

# NOTICE OF INTENT TO CONSTRUCT MODIFICATION

Tempur-Pedic New Mexico Production USA, Inc.



Prepared By:

Milton Rosado - EHS Manager

### TRINITY CONSULTANTS

9400 Holly Ave Building 3 Suite 300 Albuquerque, NM 87122 (505) 266-6611

August 2019

Project 193201.0096



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# TEMPUR + SEALY

August 30, 2019

Ms. Regan Eyerman Albuquerque Environmental Health Department – Air Quality Program P.O. Box 1293 Albuquerque, NM 87103

RE: 1729-M4-1AR Permit Modification

Tempur-Pedic New Mexico Production USA, Inc..

Dear Ms. Eyerman:

On behalf of Tempur-Pedic New Mexico Production USA, Inc., we are requesting a permit modification to our current permit (1729-M4-1AR) to: add emission sources, update emissions for exisiting sources, and to modify permit conditions. The following tables identify the proposed modification in detail.

Table 1: Addition of new emission sources

New Emission Source Name	Description
	This unit has been in service since this facility first became operational
7. Cooling Tower	but was not identified as an emission source. Refer to permit application
	for detail information.
	This unit has been in service since the facility first opened but was not
8. Haul Roads (paved)	identified as an emission source. Refer to permit application for detail
	information.
Domestic Water Boiler #1	These units have been in service since this facility began operations but
	were not previously listed for permitting purposes. Per NMAC
Domestic Water Boiler #2	20.11.41.2.F(3)(a), these units are exempted but need to be reported.

Table 2: Proposed modifications to existing emission sources

Existing Emission Source Name	Proposed Modification
1. Diesel-Fired Emergency Generator	<ul> <li>Update emissions to include manufacturer emission specifications.</li> <li>Justification: Manufacture specified emissions factors will provde a more accurate representation of emissions.</li> </ul>
2. Slabstock Foam Production Line	<ul> <li>Elimination of permit condition I.1.i)ii that reads: "Unit #2 (Slabstock Foam Production Line) shall not exceed 2,500 hours of operation as a 12-month rolling total, calculated on the 1st of each month as the sum of each consecutive 12-month period:"</li> <li>Justification: The calculations presented in the attached permit application cover the operation of this source operating 24/7. Stack test data gathered operating the unit under the two (2) extreme operations (manufacture of foam based on MDI or TDI) was accounted for and the worst case emission factors under these scenarios,</li> </ul>

Existing Emission Source Name	Proposed Modification
1. Diesel-Fired Emergency Generator	<ul> <li>Update emissions to include manufacturer emission specifications.</li> <li>Justification: Manufacture specified emissions factors will provde a more accurate representation of emissions.</li> </ul>
	plus a safety factor of up to 3,000 % for VOC and up to 200% for TDI and MDI was used to calculate the emission of this unit. Based on the above, this permit condition no longer applies.
2. Slabstock Foam Production Line (cont.)	<ul> <li>Elimination of permit condition .1.i)ii that reads: "The production of Slabstock Foam in Unit #2 shall not exceed 112,500,000 pounds per year, calculated on the 1st of each month as the sum of each consecutive 12-month-period;"</li> <li>Justification: The emission factors derived from the stack test data are based on</li> </ul>
	only two (2) foam pour scenarios. Foam based on MDI or foam based on TDI. Using these scenarios, the pour line emissions were calculated at the maximum potential, 24/7 because this condition represents the worst case scenario. A production limitation based on pounds per year does not take into consideration which pour scenario, i.e., MDI or TDI releases the maximum amount of pollutants into the air.
	• Elimination of Recordkeeping condition I.3.b) " maintain records of hours of operationand the raw material" Based on the information presented above this permit condition is no longer applicable.
	• Elimination of Monitoring condition I.4.d) " monitor the hours of operation, Slabstock foam production, and the raw material throughput". Based on the information presented above this permit condition is no longer applicable.
4. Natural Gas Fired Boilers (3 ea)	Clarification: The boilers subject to this permit modification have been the original since this facility opened operations. Through the permit history of this facility, there have been inconsistencies with the boiler's information on these permits. The information below has been field verified.
	<ul> <li>Correct boilers manufacturer's name from Universal Boiler to UNILUX.</li> <li>Correct boilers model number from BF200W4 to ZF1000W.</li> </ul>
	• Currently, the three (3) existing boilers are labeled under emission unit 4. We want to assign individual names to each of the units. We propose using 4A, 4B, and 4C for each of the units.
	• The capacity indicated for permit purposes was identified as 8.5 MMBtu/hr, but this is incorrect. The three (3) units are rated between 9.8MMBtu/hr.
5. Calcium Carbonate Silo	Propose to consolidate these activities into one emission source (Unit 6). The only activity that constitutes a source of emissions is the loading of calcium
6. Calcium Carbonate Silo (Truck Load - In)	carbonate into the silo. During this process, the calcium carbonate is pneumatically blown from the tank trailer into the silo in a closed system. Before initiating the loading, the silo's pulse-jet fabric filter is turned on and used to filter the calcium carbonate laden air blown into the silo. Once the loading is completed, the filter is turned off. As part of the process the silo discharges calcium carbonate in batches through an enclosed screw conveyor to two mixing tanks. There are no emissions
	associated with this transport since it takes place in an enclosed system.

The following table shows the Criteria Pollutant and Hazardous Air Pollutant (HAPs) changes due to the proposed modifications.

**Table 3: Proposed Permit Changes** NOx CO VOC PM10 TDI or MDI Status Unit Description lb/hr lb/hr lb/hr lb/hr lb/hr lb/hr tpy tpy tpy tpy tpy tpy Permitted 23.32 1.40 5.34 0.32 0.68 0.04 0.04 Diesel-fired 0.074 0.0069 0.0098 0.00059 0.010 Proposed 16.53 0.99 1.23 0.12 1 Generator +Net -0.033 -7.85 -0.47 -0.51 -6.79 -0.41 4.11 -0.25 -0.56 -0.030 Change Permitted Slabstock 0.28 1.23 0.040 0.180 Proposed Foam 0.378 1.66 0.14 0.62 2 Production 0.10 0.43 0.10 0.44 Line 41 0.59 Permitted 2.42 10.64 2.04 8.94 0.13 0.01 0.06 0.18 0.81 4A 0.96 4.21 0.81 3.53 0.053 0,23 0.0058 0.025 0.073 0,32 **Natural Gas** Proposed **4B** 0.96 4.21 0.81 3.53 0.053 0.23 0.0058 0.025 0.073 0.32 Boiler 4C 0.96 4.21 0.81 3.53 0.053 0.23 0.005B 0.025 0.073 0.32 +Net 0.46 1.98 0.38 1.66 0.029 0.10 0.0073 0.016 0.039 0.15 . 0.001 0.006 Permitted Calcium Proposed 5 Carbonate Silo . . -. . . . -0.001 -0.006 . . 0.001 0.006 Permitted Calcium 8.64E-04 Carbonate 1.97E-04 Proposed 6 Silo Truck -B.03E--5.14E-+Net . . Loading 03 Permitted Cooling 0.43 1.88 Proposed 7**A** Tower East Unit 0,43 1.88 Permitted Cooling Proposed 0.43 1.88 7B Tower West Unit 0,43 1.88 Permitted 0.22 0.98 Proposed 8 **Haul Roads** 0.22 0.98 Change 7.87 0.86 0.18 25.74 12,04 7.38 9.26 1,09 1.86 0.53 0.86 0.04 Permitted Proposed 19.41 13.62 3.65 10.68 0.65 2.36 0.027 0.076 1.46 5.70 0.14 0.62 +Net Increase 1.58 1.40 0.50 0.60 4.64 0.10 0.44 3.73 7.84 Net Reductions 6.33 0.43 0.45 lb/hr lb/hr tpy lb/hr tpy lb/hr tpy lb/hr tpy lb/hr tpy tpy

VOC

SO<sub>2</sub>

PM<sub>10</sub>

TDI or MDI

Please contact me at your convenience with any comments or questions that you may have.

CO

NOx

Regards,

Mr. Milton Rosado, BSCE, MEM

EHS Manager

Tel. 505-321-9296

Email: milton.rosado@tempursealy.com

<sup>&</sup>lt;sup>1</sup> Under the current application unit 4 is used to cover three (3) natural gas boilers. It is the intention of this modification to assign individual emission source numbers to each of these units. Therefore, in the proposed modification, the natural gas boilers will still be referred as Unit 4 but a letter will be added to distinguish each of the boilers.





# City of Albuquerque

# Environmental Health Department Air Quality Program



# **Permit Application Checklist**

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to ruling a submitted application complete each application submitted shall contain the required items listed below. This checklist must be returned with the application.

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

### All applicants shall:

- 2. Attend the pre-permit application meeting
  - a. Attach a copy of the completed Pre-permit Application Meeting Checklist to this application

There are no neighborhood associations or coalitions within 0.5 miles of this facility. Therefore, these notice are not required.

- b.☑ Attach a copy of the completed Public Sign Notice Guideline form
- 4. Fill out and submit the *Permit Application*. All applications shall:
  - A.  $\square$  be made on a form provided by the Department. Additional text, tables, calculations or clarifying information may also be attached to the form.
  - B. at the time of application, include documentary proof that all applicable permit application review fees have been paid as required by 20 NMAC 11.02. Please refer to the attached permit application worksheet.

Application Checklist Revised November 13, 2013

- C.  $\square$  contain the applicant's name, address, and the names and addresses of all other owners or operators of the emission sources.
- D.  $\square$  contain the name, address, and phone number of a person to contact regarding questions about the facility.
- E. indicate the date the application was completed and submitted
- F.  $\square$  contain the company name, which identifies this particular site.
- G. In contain a written description of the facility and/or modification including all operations affecting air emissions.
- H. contain the maximum and standard operating schedules for the source after completion of construction or modification in terms of hours per day, days per week, and weeks per year.0
- I. provide sufficient information to describe the quantities and nature of any regulated air contaminant (including any amount of a hazardous air pollutant) that the source will emit during:
  - > Normal operation
  - Maximum operation
  - Abnormal emissions from malfunction, start-up and shutdown
- J. Include anticipated operational needs to allow for reasonable operational scenarios to avoid delays from needing additional permitting in the future.
- K.  $\square$  contain a map, such as a 7.5-minute USGS topographic quadrangle, showing the exact location of the source; and include physical address of the proposed source.
- L. 

  contain an aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation, or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed to by the department in writing.
- M. oontain the UTM zone and UTM coordinates.
- N. Include the four digit Standard Industrialized Code (SIC) and the North American Industrial Classification System (NAICS).
- O. In contain the types and <u>potential emission rate</u> amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.
- P. contain the types and <u>controlled</u> amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

- Q. contain the basis or source for each emission rate (include the manufacturer's specification sheets, AP-42 Section sheets, test data, or other data when used as the source).
- R. contain all calculations used to estimate <u>potential emission rate</u> and <u>controlled</u> emissions.
- S.  $\square$  contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).
- T.  $\square$  contain fuel data for each existing and/or proposed piece of fuel burning equipment.
- U. In contain the anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.
- V. contain the stack and exhaust gas parameters for all existing and proposed emission stacks.
- W. In provide an ambient impact analysis using a atmospheric dispersion model approved by the US Environmental Protection Agency (EPA), and the Department to demonstrate compliance with the ambient air quality standards for the City of Albuquerque and Bernalillo County (See 20.11.01 NMAC). If you are modifying an existing source, the modeling must include the emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.
- X. 

  contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.
  - SSM emissions are not significantly different from the steady state emissions for the emissions units at this facility. Therefore, no mitigation plan is needed to reduce emissions.
- Y. In contain a process flow sheet, including a material balance, of all components of the facility that would be involved in routine operations. Indicate all emission points, including fugitive points.
- Z. ontain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating limitations.
- AA. 

  contain description of the equipment or methods proposed by the applicant to be used for emission measurement.

BB. 

be signed under oath or affirmation by a corporate officer, authorized to bind the company into legal agreements, certifying to the best of his or her knowledge the truth of all information submitted.

# 2. PRE-PERMIT APPLICATION CHECKLIST



# City of Albuquerque

# Environmental Health Department Air Quality Program



# **Pre-Permit Application Meeting Checklist**

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to submitting an application, the applicant shall contact the department in writing and request a pre-application meeting for information regarding the contents of the application and the application process. This checklist is provided to aid the applicant and a copy must be submitted with the application.

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Tempur-Pedic New Mexico Production USA, Inc.

Contact: Milton Rosado-EHS Manager

Company/Business: Foam Products Related Manufacture

- ☐ Fill out and submit a Pre-Permit Application Meeting Request form

  ⇒ Available online at http://www.cabq.gov/airquality
- ☑ Emission Factors and Control Efficiencies
   Notes: AP-42, Stack Testing, Manufacturer's Specification
- Air Dispersion modeling guidelines and protocol
  Notes: Refer to Trinity's Consultant Air Dispersion Modeling Report
  CIABQ Modeling guidelines
- Department Policies Notes:
- Air quality permit fees Notes:

Ver. 11/13

### ☑ Public notice requirements

- ☑ Replacement Part 41 Implementation
  - o 20.11.41.13 B. Applicant's public notice requirements
    - □ Providing public notice to neighborhood association/coalitions
      - Neighborhood association: N/A
      - Coalition: N/A

Notes: Per email confirmation from Eng. Regan Eyerman, there are no neighborhood associations or coalitions within 0.5 miles of the facility.

■ ☑ Posting and maintaining a weather-proof sign Notes:

### ☑ Regulatory timelines

- 30 days to rule application complete
- 90 days to issue completed permit
- Additional time allotted if there is significant public interest and/or a significant air quality issue
  - o Public Information Hearing
  - o Complex permitting action

Notes:

# 3. PERMIT APPLICATION REVIEW FEES FORM



# City of Albuquerque



# Environmental Health Department Air Quality Program

## **Permit Application Review Fee Instructions**

All source registration, authority-to-construct, and operating permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modifications applications. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

Please fill out the permit application review fee checklist and submit with a check or money order payable to the "City of Albuquerque Fund 242" and either:

- be delivered in person to the Albuquerque Environmental Health Department, 3<sup>rd</sup> floor, Suite 3023 or Suite 3027, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM or,
- mailed to Attn: Air Quality Program, Albuquerque Environmental Health Department, P.O. Box 1293, Albuquerque, NM 87103.

The department will provide a receipt of payment to the applicant. The person delivering or filing a submittal shall attach a copy of the receipt of payment to the submittal as proof of payment. Application review fees shall not be refunded without the written approval of the manager. If a refund is requested, a reasonable professional service fee to cover the costs of staff time involved in processing such requests shall be assessed. Please refer to 20.11.2 NMAC (effective January 10, 2011) for more detail concerning the "Fees" regulation as this checklist does not relieve the applicant from any applicable requirement of the regulation.



# City of Albuquerque



# Environmental Health Department Air Quality Program

# **Permit Application Review Fee Checklist**

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you should have any questions concerning this checklist, please call 768-1972.

### I. COMPANY INFORMATION:

Company Name	Tempur-Pedic New Mexico Produc	tion USA, Inc.	
Company Address	12907 Comfort Way, Albuquerque,	, NM 87120	•
Facility Name	Tempur-Pedic New Mexico Produc	tion USA, Inc.	
Facility Address	12907 Comfort Way, Albuquerque,	, NM 87120	
Contact Person	Milton Rosado, EHS Manager		
Contact Person Phone Number	505-765-2106		
Are these application review fees for within the City of Albuquerque or B	an existing permitted source located ernalillo County?	Yes	No
If yes, what is the permit number associated with this modification?		Permit # 1729-M	4-1AR
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)		Yes	No

### II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III.

Check All That Apply	Stationary Sources	Review Fee	Program Element
S TO RECOMPAN	Air Quality Notifications	SEASON STA	
	AQN New Application	\$562.00	2801
	AQN Technical Amendment	\$307.00	2802
	AQN Transfer of a Prior Authorization	\$307.00	2803
4	Not Applicable	See Sections Below	
	Stationary Source Review Fees (Not Based on Proposed Allowable Emission	Rate)	
	Source Registration required by 20.11.40 NMAC	\$ 573.00	2401
	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$ 1,146.00	2301
4	Not Applicable	See Sections Below	
Stations	ary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single	highest fee po	lutant)
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$ 859.00	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$ 1,719.00	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$ 3,438.00	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$ 5,157.00	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$ 6,876.00	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$8,594.00	2307
1	Not Applicable	See Section Above	

	Federal Program Review Fees (In addition to the Stationary Source Application Re	view Fees above)	t Name
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$ 1,146.00	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$ 1,146.00	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$ 1,146.00	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$ 11,459.00	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$ 5,730.00	2312
	20.11.60 NMAC, Non-Attainment Area Permit	\$ 5,730.00	2313
1	Not Applicable	Not	
_ v	Not Applicable	Applicable	

# III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:

If the permit application is for a modification to an existing permit, please check all that apply. If this application is

for a new stationary source facility, please see Section II.

Check All That Apply	Modifications	Review Fee	Program Element
	Modification Application Review Fees (Not Based on Proposed Allowable Emission	on Rate)	
1	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$ 1,146.00	2321
	Not Applicable	See Sections Below	
	Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee polls	utant)	
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$ 859.00	2322
4	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$ 1,719.00	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$ 3,438.00	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$ 5,157.00	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$ 6,876.00	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$ 8,594.00	2327
	Not Applicable	See Section Above	
	Major Modifications Review Fees (In addition to the Modification Application Review	Fees above)	
	20.11.60 NMAC, Permitting in Non-Attainment Areas	\$ 5,730.00	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	\$ 5,730.00	2334
7	Not Applicable	Not Applicable	
(This se	Federal Program Review Fees ction applies only if a Federal Program Review is triggered by the proposed modificati addition to the Modification and Major Modification Application Review Fees		s are in
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$ 1,146.00	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$ 1,146.00	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$ 1,146.00	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$11,459.00	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$ 5,730.00	2332
	20.11.60 NMAC, Non-Attainment Area Permit	\$ 5,730.00	2333
√	Not Applicable	Not Applicable	

### IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:

If the permit application is for an administrative or technical revision of an existing permit issued 20.11.41 NMAC, please check one that applies.

pursuant to

Check One	Revision Type	Review Fee	Program Element
	Administrative Revisions	\$ 250.00	2340
	Technical Revisions	\$ 500.00	2341
1	Not Applicable	See Sections II, III or V	thin to be a

### V. PORTABLE STATIONARY SOURCE RELOCATION FEES:

If the permit application is for a portable stationary source relocation of an existing permit, please check one that applies.

