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State of California **The Resources Agency of California**

M e m o r a n d u m

To: Commissioner Karen Douglas, Presiding Member
Commissioner Patty Monahan, Associate Member

Date: May 7, 2021

From: **California Energy Commission**
1516 Ninth Street
Sacramento, CA 95814-5512

Leonidas Payne
Project Manager
(916) 838-2124

Subject: STAFF RESPONSES TO CROSS-EXAMINATION QUESTIONS PRESENTED IN THE SEQUOIA BACKUP GENERATING FACILITY SMALL POWER PLANT EXEMPTION PROCEEDING (19-SPPE-03)

Pursuant to the Committee's Notice of Prehearing Conference, Evidentiary Hearing, Scheduling Order, and Related Orders (Notice and Orders) dated April 12, 2021, as updated by the Schedule Update docketed May 3, 2021, staff is providing cross-examination responses for the Sequoia Backup Generating Facility.

Staff has also attached updated resumes and declarations as needed to facilitate movement of this and previously filed written testimony into the record.

Cross-Examination questions presented by Intervenor Robert Sarvey in his April 30, 2021 filing, followed by staff's response.

1) A lead agency is required to re-circulate a MND when the document must be substantially revised after public notice of its availability has previously been given, but prior to its adoption. A "substantial revision" of the MND means a new, avoidable significant effect is identified and mitigation measure[s] or project revision[s] must be added in order to reduce the effect to insignificance. CARB and BAAQMD have identified NOx emissions from emergency operation as a probable significant effect and BAAQMD has prescribed SCR to mitigate that impact on all engines of that size in the district. The original 321 page IS/MND was filed on January 1, 2020 by staff at the State Clearinghouse so other agencies could comment. Now on March 23, 2021, 14 months later CEC Staff has filed a 401 page revised compiled IS/MND that contains substantial revisions to the original project to mitigate potential NO2 violations. When will staff refile the latest IS/MND with the State Clearinghouse and if not why not?

STAFF RESPONSE:

Staff does not intend to recirculate the Compiled Revised IS/PMND published on March 23, 2021. The question contains several inaccurate statements. The revision contained minor updates to the analysis stemming from the project applicant's decision to upgrade the engines to cleaner technology and a request from the Committee to address new data provided by the Bay Area Air Quality Management District (BAAQMD) and to address questions regarding the NO_2 input assumptions. As discussed below, the updates to the analysis do not stem from BAAQMD having declared NOx emissions from this project significant under the California Environmental Quality Act (CEQA), nor do they stem from BAAQMD having declared that selective catalytic reduction (SCR) is required to reduce an impact from this project below a level of significance. BAAQMD has not conducted a CEQA review of this project.

CEQA requires recirculation of a negative declaration (or in this case a mitigated negative declaration) when either "[a] new, avoidable significant effect is identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or [t]he lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required." (Cal. Code Regulations, tit. 14, §15073.5(b).) Neither of these provisions have been triggered here. Instead, the revisions made to the Sequoia IS/PMND fall squarely within §15073.5(c)(2) and (4), which explicitly state that recirculation is not required when "[n]ew project revisions are added in response to written or verbal comments on the project's effects identified in the proposed negative declaration which are not new avoidable significant effects" and "[n]ew information is added to the negative declaration which merely clarifies, amplifies, or makes insignificant modifications to the negative declaration."

As discussed above, the IS/PMND was revised for several reasons: 1) to address questions raised regarding NO_2 input assumptions; 2) to analyze the impacts, if any, resulting from the project adding SCR to its engines; and 3) to address new data provided by BAAQMD regarding recent operation of backup generators under non-testing/non-maintenance circumstances. None of these updates to the analysis resulted in the identification of a new, avoidable significant effect or a determination that project revisions will not reduce potential effects to less than significance and other measures or revisions are required. BAAQMD did not make a determination that the Sequoia Backup Generating Facility would result in significant, adverse impacts and the addition of SCR was required to avoid these impacts. Instead, BAAQMD made a permitting decision based on its existing regulatory authority and established that Tier 4 engines are now considered best available control technology (BACT) – "the most effective emission controls already in use or the most stringent emission limit achieved in the field for the type and capacity of equipment comprising the source under review and operating under similar conditions." (Letter from Jack Broadbent re BACT Determination for Diesel Back-Up Engines Greater than or equal to 1,000 Brake Horsepower, December 21, 2020, p. 1.) (TN 236088.)

That a project owner makes a change to the project based on another agency's permitting requirements does not in and of itself trigger the requirement to recirculate, nor does an agency's analysis of that change if it does not rise to meet the requirements of §15073.5(b). The updates to the IS/PMND do not and, therefore, staff concluded that recirculation was not warranted.

2) On Page 5.3-31 of the latest version of the Initial Study it states, "The staff's cumulative HRA includes four major types of sources: (1) San Jose International Airport emissions sources located within 2,000 feet of the boundaries proposed for the Walsh (19-SPPE- 02) and Sequoia (19-SPPE03) projects combined; (2) existing stationary sources; (3) surrounding highways, major streets, and railways; and (4) the proposed Sequoia project, the proposed Walsh project, and the approved McLaren project (17-SPPE-01). There is currently 25 existing data centers in Census Tract 6085505202 which of these data centers was included in staff's updated analysis.

STAFF RESPONSE: Staff objects to this question as it falls outside the scope of topic areas established in the Notice and Orders. In the Notice and Orders, the Committee ordered that the May 11, 2021 Evidentiary Hearing in this proceeding "will be limited to *issues associated with the additional information submitted to address"* four topic areas that it had outlined. This question does not involve any new information submitted and questions the extent of the cumulative analysis staff previously performed, the subject of which has already been extensively addressed in the record. Without waiving this objection staff responds as follows.

