

DOCKETED

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Project Title:	Great Oaks South Backup Generating Facility Small Power Plant Exemption
TN #:	233816
Document Title:	Report of Conversation - Email communication regarding construction emissions and public health impacts
Description:	N/A
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CALIFORNIA ENERGY COMMISSION
REPORT OF CONVERSATION Page 1 of 2



Siting, Transmission and Environmental Protection Division		FILE: n/a	
PROJECT TITLE: Great Oaks South Backup Generating Facility		Docket: 20-SPPE-01	
TECHNICAL AREA(s): Air Quality and Public Health			
Telephone	<input checked="" type="checkbox"/> Email	<input type="checkbox"/> Meeting Location: N/A	
NAME(s):	Lisa Worrall, Senior Environmental Planner, CEC Wenjun Qian, Air Resources Engineer, CEC Ann Chu, Air Resources Engineer, CEC Geoff Lesh, Engineering Office Manager, CEC Gerry Bemis, Air Resources Supervisor I, CEC Brewster Birdsall, Senior Associate, Aspen, CEC staff's consultant	DATES: 05/28/2020 06/09/2020	TIME:
WITH:	Scott A. Galati, DayZen LLC., applicant's representative Greg Darvin, Atmospheric Dynamics, Inc., applicant's air quality consultant		
SUBJECT:	Email communication regarding construction emissions and public health impacts		



COMMENTS:

This report of conversation documents two e-mail exchanges, one on May 28, 2020, between Wenjun Qian (CEC staff) and Greg Darvin (applicant’s air quality consultant) regarding public health impacts, and the second on June 9, 2020 between Lisa Worrall (CEC staff) and Scott Galati (applicant’s representative) regarding emissions calculations and impacts modeling for overlapping periods between construction and operation. These emails are referenced in Staff’s Issues Identification Report, Status Report, and Proposed Schedule for the Great Oaks South Generating Facility (20-SPPE-01), submitted to the project’s docket on July 7, 2020, TN 233795. These two attached emails provide background details.

The applicant’s responses to Data Requests Set 2 DR-16 (TN233005-1) stated that the backup engines as proposed will not be equipped with diesel particulate filters (DPFs). On May 28, 2020, CEC staff raised issues related to the project not including DPFs during a conference call with Scott Galati and Greg Darvin and followed up the call with a list of questions that staff raised during the call. Another issue raised during the call was staff’s consideration that the impacts from the Health Risk Assessment (HRA) are underestimated as staff questions the emission rates used for the HRA.

On June 9, 2020 Lisa Worrall emailed Scott Galati relaying a request from air quality staff regarding the construction emissions and impacts that the applicant was calculating (as indicated in part I of their responses to Data Request Set 2 [TN 233005-1]). Staff requested the construction emissions and impacts be calculated and modeled for the overlapping periods (e.g., operation of the first data center while the second is in construction and operation of the first two data centers while the third is in construction).

<p>cc:</p>	<p>Signed: _____ s _____</p> <p>Name: Lisa Worrall, Senior Environmental Planner</p>
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From: [Qian, Wenjun@Energy](mailto:Qian.Wenjun@Energy)
To: darwin@atmosphericdynamics.com; [Scott Galati](#)
Cc: [Bemis, Gerry@Energy](mailto:Bemis.Gerry@Energy); [Layton, Matthew@Energy](mailto:Layton.Matthew@Energy); [Lesh, Geoff@Energy](mailto:Lesh.Geoff@Energy); [Worrall, Lisa@Energy](mailto:Worrall.Lisa@Energy); [Brewster Birdsall](#); [Chu, Ann@Energy](mailto:Chu.Ann@Energy)
Date: Thursday, May 28, 2020 2:49:00 PM
Attachments: [Great Oaks South follow up 5-28-2020.pdf](#)

Hi Greg and Scott,

Attached please find the write-up we prepared for the issues we discussed this morning. This is draft language that might be sent as follow up data request, but it's not a formal data request at this time. The purpose of sending the file to you now is simply to explain the issues as we see them now.

I will send a separate email through Secure File Transfer to transfer the modeling files.

Thanks.

Wenjun Qian, Ph.D., P.E.
Air Resources Engineer
California Energy Commission

Summary of Issues:

In the response to data requests set 2 DR-16 (TN233005-1), the applicant states the backup engines as proposed will not be equipped with diesel particulate filters (DPFs). Staff does not believe this would be consistent with the Best Available Control Technology for Toxics (TBACT) required by Bay Area Air Quality Management District (BAAQMD) Regulation 2 Rule 5.

