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Docket Number:	19-SPPE-03
Project Title:	Sequoia Data Center
TN #:	237484
Document Title:	C1 SBGF Supplemental Testimony Responding to Committee Questions on Air Quality
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	4/16/2021 4:21:05 PM
Docketed Date:	4/16/2021

STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:

Application For Small Power Plant
Exemption for the
**SEQUOIA BACKUP GENERATING
FACILITY**

DOCKET NO. 19-SPPE-03

**DECLARATION OF STEVEN
BRANOFF**

I, Steven Branoff, declare as follows:

1. I am presently employed as Principal with Ramboll.
2. A copy of my professional qualifications and experience was included with the previously filed Opening Testimony Package and is incorporated by reference in this Declaration.
3. I prepared the attached Supplemental Opening Testimony which includes responses to Committee Questions related to the Revised Air Quality Analysis posed in the Notice of Prehearing Conference, Evidentiary Hearing, Scheduling Order, and Further Orders, for the Sequoia Backup Generating Facility (SBGF) CEC Docket 19-SPPE-3, dated April 12, 2021 (TN 237428)..
4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at San Francisco on April 16, 2021.



Steven Branoff

**C1-SANTA CLARA, LLC
SEQUOIA BACKUP GENERATING FACILITY
REVISED AIR QUALITY
SUPPLEMENTAL TESTIMONY**

I. Name: Steven Branoff

II. Purpose:

My Supplemental Testimony includes responses to Committee Questions related to the Revised Air Quality Analysis posed in the Notice of Prehearing Conference, Evidentiary Hearing, Scheduling Order, and Further Orders, for the Sequoia Backup Generating Facility (SBGF) CEC Docket 19-SPPE-3, dated April 12, 2021 (TN 237428).

III. Qualifications:

Steven Branoff: I am presently employed as a Principal at Ramboll and have been for the past 19 years. I have a Master of Science Degree in Environmental Engineering from the University of California at Berkeley and I have 24 years of experience in conducting air quality and public health analyses within California and other western states.

I have been engaged by C1-Santa Clara, LLC (C1) to prepare the Bay Area Air Quality Management District Authority to Construct applications and the air quality and public health analyses for development of the SBGF. I prepared or caused to be prepared the Air Quality section of the Application For SPPE and Air Quality Technical Reports, as well as the post-filing information, data responses, and supplemental filings.

Detailed descriptions of my qualifications are presented in my resume which was included in Attachment A to C1's Opening Testimony package (TN 232420).

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I will be sponsoring the exhibits listed on C1's Proposed Additional Exhibit List which will be docketed on or before May 7, 2021.

V. Opinion and Conclusions

Committee Question 1:

Applicant has filed several documents that contain data and analysis regarding the emissions from the Tier 4-compliant diesel backup generators.²⁸ However, these documents contain different values for the same types of emissions. For example, in Applicant's Revised AQ Emission Tables and Ammonia Calculations,²⁹ Table 4.3-7 contains emissions for the Maximum Annual Emissions for NOx for both routine testing and maintenance (RTM) and emergency operations; the total is 13 tons per year. In Applicant's Revised Emissions Table with BAAQMD Offset Screening Calculation,³⁰ Table 1 shows the emissions to be 27 tons per year for the same operations (RTM and emergency operations).

In addition, Table 4.3-8 in Applicant's Revised AQ Emission Tables and Ammonia Calculations,³¹ appears to have an incorrect threshold for NOx. Also, Table 4.3-8 appears to have the wrong measurement and threshold (lbs/day v. parts per million) for CO.

The Applicant is hereby ordered to file updated information to reflect the correct numbers for each type of emission described above no later than April 19, 2021.

Response To Committee Question 1:

TN 236832 contains updated emissions calculations compared to TN 236451. These emissions were updated based on information learned from the control device manufacturer. TN 236451 assumed the SCR could abate emissions during all operation and TN 236832 conservatively updated this calculation. As discussed in the footnotes, emissions shown in TN 236832 incorporate periods

²⁸ See TNs 236429, 236443, 236451, 236832.