Staff's cumulative Health Risk Assessment (HRA) on Page 5.3-31 was originally published on the April 22, 2020 "CEC Staff Responses to Committee Questions"

(TN#233095). Staff included it in the April 23, 2021 "Sequoia Compiled Revised Initial Study and Proposed Mitigated Negative Declaration" (TN#237528) for the purpose of consolidating all staff's analysis, so the committee can look at one complete document. The issues of cumulative HRA has been fully addressed in the Evidentiary Hearing on June 5th, 2020.

As stated in the Evidentiary Hearing on June 5th, 2020, staff's cumulative HRA does include other data centers nearby, including the Walsh and McLaren projects, and the existing Microsoft Data Center at 2045 Lafayette Street. But staff did not include other data centers because they are beyond the 1,000-ft radius from all four maximally exposed sensitive receptors of Sequoia.

3) Did staff include the Lafayette Data Center and the Santa Clara Data Center in its cumulative impact analysis.

STAFF RESPONSE: Staff objects to this question as it falls outside the scope of topic areas established in the Notice and Orders. In the Notice and Orders, the Committee ordered that the May 11, 2021 Evidentiary Hearing in this proceeding "will be limited to *issues associated with the additional information submitted to address"* four topic areas that it had outlined. This question does not involve any new information submitted and questions the extent of the cumulative analysis staff previously performed, the subject of which has already been extensively addressed in the record. Without waiving this objection staff responds as follows.

Mr. Sarvey asked a similar question before. As stated in the Evidentiary Hearing on June 5, 2020, staff's cumulative HRA includes Walsh and McLaren along with Sequoia. Staff did not include Mission College, San Jose, Laurelwood, 2805 Lafayette Street Data Center, 2200 De La Cruz Avenue Data Center, and the Santa Clara Data Center because they are all beyond the 1,000-ft radius from the maximally exposed sensitive receptors of Sequoia. And BAAQMD did not suggest that staff include these data centers.

As stated in PH-2 of CEC Staff Responses to Committee Questions, Exhibit 203, when staff conducted the cumulative HRA, we used BAAQMD's Permitted Sources Risk and Hazard Map to get data for the existing stationary sources. If the data centers Mr. Sarvey listed were not included in staff's cumulative HRA, it means they are beyond the 1,000-ft radius of the receptors. Staff double-checked the Excel sheets downloaded from BAAQMD, none of these data centers listed by Mr. Sarvey were included because they are all beyond the 1,000 ft radius of the maximally exposed sensitive receptors. But staff did include the existing Microsoft Data Center at 2045 Lafayette Street.

4) In the cumulative impact analysis did staff consider impacts to the employees at any of the businesses within 1,000 feet of the project fenceline?

STAFF RESPONSE: Staff objects to this question as it falls outside the scope of topic areas established in the Notice and Orders. In the Notice and Orders, the Committee ordered that the May 11, 2021 Evidentiary Hearing in this proceeding "will be limited to

issues associated with the additional information submitted to address" four topic areas that it had outlined. This question does not involve any new information submitted and discussed the extent of the cumulative analysis staff previously performed, the subject of which has already been extensively addressed in the record. Without waiving this objection staff responds as follows.

In the April 23, 2021 "Sequoia Compiled Revised Initial Study and Proposed Mitigated Negative Declaration" (TN#237528), Tables 5.3-11 through 5.3-13 summarize the results of the staff cumulative HRA and compare the results to corresponding BAAQMD thresholds of significance for cumulative risk and hazards. The cumulative cancer risk, hazard index, and PM2.5 concentration were conservatively calculated using the maximum value in relation to the Maximally Exposed Individual Worker (MEIW), Maximally Exposed Individual Resident (MEIR), Maximally Exposed Soccer Child Receptor (MESCR), and Maximally Exposed Childcare Receptor (MECR). Results show that the cumulative cancer risk results (Table 5.3-11) and chronic hazard index results (Table 5.3-12) are below BAAQMD thresholds of significance. Because impacts are less than significant for maximally exposed sensitive receptors, they are less than significant for any other receptor as well. Therefore, staff did consider impacts to the employees at any of the business within 1,000 ft of the project fenceline.

5) Staff normally uses a 6-mile radius when considering cumulative impacts for a project application. The maximum cumulative impacts are reported to be at the Off the Wall soccer facility which is located approximately 2,300 feet away from the SDC. How is a 1,000-foot radius representative of the cumulative impacts from this project?

STAFF RESPONSE: Staff objects to this question as it falls outside the scope of topic areas established in the Notice and Orders. In the Notice and Orders, the Committee ordered that the May 11, 2021 Evidentiary Hearing in this proceeding "will be limited to *issues associated with the additional information submitted to address"* four topic areas that it had outlined. This question does not involve any new information submitted and discussed the extent of the cumulative analysis staff previously performed, the subject of which has already been extensively addressed in the record. Without waiving this objection staff responds as follows.

As stated on Page 5.3-7 of the April 22, 2020 "CEC Staff Responses to Committee Questions" (TN 233095), BAAQMD recommends that any proposed project that includes the siting of a new TAC emissions source assess associated community risks and hazards impacts within 1,000 feet of the proposed project, and take into account both individual and nearby cumulative sources (that is, proposed project plus existing and foreseeable future projects). Cumulative sources represent the combined total risk values of each individual source within the 1,000-foot evaluation zone.

