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B. BRAUN US PHARMACEUTICAL MANUFACTURING LLC

BEFORE THE HEARING BOARD OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

In the Matter of B. BRAUN US PHARMACEUTICAL MANUFACTURING LLC, Petitioner, v. SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, Respondent.	CASE NO. 4780-5 FACILITY ID NO. 117290 **DECLARATION OF MICHAEL DAVIDEK IN SUPPORT OF B. BRAUN US PHARMACEUTICAL MANUFACTURING LLC'S PETITION FOR MODIFICATION / EXTENSION OF A FINAL COMPLIANCE DATE** **Date:** October 24, 2024 **Time:** 9:30 AM **Location:** 21865 Copley Drive Diamond Bar, CA 91765

I, Michael Davidek, declare:

1. This declaration is made, pursuant to Rule 4 of the SCAQMD Hearing Board Rules and Procedures, in support of B. Braun US Pharmaceutical Manufacturing LLC's ("Pharma" or the "Company") Petition for Modification of an Existing Variance (the "Modification Petition") before the South Coast Air Quality Management District ("SCAQMD" or the "District") Hearing Board in Case No. 4870-5.

2. Upon information and belief, Pharma is the successor in interest to B. Braun Medical Inc. ("BMI"), who owned and operated the manufacturing facility located at 2525 McGaw Avenue in Irvine, California (the "Irvine Facility") until May 2024. Pharma is responsible for ongoing compliance with the regular variance granted by the Hearing Board to BMI on December 19, 2023 (the "Variance").

3. I am a Senior Engineer with Yorke Engineering, LLC ("Yorke"), a position I have held since December 2019. My employment history, credentials, and details of my role in assisting with ongoing SCAQMD compliance work at the Irvine Facility are detailed in my December 6, 2023, declaration filed as Petitioner's Exhibit No. 8 in support of BMI's Petition for a Regular Variance (the "Variance Petition").

4. As detailed in my December 6 declaration, I have been part of the Yorke team supporting the Irvine Facility since 2018. In that capacity, among other things, I have assisted BMI, and now Pharma, with efforts to replace the existing cogeneration turbines (the "Cogens" or "Turbines") at the Irvine Facility with new Bloom Energy solid oxide fuel cell systems ("Fuel Cells").

5. In connection with that effort, I prepared, with support from my colleagues at Yorke, the excess nitrogen oxide ("NOx") emissions analysis that accompanied BMI's Variance Petition. I also prepared the excess NOx emissions calculations that accompanied the first quarterly progress report to SCAQMD, as required by Variance Condition No. 6 (the "Quarterly Report"), and the estimated excess NOx emissions analysis that accompanies the Modification Petition.

Excess Emissions Analysis

6. Yorke was asked to prepare an excess emissions analysis for the Cogens, based on actual NOx emissions during Q1 of 2024 – the first full quarter of the Variance period – to accompany the Modification Petition. Specifically, Yorke was asked to estimate excess NOx emissions by comparing actual NOx emissions for the Cogens during Q1 of 2024 with emissions permitted by the new Rule 1134 NOx emissions limit of 2 ppm corrected to 15% O_2. I was responsible for preparing that analysis with support from my colleagues at Yorke. A true and correct copy of the Yorke excess emissions analysis is attached hereto as **Exhibit A**.

7. We estimated excess NOx emissions from the operation of the Cogens during the Variance period based on actual emissions data recorded by the Irvine Facility's CEMS and reported daily to SCAQMD via the RECLAIM WATERS system during Q1 of 2024.

8. As a first step, reported NOx emissions data from the Cogens for Q1 of 2024 was downloaded from the WATERS database and copied into an Excel workbook where daily NOx emission averages and quarterly total emissions could be calculated. For Turbine No. 1, Q1 daily average NOx emissions were approximately 12.14 pounds per day, with total quarterly emissions of approximately 1,105 pounds. For Turbine No. 2, Q1 daily average NOx emissions were approximately 11.45 pounds per day, with total quarterly emissions of approximately 1,042 pounds.