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
	No New Air Dispersion Modeling Required	\$ 500.00	2501
	New Air Dispersion Modeling Required	\$ 750.00	2502
1	Not Applicable	See Sections II, III or V	

### VI. Please submit a check or money order in the amount shown for the total application review fee.

Section Totals	Review Fee Amount
Section II Total	\$
Section III Total	\$ 2,865.00
Section IV Total	\$
Section V Total	\$
Total Application Review Fee	\$ 2,865.00

I, the undersigned, a responsible official of the applicant company, certify that to the best of my knowledge, the information stated on this checklist, give a true and complete representation of the permit application review fees which are being submitted. I also understand that an incorrect submittal of permit application reviews may cause an incompleteness determination of the submitted permit application and that the balance of the appropriate permit application review fees shall be paid in full prior to further processing of the application.

Signed this 10 day of October 2019

<u>Cesar Rodriguez</u> Print Name

Director Plant Operations
Print Title

Signature

Definition of Qualified Small Business as defined in 20.11.2 NMAC:

"Qualified small business" means a business that meets all of the following requirements:

- (1) a business that has 100 or fewer employees;
- (2) a small business concern as defined by the federal Small Business Act;
- (3) a source that emits less than 50 tons per year of any individual regulated air pollutant, or less than 75 tons per year of all regulated air pollutants combined; and
- (4) a source that is not a major source or major stationary source.

Note: Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the application review fees. The application review fees established in Subsection A through D of 20.11.2.18 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately-preceding year. Application review fee adjustments equal to or greater than fifty cents (\$0.50) shall be rounded up to the next highest whole dollar. Application review fee adjustments totaling less than fifty cents (\$0.50) shall be rounded down to the next lowest whole dollar. The department shall post the application review fees on the city of Albuquerque environmental health department air quality program website.

# 4. PERMIT APPICAITON FORM



### Albuquerque Environmental Health Department - Air Quality Program

Please mail this application to P.O. Box 1293, Albuquerque, NM 87103 or hand deliver between 8:00am - 5:00pm Monday - Friday to: 3<sup>rd</sup> Floor, Suite 3023 - One Civic Plaza NW, Albuquerque, New Mexico 87103 (505) 768 - 1972 aqd@cabq.gov (505) 768 - 1977 (Fax)



## Application for Air Pollutant Sources in Bernalillo County Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

Cle	early handwrite or type Corporate Information	Submittal Date: ///
1.	Company Name Tempur-Pedic New Mexico Production USA, Inc.	
2.	Street Address 12907 Comfort Way NW	Zip <u>87120</u>
3.	Company City <u>Albuquerque</u> 4. Company State <u>NM</u> 5. Company Phone <u>505-765-210</u>	6. Company Fax
7.	Company Mailing Address: 12907 Comfort Way NW	Zip <u>87120</u>
8.	Company Contact and Title Cesar Rodriguez, Plant Operations	9. Phone ( <u>505</u> ) <u>765-2151</u>
10.	E-mail <u>cesar.rodriguez@tempursealy.com</u>	
Sta	ationary Source (Facility) Information:   Provide a plot plan (legal description/drawing of facility processes; Location of emission points; Polluta boundaries	
1. F	Facility Name <u>Tempur-Pedic New Mexico Production USA, Inc.</u> 2. Street Address <u>12907 Com</u>	fort Way NW
3. (	City <u>Albuquerque</u> 4. State <u>NM</u> 5. Facility Phone ( <u>505</u> ) <u>765-2106</u> 6. Fa	cility Fax <u>N/A</u>
7. F	Facility Mailing Address (Local) <u>12907 Comfort Way NW, Albuquerque, NM</u>	Zip <u>87120</u>
8. I	Latitude - Longitude or UTM Coordinates of Facility: 35°04'24", -106° 47' 52"	
9. F	Facility Contact and Title Milton Rosado, EHS Manager 10. Phone ( 505 ) 765-2106 11.E-ma	nil milton.rosado@tempursealy.com
<u>Ge</u>	eneral Operation Information (if any further information request does not pertain to your faci	lity, write N/A on the line or in the box)
1.	Facility Type (description of your facility operations) Polyurethane foam mattress production	acility
2.	Standard Industrial Classification (SIC 4 digit #) 2515	
3.	North American Industry Classification System (NAICS Code #) 31179	
4.	Is facility currently operating in Bernalillo County. Yes If yes, date of original construction 3/1/2 If no, planned startup is//	<u>2015</u>
5.	Is facility permanent <u>Yes</u> If no, give dates for requested temporary operation - from/	/ through//
6.	Is facility process equipment new_No If no, give actual or estimated manufacture or instal <u>Table.</u>	lation dates in the <u>Process Equipment</u>
7.	Is application for a modification, expansion, or reconstruction (altering process, or adding, or replexisting facility which will result in a change in emissions Yes If yes, give the manufact replacement equipment in the Process Equipment Table modification date column, or the operation which cause an emission increase.	ure date of modified, added, or
8.	Is facility operation (circle one) Continuous Intermittent Batch]	

9.	Estimated % of production Jan-Mar_100% Apr-Jun_100% Jul-Sep_100% Oct-Dec_100%			
10.	Current or requested operating times of facility_24_ hrs/day_7_ days/wk4 wks/mo_12 mos/yr			
<u>)</u> 11.	am am  Business hrs 6 pm to 6 pm			
12.	. Will there be special or seasonal operating times other than shown above_No_If yes, explain			
13.	. Raw materials processed Chemicals, packing materials			
14.	Saleable item(s) produced: Polyurethane foam mattresses and foam related products			
15.	Permitting Action Being Requested			
	☐ New Permit ☐ Permit Modification ☐ Technical Permit Revision ☐ Administrative Permit Revision			

# **PROCESS EQUIPMENT TABLE**

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.) Match the Process Equipment Units listed on this Table to the same numbered line if also listed on Emissions & Stack Table (page 6).

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;ft³;lbs; tons;yd³;etc.)	Fuel Type
Example 1. Generator	Unigen	B-2500	A56732195C- 222	7/96	7/97	N/A	250 Hp - HR. <del>VR.</del>	Diesel
Example 2. Spray Gun	HVLP Systems	Spra -N- Stay 1100	k26-56-95	01/97	11/97	N/A	0.25 gal HR. <del>VR.</del>	Electric Compressor
Diesel-fired     Emergency Generator	Caterpillar	3412CDITA	AFH00441	2005	2005	N/A	650 kW	Diesel
2.Slabstock Foam Production Line	Cannon Viking	N/A	N/A	2004	2005	N/A	8760 hr/yr	Electric
4A. Natural Gas-Fired Boiler (aka: Boiler 1)	UNILUX	ZF1000W	1048	2005	2005	N/A	9.8 MMBtu/hr	Natural Gas
4B. Natural Gas-Fired Boiler (aka: Boiler 2)	UNILUX	ZF1000W	1049	2005	2005	N/A	9.8 MMBtu/hr	Natural Gas
4C. Natural Gas-Fired Boiler (aka: Boiler 3)	UNILUX	ZF1000W	1047	2005	2005	N/A	9.8 MMBtu/hr	Natural Gas
6. Calcium Carbonate Silo Loading Operation	KNAPPCO	HH06051	6826	2012	2012	N/A	18,000 tpy	N/A
7a. Cooling Tower	Baltimore Air Coil	3923A					720 ton / 9720 gpm	Electric
7b. Cooling Tower	Baltimore Air Coil	3923A	(S.U.)	_			720 ton / 9720 gpm	Electric
8. Haul Road	Fugitive						70,080 trips/yr	N/A
9.	222		20				HR. YR.	
10.						1	HR. YR.	
11,							HR. YR.	
12.							HR. YR.	

Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.) <u>Manufacturer's data</u>
 Submit information for each unit as an attachment

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

# TABLE EXEMPTED SOURCES AND EXEMPTED ACTIVITIES

(Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator, etc.) Match the Process Equipment Units listed on this Table to the same numbered line if also listed on Emissions & Stack Table (page 6).

Process Equipment Unit	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date	Size or Process Rate (Hp;kW;Btu;fl³;lbs; tons;yd³;etc.)	Fuel Type
Example 1. Generator	Unigen	B-2500	A56732195C- 222	7/96	7/97	N/A	250 Hp - HR <del>YR.</del>	Diesel
Example 2. Spray Gun	HVLP Systems	Spra -N- Stay 1100	k26-56-95	01/97	11/97	N/A	0.25 gal HR. <del>VR.</del>	Electric Compressor
Domestic Water     Boiler#1	Lochinvar Corporation	CWN500P M	C05H0017513	2005	2005	N/A	500,000 Btu/hr	Natural Gas
2. Domestic Water Boiler#2	Lochinvar Corporation	CWN500P M	C05H0017513	2005	2005	N/A	500,000 Btu/hr	Natural Gas
3.					E-981		HR. YR.	
4.							HR. YR.	
5,							HR. YR.	
6		/					HR. YR.	
7.							HR. YR.	
8.							HR. YR.	
9.		378					HR. YR.	
10.							HR YR	
IL							HR. YR.	
12							HR. YR.	
13.							HR. YR.	
14.							HR. YR.	
15.				JUL 19881			HR. YR.	

<sup>1.</sup> Basis for Equipment Size or Process Rate (Manufacturers data, Field Observation/Test, etc.) Manufacturer's data
Submit information for each unit as an attachment

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

# UNCONTROLLED EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

Process Equipment Unit*	Carb	on Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Method(s) used for Determinati of Emissions (AP-42, Material balance, field tests, manufacture data, etc.)
Example	1.	9.1 lbs/hr	27.7 lbs/hr	1.3 lbs/hr	0.5 lbs/hr	2.0 lbs/hr	
1. Generator	la.	39.9 tons/yr	121.3 tons/yr	5.7 tons/yr	2.2 tons/yr	8.8 tons/yr	AP-42
1. Diesel-fired	1.	1.23 lbs/hr	16.53 lbs/hr	0.12 lbs/hr	0.0098 lbs/hr	0.17 lbs/hr	Manufacturer's Specifications
Emergency Generator	la.	0.074 tons/yr	0.99 tons/yr	0.0069 tons/yr	0.00059 tons/yr	0.010 tons/yr	ULSD Standard, and 40 CFR 9. Subpart C
2. Slabstock Foam	2.	lbs/hr	lbs/hr	0.20 lbs/hr	lbs/hr	lbs/hr	DI 1177 . 101 . 1 77 . 1
Production Line	2a.	tons/yr	tons/yr	0.90 tons/yr	tons/yr	tons/yr	Field Test (Stack Testing)
4A. Natural Gas-Fired	4A.	0.81 lbs/hr	0.96 lbs/hr	0.053 lbs/hr	0.0058 lbs/hr	0.073 lbs/hr	
Boiler (aka: Boiler 1)	4A a.	3.53 tons/yr	4.21 tons/yr	0.23 tons/yr	0.025 tons/yr	0.32 tons/yr	AP-42 Tables 1.4-1 and 1.4-2
4B, Natural Gas-Fired	4B.	0.81 lbs/hr	0.96 lbs/hr	0.053 lbs/hr	0.0058 lbs/hr	0.073 lbs/hr	AD 40 T 41 4 4 4 14 4 2
Boiler (aka: Boiler 2)	4B a.	3.53 tons/yr	4.21 tons/yr	0.23 tons/yr	0.025 tons/yr	0.32 tons/yr	AP-42 Tables 1.4-1 and 1.4-2
4C. Natural Gas-Fired	4C.	0.81 lbs/hr	0.96 lbs/hr	0.053 lbs/hr	0.0058 lbs/hr	0.073 lbs/hr	
Boiler (aka: Boiler 3)	4C a.	3.53 tons/yr	4.21 tons/yr	0.23 tons/yr	0.025 tons/yr	0.32 tons/yr	AP-42 Tables 1.4-1 and 1.4-2
6. Calcium Carbonate	6.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	4.07 lbs/hr	AD 42 T-11 11 10 2 4
Silo Loading Operation	6a.	tons/yr	tons/yr	tons/yr	tons/yr	17.82 tons/yr	AP-42 Table 11.19.2-4
	7A.	lbs/hr	lbs/hr	lbs/hr	1bs/hr	0.48 lbs/hr	NMED technical memorandum f
7A. Cooling Tower	7A a.	tons/yr	tons/yr	tons/yr	tons/yr	2.11 tons/yr	2.5 from Cooling Towers" date 9/9/2013
	7B.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.48 lbs/hr	NMED technical memorandum f "Calculating TSP, PM10, and P
7B. Cooling Tower	7B a.	tons/yr	tons/yr	tons/yr	tons/yr	2.11 tons/yr	2.5 from Cooling Towers" date 9/9/2013
0 Hambbanda	8.	lbs/hr	lbs/hr	lbs/hr	1bs/hr	1.11 lbs/hr	AP-42 Table and Figure 13.2.1-
8. Haul Roads	8a.	tons/yr	tons/yr	tons/yr	tons/yr	4.88 tons/yr	Ar-42 I anic and rigure 13.2.1-
Totals of Uncontrolled		3.65 lbs/hr	19.41 lbs/hr	0.48 lbs/hr	0.027 lbs/hr	6.53 lbs/hr	Selver Breiter
Emissions (1 - 8)		10.68 tons/уг	13.62 tons/yr	1.60 tons/yr	0.076 tons/yr	27,89 tons/yr	

<sup>\*</sup> If any one (1) of these process units, or combination of units, has an uncontrolled emission greater than (>) 10 lbs/hr or 25 tons/yr for any of the above pollutants (based on 8760 hrs of operation), then a permit will be required. Complete this application along with additional checklist information requested on accompanying instruction sheet. Copy this Table if additional space is needed (begin numbering with 11., 12., etc.)

If your facility does not require a registration or permit, based on above emissions, complete the remainder of this application to determine if a registration or permit would be required for Toxic or Hazardous air pollutants used at your facility.

<sup>\*</sup> If all of these process units, individually <u>and</u> in combination, have an uncontrolled emission less than or equal to ( $\leq$ ) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8760 hrs of operation), but > 1 ton/yr for any of the above pollutants - then a source registration is required.

# **CONTROLLED** EMISSIONS OF INDIVIDUAL AND COMBINED PROCESSES

(Based on current operations with emission controls OR requested operations with emission controls)

Process Equipment Unit	Carb	on Monoxide (CO)	Oxides of Nitrogen (NOx)	Nonmethane Hydrocarbons NMHC (VOCs)	Oxides of Sulfur (SOx)	Total Suspended Particulate Matter (TSP)	Control Method	% Efficiency
Example	1.	9.1 lbs/hr	27.7 lbs/br	1.3 lbs/hr	0.5 lbs/hr	2.0 lbs/hr	Operating	N/A
1. Generator	la.	18.2 tons/yr	55.4 tons/yr	2.6 tons/yr	1.0 tons/yr	4.0 tons/yr	Hours	11,246
1. Diesel-fired	1.	1.23 lbs/hr	16.53 lbs/hr	0.12 lbs/hr	0.0098 lbs/hr	0.17 lbs/hr	Operating	N/A
Emergency Generator	la.	0.074 tons/yr	0.99 tons/yr	0.0069 tons/yr	0.00059 tons/yr	0.010 tons/yr	Hours	ISIA
2. Slabstock Foam	2.	lbs/hr	lbs/hr	0.38 lbs/hr	lbs/hr	lbs/hr	Air Scrubber	100% (MD
Production Line	2a.	tons/yr	tons/yr	1.66 tons/yr	tons/yr	tons/yr	Air Strubber	88.2% (TD
4 A. Natural Gas-	4A.	0.81 lbs/hr	0.96 lbs/hr	0.053 lbs/hr	0.0058 lbs/hr	0.073 lbs/hr	Operating	N/A
Fired Boiler (aka: Boiler 1)	4A a.	3.53 tons/yr	4.21 tons/yr	0.23 tons/yr	0.025 tons/yr	0.32 tons/yr	Hours	IVA
4 B. Natural Gas-	4B.	0.81 lbs/hr	0.96 lbs/hr	0.053 lbs/hr	0.0058 lbs/hr	0.073 lbs/hr	Operating	N/A
Fired Boiler (aka: Boiler 2)	4B a.	3.53 tons/yr	4.21 tons/yr	0.23 tons/yr	0.025 tons/уг	0.32 tons/yr	Hours	I N/A
4 C. Natural Gas-	4C.	0.81 lbs/hr	0.96 lbs/hr	0.053 lbs/hr	0.0058 lbs/hr	0.073 lbs/hr	Operating	N/A
Fired Boiler (aka: Boiler 3)	4C a.	3.53 tons/yr	4.21 tons/yr	0.23 tons/yr	0.025 tons/yr	0.32 tons/yr	Hours	NA
5. Calcium Carbonate	6.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.0012 lbs/hr	Fabric Filter	99,97%
Silo Loading Operation	6a.	tons/yr	tons/yr	tons/yr	tons/yr	0.0053 tons/yr	raduc riner	99.97%
	7A.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.48 lbs/hr	Operating	N/A
7A. Cooling Tower	7A a.	tons/yr	tons/yr	tons/yr	tons/yr	2.11 tons/yr	Hours	N/A
	7B.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	0.48 lbs/hr	Operating	N/A
7B. Cooling Tower	7B a.	tons/yr	tons/yr	tons/yr		2.11 tons/yr	Hours	N/A
	8.	lbs/hr	lbs/hr	lbs/hr	lbs/hr	1.11 lbs/hr	Speed	NIA
8. Haul Roads	8a.	tons/yr	tons/yr	tons/yr	tons/yr	4.88 tons/yr	Restriction	N/A
Totals of		3.65 lbs/hr	19.41 lbs/hr	0.65 lbs/hr	0.027 lbs/hr	2.46 lbs/hr	178 7 7	ALK S
Controlled Emissions (1 - 8)	100000	10.68 tons/yr	13.62 tons/yr	2.36 tons/yr	0.076 tons/yr	10.08 tons/yr		

Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Manufacturer's data, Stack Testing, AP-42
 Submit information for each unit as an attachment

NOTE: Copy this table if additional space is needed (begin numbering with 16., 17., etc.)