As stated on Page 5.3-31, BAAQMD did not identify any new or in-permitting sources within the 1,000 or 2,000 feet but staff included data center projects in licensing or under construction.

As stated in the Evidentiary Hearing on June 5th, 2020, the 1,000-foot distance is pertinent not only because it is the zone of analysis identified in BAAQMD's CEQA Guidelines, but also because emissions from sources outside of a project's 1,000 foot radius are unlikely to commingle and contribute to a cumulative impact. According to the Risk Calculator provided by BAAQMD, the risk number drops to around 4 percent of the original one when the distance goes to around 1,000 feet. Therefore, the San Jose Airport is the only unusually large source beyond the 1,000-foot radius that staff added after consulting with BAAQMD. Neither staff nor BAAQMD identified any other source outside this 1,000-foot zone that justified inclusion in the analysis.

Staff previously used a 6-mile radius for cumulative impacts analyses of power plant cases. Based on staff's modeling experience, beyond 6 miles there is no statistically significant concentration overlap for non-reactive pollutant concentration between two stationary emission sources. The 6-mile radius is more appropriate to be used for the turbines with tall stacks and more buoyant plumes. The diesel emergency standby engines would result in more localized impacts due to shorter stacks and less buoyant plumes. The worst-case impacts of the diesel emergency standby engines would occur at or near the fence line and decrease rapidly with distance from fence line. This also explains why BAAQMD recommends 1,000 feet as the boundary for the cumulative health risks assessment in the BAAQMD CEQA Guidelines.

Mr. Sarvey states that the maximum cumulative risk is at the Off the Wall soccer facility. However, Table 5.3-11 of the April 23, 2021 "Sequoia Compiled Revised Initial Study and Proposed Mitigated Negative Declaration" (TN#237528) shows that the maximum cumulative cancer risk would be located at the maximally exposed childcare receptor. The cumulative cancer risk at that location is dominated by the Surrounding Highways, Major Streets, and Railways (within 1,000 ft). Similarly, the cumulative cancer risk at the maximally exposed soccer child receptor is dominated by the Surrounding Highways, Major Streets, and Railways (within 1,000 ft) followed by the Existing Stationary Sources (within 1,000 ft).

Mr. Sarvey's Preface to Question 6:
According to the Revised Initial Study and Proposed Mitigated Negative Declaration on Page 4-10, "The SCR system would use urea which will be stored in one 1,500-gallon tank for each pair of generators." That would lead to a potential of 1,500 X 27 = 40,500 gallons of urea stored on site. The IS/MND further states that, "The projects ammonia emission would be 0.21 lb/hr and 0.278 tons/yr (557 lbs/yr) as estimated by the applicant (Sequoia 2021b).1

6) What are the GHG emissions from the urea transportation, production, storage, and usage?

STAFF RESPONSE:
Page 5.3-20 states that there would be an average of 695 total daily vehicle trips, including vendor and employee trips, which would result in mobile source criteria pollutant and greenhouse gas emissions.

Mobile source GHG emissions would be a small portion of overall GHG emissions, and the infrequent delivery of urea would be a small portion of the mobile source activity already estimated in the IS/PMND.

7) Urea has a storage expectancy of 2 years. If the project only uses 557 lbs a year and stores 40,500 gallons of urea. How much excess urea will be disposed of?

STAFF RESPONSE:
It should be noted that the 557 pounds per year is the estimated ammonia emissions, not the quantity of urea used per year. According to the applicant's Revised Project Description and AQ Emissions – Tier 4 (TN236429 [Sequoia 2021a]), the estimated urea consumption would be 13.8 gallons per hour per engine. Urea would be stored in a 1,500-gallon tank. Each tank would serve 2 engines. Therefore, if the tanks were full, it would take about 54 hours (=1,500/13.8/2) of engine operation from each of the two engines to use all the urea.

If there is any excess urea that needs to be disposed of due to degradation, it would be hauled off site by a licensed waste contractor. The urea solution is not classified as a hazardous material and staff has determined that it is appropriate to rely upon the extensive regulatory framework that establishes the safe handling and disposal of waste (see Federal Resource Conservation and Recovery Act (RCRA), Title 42, § 6901 et seq.; RCRA, Title 40, §§ 239-282; and Non-hazardous waste management, California Code of Regulations, Title 14, Division 7, Chapter 3).

8) In the Great Oaks South proceeding the applicant has filed a new noise assessment for the application of SCR to the backup diesel generators. (Exhibit 317) The noise assessment states on page 1, "Noise data provided for generators equipped with the Tier 4 treatment indicates an increase in sound power level of about 5 dBA and a substantial shift in sound energy from higher to lower frequencies. Additionally, Tier 4 treatment would increase the height of the exhaust stack, the location where most noise originates. No other aspects of the project are anticipated to be affected." What is the expected increase in sound from application of the SCR? If there is no expected sound increase why would this project not have an increase in sound with application of SCR like the GOSBGS?

STAFF RESPONSE:
Through implementation of NOI-1 Sequoia's noise levels with SCR would not exceed the 75 dBA LORS limit at the business center directly south of the project site, consistent with what the IS/MND implies.

The genset manufacturer, model, MW capacity, enclosure dimensions, SCR design, the circumstances regarding equipment placement, as well as the surrounding environment are not the same between the two projects. Therefore, the modeling results for one project does not apply to the other. Also, the SCR and exhaust stack would be equipped with mufflers that reduce noise. Additionally, the increase shown in GOSDC's revised noise modeling represents sound power level, which is different than sound pressure level; it does not translate to the same magnitude of sound level increase at the receptor. (Sound power is the cause of sound pressure fluctuation, whereas sound pressure is the effect.) In fact, Exhibit 317 concludes by saying, "The overall noise exposure would be less than that which was evaluated in earlier versions of the project."