During a phone call on May 28, 2020, the applicant indicated that BAAQMD was prepared to issue permit(s) for two data centers apparently not subject to CEC jurisdiction, with Tier 2 diesel engines and without DPFs. Staff contacted BAAQMD staff upon learning of this. BAAQMD said that they would issue a permit for Tier 2 engines without DPFs as long as:

1. The project is consistent with California's ATCM requirements.
2. An independent HRA conducted by BAAQMD staff leads to impacts less than their risk threshold; this sometimes results if there is sufficient distance between the engines and the modeled sensitive receptors and if there is limited run time.

In addition, staff believes the applicant's health risk assessment (HRA) underestimates the health risks of the project. If the HRA were done correctly, the cancer risks of the project would exceed the BAAQMD significance threshold of 10 in a million. Therefore, the project would cause significant health risk impacts without mitigation. Staff believes the significant health risk impacts could be mitigated using DPFs.

The following includes staff's detailed explanation of the issues.

Follow-up Data Requests for DR-11, DR-12, and DR-13

BACKGROUND: Modeled Emission Rates Inconsistency

In staff's data requests set 2 DR-11 through DR-13 (TN232755), staff questioned the emission rates used for the HRA for construction and testing and maintenance. The applicant did the HRA modeling assuming both construction and testing/maintenance would occur 10 hours per day, which means only 3,650 hours per year were modeled, instead of 8,760 hours for the whole year. The applicant normalized the emission rates to 1 g/s in the AERMOD run for HRA. And then the normalized concentrations were multiplied by the annual diesel particulate matter (DPM) emission rates to get the ground-level concentrations needed in HARP. Based on staff's independent analysis with a test run, staff verified that HARP converts the annual emission rates in pounds per year (lb/yr) to grams per second (g/s) by averaging them among all 8,760 hours of the year (hourly emission rate [g/s] = annual emission rate [lb/yr] x [1 yr/8,760 hours] x [1 hour/3600 s] x [453.6 g/1 lb]). When the normalized concentrations modeled for only

3,650 hours of the year were combined with the emission rate averaged over 8,760 hours of the year, the DPM impacts were underestimated by about 58% ($=1 - [3,650/8,760]$). Therefore, the applicant underestimated the project's cancer risks and chronic HI since they are dependent on the DPM impacts.

On the other hand, the applicant's PM2.5 impacts analysis done directly using AERMOD is consistent with the assumption of 10 hours per day of construction and testing/maintenance. To verify staff's above findings, staff did an independent HRA by using the PM2.5 impacts directly modeled by AERMOD, rather than using the results from normalized concentrations in AERMOD and then HARP.

For construction, staff used the applicant's AERMOD output files for the PM2.5 impacts from combustion sources for the worst year and performed an independent HRA. Staff found that at the receptor (#6444) that the applicant identified as maximum impacted sensitive/residential receptor, the cancer risk would be 3.116 in a million, while the applicant's result was 1.283 in a million. And the maximum chronic HI (modeled at fence line) would be 0.0169, rather than 0.0071 provided by the applicant.

Similarly, for testing and maintenance, staff did an independent analysis by first modeling the PM2.5 impacts directly from AERMOD. Staff used the applicant's AERMOD input files for annual PM impacts and excluded the chillers to focus on the DPM impacts from the engines. Staff used the receptor information from applicant's HRA input file. Staff ran AERMOD to compute the PM2.5/DPM impacts for testing and maintenance of the engines. Staff then used the modeled PM2.5/DPM impacts to compute the cancer risks and chronic HI for testing and maintenance. The following table shows staff's modeled results compared with applicant's results at point of maximum impact (PMI), maximum exposed individual residential receptor (MEIR), maximum exposed individual sensitive receptor (MEIS), and maximum exposed individual worker receptor (MEIW) identified by the applicant in the SPPE application. The cancer risks from staff's independent analysis would be much higher than those provided in the SPPE application. And the cancer risks at MEIS and MEIW (as well as PMI) from staff's independent analysis would exceed the district's significance threshold of 10 in a million. This would be a significant health risk impact without mitigation.

Receptor Location	Receptor number	Cancer risk from staff's independent analysis	Cancer risk from SPPE application
PMI	30	72.1	21.8
MEIR	6493	8.2	2.48
MEIS	12164 ^a	20.1	6.1
MEIW	3572	20.2	2.1 ^b

Notes:

- a. Staff noticed that the receptor number 12164 and the UTM coordinates provided in Table 4.5-21 of the SPPE application do not match. The cancer risk of 6.1 in a million matches the receptor number 12164, but does not match the UTM coordinates. The applicant needs to confirm the location and cancer risk for MEIS.
- b. Table 4.5-22 of the SPPE application shows the cancer risk at MEIW to be 2.1 in a million. However, staff looked at the applicant's HRA modeling files and found the cancer risk with worker exposure would be 6.1 in a million at receptor number 3572. The applicant needs to confirm the location and cancer risk for MEIW.