<sup>2.</sup> Explain and give estimated amounts of any Fugitive Emission associated with facility processes Refer to the attached calculations.

# \*\*TOXIC EMISSIONS

VOLATILE, HAZARDOUS, & VOLATILE HAZARDOUS AIR POLLUTANT EMISSION TABLE

Product Categories (Coatings, Solvents, Thinners, etc.)	Volatile Organic Compound (VOC), Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service Number (CAS) Of VOC, HAP, Or VHAP From Representative As Purchased Product	VOC, HAP, Or VHAP Concentration Of Representative As Purchased Product (pounds/gallon, or %)	1. How were Concentrations Determined (CPDS, MSDS, etc.)	Total Product Purchases For Category	(-)	Quantity Of Product Recovered & Disposed For Category	(=)	Total Product Usage For Category
EXAMPLE 1. Surface	XYLENE	1330207	4.0 LBS/GAL	MSDS	lbs/yr	(-)	lbs/yr	(=)	lbs/yr
Coatings					100 gal/yr	941	- 0 - gal/yr	fold:	100 gal/yr
EXAMPLE 2. Cleaning	TOLUENE	108883	70%	PRODUCT LABEL	lbs/yr	(-)	lbs/yr	(=)	lbs/yr
Solvents					200 gal/yr	E S	50 gal/yr		150 gal/yr
I TDI – Toluene Diisocyanate	Toxic Organic Compound	2,4-TDI CAS:584-84-9 2,6-TDI CAS:91-08-7	Emiss	sion factor was deterr	nined based on sta	ck testi	ng. 0.006 lbs/hr /	0.024	tpy
II. MDI – Methylene diphenyl diisocyanate	Aromatic diisocyanate	4,4 MDI CAS:101-68-8	Emiss	sion factor was deterr	mined based on sta	ck testi	ng. 0.002 lbs/hr/	0.011	tpy
III.					lbs/yr		lbs/yr		lbs/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
IV.					lbs/yr		lbs/yr		lbs/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
V.					lbs/yr		lbs/yr		lbs/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
VI			-		lbs/yr	()	lbs/yr	<i>(</i> _)	lbs/yr
					gal/yr	(-)	gal/yr	(=)	gal/yr
VII.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr	(5)	gal/yr	(-)	gal/yr
VIII.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr	( )	gal/yr		gal/yr
IX.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
	1				gal/yr	( )	gal/yr		gal/yr
X.					lbs/yr	(-)	lbs/yr	(=)	lbs/yr
					gal/yr	.,	gal/yr		gal/yr
TOTAL >>>>>>	MA PORTE				lbs/yr	(-)	lbs/yr	(=)	lbs/yr
	EVISOR CO				gal/yr	` ′	gal/yr	`	gal/yr

<sup>1.</sup> Basis for percent (%) determinations (<u>C</u>ertified <u>Product Data Sheets</u>, <u>Material Safety Data Sheets</u>, etc.). Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category. Copy this Table if additional space is needed (begin numbering with XI., XII., etc.)

# \*\*NOTE: A REGISTRATION IS REQUIRED, AT MINIMUM, FOR ANY AMOUNT OF HAP OR VHAP EMISSION. A PERMIT MAY BE REQUIRED FOR THESE EMISSIONS, DETERMINED ON A CASE-BY-CASE EVALUATION.

### Application for Air Pollutant Sources in Bernalillo County Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)

### MATERIAL AND FUEL STORAGE TABLE

(Tanks, barrels, silos, stockpiles, etc.) Copy this table if additional space is needed (begin numbering with 6., 7., etc.)

Storage Equipment	Product Stored	Capacity (bbls - tons gal - acres,etc)	Above or Below Ground	Construction (welded, riveted) & Color	Install Date	Loading Rate	Offloading Rate	True Vapor Pressure	Control Equipment	Seal Type	% Eff.
Example 1. Tank	diesel fuel	5,000 gal.	Below	welded/ brown	3/93	3000gal HR. <del>YR.</del>	500 gal HR. <del>YR</del> .	N/A Psia	N/A	N/A	N/A
Example 2. Barrels	Solvent	55 gal Drum	Above - in storage room	welded - green	N/A	N/A HR. YR.	N/A HR. YR.	N/A Psia	N/A	N/A	N/A
I. Tank	Diesel Fuel	1,250 gal	Above	Welded	3/05	HR. YR <del>.</del>	HR. YR.	N/A	N/A	N/A	N/A
2. Tanks (2)	Proviplast W003	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR, YR.	100 gal/hr	1.93 <sup>-4</sup> Psia	N/A	N/A	N/A
3. Tanks (12)	MDI Suprasec 7053	6,600 gal (each)	Above - in storage room	Welded - Orange	3/05	HR. YR.	1,000 gal/hr	4.83 <sup>-1</sup> Psia	Closed loop offload - vented back to tanker truck	N/A	> 99%
4. Tanks (6)	Mondur T- 80 Toluene Diisocyana te	6,600 gal (each)	Above - in storage room	Welded - Orange	3/05	HR. YR.	1,000 gal/hr	4.83 <sup>-1</sup> Psia	Closed loop offload - vented back to tanker truck	N/A	> 99%
5. Tanks (4)	Polyol HL- 431/Y- 7530	6,600 gal (each)	Above - in storage room	Welded – Green	3/05	HR. YR.	700 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
6. Tanks (4)	Polyol U1000	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR YR	2,300 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
7. Tanks (6)	Polyol GP- 600	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR. YR.	3,000 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
8. Tanks (2)	MDI Lupranate 280	6,600 gal (each)	Above - in storage room	Welded – Orange	3/05	HR. YR.	1,000 gal/hr	4.83 <sup>-4</sup> Psia	Closed loop offload - vented back to tanker truck	N/A	99%
9. Tanks (2)	Polyoi PPG-2000	6,600 gal (each)	Above - in storage room	Welded – Red	3/05	HR. YR.	450 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
10 Tank	Triethanola mine 99%	6,600 gal	Above - in storage room	Welded – Grey	3/05	HR YR	60 gai/hr	1.93 <sup>-4</sup> Psia	N/A	N/A	N/A
11. Tanks (2)	RWM White Oil	6,600 gal (each)	Above - in storage room	Welded - Yellow	3/05	HR. YR.	100 gal/hr	1.93 <sup>-4</sup> Psia	N/A	N/A	N/A
12. Tank	HTH 575	6,600 gal	Above - in storage room	Welded - Green	3/05	HR. YR.	HR. YR.	1.93 <sup>-4</sup> Psia	N/A	N/A	N/A
13 Tank	DP-1022	6,600 gal	Above - in storage room	Welded – Green	3/05	HR. YR.	180 gal/hr	1.93 <sup>-4</sup> Psia	N/A	N/A	N/A
14. Tanks (2)	Polyol Arcol LHT-42	6,600 gal (each)	Above - in storage room	Welded – Green	3/05	HR. YR.	450 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
15. Tanks (2)	Polyol Arcol LHT-240	6,600 gal (each)	Above - in storage room	Welded – Green	3/05	HR. YR.	450 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
16. Tanks (2)	Polyol RA- 500	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR. YR.	450 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
17. Tanks (2)	Polyol LG- 650	6,600 gal (each)	Above - in storage room	Welded – Green	3/05	HR. YR.	130 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
18, Tanks (2)	Polyol Multranol 9198	6,600 gal (each)	Above - in storage room	Welded – Green	3/05	HR. YR.	450 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
19. Tanks (4)	Polyol WK 3140	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR. YR.	2,100 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
20 Tanks (2)	Carbowax 550	6,600 gal (each)	Above - in storage room	Welded - Tan	3/05	HR. YR.	330 gal/hr	1.93 <sup>-1</sup> Psia	N/A	N/A	N/A
21. Tanks (6)	Polyol Voranol 8136	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR. YR.	3,600 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A
22. Tanks (4)	Polyol GP- 5171	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR. YR.	3,000 gal/hr	1.93 <sup>-3</sup> Psia	N/A	N/A	N/A

Storage Equipment	Product Stored	Capacity (bbls - tons gal - acres,etc)	Above or Below Ground	Construction (welded, riveted) & Color	Install Date	Loading Rate	Offloading Rate	True Vapor Pressure	Control Equipment	Seal Type	% Eff.
23. Tanks (2)	Polyol Voranol 360	6,600 gal (each)	Above - in storage room	Welded - Green	3/05	HR, YR.	350 gal/hr	1 93 <sup>-3</sup> Psia	N/A	N/A	N/A
24. Tank (Empty Storage)	Pomofresh Z35	6,600 gal	Above - in storage room	Welded – Grey	3/05	HR. YR.	5 gal/hr	N/A	N/A	N/A	N/A
25. Tanks (2)	Calcium Carbonate Blend	3,000 gal (each)	Above - in storage room	Welded – Green	3/05	HR. YR.	1,200 gal/hr	N/A	N/A	N/A	N/A
26. Tank	Calcium Carbonate	2,216 ft <sup>3</sup>	Above	White	3/05	HR. YR.	N/A	N/A	N/A	N/A	N/A
27. Tank	Liquid CO <sup>2</sup>	7,570 gal.	Above	White	3/05	HR. YR.	80 gal/hr	N/A	N/A	N/A	N/A
28. Tote	Dabco NE- 500	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR YR	5 gal/hr	N/A	N/A	N/A	N/A
29. Tote	Dabco NE- 320	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	5 gal/hr	0.047 hPa	N/A	N/A	N/A
30. Tote	Níax A33	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	5 gal/hr	N/A	N/A	N/A	N/A
31. Tote	Niax A577	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR YR	5 gal/hr	N/A	N/A	N/A	N/A
32. Tote	Tegostab B8409 VE	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	50 gal/hr	N/A	N/A	N/A	N/A
33. Tote	Tegostab B8244	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	50 gal/hr	N/A	N/A	N/A	N/A
34. Tote	Niax L-820	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	50 gal/hr	N/A	N/A	N/A	N/A
35. Tote	Niax L-635	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR YR	50 gal/hr	N/A	N/A	N/A	N/A
36. Tote	Niax L-420	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	50 gal/hr	N/A	N/A	N/A	N/A
37. Tote	Niax L-417	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	50 gal/hr	N/A	N/A	N/A	N/A
38. Tote	Alphasan VT	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR	5 gal/hr	N/A	N/A	N/A	N/A
39. Tote	Elastopan	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	YR. HR.	20 gal/hr	N/A	N/A	N/A	N/A
40. Tote	CS-22LF	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	YR. HR.	5 gal/hr	N/A	N/A	N/A	N/A
41. Tote	Irgastab PUR 67	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	YR. HR.	5 gal/hr	N/A	N/A	N/A	N/A
42. Drum	Kosmos 29	55 gal.	Above - in	Metal Drum / Black	3/05	YR HR	3 gal/hr	N/A	N/A	N/A	N/A
43. Drum	Dabco NE 1091	55 gal.	Above - in storage room	Metal Drum / Black	3/05	YR. HR.	5 gal/hr	N/A	N/A	N/A	N/A
44, Drum	Reactint Blue X17Ab	55 gal.	Above - in storage room	Plastic Barrel / Blue	3/05	YR HR YR	1 gal/hr	N/A	N/A	N/A	N/A
45. Drum	EPR-101	55 gal.	Above - in storage room	Metal Drum / Black	3/05	HR. YR.	3 gal/hr	N/A	N/A	N/A	N/A
46. Drum	TCPP/Fyro	55 gal.	Above - in storage room	Metal Drum / Black	3/05	HR YR	3 gal/hr	N/A	N/A	N/A	N/A
47. Tote	Tegostab B8951	275 gal.	Above - in storage room	Metal Tote / Silver	3/05	HR. YR.	50 gal/hr	N/A	N/A	N/A	N/A

<sup>1.</sup> Basis for Loading/Offloading Rate (Manufacturers data, Field Observation/Test, etc.) Submit information for each unit as an attachment Manufacturers data.

<sup>2.</sup> Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment Engineering Judgement.

### STACK AND EMISSION MEASUREMENT TABLE

any equipment from the Process Equipment Table (Page 2) is also listed in this Stack Table, use the same numbered line for the Process Equipment to no both Tables to show the association between the Process Equipment and its Stack. Copy this table if additional space is needed (begin numbering with 6., 7., etc.).

Process Equipment	Pollutant (CO,NOx,TSP, Toluene,etc)	Control Equipment	Control Efficiency	Stack Height & Diameter in feet	Stack Temp.	Stack Velocity & Exit Direction	Emission Measurement Equipment Type	Range- Sensitivity- Accuracy-
Example 1. Generator	CO, NOx, TSP, SO <sub>2</sub> , NMHC	N/A	N/A	18 ft H 0.8 ft D	225 °F	6,000 ft³/min - V Exit - upward	N/A	N/A
Example 2. Spray Gun	TSP, xylene, toluene, MIBK	Paint Booth	99% for TSP	9 ft H 0.5 ftD	ambient	10,000 ft <sup>3</sup> /min - V Exit - horizontal	N/A	N/A
Diesel-fired     Emergency     Generator	NOx, CO, SO2, TSP (PM), VOC, HAP	N/A	N/A	8 ft – H 4 in - D	1011 °F	971 ft/s Exit Upward	N/A	N/A
2. Slabstock Foam Production Line	VOC, MDI, TDI	Carbon Adsorber	80% for VOC and HAP 90% for TDI and MDI	50 ft – H	ambient	~ 3,800 fl/min Exit Upward	N/A	N/A
4A. Natural Gas-Fired Boiler (aka: Boiler 1)	NOx, CO, SO2, TSP (PM), VOC, HAP							
4B. Natural Gas-Fired Boiler (aka: Boiler 2)	NOx, CO, SO2, TSP (PM), VOC, HAP	N/A	N/A	52 ft - H 2.82 ft D	600 °F	35 ft/s Exit Upward	N/A	N/A
4C. Natural Gas-Fired Boiler (aka: Boiler 3)	NOx, CO, SO2, TSP (PM), VOC, HAP							
Calcium irbonate Silo Loading Operation	TSP, PM <sub>10</sub> , PM <sub>2.5</sub>	Fabric Dust Collector	99.97 % for TSP	58 ft – H 3.28 ft - D	Ambient	.0033 ft/s Exit - horizontal	N/A	N/A
7A. Cooling Tower	TSP, PM <sub>10</sub> , PM <sub>2</sub> s	N/A	N/A	25 ft – H 10 ft - D	Ambient	22 fVs Exit Upward	N/A	N/A
7B. Cooling Tower	TSP, PM <sub>10</sub> , PM <sub>2.5</sub>	N/A	N/A	25 ft – H 10 ft - D	Ambient	22 fl/s Exit Upward	N/A	N/A
8. Haul Roads	TSP, PM <sub>10</sub> , PM <sub>2.5</sub>	Speed Limit	N/A	N/A	Ambient	N/A	N/A	N/A

1. Basis for Control Equipment % Efficiency (Manufacturers data, Field Observation/Test, AP-42, etc.) Submit information for each unit as an attachment

I, the undersigned, a responsible officer of the applicant company, certify that to the best of my knowledge, the information stated on this application, togethe with associated drawings, specifications, and other data, give a true and complete representation of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I also understand that any significant omissions, errors, or misrepresentations in these data will be cause for revocation of part or all of the resulting registration or permit.

Signed this 10 day of October, 2019

Cesar Rodriguez
Print Name

nature

Director of Plant Operations
Print Title

LONG FORM Page 10 of 10

Ver. June 2014

# 5. PUBLIC NOTICE



# **Notice of Intent to Construct**



Under 20.11.41.13B NMAC, the owner/operator is required to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are with-in one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located if they propose to construct or establish a new facility or make modifications to an existing facility that is subject to 20.11.41 NMAC — Construction Permits. A copy of this form must be included with the application.

Applicant's Name and Address: Tempur-Pedic New Mexico Production USA, Inc. 12907 Comfort Way, Albuquerque, NM 87120

Owner / Operator's Name and Address: Tempur-Pedic New Mexico Production USA, Inc. 12907 Comfort Way, Albuquerque, NM 87120

Actual or Estimated Date the Application will be submitted to the Department: August 1st, 2019

Exact Location of the Source or Proposed Source: 12907 Comfort Way, Albuquerque, NM 87120

Description of the Source: Slabstock foam production line, natural gas boilers and water heaters, diesel-powered generator, cooling towers, paved haul roads, and calcium carbonate storage silo.

Nature of the Business: Polyurethane Foam Production (Mattress and other products).

Process or Change for which the permit is requested: Addition of cooling towers, paved haul road and water heaters. Modification of the foam pour line, natural gas boilers, and calcium carbonate silo emissions.

Preliminary Estimate of the Maximum Quantities of each regulated air contaminant the source will emit:

Net Changes In Emissions

#### **Initial Construction Permit**

(Only for permit Modifications or Technical Revisions)

		(			/
Pounds Per Hour (lbs/hr)	Tons Per Year (tpy)		lbs/hr	tpy	Estimated Total TPY
7.38	9.26	co	- 3.73	+ 1.58	10.68
25.74	12.04	NOx	- 6.33	+ 1.42	13.62
-	-	NOx + NMHC	-	-	-
1.09	1.86	voc	- 0.44	+ 0.50	2.36
7.87	0.53	SO <sub>2</sub>	- 0.95	- 0.20	0.076
0.86	0.86	TSP	+ 0.60	+ 9.22	10.08
0.86	0.86	PM10	+ 0.60	+ 9.22	5.70
0.86	0.86	PM2.5	+ 0.42	+ 0.37	1.23
•	-	VHAP	+ 0.09	+ 0.29	0.29
	Pounds Per Hour (lbs/hr)  7.38  25.74  -  1.09  7.87  0.86  0.86  0.86	(lbs/hr)     (tpy)       7.38     9.26       25.74     12.04       -     -       1.09     1.86       7.87     0.53       0.86     0.86       0.86     0.86       0.86     0.86	Pounds Per Hour (lbs/hr)         Tons Per Year (tpy)           7.38         9.26           25.74         12.04           -         NOx NOx + NMHC           1.09         1.86           VOC           7.87         0.53           0.86         0.86           0.86         PM10           0.86         0.86           PM2.5	Pounds Per Hour (lbs/hr)         Tons Per Year (tpy)         CO         - 3.73           7.38         9.26         CO         - 3.73           25.74         12.04         NOx         - 6.33           NOx + NMHC         -           1.09         1.86         VOC         - 0.44           7.87         0.53         SO2         - 0.95           0.86         0.86         TSP         + 0.60           0.86         0.86         PM10         + 0.60           0.86         0.86         PM2.5         + 0.42	Pounds Per Hour (lbs/hr)         Tons Per Year (tpy)         Lbs/hr         tpy           7.38         9.26         CO         - 3.73         + 1.58           25.74         12.04         NOx         - 6.33         + 1.42           -         -         NOx + NMHC         -         -           1.09         1.86         VOC         - 0.44         + 0.50           7.87         0.53         SO2         - 0.95         - 0.20           0.86         0.86         TSP         + 0.60         + 9.22           0.86         0.86         PM10         + 0.60         + 9.22           0.86         0.86         PM2.5         + 0.42         + 0.37

Note: "-" is used to denote that this information was not available from the initial permit and was not considered for this table. Refer to the permit application calculations for additional information.