9. Emissions estimates were then calculated assuming Turbine Nos. 1 and 2 would operate in compliance with the Rule 1134 NOx limit of 2 ppm. NOx emissions were calculated using an emission factor based on the 2 ppm Rule 1134 NOx limit and actual fuel usage data recorded by the Irvine Facility's CEMS.

a. For Turbine No. 1, Rule 1134-based average NOx emissions based on recorded fuel usage were approximately 6.35 pounds per day or approximately 578 total pounds for the quarter.

b. For Turbine No. 2, Rule 1134-based average NOx emissions based on recorded fuel usage were approximately 6.23 pounds per day or approximately 567 pounds for the quarter.

10. Excess NOx emissions for Q1 of 2024 were determined by calculating the difference between actual emissions and the Rule 1134-based emission estimates. Results were as follows:

a. For Turbine No. 1, estimated excess NOx emissions were approximately 5.79 pounds per day, which equates to 527 pounds for the quarter.

b. For Turbine No. 2, estimated excess NOx emissions were approximately 5.22 pounds per day, which equates to 475 pounds for the quarter.

11. During Q1 of 2024, combined estimated excess NOx emissions for Turbine Nos. 1 and 2 were approximately 11.01 pounds per day, which equates to 1,002 pounds for the quarter.

12. Q1 2024 emissions were approximately 13% higher than the estimated NOx emissions in the Variance Petition. Those estimated NOx emissions were calculated based on three-year average data for the Irvine Facility, as detailed in my December 6 declaration.

13. The higher NOx emissions over estimated are primarily attributable to operational considerations regarding Turbine No. 2. This was offset somewhat by Turbine No. 1, where excess emissions decreased slightly (from an estimate of 5.96 pounds/day in the Variance Petition analysis to actual emissions of 5.79 pounds/day during Q1).

14. The increase in actual NOx emissions from Turbine No. 2 compared to the estimate provided in the Variance Petition can be attributed to two factors: Turbine No. 2 operated slightly above its three-year average usage during Q1 of 2024, and the actual average emissions per unit of fuel consumed for Turbine No. 2 during Q1 of 2024 were slightly higher than the three-year average. It is important to note that the actual excess emissions from Turbine No. 2 during Q1 of 2024 remained significantly below the excess emissions calculated per Variance Condition No. 2.

15. Actual NOx emissions from operation of the Cogens during Q1 of 2024 remain significantly lower than NOx emissions authorized by the SCAQMD Permit to Operate for the Irvine Facility (the "Permit") prior to January 1, 2024 (based on 9 ppm NOx corrected to 15% O_2), as demonstrated in Exhibit A. Maximum NOx emissions that would have been authorized by the Permit are as follows:

a. For Turbine No. 1, an estimated 28.59 pounds per day, which would equate to 2,602 pounds for the quarter.

b. For Turbine No. 2, an estimated 28.07 pounds per day, which would equate to 2,554 pounds for the quarter.

16. Variance Condition No. 2 requires that excess NOx emissions be calculated as the difference between the prior NOx limit of 9 ppm (as formerly set by Permit Condition No. A 99.1) and the Rule 1134 NOx limit of 2 ppm (otherwise effective as of January 1, 2024), not based on actual NOx emissions. The Variance also specifies that the maximum NOx emissions reflected in the former Permit condition No. A 99.1 must be used as the basis to calculate excess emissions fees. As detailed in the Quarterly Report, even using these maximum figures, excess emissions at the Irvine Facility during Q1 of 2024 fell below threshold levels for emissions-specific fees, thereby triggering the minimum daily fee of $234.06, set by SCAQMD Rule 301.

I declare under the penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 28th day of August, 2024 at San Juan Capistrano, California.