²⁹ TN 236451.

³⁰ TN 236832.

³¹ TN 236451.

where the operating conditions required for the Selective Catalytic Reduction (SCR) to efficiently abate NOX emissions have not been met and emissions of NOX would be consistent with Tier 2 engines. In TN 236832, testing and maintenance emissions were calculated assuming 50, individual 1 hour tests. It was assumed that it took 15 minutes to reach the operating conditions where the SCR could efficiently abate NOX. Therefore, the generators were assumed to emit NOX based on Tier 2 rates for 15 minutes of this hour and Tier 4 rates for the remainder of the hour. Emissions during emergency operation assume the generators are run for 3-hour periods. The first 15 minutes of the hour are based on Tier 2 rates and the remaining 2 hours and 45 minutes are based on Tier 4 rates.

Table 4.3-8 in TN 236451 shows redlines from the same table in the Application for a Small Power Plant Exemption (TN 229419-1). This table was provided for informational purposes. This threshold shown in the table is the threshold for triggering Best Available Control Technology (BACT) and not the CEQA threshold of significance. Therefore, these thresholds are correct.

Attached to this testimony are the tables from TN 236451 updated in redline with information from TN 236832.

Committee Question 3:

Table 4.3-8 in Applicant's Revised AQ Emission Tables and Ammonia Calculations³² appears to show that the daily emissions of NOx exceed the maximum BAAQMD threshold (the table shows that the Project will emit 80 lbs/day but applies an incorrect standard of 10 lbs/day; the actual standard is 54 lbs/day.) The Project also exceeds the annual threshold for NOx, but the Table indicates that because offsets are provided on an annual basis and the Project's NOx emissions are fully offset, there is no exceedance of the BAAQMD annual threshold. The Revised IS/PMND states: "The BAAQMD significance thresholds for daily emissions are daily average values that scale to equal the annual thresholds. Therefore, a separate comparison of the project's average daily emissions versus the BAAQMD average daily significance thresholds is unnecessary."³³

³² Id.

³³ TN 236919, p. 5.3-19.

Because there could be exceedances of the daily threshold without a commensurate exceedance at the annual level, Applicant is hereby ordered to file information that explains whether the daily threshold for NOx will be exceeded and, if so, why that does not constitute a significant impact no later than April 19, 2021.

Staff is hereby ordered to supplement its analysis to explain how the Revised Project does not exceed the applicable threshold for daily emissions and shall include any supplemental analysis in the Complied Revised IS/PMND to be filed no later than April 23, 2021.

Response To Committee Question 3:

Table 4.3-8 in TN 236451 compares maximum potential daily emissions of one generator to the Best Available Control Technology (BACT) threshold to determine if BACT is required. This table correctly shows the BACT threshold of 10 pounds per day (lb/day). As shown in Table 4.3-8 in TN236451, BACT is triggered for some pollutants. The Tier 4 engines meet BACT guidelines for this size of generator. These emissions assume one generator is operating for 24 hours per day, which is used to determine if BACT is triggered and is not expected to occur in reality. The CEQA threshold for NOX emissions is average daily emissions of 54 lb/day, as shown in the excerpt from the BAAQMD CEQA Guidelines below.

Table 2-1 Air Quality CEQA Thresholds of Significance*			
Pollutant	Construction-Related	Operational-Related	
Project-Level			
Criteria Air Pollutants and Precursors (Regional)	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tpy)
ROG	54	54	10
NOx	54	54	10
PM ₁₀	82 (exhaust)	82	15
PM _{2.5}	54 (exhaust)	54	10

Source: BAAQMD. 2017. CEQA Air Quality Guidelines. May. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

These maximum daily emissions from Table 4.3-8 are not appropriate to compare against the CEQA threshold of average daily emissions of 54 lb/day.