Last Revised 10/25/2018

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Division
Phone: (505) 768-1972 Email: aqd@cabq.gov

Maximum Operating Schedule: 365 days per year, 24 hours per day.

Normal Operating Schedule: After permit is approved: 365 days per year, 24 hours per day.

Current Contact Information for Comments and Inquires:

Name: Milton Rosado, EHS Manager

Address: 12907 Comfort Way, Albuquerque, NM 87120

Phone Number: 505-765-2106

E-Mail Address: milton.rosado@tempursealy.com

If you have any comments about the construction or operation of the above facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to the address below:

Environmental Health Manager

**Permitting Division** 

Albuquerque Environmental Health Department

Air Quality Program

PO Box 1293

Albuquerque, New Mexico 87103

(505) 768-1972

Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit application at the time of this notice. Please include a legible mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, if required, the Department's notice will be published on the City of Albuquerque's website, <a href="https://www.cabq.gov/airquality/airquality-permits">https://www.cabq.gov/airquality/airquality-permits</a> and mailed to neighborhood associations and neighborhood coalitions near the facility location or near the facility proposed location.

Last Revised 10/25/2018

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Division
Phone: (505) 768-1972 Email: aqd@cabq.gov

# 6. CALCULATIONS

#### **Emissions Summary**

							N.	laximum Un	controlled E	missions							ADVET	+125 miles	
Wester.	the common participation of the	N	0,		:0	V	OC	8	0,	T	SP	PI	M <sub>10</sub>	PI	F <sub>2.6</sub>	H <sub>2</sub>	8	Total	HAPs
Unit	Description	lb/hr	фу	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	tb/hr	tpy	lb/hr	tрy	lb/hr	фу	lb/hr	тру
1	Emergency Diesel Generator	16.53	0.99	1.23	0.07	0.12	0.007	0.0098	0.0006	0.17	0.010	0.17	0.010	0.17	0.010	•		0.024	0.0014
2	Slabstock Foam		-		-	0.205	0.896		•		-		-		-	-	-	0.15	0.64
4a	Natural Gas Boiler	0.96	4.21	0.81	3.53	0.053	0.23	0.0058	0.025	0.073	0.32	0.073	0.32	0.073	0.32			0.014	0.062
4b	Natural Gas Boiler	0.96	4.21	0.81	3.53	0.053	0.23	0.0058	0.025	0.073	0.32	0.073	0.32	0.073	0.32			0.014	0.062
4c	Natural Gas Boiler	0.96	4.21	0.81	3.53	0.053	0.23	0.0058	0.025	0.073	0.32	0.073	0.32	0.073	0.32			0.014	0.062
6	CaCO <sub>3</sub> Silo						-			4.07	17.82	0.66	2.88	0.25	1.08		-	l -	-
7a	Cooling Tower		-			-	-			0.48	2.11	0.43	1.88	0.0025	0.0110			.	-
7b	Cooling Tower		-			-	_			0.48	2.11	0.43	1.88	0.0025	0.0110			l -	-
8	Paved Haul Road						-		•	1.11	4.88	0.22	0.98	0.055	0.24		-	-	
	Totals	19.41	13.62	3.65	10.68	0.48	1.60	0.027	0.076	6.53	27.89	2.12	8.58	0.69	2.31			0.21	0.83

				20 = 40.			S.E. resultant	Maximum C	ontrolled Er	nissions	At World Line	18550							
especial.		N	O <sub>K</sub>	C	0	V	OC .	8	O <sub>x</sub>	T	SP	PI	M <sub>10</sub>	PI	12.0	Н	2	Total	I HAPs
Unit	Description	lb/hr	фу	lb/hr	фу	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	tb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	Emergency Diesel Generator	16.53	0.99	1.23	0.07	0.12	0.007	0.0098	0.0006	0.17	0.010	0.17	0.010	0.17	0.010			0.024	0.0014
2	Slabstock Foam	-	-	-	-	0.378	1.66		-				•		- 1			0.024	0.11
4a	Natural Gas Boiler	0.96	4.21	0.81	3.53	0.053	0.23	0.0058	0.025	0.073	0.32	0.073	0.32	0.073	0.32	-	-	0.014	0.062
4b	Natural Gas Boiler	0.96	4.21	0.81	3.53	0.053	0.23	0.0058	0.025	0.073	0.32	0.073	0.32	0.073	0.32	-		0.014	0.062
4c	Natural Gas Boiler	0.96	4.21	0.81	3.53	0.053	0.23	0.0058	0.025	0.073	0.32	0.073	0.32	0.073	0.32			0.014	0.062
6	CaCO₃ Silo						-		•	0.0012	0.0053	1.97E-04	8.64E-04	7.40E-05	3.24E-04	-	-		-
7a	Cooling Tower	-	-	-	-	-	-	-	-	0.48	2,11	0.43	1.88	0.0025	0.0110				
7b	Cooling Tower								•	0.48	2.11	0.43	1.88	0.0025	0.0110				
8	Paved Haul Road						•			1.11	4.88	0.22	0.98	0.055	0.24	-	-	-	
	Totals	19,41	13.62	3,65	10.68	0.65	2.36	0.027	0.076	2.46	10.08	1.46	5.70	0.44	1.23	-	-	0.090	0.29

### **Diesel Generator**

Generator Input Information											
Unit:		1									
Description:	(	Caterpillar 3412C Diesel G	enerator								
Generator Power Rating	650	kW	Facility Design								
Generator rower Rating	872	hp	Calculated								
Diesel Heating Value	137,000	8tu/gal									
Annual Hours of Operation	8,760	hrs/yr	Facility Design								
Sulfur Content	0.002%	%									
Conversion factor	0.071	gal/hr/KW									
Conversion factor	1.34	hp/kW									
Conversion factor	0.0022	lb/g									
Conversion factor	2,000	lb/ton									

Emission Factors						
Component	Emission Factor	Emission Factor Unit	Emission Factor Source			
NO,	0.019	lb/hp-hr	Manufacturer Specifications			
co	0.0014	lb/hp-hr	Manufacturer Specifications			
SO <sub>x</sub>	0.0015%	%	ULSD Standard			
TSP/PM/PM <sub>10</sub> /PM <sub>2.5</sub>	1.90E-04	lb/hp-hr	Manufacturer Specifications			
VOC	1.32E-04	lb/hp-hr	Manufacturer Specifications			
CO <sub>2</sub>	73.96	kg/MMBtu				
CH <sub>4</sub>	0.0030	kg/MMBtu	40 CFR 98 Subpart C			
N <sub>2</sub> O	6.00E-04	kg/MMBtu				

Emissio	Emission Factors				
Pollutant	Emission Factor g/hp-hr				
NOX	8.60				
со	0.64				
PM	0.09				
нс	0.06				

#### Calculations:

Calculate the Criteria Pollutant Emissions:

Generator Power Rating	Conversion Factor	Maximum Diesel Consumption	Diesel Heating Value	Annual Hours of Operation	Conversion Factor	Density of Diesel, AP 42 Appendix A
(kW)	(gal/hr/kW)	(gal/hr)	Btu/gal	(hr/yr)	(lb/ton)	(fb/gal)
650	0.071	46.2	137,000	120	2,000	7.05

Component	Engine Output hp	Hourly Emissions <sup>1</sup> (lb/hr)	Annual Emissions <sup>2</sup> (tpy)	
NO <sub>x</sub>	872	16.53	0.99	
со	872	1.23	0.07	
SO <sub>2</sub>	872	0.0098	0.001	
TSP/PM/PM <sub>10</sub> /PM <sub>2.5</sub>	872	0.165	0.010	
VOC	872	0.12	0.01	
CO2	872	1032.37	61.94	
CH <sub>4</sub>	872	0.042	0.00	
N₂O	872	0.0084	0.001	
CO₂e	348	14.19	62.15	

Component	AP-42 Table 3.3-2 Emission Factor (lb/MMBtu)	Max Heat Input MMBtu/hr	Hourly emissions <sup>3</sup> (lb/hr)	Annual emissions <sup>2</sup> (tpy)
1,3 Butadiene	3.91E-05	6.33	2.48E-04	1.49E-05
Acrolein	9.25E-05	6.33	5.86E-04	3.51E-05
Acetaldehyde	7.67E-04	6.33	4.86E-03	2.91E-04
Benzene	9.33E-04	6.33	5.91E-03	3.54E-04
Formaldehyde	1.18E-03	6.33	7.47E-03	4.48E-04
Naphthalene	8.48E-05	6.33	5.37E-04	3.22E-05
Toluene	4.09E-04	6.33	2.59E-03	1.55E-04
Xylenes	2.85E-04	6.33	1.80E-03	1.08E-04
Non-HAP/TAP VOC	2.66E-03	6.33	1.69E-02	1.01E-03
Total speciated VOC	6.45E-03		0.041	0.0025
Total HAP			0.024	0.0014

 $<sup>^1</sup>$  Hourly emissions (lb/hr) = Emission Factor (lb/hp-hr)  $^{\rm a}$  Engine Output (hp) Hourly SO2 emissions (lb/hr) = Fuel Usage (gal/hr) \* Fuel Density (lb/gal) \* Percent Sulfur \* (64/32)

Assumptions:

1. Assumed that AP-42 factors for diesel industrial engines are applicable to this source.

<sup>&</sup>lt;sup>2</sup> Annual emissions (tpy) = Hourly emissions (lb/hr) \* Annual Hours of Operation (hr/yr) / Conversion Factor (lb/ton)

<sup>&</sup>lt;sup>3</sup> Hourly emissions (lb/hr) = Emission Factor (lb/MM8tu) \* Max Heat Input (MM8tu/hr)

## **Slabstock Foam**

Unit: 2 Hours of Operation: 8760

### Uncontrolled Emissions<sup>1</sup>

	VOC	MDI	TDI	Notes:
ib/hr (MDI)	0.0029	0.0020		From Stack Tests Completed on 4/11/2019
lb/hr (TDI)	0.0066	-	0.047	From Stack Tests Completed on 4/11/2019
Safety Factor <sup>2</sup>	3000%	200%	200%	Conservative Safety Factor
Maximum lb/hr	0.205	0.0060	0.14	
Maximum tpy	0.896	0.026	0.62	

### Controlled Emissions<sup>1,3</sup>

	VOC	MDI	TDI	Notes:
lb/hr (MDI)	0.012	0.0020	-	From Stack Tests Completed on 4/11/2019
lb/hr (TDI)	0.012	_	0.0060	From Stack Tests Completed on 4/11/2019
Safety Factor <sup>2</sup>	3000%	200%	200%	Conservative Safety Factor
Maximum lb/hr	0.378	0.0060	0.018	
Maximum tpy	1.66	0.026	0.079	

#### Notes:

- 1 During operation, this unit with eith process TDI or MDI material. The maximum emissions from either option are conservatively represented.
- 2 As VOCs, MDI, and TDI concentrations are below the detection threshold of the sampler used during stack testing, 3,000% and 200% safety factors are conservatively applied to VOCs and MDI/TDI, respectively, account for any underestimation that may result from the sampling technique and to account for any fluctuations in emissions that may occur.
- 3 Emissions from this unit are controlled by a scrubber.

### **Natural Gas Boilers**

Units: 4a, 4b, and 4c

Make: Unilux Model: ZF1000W

Capacity:

9.8 MMbtu/hr

Gas Heating Value:

1020 btu/scf

Gas Usage:

0.0096 MMscf/hr

Hours of Operation:

8760 hr/yr

Emission Rates per Unit

	NO <sub>X</sub> 1	CO1	VOC1	SO <sub>2</sub> 1	TSP1	PM <sub>10</sub> <sup>1</sup>	PM <sub>2.5</sub> <sup>1</sup>	Total HAP <sup>2</sup>	CO23	CH <sub>4</sub> <sup>3</sup>	N₂O³	CO₂e³	Units
Emission Factors	100	84	5.5	0.6	7.6	7.6	7.6						lb/MMscf
Emission Factors									116.98	0.0022	2.20E-04		lb/MMbtu
Hourly Emissions	0.96	0.81	0.053	0.0058	0.073	0.073	0.073	0.014	11.94	2.25E-04	2.25E-05	11.95	lb/hr
Annual Emission	4.21	3.53	0.23	0.025	0.32	0.32	0.32	0.062	52.28	9.85E-04	9.85E-05	52.34	tpy

#### Notes:

#### Stack Parameters

Diameter	2.82 ft	86 cm per Tempur Sealy
Height	59.7 ft	278 cm rain cap height, 71 cm gap to top of stack => 207cm stack height (On top of roof)
Flow	218 ft <sup>3</sup> /s	Calculated with F-Factor Method
Velocity	35.0 ft/s	Calculated with F-Factor Method
Temperature	600 F	Assumed

Reboiler Stack Exhaust Parameters							
Exhaust temp:	600	°F	Eng. estimate				
Stack diameter:	2.82	ft	Measured Stack Diameter				
F Factor:	10610	wscf/MMBtu	F factor-40 CFR 60 Appx A Method 19				
Exhaust flow:	5199	scfm	Heat input * F factor/60				
Site Elevation:	5,739	ft MSL	Google Earth				
Standard Pressure:	29.92	in Hg	•				
Pressure at Elevation	24.21	in Hg	Hess, Introduction to Theoretical Meteorology, eqn. 6.8				
tandard Temperature	520	R	•				
Exhaust flow:	13098	acfm	Va = Vs*(Ps/Pa)*(Ta/Ts)				
Exhaust velocity:	35.0	ft/sec	Exhaust flow / stack area				

<sup>&</sup>lt;sup>1</sup> Emission factors referenced from AP-42 Tables 1.4-1 and 1.4-2.

Total HAP emissions are calculated using GRt HAPCalc.
 Emission factors referenced from 40 CFR 98 Subpart C Tables C-1 and C-2. GWPs are referenced from 40 CFR 98 Table A-1.

#### Tempur-Pedic New Mexico Production USA, Inc.

#### **Calcium Carbonate Silo**

Unit:

6

inputs	Value	Units	Notes:
Material Loaded:	36,000,000	lb/yr	Throughput requested in permit modification to add this silo.
Material Loaded:	18,000	tpy	
Material Loaded:	4,110	lb/hr	
Material Loaded:	2.1	tph	
Control Efficiency:	99.97	%	Fabric filter design specifications

Emission Factors <sup>1</sup> (lb/ton)			
TSP	PM <sub>10</sub>	PM <sub>2.5</sub>	
0.0099	0.0016	0.0006	

Uncontrolled Emissions <sup>2</sup> Controlled Emissions <sup>3</sup>

١	TSP		PM <sub>10</sub>		PM <sub>2.5</sub>	
1	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
2	4.07	17.82	0.66	2.88	0.25	1.08
3	0.0012	0.0053	1.97E-04	8.64E-04	7.40E-05	3.24E-04

#### Notes:

#### **Stack Parameters**

Diameter 3.28 ft 1 m per NMED guidance for horizontal stacks
Height 58 ft Per Tempur Sealy

Flow - ft<sup>3</sup>/s

Velocity 0.00328 ft/s 0.001 m/s per NMED guidance for horizontal stacks

Temp -459.67 F Per NMED guidance for horizontal stacks (unless hight temp)

<sup>&</sup>lt;sup>1</sup> The controlled emissions factors for pneumatic loading of pulverized minerals is referenced from AP-42 Table 11.19.2-4.

<sup>&</sup>lt;sup>2</sup> Uncontrolled emissions were derived assuming the controlled emissions factor (AP-42 Table 11.19.2-4) accounted for 99.5% control.

<sup>&</sup>lt;sup>3</sup> Controlled emissions are calculated using the unit specific control efficiency for the fabric filter installed at the facility.

#### Tempur-Pedic New Mexico Production USA, Inc.

#### **Cooling Towers**

Units: 7a and 7b

Make: Baltimore Air Coil

Model: 3923A

Quanitity: 2

Circulation Rate (Q<sub>circ</sub>):

9720 gpm

Three pumps, each with a 3240 gpm capacity

Drift Rate (Q<sub>drift</sub>):

0.02 %

Default value from NMED guidance

Total dissolved solids (TDS):

1000 mg/L (or ppm)

TDS analysis from Hall Envrionmental Labartory, Inc. (2/25/2019)

(	TSP <sup>1</sup>		PM <sub>10</sub> <sup>1</sup>		PM <sub>2.5</sub>	
-	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Total	0.96	4.22	0.86	3.75	0.0050	0.0219
Per Unit	0.48	2.11	0.43	1.88	0.0025	0.0110

#### Notes:

<sup>1</sup> Emissions were calculated using guidance provided in the NMED technical memorandum for "Calculating TSP, PM10, and PM 2.5 from Cooling Towers" dated 9/9/2013.

PM<sub>Total</sub> = TDS \* Q<sub>circ</sub> \* Q<sub>drift</sub>

The cooling tower liquid analysis reports a TDS mass concentration of 362 mg/L. To allow for operational flexibility, particle size multipliers for liquid with 1000 ppm TDS are conservativley referenced.