9) According to the updated sound analysis performed for application of SCR at the Great Oaks South Data Center, "This change in the frequency spectrum of generator noise would affect how the noise propagates throughout the site vicinity as lower frequency sound propagates further by diffracting around structures and through receiving less attenuation provided by absorption in the air." Where is staff's revised noise analysis to reflect the change in frequency spectrum of the generator noise form the application of SCR.

STAFF RESPONSE:
Staff has reviewed the applicant's Revised Project Description and AQ Emissions – Tier 4 document filed on January 25, 2021 at 7:52 A.M. (TN 236429), and confirmed that through implementation of NOI-1, Sequoia's noise levels would be below the 75 dBA LORS limit at the business center directly south of the project site with the SCR. Staff has verified this by calculating the project's frequency-weighted noise (as perceived by the human ear).[1]

10) What is the increase in stack height with the application of SCR for the project? If there is no increase in stack height why is this project different than the Great Oaks South project?

STAFF RESPONSE:
The gensets' make, model, MW capacity, and configuration are different between the two projects. GOSDC would utilize engines manufactured by Cummins, while Sequoia would employ engines manufactured by Rolls-Royce's MTU.

Staff analyzes the project impacts according to applicant provided information. According to applicant's Revised Project Description and AQ Emissions – Tier 4 (TN236429 [Sequoia 2021a]), there would be a slight change in dimensions of the generator enclosures, but no change in stack dimensions or exhaust parameters. Page 5.3-25 of staff's Compiled Revised Initial Study and Proposed Mitigated Negative

[1] Total normal operational noise at 131 ft: 89 – 20log(131/3) = 56.2 dBA
Testing one genset with SCR at 50ft: 65.5 – 20log(50/23) = 58.7 dBA
Testing one genset with SCR and normal operation: 60.7 dBA at the business center directly south of the project site

Declaration (TN 237528) has addressed the issue regarding the change in dimensions of the generator enclosures as follows:

> *The modeling results shown in this analysis are based on the information provided in the original SPPE application (Sequoia 2019a and Sequoia 2019b). There would be slight change in dimensions of the generator enclosures with the change from Tier 2 to Tier 4 emission controls (Sequoia 2021a). Staff considered the slight dimension change by modeling the building downwash effects to see if this would change the worst-case modeling impacts. The change in dimensions of the generator enclosures would not affect the building downwash effects for 50 generators and would only result in negligible changes to four of the generators. Additional modeling showed that the conclusions regarding the project impacts would not change due to the change in the dimensions of the generator enclosures.*

11) How will the stack exit velocity change with the application of SCR?

STAFF RESPONSE:
See staff's response to Question 10 above. The applicant has not indicated that there would be any changes to the stack exit velocity.

12) What is the expected energy penalty from the application of SCR?

STAFF RESPONSE:
There would be no energy penalty from the application of SCR. In fact, the use of the SCR is likely to enhance the genset's fuel efficiency. SCR is highly efficient at treating the engine exhaust. Its effectiveness allows the engine to be tuned and optimized toward maximum fuel efficiency.

13) What is the expected energy penalty from the conversion of urea for use in the SCR?

STAFF RESPONSE:
See staff's response to Question 12. In addition, most, if not all the energy needed for the conversion process would come from the engine's exhaust heat, thereby, eliminating the need for a significant increase in the facility's overall energy consumption. Also, during readiness testing and maintenance, urea would be injected in the SCR only when the genset is in high-load mode—the only time the SCR is active.

14) The California Public Utilities Commission just approved the use of backup diesel generators in demand response programs for the upcoming several years in Decision D.21-03-056. The decision provides payment of $1,000 per MWh for energy from backup diesel generators. Does the applicant intend to participate in this program? Applicant has proposed condition PD-3 as follows:

Condition of Exemption PD 3
The granting of the Small Power Plant Exemption for the Sequoia Backup Generating Facility is specifically conditioned on the provision that at no time shall the Project owner of the Sequoia Data Center participate in a load shedding and/or demand response program that would allow it to voluntarily use electricity generated by the Sequoia Backup Generating Facility in order to participate in any load shedding and/or demand response request from the CEC, any utility, or any State agency.

15) Does the applicant still propose PD-3?

STAFF RESPONSE: Questions 14-15 are directed to the applicant. The applicant has replied to these questions in C1 Supplemental Reply Testimony to Intervenor – (TN 237672).

16) Considering the CPUC's latest decision does Staff support PD-3 to prevent the SDC from participating in any demand response program?

STAFF RESPONSE: Staff concludes the project as proposed would not result in any significant adverse environmental impacts. No additional mitigation measures beyond those currently described in the IS/PMND are necessary.

On March 26, 2021, the CPUC adopted D.21-03-056, which ordered the three Investor Owned Utilities (IOUs) to pilot an Emergency Load Reduction Program. Among many other things, this decision allows diesel backup generators to participate in this program and to be compensated for that participation. It is not known whether, or how many, diesel backup generators will volunteer to participate in the program, nor whether circumstances will ultimately converge necessitating the calling on of these resources. Diesel backup generators are only a small part of this decision, which itself is only a small part of what the CEC, CPUC, and CAISO are doing to ensure grid reliability and prevent power outages from occurring. Facilities that choose to volunteer for the program would only be able to be called on by the IOUs if the CAISO declares an Alert; IOUs are not allowed to use the program for local outages.