Michael Davidek

MICHAEL DAVIDEK, C.P.P.
Senior Engineer
Yorke Engineering, LLC

EXHIBIT A

Yorke ENGINEERING, LLC
www.YorkeEngr.com

B. Braun Cogeneration Turbine Systems Rule 1134 Excess Emissions Analysis

Cogen Turbine 1 - Permitted NOx Emissions Comparison	Average Hourly (lb/hr)	Average Daily (lb/day)	Quarterly Total (lbs)
Current Permit Limit (9 ppm NOx @ 15% O2)	1.19	28.59	2,602
Rule 1134 Limit (2 ppm NOx @ 15% O2)	0.26	6.35	578
Excess Emissions	**0.93**	**22.24**	**2,024**

Cogen Turbine 2 - Permitted NOx Emissions Comparison	Average Hourly (lb/hr)	Average Daily (lb/day)	Quarterly Total (lbs)
Current Permit Limit (9 ppm NOx @ 15% O2)	1.17	28.06	2,554
Rule 1134 Limit (2 ppm NOx @ 15% O2)	0.26	6.24	567
Excess Emissions	**0.91**	**21.83**	**1,986**

Cogen Turbine 1 - Actual NOx Emissions Comparison	Average Hourly (lb/hr)	Average Daily (lb/day)	Quarterly Total (lbs)
Reported NOx Emissions (Q1 2024)	0.51	12.15	1,105
Rule 1134 Limit (2 ppm NOx @ 15% O2)	0.26	6.35	578
Excess Emissions	**0.24**	**5.79**	**527**

Cogen Turbine 2 - Actual NOx Emissions Comparison	Average Hourly (lb/hr)	Average Daily (lb/day)	Quarterly Total (lbs)
Reported NOx Emissions (Q1 2024)	0.48	11.45	1,042
Rule 1134 Limit (2 ppm NOx @ 15% O2)	0.26	6.24	567
Excess Emissions	**0.22**	**5.21**	**474**

Notes:

1. Cogen Turbine 2 excess emissions calculations do not include duct burner (D36).

NOx Emissions Calculation Parameters			
Parameter	**Value**	**Units**	**References/Remarks**
F-Factor (68)	8,710	dscf/MMBtu	EPA Method 19 (68°F, 20°C)
Molar Volume (68)	385	scf/lbmol	EPA Method 19 (68°F, 20°C)
HHV Natural Gas	1,050	MMBtu/MMSCF	SCAQMD RECLAIM Default
Hours per day	24	hours	
NOx molecular weight	46	lb/lbmol	Constant
Cogen Turbine 1 Heat Input Q1 2024	74.68	MMScf	CEMS Data
Cogen Turbine 1 Heat Input Rating	46.20	MMBtu/hr	Title V permit, Section D D28/D35 description
Cogen Turbine 2 Heat Input Q1 2024	73.30	MMScf	CEMS Data
Cogen Turbine 1/2 NOx Permit Limit	9	ppm @15% O2	Title V permit, Section D D28/D35 description
Cogen Turbine 2 Heat Input Rating	49.1	MMBtu/hr	Title V permit, Section D D35 description
Rule 1134 NOx limit	2	ppm @15% O2	Rule 1134 Table 1: natural gas cogen turbines
Percent O2 in atmosphere	20.9	% O2	Constant
15% O2	15	% O2	Permit condition basis
Days in Q1	91	Days	
Hours in Q1	2,184	Hours	
15% O2 Correction Calculation	3.54	unitless	
Cogen Turbine 1/2 NOx Permit Limit EF	34.84	lb/MMScf	[NOx ppm]/[10^6]* [NOx MW]/[molar volume]*[F-factor]*[O2 correction]*[HHV]
Rule 1134 EF	7.74	lb/MMScf	[NOx ppm]/[10^6]* [NOx MW]/[molar volume]*[F-factor]*[O2 correction]*[HHV]