#### Tempur-Pedic New Mexico Production USA, Inc.

#### **Paved Haul Roads**

Unit: 8

Input Data for Two	-Way Truc	ks
Empty vehicle weight <sup>T</sup>	18	tons
Loaded vehicle	40.0	tons
Mean vehicle weight <sup>2</sup>	29.0	tons
Annual Operating Hours	8760	hr/yr
Round-trip distance	1,2	mile/trip
Trip frequency <sup>3</sup>	4	trips/hour
Trip frequency <sup>4</sup>	35040	trips/yr
Road surface silt loading <sup>5</sup>	0.40	g/m²
Annual wet days <sup>6</sup>	70	days/yr
Vehicle miles traveled'	4.88	mile/hr

Emission Factors and Constanst				
Parameter	TSP	PM <sub>10</sub>	PM <sub>2.5</sub>	
k, lb/VMT <sup>8</sup>	0,011	0.0022	0.00054	
EF, Ib/VMT <sup>a</sup>	0.11	0.023	0.0056	

Uncontrolled Emission Calculations				
TSP	PM <sub>10</sub>	PM <sub>2.5</sub>		
0.56	0.11	0.03	lb/hr™	
2.44	0.49	0.12	ton/yr''	

Input Data for One-Way Trucks				
Empty vehicle weight <sup>1</sup>	18	tons		
Loaded vehicle	40.0	tons		
Mean vehicle weight <sup>2</sup>	29.0	tons		
Annual Operating Hours	8760	hr/yr		
Round-trip distance	0.26	mile/trip		
Trip frequency <sup>3</sup>	4	trips/hour		
Trip frequency⁴	35040	trips/yr		
Road surface silt loading <sup>5</sup>	0.40	g/m²		
Annual wet days <sup>6</sup>	70	days/yr		
Vehicle miles traveled	1.04	mile/hr		

Emission Factors and Constanst				
Parameter	TSP	PM <sub>10</sub>	PM <sub>2.5</sub>	
k, lb∕∨MT <sup>a</sup>	0.011	0.0022	0.00054	
EF, lb/VMT <sup>a</sup>	0.11	0.023	0.0056	

Uncontrolled Emission Calculations				
T\$P	PM <sub>10</sub>	PM <sub>2.5</sub>		
0.56	0.11	0.03	lb/hr <sup>10</sup>	
2.44	0.49	0.12	ton/yr''	

#### Notes:

E = Particle size multiplier \* (Road surface silt loading / 2) \* 0.65 \* (Average truck weight / 3) \* 1.5 \* (1 - 1.2 \* Number of hours with precipitation / Number of hours in averaging period)

<sup>&</sup>lt;sup>1</sup> Empty vehicle weight includes driver and occupants and full fuel load.

<sup>&</sup>lt;sup>2</sup> Mean Vehicle weight = (Loaded Weight + Empty Weight) / 2

<sup>&</sup>lt;sup>3</sup> Per facility design, 50% of the truck swill travel both ways on the haul road and 50% will only travel one way.

<sup>&</sup>lt;sup>4</sup> Trips per year = Trips/hr \* hr/yr

<sup>&</sup>lt;sup>5</sup> AP-42 Table 13,2,1-2, Low ADT roads under worst-case conditions.

<sup>&</sup>lt;sup>6</sup> AP-42 Figure 13.2.1-2

<sup>&</sup>lt;sup>7</sup> VMT/hr = Vehicle Miles Traveled per hour= Trips per hour \* Segment Length

<sup>&</sup>lt;sup>8</sup> Table 13,2.1-1

<sup>&</sup>lt;sup>9</sup> AP-42 13.2.1, Equation 3 for hourly basis:

<sup>10</sup> lb/hr = Hourly EF (lb/VMT) \* VMT (mile/hr)

<sup>11</sup> ton/yr = Annual EF (lb/VMT) \* VMT (mile/hr) \* Hours of operation (hr/yr)





# MODELING REPORT TEMPUR-PEDIC NEW MEXICO PRODUCTION USA, INC.

#### Permittee Information:

Company Name & Facility: Tempur-Pedic New Mexico Production USA, Inc.

Current Permit: 1729-M4-1AR

Air Permit Contact Name, Title, & Company: Milton Rosado, EHS Manager, Tempur Sealy International Air Permit Contact Address: Albuquerque Operations, 12907 Comfort Way, Albuquerque, NM 87120

Air Permit Contact Phone: (505) 765-2106

Air Permit Email: milton.rosado@tempursealv.com

#### **Consultant Information:**

Consultant Name, Title, & Company: Jake Zenker, Consultant, Trinity Consultants, Inc. Consultant Address: 9400 Holly Ave., Building 3, Suite 300, Albuquerque, NM 87122

Consultant Phone: (505) 266-6611

Consultant Email: jzenker@trinityconsultants.com

#### **Facility Operations and Description:**

Tempur-Pedic New Mexico Production USA, Inc. (Tempur-Pedic) is requesting a permit modification their current permit (1729-M4-1AR) to: add emission sources, update emissions for existing sources, and to modify permit conditions. The following tables identify the proposed modification in detail.

Table 1. New sources and descriptions

New Emission Source Name	Description
	This unit has been in service since this facility first became operational
7. Cooling Tower	but was not identified as an emission source. Refer to permit application
	for detail information.
	This unit has been in service since the facility first opened but was not
8. Haul Roads (paved)	identified as an emission source. Refer to permit application for detail
	information.
Domestic Water Boiler #1	These units have been in service since this facility began operations but
	were not previously listed for permitting purposes. Per NMAC
Domestic Water Boiler #2	20.11.41.2.F(3)(a), these units are exempted but need to be reported.

Table 2. Modified sources and descriptions

Existing Emission	Proposed Modification
Source Name	
1. Diesel-Fired	Update emissions to include manufacturer emission specifications.
Emergency	Justification: Manufacture specified emissions factors will provide a more accurate
Generator	representation of emissions.
2. Slabstock Foam	● Elimination of permit condition I.1.i)ii that reads: "Unit #2 (Slabstock Foam Production Line)
Production Line	shall not exceed 2,500 hours of operation as a 12-month rolling total, calculated on the 1st of each
	month as the sum of each consecutive 12-month period:"
	■ Justification: The calculations presented in the attached permit application cover the operation
	of this source operating 24/7. Stack test data gathered operating the unit under the two (2)
	extreme operations (manufacture of foam based on MDI or TDI) was accounted for and the worst
	case emission factors under these scenarios, plus a safety factor of up to 3,000 % for VOC and up to
	200% for TDI and MDI was used to calculate the emission of this unit. Based on the above, this
	permit condition no longer applies.
	● Elimination of permit condition .1.i)ii that reads: "The production of Slabstock Foam in Unit #2
	shall not exceed 112,500,000 pounds per year, calculated on the 1st of each month as the sum of each
	consecutive 12-month-period;"
	■ Justification: The emission factors derived from the stack test data are based on only two (2)
	foam pour scenarios. Foam based on MDI or foam based on TDI. Using these scenarios, the pour
	line emissions were calculated at the maximum potential, 24/7 because this condition represents
	the worst case scenario. A production limitation based on pounds per year does not take into
	consideration which pour scenario, i.e., MDI or TDI releases the maximum amount of pollutants
	into the air.
	■ Elimination of Recordkeeping condition I.3.b) " maintain records of hours of operationand the
	raw material" Based on the information presented above this permit condition is no longer
	applicable.
	● Elimination of Monitoring condition I.4.d) " monitor the hours of operation, Slabstock foam
	production, and the raw material throughput". Based on the information presented above this
	permit condition is no longer applicable.
4. Natural Gas Fired	Clarification: The boilers subject to this permit modification have been the original since this
Boilers (3 ea)	facility opened operations. Through the permit history of this facility, there have been
	inconsistencies with the boiler's information on these permits. The information below has been
	field verified.
	● Correct boilers manufacturer's name from Universal Boiler to UNILUX.
	● Correct boilers model number from BF200W4 to ZF1000W.
	● Currently, the three (3) existing boilers are labeled under emission unit 4. We want to assign
	individual names to each of the units. We propose using 4A, 4B, and 4C for each of the units.
	● The capacity indicated for permit purposes was identified as 8.5 MMBtu/hr, but this is incorrect.
	The three (3) units are rated between 9.8MMBtu/hr.

Tempur-Pedic New Mexico Production USA, Inc.- Page 3 August 23, 2019

Existing Emission Source Name	Proposed Modification
5. Calcium	Propose to consolidate these activities into one emission source (Unit 6). The only activity that
Carbonate Silo	constitutes a source of emissions is the loading of calcium carbonate into the silo. During this
	process, the calcium carbonate is pneumatically blown from the tank trailer into the silo in a closed
6. Calcium	system. Before initiating the loading, the silo's pulse-jet fabric filter is turned on and used to filter
Carbonate Silo	the calcium carbonate laden air blown into the silo. Once the loading is completed, the filter is
(Truck Load - In)	turned off. As part of the process the silo discharges calcium carbonate in batches through an
	enclosed screw conveyor to two mixing tanks. There are no emissions associated with this
	transport since it takes place in an enclosed system.

The permanent location/ address of the facility is 12907 Comfort Way, Albuquerque, NM 87120.

Figure 1. Facility Map with fence line and modeled units. Coordinates are provides in the modeling inputs section.



Tempur-Pedic New Mexico Production USA, Inc.- Page 4 August 23, 2019

#### Modeling requirements description:

The sources at this facility that will be modeled include natural gas boilers (Unit 4), a Calcium Carbonate Silo (Unit 6), and cooling towers (Unit 7). These units emit the following pollutants that are modeled as part of this permit modification:

- NO<sub>2</sub>
- CO
- PM<sub>10</sub>
- PM<sub>2.5</sub>
- SO<sub>2</sub>

VOCs emitted from these sources are not criteria pollutants and therefore are not modeled. The New Mexico Ambient Air Quality Standard (NMAAQS) for total suspended particulates (TSP) was repealed and is therefore no longer required to be modeled.

#### Modeling inputs:

The latest version of AERMOD (18081) will be used to model ambient impacts from emission sources at this facility. The following table reports the source parameters used. All modeled sources at this facility were modeled as point sources. The horizontal stack from the Calcium Carbonate Silo (Unit 6) was modeled in accordance with the New Mexico Environment Department (NMED) modeling guidelines, which states that the stack shall be modeled with a stack diameter of 1 m (3.28 ft) and a stack velocity of 0.001 m/s (0.0033 ft/s). The Natural Gas Boiler stack (Unit 4) was modeled in accordance with NMED modeling guidelines for a rain-capped source with AERMOD beta options¹.

**Point Source Parameters** Stack Stack Stack Stack Y PM<sub>2.5</sub> X Elevation NO<sub>2</sub> CO SO<sub>2</sub> Unit Description/ PM<sub>10</sub> Height Velocity Diameter Temp. No. Source m m m pph pph pph pph pph ft/s ft Natural Gas 3882821.4 336224.0 1749 2.88 2.42 0.017 0.22 0.22 59.70 600.00 34.95 2.82 4 Boiler (POINTCAP) 3882797.9 1749 1.97E-04 -459.67 0.0033 6 CaCO3 Silo 336087.9 7.40E-05 58.00 3.28 336185.6 3882824.0 25.00 7a **Cooling Tower** 1749 0.43 0.0025 -459.67 21.99 10.00 7b **Cooling Tower** 336189.7 3882825.9 1749 0.43 0.0025 25.00 -459.67 21.99 10.00

Table 3. Emission source modeling parameters

 $NO_X$  was reduced to  $NO_2$  using the ARM-2 method. The most recent background concentrations released by the City of Albuquerque Environmental Health Department (EHD) in October 2018 were used for  $NO_2$  and  $PM_{10}$  to determine the cumulative impact of these pollutants. The "COA Airport 2001-2005" meteorological dataset was used in this modeling (as provided by the EHD).

¹ New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines. Revised June 6, 2019 <a href="https://www.env.nm.gov/wp-content/uploads/2017/01/NM\_AirDispersionModelingGuidelines\_6]une2019.pdf</a>

Tempur-Pedic New Mexico Production USA, Inc.- Page 5 August 23, 2019

The following table describes the variable density Cartesian receptor grid that was used to model the ambient impacts of emissions at this facility. The center point used to generate this grid was UTM Zone 13 336077.7 m E, 3882677.7 m N.

Table 4. Variable density receptor grid inputs

Start	End	Spacing
0	300	50
300	1000	100
1000	3000	250
3000	5000	500

Elevation data was incorporated using the digital elevation model (DEM) files provide on the City of Albuquerque's website. The DEM files selected cover the entire domain of the facility and receptor grid. Per correspondence with the EHD, we incorporated a variable density receptor gird of out to a distance of 5,000 m from the facilities center point. An initial model was generated to determine which receptors had a modeled impact above the pollutant specific significance level. Only those receptors above the significance thresholds were included in cumulative impact analysis models which were used to determine impact of the facility and ambient pollutant concentrations.

Per correspondence with the EHD, there are no surrounding sources that shall be incorporated into these models.

#### **Emission Sources:**

The following table reports the emissions sources, permitted unit numbers, emission rates, and stack parameters that were used to model these sources. All emission sources were modeled to be operating continuously.

The horizontal stack that emits controlled pollutants from the Calcium Carbonate Silo (Unit 6) is modeled in accordance with the NMED guidance for horizontal stacks with a stack diameter of 1m (3.28 ft) and a velocity of 0.001 m/s (0.0033 ft/s). The stack emitting pollutants generated by the natural gas boilers (Unit 4) was modeled in accordance with NMED modeling guidelines for a rain capped source as a "POINTCAP" source. The outline of the building shown in the facility map was traced and incorporated into the modeling files with a building height of approximately 53 feet.

#### Modeling files description:

The following table lists the modeling files that are included in the permit application submission.

Table 5. Model file names that are submitted with this model report.

Significant Impact Analysis Models	Cumulative Impact Analysis Models
Tempur-Pedic CO SIL_v0.3 2019 0819 JPZ	Tempur-Pedic NOX 1 HR CIA_v0.1 2019 0819 JPZ
Tempur-Pedic NOX SIL_v0.3 2019 0819 JPZ	Tempur-Pedic NOX ANNUAL CIA_v0.1 2019 0819 JPZ
Tempur-Pedic PM25 SIL_v0.3 2019 0819 JPZ	Tempur-Pedic PM10 24 HR CIA_v0.1 2019 0819 JPZ
Tempur-Pedic PM10 SIL_v0.3 2019 0819 JPZ	
Tempur-Pedic SO2 SIL_v0.3 2019 0819 JPZ	

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#### **Modeling Results:**

The following tables report the results of the significance level and cumulative impact modeling.

Table 6. Results of significant impact analysis modeling

Pollutant	Averaging Period	Significance Level µg/m³	Modeled μg/m³	Percent of Significance
CO	8-hr	500	23.09	4.6%
CO	1-hr	2000	45.80	2.3%
NO <sub>2</sub>	Annual	1	1.85	Significant
NO <sub>2</sub>	24-hr	5	13.75	Significant
NO <sub>2</sub>	1-hr	7.54	49.06	Significant
PM <sub>2,5</sub>	Annual	0.3	0.16	54.0%
PM <sub>2.5</sub>	24-hr	1.2	0.89	74.0%
PM <sub>10</sub>	Annual	1	2.01	Significant
PM <sub>10</sub>	24-hr	5	8.13	Significant
SO <sub>2</sub>	Annual	1	0.012	1.2%
SO <sub>2</sub>	24-hr	5	0.090	1.8%
SO <sub>2</sub>	3-hr	25	0.23	0.9%
SO <sub>2</sub>	1-hr	7.8	0.32	4.1%

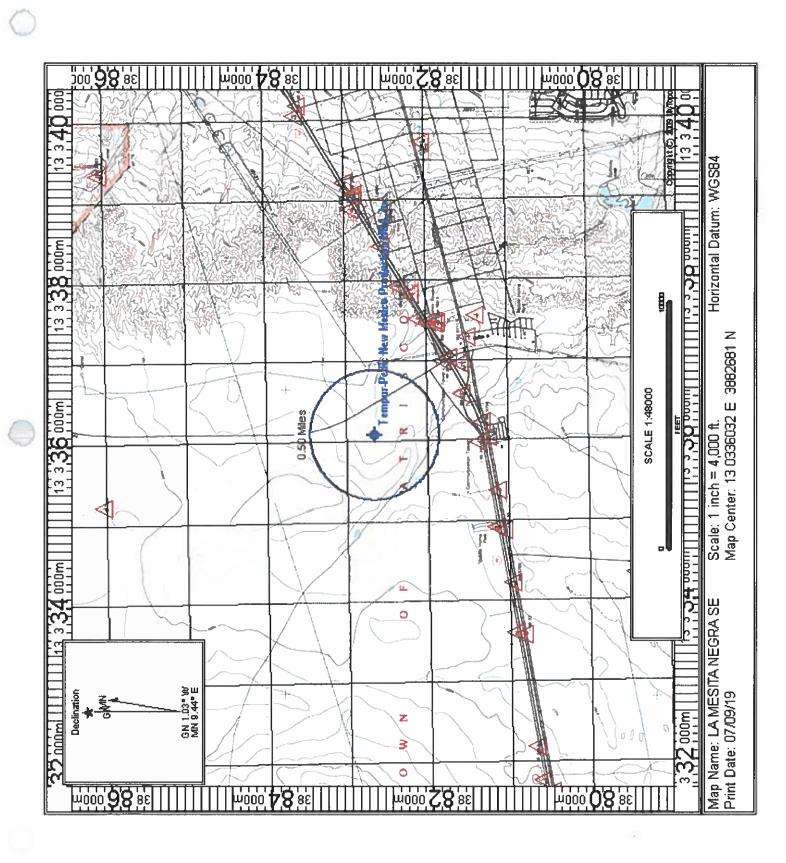
Table 7. Results of cumulative impact analysis modeling.

			Standard, µg/m³		Modeled		Calculated	Percer	ited as a nt of the idard	Background Monitor
Pollutant	Averaging Period	NAAOS	NMAAQS	Facility  µg/m³	Facility & Neighbors µg/m³	μg/m³	μg/m³	NAAQS	NMAAOS	(If Applicable)
110	Annual	99.66	94.0	1.78	1.78	30	31.78	32%	34%	South Valley
NO <sub>2</sub>	1-hr	188.03	-	40.04	40.04	82.8	122.84	65%	-	South Valley
DAA	Annual	-	-	-	-	-	-	-	•	-
PM <sub>10</sub>	24-hr	150	-	6.45	6.45	35	41.45	28%	-	South Valley

#### **Summary:**

The results of this modeling effort conclude that this facility will neither cause nor contribute to an exceedance of National Ambient Air Quality Standards (NAAQS) or New Mexico Ambient Air Quality Standards (NMAAQS)

# 8. SUPPORTING DOCUMENTATION



#### **DIESEL GENERATOR SET**





Image shown may not reflect actual package.