Average daily emissions are calculated based on the total operation for all generators for the whole year averaged over the entire year. The average daily emissions limit is the annual emissions limit averaged over the entire year. Both the emissions calculations and the limits take total annual emissions and average over the entire year. Therefore, comparing the project's average daily emissions versus the BAAQMD average daily significance threshold would be the same as comparing against the annual threshold, as quoted in the Revised IS/PMND. Based on the fact the daily limit is an average, there would not be exceedances of the daily threshold without a commensurate exceedance at the annual level. Furthermore, the offsets used as mitigation would also reduce average daily emissions, since the offsets would also be averaged over the year.

Furthermore, SBGF anticipates operating its engines 10-12 hours per year per engine for maintenance and testing. The emissions presented in Table 4.3-8 assumes 24 hours of operation in one day. In reality, maintenance and testing would not occur 24 hours per day and SBGF is expected to have an operating limit to only operate one engine at a time. Therefore, actual emissions in a day would be associated with 8-10 hours per day. Based on this, even the maximum expected daily operation would be below the threshold of 54 lb/day.

Revisions to SPPE Application
Air Quality

Table 4.3-6 Criteria Pollutant Emissions from All Backup Generators for Maintenance and Testing (tons per year)

Evaluation Period	Pollutant	Emissions	BAAQMD Thresholds	Exceeds Threshold?
Maximum Annual Emissions (tons per year) ^a	NOx ^b	3612	10	Yes
	VOCs	0.5	10	No
	CO ^c	2.7	--	N/A
	PM ₁₀	0.16	15	No
	PM _{2.5}	0.16	10	No

Source: Ramboll, 2019

^a The maximum annual emissions were estimated assuming that all 54 backup generators would operate 50 hours per year even though this estimate is extremely conservative as C1 estimates normal maintenance and testing would be on the order of less than 11 hours per year. Testing & maintenance NO_x emissions are the maximum potential emissions based on expected permitted activities and assume annual operation will effectively consist of 50 individual 1-hour operating periods, each consisting of 15 minutes of uncontrolled (Tier 2) emissions and 45 minutes of controlled (Tier 4) emissions.

^b NO_x emissions from maintenance and testing would be fully offset through the air permitting process with the BAAQMD.

^c In the absence of a mass-based threshold, CO impacts were evaluated through air dispersion modeling

-- = No mass-based threshold has been adopted for this pollutant

N/A = Not applicable because no mass-based threshold is available

Table 4.3-7 Criteria Pollutant Emissions from All Backup Generators for Emergency and Maintenance and Testing (tons per year)

Evaluation Period	Pollutant	Emissions (Includes Emergency Periods)
Maximum Annual Emissions (tons per year) ^a	NOx ^b	40827
	VOCs	1.6
	CO ^c	8.0
	PM ₁₀	0.48
	PM _{2.5}	0.48

Source: Ramboll, 2019

^a The maximum annual emissions for emergency use and maintenance and testing were estimated assuming that all 54 backup generators would operate 150 hours per year (100 hours of emergency use and 50 hours of maintenance and testing). This estimate is extremely conservative as C1 estimates normal maintenance and testing would be on the order of less than 11 hours per year and SVP power outages are very rare. NO_x emissions from testing, maintenance and emergency operation assume the same activity for the 50 hours of annual testing and maintenance and 100 hours of emergency operation consisting of 15 minutes of uncontrolled (Tier 2) emissions and 2 hours, 45 minutes of controlled (Tier 4) emissions for every 3 hours of operation.

^b NO_x emissions from maintenance and testing would be fully offset through the air permitting process with the BAAQMD.

Table 4.3-8 Maximum Daily Criteria Pollutant Emissions from a Single Backup Generator

Pollutant	Emissions (lb/day)	BAAQMD BACT Thresholds (lb/day)	Exceeds Threshold?
NO _x	63986	10	Yes
VOCs	9.55	10	No
CO	47.6	10	Yes
SO ₂	0.35	10	No
PM ₁₀	2.86	10	No
PM _{2.5}	2.86	10	No

Source: Ramboll, 2019

Notes: The maximum daily emissions were derived assuming 24 hours of operation in one day. NO_x emissions were assumed to consist of 15 minutes of uncontrolled (Tier 2) emissions and 23 hours, 45 minutes of controlled (Tier 4) emissions.