOx Annual	NOx	Cumulative Annual
	MPC PM25 24 Hr CIA Model	PM2.5	Cumulative 24-Hour
	MPC PM25 Annual CIA Model	PM2.5	Cumulative Annual
	MPC PM10 24 Hour CIA Model	PM10	Cumulative 24-Hour and Class II Increment 24-Hour
	MPC PM10 Annual PSD Model	PM10	Class II Increment Annual

16-V: PSD New or Major Modification Applications			
1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	No☐
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	No☐
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
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

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes☒	No☐
	For PM10 PSD Class II annual average modeling there is one receptor above the increment limit of 17 ug/m3. The location of this receptor is next to an unpaved road within the Tri-State Escalante Station property. The Tri-State area is restricted from the public. Excluding the emission contribution of Tri-State sources within their boundary reduces the model concentrations to below the PM10 PSD Class II annual average increment limit. The highest modeled concentration is then located near the entrance to MPC. PM2.5 24 hour annual results showed the highest concentration where MPC was above significance was not the highest model result with all sources.		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
NO2 1-hr	138.0	138.0	---	---	138.0	188	73.4	764568.7	3922943.3	2100.37
NO2 yr	14.2	14.6	---	---	14.6	94	15.1	764568.7	3922943.3	2100.37
CO 1-hr	223.5	Below SILs				2000	11.2	764568.7	3922943.3	2100.37
CO 8-hr	182.0	Below SILs				500	36.4	764568.7	3922943.3	2100.37
SO2 1-hr	5.32	Below SILs				7.8	68.2	764568.7	3922943.3	2100.37
SO2 3-hr	5.15	Below SILs				25	20.6	764568.7	3922943.3	2100.37
SO2 24-hr	2.69	Below SILs				5	53.8	764568.7	3922943.3	2100.37
SO2 yr	0.38	Below SILs				1	38.0	764568.7	3922943.3	2100.37
PM2.5 24-hr	5.7	5.8	0.12	16.55	22.5	35	64.2	764567.9	3922986.1	2100.88
PM2.5 yr	0.23	5.95	0.0063	4.32	10.3	12	85.8	764950.0	3923100.0	2101.17
PM10 24-hr	5.0	25.7	---	23.0	48.7	150	32.5	764572.1	3922771.9	2100.45
Class II PM10 24-hr	5.0	25.7	---	---	25.7	30	85.7	764572.1	3922771.9	2100.45
Class II PM10 yr	3.2	8.0	---	---	8.0	17	47.1	764573.0	3922729.0	2100.57

16-X: Summary/conclusions

	A statement that modeling requirements have been satisfied and that the permit can be issued.
1	Dispersion modeling was performed for the modified MPC facility Permit #8886 revision application. All facility pollutants with ambient air quality standards and Class II increment standards were modeled to show compliance with those standards. All results of this modeling showed the facility in compliance with applicable ambient air quality standards and PSD Class II increment standards.

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
12,13	Annual RATA on the CO2 and NOx CEMS installed on the boiler exhaust stacks in accordance with the requirements of 40 CFR Part 60	6/23/21-6/24/21

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.

NA

Section 22: Certification

Company Name: McKinley Paper Company

I, Isaac Rosas, 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 24 day of May, 2022, upon my oath or affirmation, before a notary of the State of _____.

*Signature

May/24/2022
Date

Isaac Rosas
Printed Name

Operations Director
Title

Scribed and sworn before me on this 24 day of May, 2022.

My authorization as a notary of the State of New Mexico expires on the 20 day of 08, 2023.

Notary's Signature

05-24-2022
Date

Christopher St. John
Notary's Printed Name

CHRISTOPHER ST. JOHN
Notary Public - State of New Mexico
Commission # 1126860
My Comm. Expires August 20, 2023

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

MONTROSE
AIR QUALITY SERVICES

June 10, 2022

New Mexico Environment Department
Air Quality Bureau
Permits Program Manager
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87507-3313

Subject: Permit Modification Application for McKinley Paper Company – Prewitt Mill per 20.2.72.202.B(5) NMAC

To Whom it May Concern:

Attached please find a copy of the 20.2.72 NMAC Permit Application Modification for McKinley Paper Company's (MPC) Prewitt Mill. After a year of operation, MPC is seeking this permit modification to allow increased overlapping operation of the main steam boiler and the auxiliary boiler. MPC is requesting that the boilers be allowed to operate in any combination, as long as the total annual emissions of NOx and CO are each below 95 tons per year. The only other emission increase proposed is a slight increase in PM, PM10 and PM2.5 emissions along the paved roads. The facility has the capacity to warehouse extra old corrugated cardboard (the raw material) and so this permit application includes an increase in the maximum vehicle miles traveled in that category only. Additionally, there will be an increase in sulfuric acid usage from 5,300 gallons per year to 108,000 gallons per year.

Please let me know if you have any questions or need additional information.

Sincerely,

Paul Wade

Paul Wade
Senior Project Engineer
Montrose Air Quality Services, LLC

Cc: Michael Hooker, McKinley Paper Company

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