# STANDBY 650 ekW 813 kVA 60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

#### **FEATURES**

#### **FUEL/EMISSIONS STRATEGY**

Low Fuel consumption

#### UL 2200 / CSA - Optional

- UL 2200 listed packages
- CSA Certified Certain restrictions may apply. Consult with your Cat® Dealer.

#### **FULL RANGE OF ATTACHMENTS**

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

#### SINGLE-SOURCE SUPPLIER

Fully prototype tested with certified torsional vibration analysis available

#### **WORLDWIDE PRODUCT SUPPORT**

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat® S•O•S<sup>SM</sup> program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

#### **CAT® 3412C TA DIESEL ENGINE**

- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight

#### **CAT GENERATOR**

- Designed to match the performance and output characteristics of Cat diesel engines
- Single point access to accessory connections
- UL 1446 recognized Class H insulation

#### **CAT EMCP 4 CONTROL PANELS**

- · Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway

60 Hz 1800 rpm 480 Volts



## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	Air cleaner	
Cooling	Package mounted radiator	1. 10g 多 0. 15 15 15 16 15 16 15 15 15 15 15 15 15 15 15 15 15 15 15
Exhaust	Exhaust flange outlet	[] Exhaust mufflers (except Tier 4)
Fuel	Primary fuel filter with integral water separator     Secondary fuel filters     Fuel priming pump	
Generator	Matched to the performance and output characteristics of Cat engines     Load adjustment module provides engine relief upon load impact and improves laod acceptance and recovery time     IP23 protection	[ ] Oversize and premium generators [ ] Permanent magnet excitation (PMG) [ ] Internal excited (IE) [ ] Anti-condensation space heaters
Power Termination	Bus bar	[ ] Circuit breakers, UL listed [ ] Circuit breakers, IEC compliant
Control Panel	• EMCP 4 Genset Controller	[] EMCP 4.2 [] EMCP 4.3 [] EMCP 4.4 [] Generator temperature monitoring and protection [] Load share module [] Digital I/O module [] Remote monitoring software
Mounting		[] Rubber vibration isolators
Starting/Charging		[] Battery chargers [] Oversize batteries [] Jacket water heater [] Heavy duty starting system [] Charging alternator [] Air starting motor with control and silencer (3500 & C175 models only)
General	Paint - Caterpillar Yellow except rails and radiators gloss black	The following options are based on regional and product configuration:  [] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007  [] EU Certificate of Conformance (CE)  [] UL 2200 package  [] CSA Certification  [] EEC Declaration of Conformity  [] Enclosures- sound attenuated, weather protective  [] Automatic transfer switches (ATS)  [] Integral & sub-base fuel tanks  [] Integral & sub-base UL listed dual wall fuel tanks

60 Hz 1800 rpm 480 Volts



#### **SPECIFICATIONS**

#### **CAT GENERATOR**

Frame size	594
Excitation	Self Excitation
Pitch	0.7333
Number of poles	4
Number of bearings	Single bearing
Number of Leads	012
InsulationUL 1446 Recogn	nized Class H with
tropicalization and antiabrasion - Consult your Caterpillar dealer for ava	ilable voltages
IP Rating	Drip Proof IP22
Alignment	Pilot Shaft
Overspeed capability	
Wave form Deviation (Line to Line)	Less than 5%
deviation Voltage regulationLess than +/- Less than +/- 1% (no load to full load)	1/2% (steady state)

#### **CAT DIESEL ENGINE**

3412C TA, V-12, 4-Stroke Water	-cooled Diesel
Bore	120.60 mm (4.75 in)
Stroke	152.40 mm (6.0 in)
Displacement	10.45 L (637.7 in³)
Compression Ratio	14.5:1
Aspiration	TA
Fuel System	Pump and Lines
Governor Type	PEEC - Cat Electronic

#### **CAT EMCP 4 SERIES CONTROLS**

#### EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

#### Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF

#### Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

#### Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

#### Communications:

- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- Emergency stop pushbutton

#### Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

60 Hz 1800 rpm 480 Volts



#### **TECHNICAL DATA**

Open Generator Set 1800 rpm/60 Hz/480 Volts	DM3426			
Package Performance Genset Power rating with fan Genset Power rating @ 0.8 pf	650 ekW 812.5 kVA			
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan Cooling System' Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine coolant capacity Radiator coolant capacity	174.9 L/hr 135.6 L/hr 97.3 L/hr 0.12 kPa 1266 m³/min 15.9 L 84.0 L	46.2 Gal/hr 35.8 Gal/hr 25.7 Gal/hr 0.48 in. water 44708 cfm 4.2 gal 22.2 gal		
Engine Coolant capacity with radiator/exp. tank	99.9 L	26.4 gal		
Exhaust System  Combustion air inlet flow rate Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	49.3 m³/min 544.1 ° C 144.0 m³/min 203.2 mm 10.0 kPa	1741,0 cfm 1011.4 ° F 5085,3 cfm 8.0 in 40.2 in. water		
Heat rejection  Heat rejection to coolant (total)  Heat rejection to exhaust (total)  Heat rejection to atmosphere from engine  Heat rejection to atmosphere from generator	404 kW 651 kW 97 kW 35.7 kW	22975 Btu/min 37022 Btu/min 5516 Btu/min 2030.3 Btu/min		
Alternator <sup>2</sup> Motor starting capability @ 30% voltage dip Frame Temperature Rise	1480 skVA 594 130 ° C	234°F		
Lube System Sump refill with filter	39.0 L	10.3 gal		
Emissions <sup>3</sup> NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	8.6 g/hp-hr .64 g/hp-hr .06 g/hp-hr .086 g/hp-hr			

<sup>&</sup>lt;sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

<sup>2</sup> UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40°C ambient per NEMA MG1-32.

temperature rise is based on a 40°C ambient per NEMA MG1-32.

Temissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

60 Hz 1800 rpm 480 Volts



#### **RATING DEFINITIONS AND CONDITIONS**

**Applicable Codes and Standards:** AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 72/23/EEC, 98/37/EC, 2004/108/EC

Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions. Fuel Rates are based on fuel oil of 35° API (16° C or 60° F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29° C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

60 Hz 1800 rpm 480 Volts



#### **DIMENSIONS**

Package Dimensions					
Length 4485.0 mm 176.57 in					
Width	1798.1 mm	70.79 in			
Height	1986.7 mm	78.22 in			

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. {General Dimension Drawing #2923107}.

Performance No.: DM3426

Feature Code: 412DEAA

Gen. Arr. Number: 1492437

Source: European Sourced

February 27 2013

21357458

www.Cat-ElectricPower.com

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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

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#### Table 3.3-2. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR UNCONTROLLED DIESEL ENGINES<sup>a</sup>

#### EMISSION FACTOR RATING: E

Pollutant	Emission Factor (Fuel Input) (Ib/MMBtu)
Benzene <sup>b</sup>	9.33 E-04
Toluene <sup>b</sup>	4.09 E-04
Xylenes <sup>b</sup>	2.85 E-04
Propylene	2.58 E-03
1,3-Butadiene <sup>b,c</sup>	<3.91 E-05
Formaldehyde <sup>b</sup>	1.18 E-03
Acetaldehyde <sup>b</sup>	7.67 E-04
Acrolein <sup>b</sup>	<9.25 E-05
Polycyclic aromatic hydrocarbons (PAH)	
Naphthalene <sup>b</sup>	8.48 E-05
Acenaphthylene	<5.06 E-06
Acenaphthene	<1.42 E-06
Fluorene	2.92 E-05
Phenanthrene	2.94 E-05
Anthracene	1.87 E-06
Fluoranthene	7.61 E-06
Pyrene	4.78 E-06
Benzo(a)anthracene	1.68 E-06
Chrysene	3.53 E-07
Benzo(b)fluoranthene	<9.91 E-08
Benzo(k)fluoranthene	<1.55 E-07
Benzo(a)pyrene	<1.88 E-07
Indeno(1,2,3-cd)pyrene	<3.75 E-07
Dibenz(a,h)anthracene	<5.83 E-07
Benzo(g,h,l)perylene	<4.89 E-07
TOTAL PAH	1.68 E-04

a Based on the uncontrolled levels of 2 diesel engines from References 6-7. Source Classification Codes 2-02-001-02, 2-03-001-01. To convert from lb/MMBtu to ng/J, multiply by 430.
 b Hazardous air pollutant listed in the Clean Air Act.
 c Based on data from 1 engine.

# **VOC TEST REPORT**

FROM ONE

# CANNON VIKING SLABSTOCK FOAM PRODUCTION LINE

IN SERVICE AT

12907 COMFORT WAY NW ALBUQUERQUE, NM 87120

PREPARED FOR

# TEMPUR-PEDIC NEW MEXICO PRODUCTION USA INC.

# CITY OF ALBUQUERQUE ENVIRONMENTAL HEALTH DEPARTMENT – AIR QUALITY DIVISION PERMIT NUMBER 1729-M4

TEST DATE: APRIL 11, 2019 REPORT DATE: MAY 13, 2019

PREPARED BY

COMPLIANCE SERVICES AND TESTING

CST Project Number: 1920



P.O. Box 94191-87199 7108 Washington St. NE Suite A Albuquerque, NM 87109 (505) 681-4909 Phone www.comptesting.com May 13, 2019

Milton Rosado EHS Manager 12907 Tempur-Pedic Parkway NW Albuquerque, NM 87120

Re: Pre- and Post-Scrubber TO-15 Analysis

Mr. Rosado:

Compliance Services and Testing performed testing on the Pre-Scrubber and Post-Scrubber sides of Unit #2 utilizing sampling method TO-15 and CTM-036 while performing the annual stack test for TDI and MDI concentrations on April 11, 2019. The testing was performed to determine the VOC emissions for air quality permitting purposes. The results from those efforts are as follows:

	MDI Pre	TDI Pre
2,4 TDI	B48	1.36
2,6 TDI		3.80
4,4 MDI	< 0.250	
Total		5.16
Sample Volume	31.300	30.469
μg/ft3-std	0.285	6.064
Pre- pph	<0.002	0.0472
Post- pph	<0.002	<0.006
% Efficiency (>)	100	88.2
	TO-15 Pre	TO-15 Post
MDI (pph)	0.0029	0.0122
TDI (pph)	0.0066	0.0122

The TO-15 samples were collected over an hour-period under constant flow conditions into a 6-L Summa Canister. A stainless-steel probe was inserted into the sample port and was connected to the flow controller with a short piece of teflon tubing. The cannister, which is delivered under vacuum, is then opened and draws sample until the pressure of the tank has equalized with the atmosphere. The pre-

scrubber MDI and TDI sampling followed CTM-036, the same method used for the annual compliance testing. A personal sampling pump and flow calibrator are used to draw the sample from the stack through stainless-steel probe and teflon tubing into a 1,2-PP pre-loaded cassette that captures the MDI and TDI. Each sample period was 30-minutes in length, using similar flow rates and times as the post-scrubber testing. All samples were delivered to Enthalpy Analytical in Durham, NC for analysis. The calibration data from the sampling and complete results are contained in the report presented by Enthalpy Analytical and Compliance Services and Testing.

Respectfully,

**Chris Spencer** 

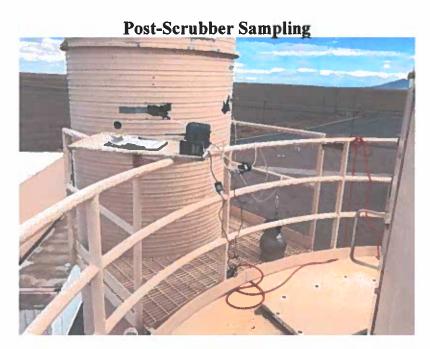
Compliance Services and Testing

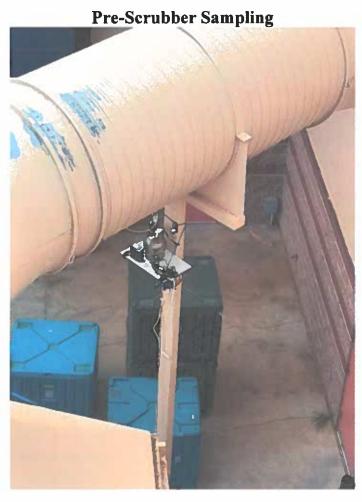
#### Summary of Results TO-15/CTM-036 Pre- and Post-Scrubber

Company: Tempur-Sealy Location: Albuquerque, NM Source: Slabstock Foam Line Technician: CS BR CF

Test Run Number	1	2	3		4	5	6	
Unit Number	2	2	2		2	2	2	
Date	4/11/19	4/11/19	4/11/19		4/11/19	4/11/19	4/11/19	
Start Time	8:30	9:03	9:35		10:52	11:34	12:06	
Stop Time	9:00	9:33	10:00		11:22	12:04	12:36	
Ambient Conditions				Average		1112		Average
Stack Altitude	5733	5733	5733	5733	5733	5733	5733	5733
Atmospheric Pressure ("Hg)	24,25	24,25	24,25	24,25	24.25	24.25	24.25	24.25
Ambient Temperature (°F)	45.1	43.0	46.6	44.9	46.8	48.7	51.3	48.9
Wet Bulb Temperature (°F)	35.8	35.4	37.0	36.1	37.2	36.3	38.1	37.2
Relative Humidity (%)	39.4	36.9	32.4	36.2	27.9	28.1	23.5	26.5
Humidity Ratio (lb/lb air)	0.0033	0.0036	0.0035	0.0034	0.0035	0.0027	0.0029	0.0030
O2 (vol %)	20.95	20,95	20.95	20.95	20.95	20.95	20.95	20.95
CO2 (vol %)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
N2 (vol %)	79.01	79.01	79.01	79.01	79.01	79.01	79.01	79.01
Stack Parameters	77,01	17,01	75.01	,,,,,,	77,01	75,01	17,01	77.01
Stack Area (in)	60	60	60	60	60	60	60	60
• •	1	ı				ı	I .	
Stack Area (ft2)	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
Stack Temperature (°F)	73,5	76.0	77.0	75.5	78.5	77.5	79.0	78,3
Moisture Content (%)	0.5359	0.5859	0.5675	0.5631	0.5749	0.4369	0.4729	0.4949
Stack Velocity (fl/min)	3,887	3,854	3,905	3882	3,901	3,746	3,754	3801
Stack Flow Rate (ft3/min-std)	60,759	59,923	60,671	60,451	60,389	58,194	58,112	58,898
Stack Flow Rate (ft3/hr-std)	3,645,521	3,595,370	3,640,273	3,627,055	3,623,360	3,491,610	3,486,706	3,533,892
TO-15 Pre-Scrubber Data	ppbv	MW	pph	Sum	ppbv	MW	pph	Sum
Carbon Disulfide				0.0029	5.27	76.14	0.0037	0.0066
Acetonitrile	7.42	41.05	0.0029		7.65	41.05	0.0029	
TO-15 Post-Scrubber Data	ppbv	MW	pph	Sum	ppbv	MW	pph	Sum
Propylene	5.36	42.08	0.0021	0.0122	5.65	42.08	0.0022	0.0122
Isopropyl	12.4	60,10	0,0070	_	12.9	60.10	0,0071	_
Acetonitrile	7.85	41.05	0.0030		7.59	41.05	0.0029	
MDI Pre-Scrubber Emissions Data	μg	L@ 30min	std ft3-dry	Sum				
2,4-MDI (μg)	0.000			-				
•4,4-MDI (μg)	<0.250			_				
Total MDI (μg)	< 0.250			_				
Sample Volume (L @ 30 min)		31.300	0.8782	-	•			
MDI Concentration (µg/ft3-std)				<0.285				
MDI (lbs/hr)	_		_	< 0.002				
Scrubber Efficiency (%)				100				
TDI Pre-Scrubber Emissions Data		V			μg	L @ 30min	std ft3-dry	Sum
2,6-TDI (μg)					1,36			_
2,4-TDI (µg)					3.80			_
Total TDI (µg)	-				5.16			-
Sample Volume (L @ 30 min)						30,469	0.8510	-
TDI Concentration (µg/ft3-std)								6.064
TDI (lbs/hr)			-				-	0.047
Scrubber Efficiency (%)								88.2
CTM-036 Sampling Data								
Flow Rate (L/min)	0.9639	1.0743	1.0733	1.0372	1,0529	0.9829	0.8857	0.9738
Sample Time (min)	30	30	25	28.3	30	30	30	30
Sample Volume (L)	28.92	32,23	26.83	29,33	31,59	29,49	26,57	29.21
Sample Volume (std ft3-dry)	0,8146	0.9032	0,7508	0.8229	0.8812	0,8253	0,7414	0.8159
MDI Post-Scrubber Emissions Data	<del></del>							
2,4-MDI (µg)	0.000	0.000	0,000	0,000	-17			
*4,4-MDI (μg)	< 0.25	< 0.25	< 0.25	< 0.25	***			
Total MDI (ug)	< 0.250	< 0.250	< 0.250	< 0.250				
	0.307	0.277	0.333	0.306				***
			< 0.003	< 0.002				
MDI Concentration (µg/ft3-std)		< 0.002			\$2.533			
	< 0.002			< 0.011				***
MDI Concentration (µg/ft3-std)  MDI (lbs/hr) {Permit Limit = 0.04}  MDI (tpy) {Permit Limit = 0.18}		< 0.002 < 0.010	< 0.012	< 0.011				***
MDI Concentration (µg/ft3-std) MDI (lbs/hr) [Permit Limit = 0.04] MDI (tpy) [Permit Limit = 0.18] TDI Post-Scrubber Emissions Data	< 0.002 < 0.011	< 0.010	< 0.012					
MDI Concentration (µg/ft3-std) MDI (ibs/hr) [Permit Limit = 0.04] MDI (tpy) [Permit Limit = 0.18] TDI Post-Scrubber Emissions Data *2,6-TDI (µg)	< 0.002 < 0.011	< 0.010	< 0.012	***	< 0.29	< 0.29	< 0.29	< 0.29
MDI Concentration (µg/ft3-std)  MDI (ibs/hr) [Permit Limit = 0.04]  MDI (py) [Permit Limit = 0.18]  TDI Post-Scrubber Emissions Data  *2,6-TDI (µg)  *2,4-TDI (µg)	< 0.002 < 0.011	< 0.010	< 0.012  	***	< 0.29 < 0.292	< 0.29 < 0.292	< 0.29 < 0.292	< 0.29 < 0.292
MDI Concentration (µg/ft3-std)  MDI (ibs/hr) [Permit Limit = 0.04]  MDI (py) [Permit Limit = 0.18]  TDI Post-Scrubber Emissions Data  *2,6-TDI (µg)  *2,4-TDI (µg)  Total TDI (µg)	< 0.002 < 0.011	< 0.010  	< 0.012	***	< 0.29 < 0.292 < 0.582			
MDI Concentration (μg/ft3-std)  MDI (lbs/hr) {Permit Limit = 0.04}  MDI (tpy) {Permit Limit = 0.18}  TDI Post-Scrubber Emissions Data *2,6-TDI (μg) *2,4-TDI (μg)  TOtal TDI (μg)  TDI Concentration (μg/ft3-std)	< 0.002 < 0.011	  	< 0.012		< 0.29 < 0.292 < 0.582 0.660	< 0.29 < 0.292 < 0.582 0.705	< 0.29 < 0.292 < 0.582 0.785	< 0.29 < 0.292 < 0.582 0.717
MDI Concentration (µg/ft3-std) MDI (lbs/hr) (Permit Limit = 0.04) MDI (tpy) (Permit Limit = 0.18) TDI Post-Scrubber Emissions Data *2,6-TDI (µg) *2,4-TDI (µg) Total TDI (µg)	< 0.002 < 0.011	< 0.010  	< 0.012  	***	< 0.29 < 0.292 < 0.582			