Staff notes that participation of diesel backup engines per D.21-03-056 is currently intended to be very limited and is subject to reevaluation based on information concerning generator participation obtained over the next two years. The entire scope of this pilot program is limited to the next five years (2021-2025) and the a Demand Response application proceeding will be initiated in November 2021 to review and revise the program, including a reevaluation of the extent to which diesel backup generators should participate in the later years (2023-2025). (CPUC Decision D.21-03-056, pp. 19, 59-60.) The Sequoia Backup Generating Facility would not be online this summer and it is uncertain to what extent, if any, it would be operational by next summer. Regardless, the project applicant has stated that this facility will not be volunteering for this program. For all these reasons, this program does not change staff's conclusion that the project would not result in a significant adverse impact to the environment.

17) What increase in nitrogen deposition did staff determine will be experienced form the use of urea in the SCR. Did staff model that increase?

STAFF RESPONSE:
Page 5.4-11 of staff's Compiled Revised Initial Study and Proposed Mitigated Negative Declaration (TN 237528) states that there is no designated or proposed critical habitat for federally-listed species within 6 miles of the project area. Page 5.4-12 states that:

> *The project's estimated contribution (between 0.01 and 0.03 kg N/ha/yr) when added to the baseline nitrogen deposition value (11.4 kg N/ha/yr) at northern coastal salt marsh would be substantially below the critical load (30-40 kg N/ha/yr) for this habitat type. Operation of the proposed project would not result in a substantial adverse effect from nitrogen deposition, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status. Therefore, this impact would be less than significant.*

Therefore, the nitrogen deposition impacts of the project would be negligible. In addition, the NOx emissions would decrease with the use of SCR. Table 5.3-6 of staff's Compiled Revised Initial Study and Proposed Mitigated Negative Declaration (TN 237528) shows that NOx emissions would decrease from 35.96 tons per year to 12 tons per year. The use of urea would result in some ammonia emissions. However, the ammonia emissions would only be 0.278 tons per year, much less than the reduction in NOx emissions. Therefore, the total nitrogen emissions and nitrogen deposition impacts of the project would decrease. No additional modeling is needed.

18) What is the expected ammonia slip from the project?

STAFF RESPONSE:
As shown on page 5.3-30 of staff's Compiled Revised Initial Study and Proposed Mitigated Negative Declaration (TN 237528), the project ammonia emission would be 0.21 pound per hour (lb/hr) and 0.278 ton per year (or 557 lbs/yr) assuming 10 parts per million by volume (ppmv) ammonia exhaust concentration at 3 percent O_2, as estimated by the applicant (TN 236451 [Sequoia 2021b]).

19) The revised compiled IS/MND states on page 5.3-30 that Ammonia would be emitted from the urea used in the SCR system (Sequoia 2021a), increasing the health risk Has staff included the ammonia emissions in its health risk assessments?

STAFF RESPONSE:
On page 5.3-30 of staff's Compiled Revised Initial Study and Proposed Mitigated Negative Declaration (TN 237528), below the sentence that Mr. Sarvey quoted, staff compared the hourly and annual ammonia emissions with the BAAQMD trigger levels for health risk assessments. Since the ammonia emissions of the project would be much

lower than the BAAQMD trigger levels for health risk assessments, staff concluded that additional health risk assessments are not necessary.

DECLARATION OF
Ann Crisp

I, Ann Crisp, declare as follows:

1. I am employed by the California Energy Commission as a Planner 2 in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am sponsoring the **Biological Resources** section of the Compiled Revised Initial Study and Proposed Mitigated Negative Declaration for Sequoia Data Center and Staff Responses to Cross Examination Questions. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 7, 2021 Signed: /s/ Ann Crisp

At: Sacramento, California

CALIFORNIA ENERGY COMMISSION

ANN CRISP
STAFF BIOLOGIST /PLANNER II

Education, Certification & Associations

- Associate of Arts Degree, Natural Science, College of Marin (1998)
- Bachelor of Science Degree, Wildlife, Fish and Conservation Biology, University of California, Davis (2004)

Experience

California Energy Commission (CEC) – from 3/2010 to Present

Planner II – Staff Biologist

As a staff biologist with the Energy Commission, Ms. Crisp analyzes the biological resource components of energy facilities siting applications to assess resource impacts, develop mitigation, and to evaluate compliance with applicable local, state, and federal laws, ordinances, regulations, and standards. This requires working closely with biological resource protection and management agencies, subject matter experts, and Energy Commission consultants as well as with other Energy Commission staff to ensure the best available information is included in staff analyses.

Robertson-Bryan, Inc. – from 11/2006 to 3/2010

Staff Biologist

Ms. Crisp's duties with Robertson-Bryan, Inc. included development of technical study reports and presentations based on the conclusions of field studies for the Middle Fork American River Project (MFP) Integrated Licensing Process for the Placer County Water Agency. She conducted field studies in preparation of the biological resources component of the MFP and the Big Creek System Alternative Licensing Process for Southern California Edison Company (SCE) including wildlife reconnaissance surveys, protocol-level wildlife surveys (including bald eagle wintering and nesting surveys and California red-legged frog surveys) and botanical surveys (including special-status plant species, noxious weeds, and plants of cultural concern for Native Americans). Ms. Crisp prepared documents supporting various management plans as part of the Big Creek No. 4 Traditional Licensing Process for SCE, including yearly monitoring reports for the Sediment Management Plan, Noxious Weed Management Plan, and Valley Elderberry Longhorn Beetle Management Plan. She also prepared and reviewed technical reports and California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) chapters on terrestrial resources.