It should be noted that the above results from staff's independent analysis used age-specific fraction of time at home (FAH) for 3rd trimester to 16 years as well as for 16 years to 70 years, which is consistent with applicant's assumptions. However, as pointed out in staff's data request set 3 DR-65 (TN233009), FAH = 1 should be used if any school is inside the 1 in a million (or greater) cancer risk isopleth. If FAH = 1 were used, the cancer risks would be even higher than those presented in the above table.

In addition, staff's independent analysis is also based on the sensitive receptor locations provided by the applicant for the SPPE application. As pointed out in staff's data request set 3 DR-69, there are more sensitive receptors in the project area that the applicant did not specify. Therefore, the cancer risks could be higher if more sensitive receptors were added in the analysis.

Data Requests

76. Please revise the HRA to properly take into account the higher hourly emission rates when only 10 hours per day are modeled for both construction and testing and maintenance. Please take into account proper assumptions for FAH and sensitive receptor locations, as pointed out in staff's data request set 3.

77. Please propose mitigation measures to reduce the potentially significant health risk impacts to less than significant.

Follow-up Data Requests for DR-16 and DR-17

BACKGROUND: Diesel Particulate Filters

The applicant responded to staff's data request DR-16 saying the backup emergency engines as proposed would not be equipped with DPFs. However, all the other data centers under CEC review are proposed with DPFs. BAAQMD Regulation 2 Rule 5 requires the applicant to apply TBACT to any new or modified source of toxic air contaminants (TACs) where the source risk is a cancer risk greater than 1.0 in one million (10^{-6} or 1.0E-6), and/or a chronic hazard index greater than 0.20. The cancer risk for the project would be greater than 1.0 in one million. The applicant needs to explain how the project would comply with the TBACT requirement in BAAQMD Regulation 2 Rule 5.

Data Request

78. Please explain how the project would comply with the TBACT requirement in BAAQMD Regulation 2 Rule 5.

From: Worrall, Lisa@Energy
To: [Scott A. Galati \(sgalati@dayzenllc.com\)](mailto:Scott A. Galati (sgalati@dayzenllc.com))
Cc: Bemis, Gerry@Energy; Lesh, Geoff@Energy; Knight, Eric@Energy; Kerr, Steven@Energy; DeCarlo, Lisa@Energy; Willis, Kerry@Energy; Layton, Matthew@Energy; Qian, Wenjun@Energy
Date: Tuesday, June 9, 2020 10:43:35 AM
Attachments: [Great Oaks South overlap AQ questions 6-9-2020 2.dotx](#)

Hi Scott,

As I briefly discussed on your voicemail morning, I have attached the questions our AQ staff have. As you are working on the construction emissions our staff need to have the emissions calculated for the overlapping phases of construction/ operation. The attached data request explains staff's requests.

Let me know if you want to discuss these. My number is 916-884-1603.

Thanks so much,

Lisa Worrall

Great Oaks South Backup Generating Facility (20-SPPE-01)

Air Quality

BACKGROUND: Construction and Operation Overlap

Staff understands the applicant is preparing the ground-level impacts analysis for criteria pollutants as requested in data request #4 in Data Request Set 2 (TN 233005-1). Staff has noted the construction of the generation yards and data center buildings are scheduled in three phases (SPPE Application, Project Description, pgs. 17-18):

- Phase I: SV 12, would begin in the fourth quarter of 2020 and is anticipated to finish in the first quarter of 2022 (15 months).
- Phase II: SV 18, would begin in the second quarter of 2023 and is anticipated to finish in the fourth quarter of 2024 (18 months).
- Phase III: SV 19, would begin in the second quarter of 2026 and is anticipated to finish in the fourth quarter of 2027 (18 months).

Staff needs clarification regarding whether there would be any overlap between operation (maintenance and testing) of one or more data center building(s) and construction of the remaining data center building(s), including the duration of any overlap(s). Please provide responses to staff's questions below.

Data Requests:

1. Please estimate the operation start date for generators for each data center building.
2. Please clarify whether there would be any overlap between maintenance and testing of generators for the operational data center building(s) with the construction of the next scheduled data center building(s).
3. Please provide analysis of the project's impacts during the overlapping period(s) according to the four air quality questions in the California Environmental Quality Act (CEQA) Guidelines Environmental Checklist (Appendix G).
4. Please provide emission calculations, criteria pollutant impacts, and health risks impacts analysis during each of the following overlapping period scenarios:
 - a. Operation of building SV 12 with construction of building SV 18.
 - b. Operation of buildings SV 12 and SV 18 with construction of SV 19.