<sup>\*</sup> Value is below minimum detection limit. MDL < reported
Comparison to Modeled or Measured Parameters not Available
Exhaust Flow Parameters and Results Listed in Section IV.A.2 & 3



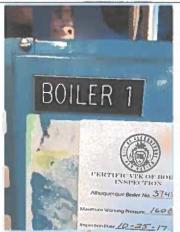


Emission Souce: 4A. Natural Gas-Fired Boiler

Manufacturer: UNILUX

Model No: ZF1000W

Serial Number: 1048



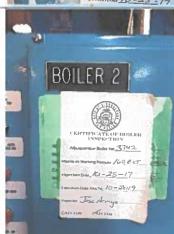


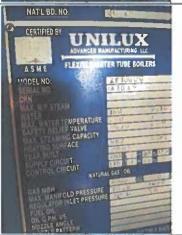
Emission Souce: 4B. Natural Gas-Fired Boiler

Manufacturer: UNILUX

Model No: ZF1000W

Serial Number: 1049



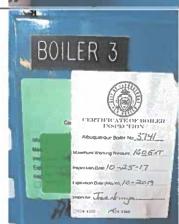


Emission Souce: 4C. Natural Gas-Fired Boiler

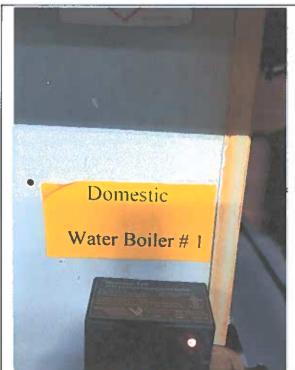
Manufacturer: UNILUX

Model No: ZF1000W

Serial Number: 1047



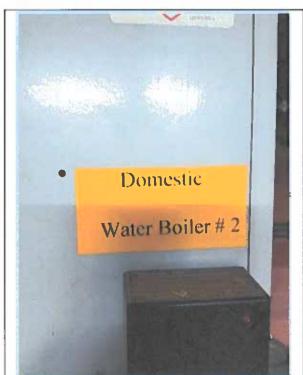








Emission Source: Domestic Water Boiler #1 LOCHINAV CORPORATION Model No. CWN500PM Serial Number C05H00175131 Input Rating 500,000 Btu/hr







Emission Source: Domestic Water Boiler #2 LOCHINAV CORPORATION Model No. CWN500PM Serial Number C05H00175132 Input Rating 500,000 Btu/hr

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NOx,) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION\*

Constructor T. max	Z	NOxb	00	
Compusion 1ype (MMBtu/hr Heat Input) [SCC]	Emission Factor (lb/10° scf)	Emission Factor Rating	Emission Factor (1b/10° scf)	Emission Factor Rating
Large Wall-Fired Boilers				
[1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)	280	¥	84	В
Uncontrolled (Post-NSPS) <sup>c</sup>	190	¥	84	В
Controlled - Low NO <sub>x</sub> burners	140	¥	84	В
Controlled - Flue gas recirculation	100	Ω	84	Ø
Small Boilers (<100)				
[1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	В
Controlled - Low NO <sub>x</sub> burners	50	D	84	В
Controlled - Low NOx burners/Flue gas recirculation	32	O	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	¥	24	C
Controlled - Flue gas recirculation	92	D	86	Q
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	В	40	В

Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from 1b/10 6 scf to kg/106 m³, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from 1b/10 6 scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable. Expressed as NO<sub>2</sub>. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO x emission factor. NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after June 19, 1984.

Table 11.19.2-3 (Metric Units). EMISSION FACTORS FOR PULVERIZED MINERAL PROCESSING OPERATIONS <sup>a</sup>

Source b	Total	EMISSION	Total	EMISSION	Total	EMISSION
	Particulate	FACTOR	PM-10	FACTOR	PM-2.5	FACTOR
	Matter	RATING		RATING		RATING
Grinding (Dry) with Fabric Filter Control (SCC 3-05-038-11)	0.0202	D	0.0169	В	0.0060	В
Classifiers (Dry) with Fabric Filter Control (SCC 3-05-038-12)	0.0112	Е	0.0052	E	0.0020	E
Flash Drying with Fabric Filter Control (SCC 3-05-038-35)	0.0134	С	0.0073	С	0.0042	С
Product Storage with Fabric Filter Control (SCC 3-05-38-13)	0.0055	E	0.0008	E	0.0003	E

a. Emission factors represent controlled emissions unless noted. Emission factors are in kg/Mg of material throughput.

Table 11.19.2-4 (English Units). EMISSION FACTORS FOR PULVERIZED MINERAL PROCESSING OPERATIONS  $^{\alpha}$ 

Source b	Total	EMISSION	Total	EMISSION	Total	EMISSION
	Particulate	FACTOR	PM-10	FACTOR	PM-2.5	FACTOR
	Matter	RATING		RATING		RATING
Grinding (Dry) with Fabric Filter	0.0404	D	0.0339	В	0.0121	В
Control (SCC 3-05-038-11)		=:	:			
Classifiers (Dry) with Fabric Filter Control (SCC 3-05-038-12)	0.0225	E	0.0104	Е	0.0041	Е
Flash Drying with Fabric Filter Control (SCC 3-05-038-35)	0.0268	С	0.0146	С	0.0083	С
Product Storage with Fabric Filter Control (SCC 3-05-038-13)	0.0099	E	0.0016	E	0.0006	Е

a. Emission factors represent controlled emissions unless noted. Emission factors are in lb/Ton of material throughput.

b. Date from references 16 through 23

b. Data from references 16 through 23



SUSANA MARTINEZ Governor JOHN A. SANCHEZ Lieutenant Governor

### **NEW MEXICO** ENVIRONMENT DEPARTMENT

#### Air Quality Bureau

525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone (505) 476-4300 Fax (505) 476-4375 www.env.nm.gov



RYAN FLYNN Cabinet Secretary-Designate **BUTCH TONGATE Deputy Secretary** 

#### TECHNICAL MEMORANDUM

DATE:

September 9, 2013

TO:

All Permitting Staff

FROM:

Daren Zigich

THROUGH: Ted Schooley, Permit Program Manager

Ned Jerabek, Major Source Section Manager

**SUBJECT:** 

Calculating TSP, PM-10 and PM-2.5 from Cooling Towers

The goal of this memo is to offer a Department approved step-by-step approach for calculating particulate emissions from cooling towers. While the Department encourages using this approach, other approaches, that do not use a droplet settling ratio may be approved on a case-bycase basis.

Due to the variability of methods used by permittees to estimate particulate emissions from cooling towers, a consistent, defensible approach is warranted. For example, some permittees have used a droplet settling ratio from Reference 3 to lower the total potential emissions rate of total particulate matter (PM<sub>total</sub>). This is unacceptable due to the following:

- 1. Particulate settling is not appropriate since any verification testing would be completed inside the cooling tower fan stack. All particulate mass that can be measured by an EPA reference method and are emitted to the atmosphere shall be counted as particulate emissions. Particle size distribution can then be used to modify the emission rate of each regulated particulate size.
- 2. The Department is not aware of information that verifies the droplet settling data is representative for arid climates where evaporation rates are high.
- 3. The droplet size distribution and % mass data from Reference 1 only consider droplets up to 600 microns. Reference 3 states that settling only exists for droplets greater than 450 microns. Reference 1 lists the % mass of droplets greater than 450 microns to be less than 1 percent of the total mass.

- 4. Reference 2 test data shows that towers with significant drift droplet diameters greater than 600 microns usually suffer from poor installation of the drift eliminator or from poor water distribution due to issues with the tower packing. Large droplets may indicate that the assumed or guaranteed drift eliminator efficiency is not being met. Providing emissions credit for poor installation, operation or maintenance runs counter to general Department practice.
- 5. References 1 and 2 make no reference to and assign no credit for the settling theory stated in Reference 3.

For the above reasons, the Reference 3 settling ratio is not an acceptable emissions reduction approach.

#### Acceptable Calculation Method

Cooling tower particulate emissions are a function of the Drift rate and the concentration of dissolved solids present in the water. The Drift rate is normally listed as a percentage of the circulating water flow rate of the cooling tower.

Step 1 – Establish maximum water circulation rate ( $Q_{\rm circ}$ ) for the cooling tower. This is usually dependent on the capacity of the circulation pumps and the plant cooling system and should be reported as gallons per minute (gpm). The circulation rate is the sum of the circulation rates for each cell in the tower and thus represents the total flow for the tower.

Step 2 – Establish Drift rate ( $Q_{drift}$ ) of the cooling tower. This information is dependent on the drift eliminator design and is usually supplied by the tower manufacturer. If manufacturer data is unavailable, the standard drift of 0.02 percent, listed in AP-42, should be used.

Step 3 – Establish maximum Total Dissolved Solids concentration (TDS) in the circulating cooling water. This is dependent on the facility's operations. TDS should be reported as parts per million (ppm) or mg/l.

Step 4 – Calculate total potential hourly particulate emissions (PM<sub>total</sub>) in pounds per hour (lbs/hr).

$$PM_{total} = TDS(mg/l) \times \frac{1(lbs/mg)}{453,600} \times 3.785(l/gal) \times Q_{circ}(gpm) \times Q_{drift}(\%Q_{circ}) \times 60(min/hr)$$

**Example:** TDS = 3000 ppm or mg/l, 
$$Q_{circ} = 50,000$$
 gpm,  $Q_{drift} = 0.004\%$ 

$$PM_{total} = 3000 \text{ x} (1/453,600) \text{ x} 3.785 \text{ x} 50,000 \text{ x} (0.004/100) \text{ x} 60$$

$$PM_{total} = 3.0 lbs/hr$$

Step 5 – Estimate particulate size distribution of the  $PM_{total}$  to determine potential emissions of TSP/PM,  $PM_{10}$  and  $PM_{2.5}$ .

The current estimating technique used in References 1 and 2 employs a formula for determining a potential particulate size (i.e. diameter) for a given set of variables. The variables are:

 $d_d$  = Drift droplet diameter, microns  $C_{TDS}$  = Concentration of TDS in the circulating water, ppm x  $10^{-6}$   $\rho_w$  = Density of Drift droplet,  $g/cm^3$   $\rho_{salt}$  = Density of particle,  $g/cm^3$ 

The equation for determining particle size/diameter (d<sub>p</sub>), in microns is:

$$d_{p} = \underline{\underline{d_{d}}}_{(\rho_{salt} / \rho_{w}C_{TDS})^{1/3}}$$

The tables below list particle size related to droplet size for various concentrations (1000 ppm to 12,000 ppm) of TDS in the circulating cooling water. The density of the water droplet (ρ<sub>w</sub>) is assumed to be 1.0 g/cm3 (based on density of pure water) and the average density of the TDS salts is assumed to be 2.5 g/cm3. This assumed density is selected based on the average density of common TDS constituents, CaCO<sub>3</sub>, CaSO<sub>4</sub>, CaCl<sub>2</sub> NaCl, Na<sub>2</sub>SO<sub>4</sub>, and Na<sub>2</sub>CO<sub>3</sub>. If actual circulating water constituents are available, that data may be used to estimate the dissolved solids average density.

To determine the droplet size that generates particulate matter of the applicable regulated diameters, TSP/PM (defined as 30 microns or less per NM AQB definition<sup>1</sup>), PM10 and PM2.5, find the column in the table that matches the maximum circulating water TDS concentration and read the values associated with the PM2.5, PM10 and TSP/PM boxes. Boxed values are not exactly equal to the applicable sizes, but are the values greater than and closest to the applicable sizes, given the listed water droplet values from Reference 1.

The far right column of each table provides mass distribution data from Reference 1. The values indicate what percent of the total particulate mass emission, calculated in Step 4, is associated with the applicable particulate size. Read the value that is on the same line (same color) as the applicable particulate size associated with the specified TDS concentration column.

Note: Although the relationship between droplet size and percent mass is not linear, a linear interpolation of the tabulated data is acceptable between two adjacent rows (particle size) to determine an estimate of percent mass for a specific particle size (i.e. PM30, PM10 and PM2.5). Particle sizes for droplets with a non-listed TDS ppm concentration may be calculated using the equation in Step 5.

Example: Continuing from Step 4,

 $PM_{total} = 3.0 lbs/hr$  $C_{TDS} = 3000 ppm$ 

From Table:

 $\begin{array}{lll} PM_{2.5} \colon & d_d = 30 & \text{\%Mass} = 0.226\% \\ PM_{10} \colon & d_d = 110 & \text{\%Mass} = 70.509\% \\ TSP/PM \colon & d_d = 270 & \text{\%Mass} = 96.288\% \end{array}$ 

The mass emission of each applicable particulate size is:

 $PM_{2.5} = PM_{total}(\%Mass/100) = 3.0(0.00226) = 0.007 lbs/hr$   $PM_{10} = 3.0(.70509) = 2.115 lbs/hr$ TSP/PM = 3.0(.96288) = 2.889 lbs/hr

<sup>&</sup>lt;sup>1</sup>Definition of TSP for purposes of permitting emission sources, 11/2/09, see P:\AQB-Permits-Section\NSR-TV-Common\Permitting-Guidance-Documents – Index & Links document

Size Distrib	ution					
1000 p	pm (TDS)	200	0 ppm	300	0 ppm	% Mass
d₄	d <sub>p</sub>	$d_d$	$d_p$	$d_d$	d <sub>p</sub>	<u>&lt;</u>
10	0.7387304	10	0.930527	10	1.0650435	0
20	1.4774608	20	1.8610539	20	2.130087 PM2.5	0.196
30	2.2161912	30	2.7915809 PM2.5	30	3.1951306 PM2.5	0.226
40	2.9549216 PM2.5	40	3.7221079	40	4.2601741	0.514
50	3.693652	50	4.6526349	50	5.3252176	1.816
60	4.4323825	60	5.5831618	60	6.3902611	5.702
70	5.1711129	70	6.5136888	70	7.4553046	21.348
90	6.6485737	90	8.3747427	90	9.5853917	49.812
110	8.1260345	110	10.235797 PM10	110	11.715479 PM10	70.509
130	9.6034953	130	12.096851	130	13.845566	82.023
150	11.080956 PM10	150	13.957905	150	15.975653	88.012
180	13.297147	180	16.749485	180	19.170783	91.032
210	15.513339	210	19.541066	210	22.365914	92.468
240	17.72953	240	22.332647	240	25.561045	94.091
270	19.945721	270	25.124228	270	28.756175	94.689
300	22.161912	300	27.915809	300	31.951306 TSP/PM30	96.288
350	25.855564	350	32.568444 TSP/PM30	350	37.276523	97.011
400	29.549216	400	37.221079	400	42.601741	98.34
450	33.242868 TSP/PM30	450	41.873714	450	47.926958	99.071
500	36.93652	500	46.526349	500	53.252176	99.071
600	44.323825	600	55.831618	600	63.902611	100

Size Distribut	tion								
4000 pp	m (TDS)		5000	ppm		6000	ppm		% Mass
$d_d$	$d_{p}$		$d_d$	d <sub>p</sub>		$d_d$	$d_{p}$		≤
10	1.1721197		10	1.2625337		10	1.3415607		0
20	2.3442393		20	2.5250675	PM2.5	20	2.6831215	PM2.5	0.196
30	3.516359	PM2.5	30	3.7876012		30	4.0246822	· ·	0.226
40	4.6884787		40	5.0501349		40	5.366243	'	0.514
50	5.8605984		50	6.3126686		50	6.7078037		1.816
60	7.032718		60	7.5752024		60	8.0493645		5.702
70	8.2048377		70	8.8377361		70	9.3909252		21.348
90	10.549077	PM10	90	11.362804	PM10	90	12.074047	PM10	49.812
110	12.893316		110	13.887871		110	14.757168		70.509
130	15.237556		130	16.412938		130	17.44029		82.023
150	17.581795		150	18.938006		150	20.123411		88.012
180	21.098154		180	22.725607		180	24.148093		91.032
210	24.614513		210	26.513208		210	28.172776		92.468
240	28.130872		240	30.300809	TSP/PM30	240	32.197458	TSP/PM30	94.091
270	31.647231	TSP/PM30	270	34.088411		270	36.22214		94.689
300	35.16359		300	37.876012		300	40.246822		96.288
350	41.024188		350	44.18868		350	46.954626		97.011
400	46.884787		400	50.501349		400	53.66243		98.34
450	52.745385		450	56.814018		450	60.370234		99.071
500	58.605984		500	63.126686		500	67.078037		99.071
600	70.32718		600	75.752024		600	80.493645		100