1516 Ninth Street, MS 40 ◆ Sacramento, CA 95814 ◆ (916) 651-3776 ◆ ann.crisp@energy.ca.gov

Pacific States Marine Fisheries Commission/ California Department of Fish and Game – from 3/2006 to 11/2006

Research Technician

While working with the California Department of Fish and Game through a partnership with the Pacific States Marine Fisheries Commission, Ms. Crisp conducted various focused wildlife surveys including reptile and amphibian cover board surveys, small mammal mark-recapture surveys, burrowing owl nest surveys, and California tiger salamander larval surveys. She collaborated on design and execution vegetation sampling protocol at multiple survey areas.

California Department of Fish and Game – from 11/2005 to 1/2006

Scientific Aide

Ms. Crisp led tours of the Nimbus Fish Hatchery to provide information on the function of the hatchery and fish biology to school groups and the general public.

Humboldt State Foundation / California Department of Fish and Game – from 3/2005 to 10/2005

Wildlife Research Assistant

While working with the California Department of Fish and Game (CDFG) through a partnership with the Humboldt State Foundation, Ms. Crisp conducted field-based vegetation sampling to classify vegetation types/wildlife habitats on multiple CDFG Wildlife Areas and Ecological Reserves. She was responsible for data management and preparation for inclusion in a statewide database. Ms. Crisp also conducted focused wildlife surveys including reptile and amphibian cover board surveys, small mammal live-trapping surveys, and nocturnal mammal spotlight surveys.

Oregon State University – from 6/2004 to 9/2004

Research Technician

Ms. Crisp conducted bat surveys and vegetation inventories and assessments on a bat survey crew in western Oregon. This included collecting data on bat activity using Anabat II detectors, capturing bats using mist nets and H-nets and collecting biological samples and morphological data and vegetation sampling.

Sacramento Regional County Sanitation District – Bufferlands – from 7/2003 to 3/2004

Senior Student Intern

Ms. Crisp assisted with various habitat restoration and management projects within the 2,650-acres surrounding the Sacramento Regional Wastewater Treatment Plant. She conducted waterfowl and shorebird surveys as well as sensitive species surveys. Other duties included landscape maintenance and water quality monitoring.

DECLARATION OF
Brett Fooks

I, Brett Fooks, declare as follows:

1. I am employed by the California Energy Commission as a Senior Mechanical Engineer in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am sponsoring the **Hazards/Hazardous Materials** section of the Compiled Revised Initial Study and Proposed Mitigated Negative Declaration for Sequoia Data Center and Staff Responses to Cross Examination Questions. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 7, 2021 Signed: Brett Fooks

At: Sacramento, California

-BRETT FOOKS, P.E.

MECHANICAL ENGINEER

PROFESSIONAL EXPERIENCE

California Energy Commission - STEP **Sacramento, CA** **2/2014 - Present**

The Commission ensures that energy facilities (power plants) are permitted in an acceptable manner. The STEP division prepares environmental documentation for the Commission as required by the California Environmental Quality Act (CEQA).

MECHANICAL ENGINEER

Provide independent engineering analysis for various technical areas with an emphasis on hazardous materials management, worker safety, & fire protection.

- Review, analyze and prepare engineering analysis for hazardous materials management, fire protection, and worker safety for gas-fired power plants.
- Provide written and oral expert witness testimony at commission hearings.
- Conduct power plant inspections during construction and operational phases.
- Investigate accident, fire, and hazardous materials incidents at licensed power plants.

Capital Engineering Consultants, Inc. **Rancho Cordova, CA** **6/2004 – 2/2014**

A leader in mechanical engineering design in Northern California since 1947 specializing in areas including K-12 Education, Higher Education, Civic and Justice, and Healthcare.

SENIOR ENGINEER, ASSOCIATE

Manage the design, project specification, calculations and cost estimations for new and renovated construction projects. Oversee and supervise the daily workload, mentoring, and quality control for an assigned junior engineer.

- Plan and monitor the workload of projects, while preparing and taking responsibility for the concept of and preliminary engineering solutions for the detailed design phase.
- Implement the detailed design engineering of HVAC systems; code review, heating and cooling load calculations, air-flow requirements, ductwork sizing and layout, piping sizing and layout, equipment selection, and system controls with an emphasis on healthcare facilities.
- Prepare and deliver calculations for Title 24 building compliance.
- Prepare and deliver calculations and documents for project LEED certification.

Select Accomplishments

- Assisted in the implementation and teaching of new 3-D modeling software, CAD-MECH, to team members for the Sutter Health Eden Medical Center.
- Worked with co-workers to create and implement standards for plumbing calculations firm wide leading to an increased efficiency.

EDUCATION

STATE OF CALIFORNIA ~ LICENSED PROFESSIONAL ENGINEER
UC DAVIS EXTENSION – WORKPLACE HEALTH & SAFETY CERTIFICATE (2016)

BACHELOR OF SCIENCE ~ MECHANICAL ENGINEERING (2004)
California Polytechnic State University, San Luis Obispo

Computer Literacy: Proficient in the use of various software applications including Microsoft Office (Word, Excel, PowerPoint, Outlook) AutoCAD 2012/2013, Revit 2013/2014, Visio, NavisWorks, and ProjectWise.

DECLARATION OF
Joseph Hughes, P.E.

I, Joseph Hughes, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Supervisor in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and is incorporated by reference herein.