Size Distribut	tion								
7000 pp	m (TDS)		8000	ppm		9000	ppm		% Mass
d <sub>d</sub>	$d_p$		$d_d$	$d_p$		d₀	$d_p$		≤
10	1.4122241		10	1.4764371		10	1.5354962		0
20	2.8244482	PM2.5	20	2.9528742	PM2.5	20	3.0709923	PM2.5	0.196
30	4.2366724		30	4.4293112		30	4.6064885	÷	0.226
40	5.6488965		40	5.9057483		40	6.1419846		0.514
50	7.0611206		50	7.3821854		50	7.6774808		1.816
60	8.4733447		60	8.8586225		60	9.2129769		5.702
70	9.8855688		70	10.33506	PM10	70	10.748473	PM10	21.348
90	12.710017	PM10	90	13.287934		90	13.819465		49.812
110	15.534465		110	16.240808		110	16.890458		70.509
130	18.358914		130	19.193682		130	19.96145		82.023
150	21.183362		150	22.146556		150	23.032442		88.012
180	25.420034		180	26.575867		180	27.638931		91.032
210	29.656707		210	31.005179	rsp/pm30	210	32.245419	TSP/PM30	92.468
240	33.893379	TSP/PM30	240	35.43449		240	36.851908		94.091
270	38.130051		270	39.863801		270	41.458396		94.689
300	42.366724		300	44.293112		300	46.064885		96.288
350	49.427844		350	51.675298		350	53.742365		97.011
400	56.488965		400	59.057483		400	61.419846		98.34
450	63.550085		450	66.439668		450	69.097327		99.071
500	70.611206		500	73.821854		500	76.774808		99.071
600	84.733447		600	88.586225		600	92.129769		100

Size Distribu	tion					
10,000 p	pm (TDS)	11,000	) ppm	12,000	) ppm	% Mass
$d_d$	$d_p$	$d_d$	d <sub>p</sub>	$d_d$	d <sub>p</sub>	≤
10	1.5903253	10	1.6416091	10	1.6898701	0
20	3.1806507 PM2.5	20	3.2832181 PM2.5	20	3.3797403 PM2.5	0.196
30	4.770976	30	4.9248272	30	5.0696104	0.226
40	6.3613013	40	6.5664363	40	6.7594806	0.514
50	7.9516267	50	8.2080453	50	8.4493507	1.816
60	9.541952	60	9.8496544	60	10.139221 PM10	5.702
70	11.132277 PM10	70	11.491263 PM10	70	11.829091	21.348
90	14.312928	90	14.774482	90	15.208831	49.812
110	17.493579	110	18.0577	110	18.588572	70.509
130	20.674229	130	21.340918	130	21.968312	82.023
150	23.85488	150	24.624136	150	25.348052	88.012
180	28.625856	180	29.548963	180	30.417663 TSP/PM30	91.032
210	33.396832 TSP/PM30	210	34.47379 TSP/PM30	210	35.487273	92.468
240	38.167808	240	39.398618	240	40.556883	94.091
270	42.938784	270	44.323445	270	45.626494	94.689
300	47.70976	300	49.248272	300	50.696104	96.288
350	55.661387	350	57.456317	350	59.145455	97.011
400	63.613013	400	65.664363	400	67.594806	98.34
450	71.56464	450	73.872408	450	76.044156	99.071
500	79.516267	500	82.080453	500	84.493507	99.071
600	95.41952	600	98.496544	600	101.39221	100

#### References

- 1. <u>Calculating Realistic PM10 Emissions from Cooling Towers</u>, Abstract No. 216 Session No. AS-1b, J. Reisman and G. Frisbie, Greyston Environmental Consultants, Inc.
- Cooling Tower Particulate Matter and Drift Rate Emissions Testing Using the Cooling Technology Institute Test Code – CTI ATC-140, August 2003 EPRI Cooling Tower Technology Conference, K. Hennnon, P.E., D. Wheeler, P.E., Power Generation Technology.
- 3. Effects of Pathogenic and Toxic Materials Transported Via Cooling Device Drift, Vol. 1 Technical Report, EPA-600/7-79-251a, H.D. Freudenthal, J.E. Rubinstein, and A. Uzzo, November 1979.

#### 13.2.1.3 Predictive Emission Factor Equations<sup>10</sup>

The quantity of particulate emissions from vehicle traffic on a dry paved road may be estimated using the following empirical expression:

$$E=k (sL/2)^{0.65} (W/3)^{1.5}$$
 (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<sup>2</sup>)

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.

Size range <sup>a</sup>	Р	Particle Size Multiplier k <sup>b</sup>					
	g/VKT	g/VMT	lb/VMT				
PM-2.5°	1.1	1.8	0.0040				
PM-10	4.6	7.3	0.016				
PM-15	5.5	9.0	0.020				
PM-30d	24	38	0.082				

Table 13.2-1.1. PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

- <sup>a</sup> 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 Ratio of PM-2.5 to PM-10 taken from Reference 22.
- <sup>d</sup> PM-30 is sometimes termed "suspendable particulate" (SP) and is often used as a surrogate for TSP.

The above equation is based on a regression analysis of numerous emission tests, including 65 tests for PM-10.<sup>10</sup> Sources tested include public paved roads, as well as controlled and uncontrolled industrial paved roads. All sources tested were of freely flowing vehicles traveling at constant speed on relatively level roads. No tests of "stop-and-go" traffic or vehicles under load were available for inclusion in the data base. The equations retain the quality rating of A (B for PM-2.5), if applied within the range of source conditions that were tested in developing the equation as follows:

Since the time that the background document was prepared, new field sampling programs have shown that the assembled silt loading data set is biased high for "normal" situations.<sup>24</sup> Just as importantly, however, the newer programs confirm that substantially higher than "normal" silt loadings can occur on public paved roads. As a result, two sets of default values are provided in Table 13.2.1-2, one for "normal" conditions and another for worst-case conditions (such as after winter storm seasons or in areas with substantial mud/dirt trackout). The "normal" silt loading data base is available in the file "r13s03-1a.zip" located at the Internet URL

"http://www.epa.gov/ttn/chief/ap42/ch13/related/c13s02-1.html" on the World Wide Web.

Table 13.2.1-2 (Metric Units). RECOMMENDED DEFAULT SILT LOADING (g/m²) VALUES FOR PUBLIC PAVED ROADS<sup>a</sup>

	High ADT roads <sup>b</sup>	Low ADT roads
Normal conditions	0.1	0.4
Worst-case conditions <sup>c</sup>	0.5	3

- Excluding limited access roads. See discussion in text. 1 g/m² is equal to 1.43 grains/ft²
- High ADT refers to roads with at least 5,000 vehicles per day.
- <sup>c</sup> For conditions such as post-winter-storm or areas with substantial mud/dirt carryout.

The range of silt loading values in the data base for normal conditions is 0.01 to 1.0 for high-ADT roads and 0.054 to 6.8 for low-ADT roads. Consequently 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 upon: traffic characteristics (speed, ADT, and fraction of heavy vehicles); road characteristics (curbs, number of lanes, parking lanes); local land use (agriculture, new residential construction) and regional/seasonal factors (snow/ice controls, wind blown dust). As a result, the collection and use of site-specific silt loading data is highly recommended. In the event that default silt loading values are used, the quality ratings for the equation should be downgraded 2 levels.

Limited access roadways pose severe logistical difficulties in terms of surface sampling, and few silt loading data are available for such roads. Nevertheless, the available data do not suggest great variation in silt loading for limited access roadways from one part of the country to another. For annual conditions, a default value of  $0.015 \text{ g/m}^2$  is recommended for limited access roadways. <sup>9,22</sup> Even fewer of the available data correspond to worst-case situations, and elevated loadings are observed to be quickly depleted because of high traffic speeds and high ADT rates. A default value of  $0.2 \text{ g/m}^2$  is recommended for short periods of time following application of snow/ice controls to limited access roads. <sup>22</sup>

The limited data on silt loading values for industrial roads have shown as much variability as public roads. Because of the variations of traffic conditions and the use of preventive mitigative controls, the data probably do not reflect the full extent of the potential variation in silt loading on industrial roads. However, the collection of site specific silt loading data from industrial roads is easier and safer than for public roads. Therefore, the collection and use of site-specific silt loading data is preferred and is highly recommended. In the event that site-specific values cannot be obtained, an appropriate value for an industrial road may be selected from the mean values given in Table 13.2.1-3, but the quality rating of the equation should be reduced by 2 levels.

# TEMPUR + SEALY

#### **Additional Supporting Information:**

#### Requested:

Operational and maintenance strategy detailing the steps the applicant will take if a malfunction occurs that may cause emission of a regulated air contaminant to exceed a limit that is included in the permit pursuant to 20.11.41.13.E(5)(a)-(c) NMAC.

#### Answer:

If a malfunction occurs at an emission unit or associated emission control, the equipment is taken out of service immediately. If emission took place above emission permit limits, the Albuquerque Environmental Health Department will be contacted. Below is additional information on specific units:

#### Unit 1: Diesel-Fired Generator

This unit is inspected and receives preventive maintenance on a semi-annual basis by Wagner. This unit only provides partial backup power to our facility.

#### Unit 2: Slabstock Foam Production Line

The operation of the this unit involves the use of a startup checklist that calls for turning on the emission control. Once the unit is on, then the foam production line will be turned on. The emission control is inspected daily per current permit condition: 3. Record keeping d).

#### Unit 4A, 4B, 4C: Natural Gas Boilers

The boilers are used to provide comfort during the winter period. These units are inspected by our internal mechanics, and if there is a malfunction in one of the units, that unit will be shut down. One unit is sufficient to cover our plant demand; therefore, up to two units can be taken out of service to be repaired.

#### Unit 6: Calcium-Carbonate Silo Truck Loading

As a standard procedure, the filter is turned on 30 minutes before the calcium carbonate truck arrives. If there is a malfunction with the system it will be identified before the trucks connect to the silo. In this case, the loading operation will be canceled until the filter is working correctly. Note: the loading operation is monitored by our main hazardous material technician and by the truck driver.

#### Unit 7A and 7B: Cooling Towers East/West Units

In case of a malfunction on one of the units, it will be taken out of service since the remaining unit is sufficient to cover the plant demand. If both units are operating incorrectly they will be taken out of service and repairs will be scheduled. These units are inspected at least twice per day by trained mechanics and connected to the building's intelligence system.

#### **Unit 8: Haul Roads:**

The security guards notify truck drivers of the speed limits at the facility.

**Requested**: Aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation or technical revision pursuant to 20.11.41.13.E(7) NMAC

#### Answer:

Refer to the attached Plot Plan.

**Requested:** Process flow diagram depicting the process equipment unit or units at the facility, both existing and proposed pursuant to 20.11.41.13.E(8) NMAC;

#### Answer:

Refer to the attached Process Flow Diagram.

**Requested:** Site layout of the emission units and the air pollution control equipment pursuant to 20.11.41.13.E (9) NMAC;

#### Answer:

Please refer to the Unit Detail document that identifies each emission source and its control. Only Unit 2 and Unit 6 have emission controls and their locations, with respect to the site, can be seen on the Plot Plan. Unit 8: Haul Roads were excluded from this document, but they are shown in the plot plan.

**Requested:** Provide documentary proof of posting and maintaining a weather-proof sign at a visible location pursuant to 20.11.41.15 NMAC and as required by 20.11.41.13.B(2) NMAC.

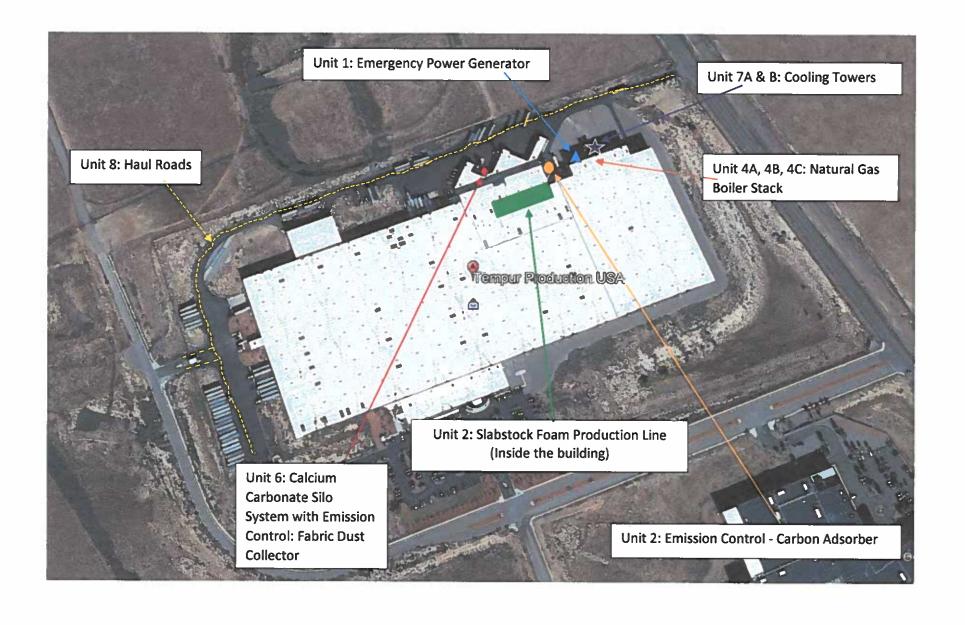
Answer:

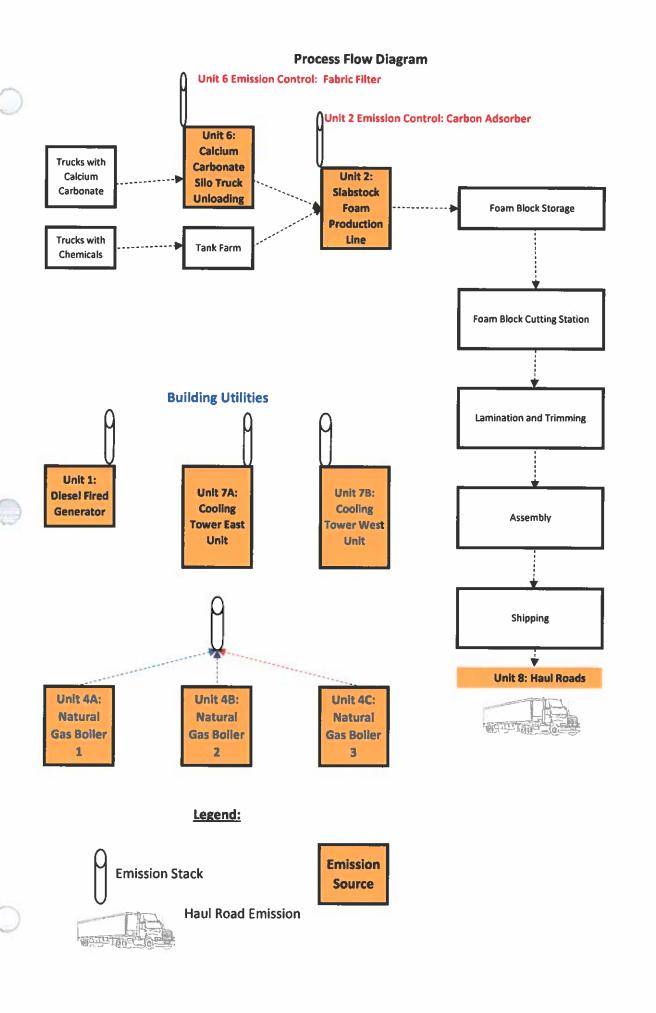


Sign facing Atrisco Road



Sign facing Comfort Way Road

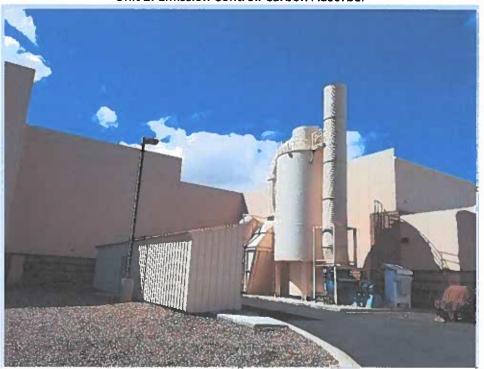




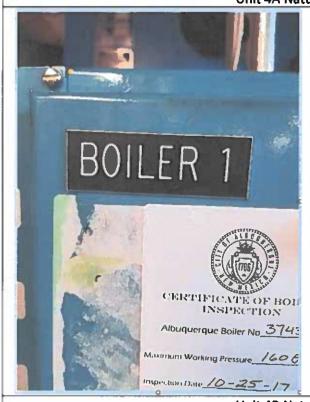
## **Unit Details**



Unit 2: Emission Control: Carbon Adsorber

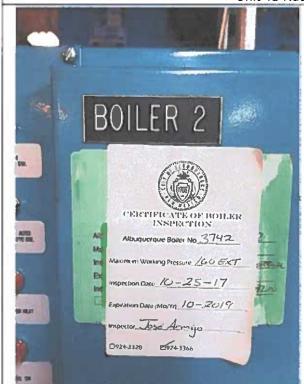


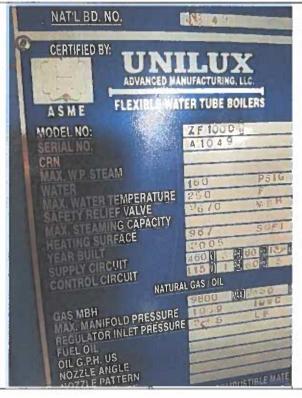
#### **Unit 4A Natural Gas Boiler**



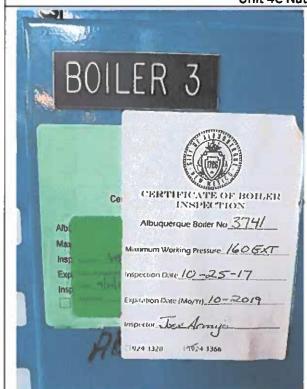


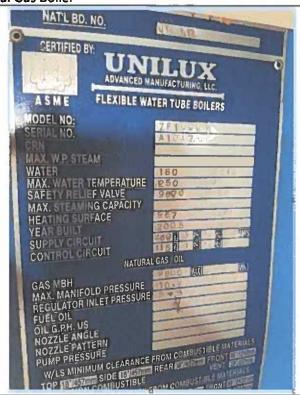
#### **Unit 4B Natural Gas Boiler**











**Unit 6: Calcium Carbonate Silo Truck Loading** 





Emission Control: Fabric Filter