3. I oversaw preparation of staff testimony analyzing the Sequoia Backup Generating Facility presented in the technical areas of **Air Quality, Public Health, and Greenhouse Gas Emissions** in the following documents: CEC Staff's January Status Report (TN 236330), Energy Commission Staff's Comments on Motion to Remand (TN 235472), Staff's Response to Committee Questions (TN 235936), CEC Staff's January Status Report (TN 236330), staff's February 2021 Status Report (TN 236833), Sequoia Compiled Revised Initial Study and Proposed Mitigated Negative Declaration (TN237528) and Staff's Responses to Cross Examination Questions.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 7, 2021 Signed: /s/ Joseph Hughes

At: Sacramento, California

Joseph Hughes, P.E.

Education

California State University, Sacramento, 2003-2008
Sacramento, Ca
***Bachelor of Science, Mechanical Engineering Technology**, May 2008*

Licensures

Professional Engineer, Mechanical (California License No. M 38221)

Experience

California Energy Commission, 2020-Present
Sacramento, Ca

Air Resources Supervisor I
Air Resources Supervisor in the Engineering Office of the Siting, Transmission, and Environment Protection Division, responsible for the Air Quality, Public Health and Transmission Line Safety and Nuisance unit. The Air Resources Supervisor is the first level to which administrative responsibilities are assigned. Staff in the unit are responsible for reviewing and understanding United States Environmental Protection Agency, California Air Resources Board, and regional air quality district public health and air quality regulations. Specific responsibilities include the following:

- Planning, directing, evaluating, and managing the work of air resources engineers and public health experts.
- Reviewing staff conducted scientific investigations and complex technical analysis, including air quality and public health impacts of stationary sources and methods to mitigate these impacts following California Environmental Quality Act and federal, state, and local regulations.
- Reviewing staff conducted analysis of transmission line and safety, nuisances and impacts on public health.
- Research new technology development; recommend and implement statewide planning and policy initiatives for the Energy Commission, as well as developing and evaluating proposed legislation.

California Department of Transportation, 2018-2020
Sacramento, Ca

Mechanical Engineer
Mechanical engineer in the Office of Electrical, Mechanical, Water & Wastewater responsible for performing difficult mechanical engineering design, specification preparation, estimating, and inspection work involved in the design, construction, and maintenance of storm drainage pumping plants and sewage lift stations, vehicular tunnels, movable bridges, roadside

rests, highway maintenance stations, toll plazas, truck weigh and inspection stations water well and water supply systems, solar heating, and other transportation-related facilities. Specific responsibilities include the following:

- Performing professional work such as designing and preparing plans, specifications and estimates for mechanical systems such as heating, ventilating, air conditioning, plumbing, water, sanitary, and mechanical equipment.
- Checking drawings and contractor's shop plans and lists of equipment.
- Testing completed work for compliance with contract documents and conducting construction and repair inspections.
- Assisting in maintenance inspections of pumping plants, water supply systems, movable bridges, safety roadside rest areas, truck weigh and inspection stations.

California Energy Commission, 2009-2018
Sacramento, Ca

Air Resources Engineer
Technical expert responsible for completing engineering and environmental analysis on thermal power plant project applications seeking a California Energy Commission license, or an amendment or project modification to an existing license, in addition to determining ongoing operational compliance for facilities operating under existing Energy Commission licenses. Specific responsibilities include the following:

- Independently perform responsible, varied analysis assessing environmental impacts of energy resource use and large electric power generation projects in California.
- Analyzing project applications to verify engineering data, conducting scientific investigations and completing complex technical analysis.
- Identifying air quality impacts of stationary sources through the use of complex dispersion modeling and measures to mitigate these impacts following California Environmental Quality Act (CEQA) and regulations of U.S. Environmental Protection Agency, California Air Resources Board, and local air pollution control districts.
- Managing ongoing engineering and environmental compliance for operational power plant facilities and recommending enforcement actions for violations.
- Researching new technologies and developing, recommending, and implementing statewide planning and policy initiatives for the Energy Commission and the Governor.
- Presenting complex technical staff reports and planning/policy recommendations at evidentiary hearings, business meetings,

committee meetings, publicly-noticed workshops, and meetings with project developers.
- Testifying as an expert witness at committee held evidentiary hearings.

Awards

2014 Superior Accomplishment Award – California Energy Commission

DECLARATION OF
Wenjun Qian, Ph.D., P.E.

I, Wenjun Qian, declare as follows:

1. I am employed by the California Energy Commission as an Air Resources Engineer in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am sponsoring portions of the **Air Quality** section of the Compiled Revised Initial Study and Proposed Mitigated Negative Declaration for Sequoia Data Center and Staff Responses to Cross Examination Questions. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 7, 2021 Signed: /s/ Wenjun Qian

At: Sacramento, California

Wenjun Qian, Ph.D., P.E.

Education

Ph.D., Mechanical Engineering, University of California, Riverside, 2010
M.S., Mechanical Engineering, George Washington University, 2005
B.S., Mechanical Engineering, Shanghai Jiao Tong University, China, 2004

Professional Experience

Air Resources Engineer ***(July 2010 – Present)***
California Energy Commission, Siting Transmission and Environmental Protection Division

Technical expert responsible for completing environmental analysis on thermal power plant project (including linears) applications seeking a California Energy Commission license, or an amendment to an existing license, in addition to determining ongoing compliance for facilities operating under existing Energy Commission licenses. Specific responsibilities, by technical area, include the following:

Air Quality

- Reviewing modeling protocols to make sure they comply with current modeling guidance documents.
- Reviewing project applications to verify engineering data, including worst case emissions during construction/demolition, commissioning, and various operating profiles.
- Completing air dispersion modeling to identify the worst case project impacts, and determining whether the project would result in any significant air quality related impacts.
- Determining whether the project would comply with all federal, state, and local air quality laws, ordinances, regulations, and standards.
- Coordinating with local Air Quality Management Districts and incorporating Determinations of Compliance into Energy Commission Staff Assessments.
- Investigating and recommending appropriate emission mitigation measures under California Environmental Quality Act requirements.
- Managing ongoing air quality compliance for power plant facilities during construction and operation.

Greenhouse Gases

- Reviewing project applications and quantifying potential greenhouse gases emissions associated with construction/demolition, commissioning, and operation of the proposed facilities.
- Determining whether the project would comply with all federal, state, and local greenhouse gases laws, ordinances, regulations, and standards.
- Analyzing the implications the proposed facility may have on California's electricity sector, and how it may affect greenhouse gases emissions in California and globally.

Visible Water Vapor Plume

- Assisting the technical experts authoring the Visual Resources section to identify potential visual impacts as a result of visible water vapor plumes.
- Reviewing operational design data from visible water vapor plume emitting sources and calculating visible plume frequencies and sizes.

Vertical Plume Velocity

- Assisting the technical experts authoring the Traffic and Transportation section to identify potential hazards to aircrafts as a result of vertical plume velocities.
- Reviewing operational design data from vertical plume emitting sources and calculating the vertical plume velocities at various heights.
- Identifying at what height above the plume sources the vertical plume velocities drop below the threshold of concern set by the Federal Aviation Administration.

Nitrogen Deposition

- Assisting the technical experts authoring the Biological Resources section to identify potential nitrogen deposition impacts.
- Reviewing and completing air dispersion modeling to identify nitrogen deposition impacts to sensitive habitats.

Worked on the following AFCs/SPPEs:
Laurelwood Data Center, Mariposa Energy Project, McLaren Backup Generating Facility, Pio Pico Energy Center, Pomona Repower Project, Puente Power Project, Quail Brush Generation Project, Redondo Beach Repower, Rio Mesa Solar Electric Generating System, Sequoia Data Center, etc.

Worked on the following project amendments:
El Segundo Energy Center, Huntington Beach Energy Project, Ivanpah Solar Electric Generating System, Orange Grove Energy Power Project, Otay Mesa Energy Center, Palomar Energy Project, Russell City Energy Center, etc.

Research Assistant ***(Sept. 2005 – June 2010)***
University of California, Riverside, Mechanical Engineering

- Evaluated air quality impacts of distributed generations in South Coast Air Basin of California.
- Estimated air quality impacts from the key power plant of Los Angeles Department of Water and Power in shoreline urban areas.
- Improved AERMOD performance during low wind stable conditions.
- Prepared and presented multiple comprehensive reports, journal papers, and conference papers.

Licensures

Professional Engineer, Mechanical (California License No. M 36370)

Awards

2013 Superior Accomplishment Award – California Energy Commission

DECLARATION OF
Kenneth Salyphone

I, Kenneth Salyphone, declare as follows:

1. I am employed by the California Energy Commission as a Mechanical Engineer in the Siting, Transmission and Environmental Protection Division.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I am sponsoring the **Noise** section of the Compiled Revised Initial Study and Proposed Mitigated Negative Declaration for Sequoia Data Center and Staff Responses to Cross Examination Questions. This testimony reflects my independent analysis of the Application for Small Power Plant Exemption and related materials, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: May 7, 2021 Signed: /s/ Kenneth Salyphone

At: Sacramento, California

Kenneth Salyphone

916.654.4658

1516 9th Street Sacramento CA 95814

kenneth.salyphone@energy.ca.gov

PROFESSIONAL EXPERIENCE:

Mechanical Engineer
California Energy Commission, Sacramento CA — 12/2020 – Present

Mechanical Design Engineer, Lead
Micron Technology, Inc., Folsom CA — 12/2017 – 12/2020

Mechanical Design Engineer
Micron Technology, Inc., Folsom CA — 12/2013 – 12/2017

Mechanical Design Engineer, Intern
Micron Technology, Inc., Folsom CA — 06/2013 – 12/2013

EDUCATION:

Master of Science in Mechanical Engineering, CSU Sacramento, 2013

Bachelor of Science in Mechanical Engineering, CSU Sacramento, 2010

CERTIFICATION/LICENSE:

Engineer-In-Training (EIT) Certified # 149129

WHAT I DO:

- Prepare analyses of facility design code compliance, noise and vibration, power plant efficiency, generating capacity determination, and power plant reliability aspects of power generation plants and related facilities. Includes evaluating facility design; potential impacts and appropriate mitigation measures; and determining the ability of the facility to comply with applicable laws, ordinances, regulations, and standards
- Review and evaluate the mechanical engineering and related aspects of equipment as applied to thermal power plants related facilities. Includes the evaluation of system and equipment design, performance and reliability, as well as alternatives to the proposed facility.
- Develop compliance monitoring requirements and verifications related to noise and vibration and facility design to ensure that proposed facilities are properly constructed and operated in accordance with Energy Commission certification requirements.
- Monitor construction and operation of licensed facilities to assure their conformance with licensing requirements.
- Evaluate the efficiency and reliability implications of energy generation, supply, and end use strategies as input energy policy development.
- Evaluate existing and proposed governmental laws, ordinances, regulations, standards, and policies as they pertain to power plant design.

MEMBERSHIPS AND AFFILIATIONS:

- Member of Tau Beta Pi
- Member of the American Society of Mechanical Engineers