San José City Data Center
(19-SPPE-04)

Data Response Set 6A

Submitted to
California Energy Commission

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Contents

Introduction

On September 14, 2021, California Energy Commission ("Commission") staff filed Data Request Set 6 for the San Jose Data Center Project, seeking additional information related to the applicant's revised project description and changes to the technical sections of the applicant's small power plant exception ("SPPE") application related to the project's change of backup generation technology to renewable natural gas. (See TN 239692.) Commission staff subsequently filed a revised Data Request Set 6 on September 15, 2021, which added one data request and superseded the previous Data Request Set 6 request. (See TN 239719.)

Provided below are Commission staff's Background descriptions and Data Requests, followed by the applicant's Responses.

Air Quality Data Requests

Background: Ambient Air Quality Impact Analysis for Construction

The applicant's Supplemental Filing (Supplemental Filing) revised the construction-phase emissions estimates (Appendix 3.3A of the SPPE Application; TN# 239413,8/20/2021) and provided an analysis of potential health risks caused by toxic air contaminants during construction (Table 3.3-20, p. 3.3-39; TN# 239409, 8/20/2021). For toxics, the applicant decided to model 437 individual construction-phase point sources (Table 3.3-12 and Appendix 3.3D, Table 1), but the analysis does not explain why this number of point sources was selected, where they emit on or near the site, or why area or volume sources would not be more representative of construction. The Supplemental Filing concluded the discussion of construction-phase impacts without quantifying criteria pollutant ambient air quality impacts. The analysis should show the concentrations of criteria air pollutants resulting during construction.

Data Requests

64) Please provide an ambient air quality impact analysis that confirms whether the construction-phase criteria pollutant emissions would comply with the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS).

Response: Construction-phase emission estimates were used to conduct an ambient air quality analysis for criteria air pollutants for which the San Francisco Bay Area Air Basin (SFBAAB) is in attainment relative to the NAAQS and/or CAAQS.

As to those pollutants designated as nonattainment for either the NAAQS or CAAQS in the SFBAAB (e.g., ozone, particulate matter with 10-micron diameter or less [PM_{10}], and particulate matter with 2.5-micron diameter or less [$PM_{2.5}$]), a dispersion modeling analysis of impacts relative to applicable standards was not conducted because the monitored background concentrations for the nonattainment pollutants already exceed their respective standards. Additional justification for not modeling nonattainment pollutants is provided in the applicant's Supplemental Filing (TN# 239409, 8/20/2021, p. 3.3-38). The NAAQS, CAAQS, and SFBAAB nonattainment status for each of the criteria air pollutants, as applicable, are presented in Table DR64-1.

Table DR64-1. Pollutant Modeling Summary

Pollutant	Averaging Time	Primary NAAQS (µg/m³)	CAAQS (µg/m³) [d]
PM_{10}	24-Hour	150 [a]	Nonattainment
	Annual	--	Nonattainment
$PM_{2.5}$	24-Hour	Nonattainment	--
	Annual	12 [b]	Nonattainment

Table DR64-1. Pollutant Modeling Summary

Pollutant	Averaging Time	Primary NAAQS (µg/m³)	CAAQS (µg/m³) [d]
Carbon Monoxide (CO)	1-Hour	40,000 [c]	23,000
	8-Hour	10,000 [c]	10,000
Sulfur Dioxide (SO_2)	1-Hour	196 [d]	655
	3-Hour	1,300 [c]	--
	24-Hour	365	105
	Annual	80	--
Oxides of Nitrogen (NO_x)	Annual	100 [e]	57
	1-Hour	188 [f]	339
Ozone	1-Hour	--	Nonattainment
	8-Hour	Nonattainment	Nonattainment

Notes:

[a] Not to be exceeded more than once per year on average over 3 years.
[b] Annual mean, averaged over 3 years.
[c] Not to be exceeded more than once per year.
[d] 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
[e] Annual mean.
[f] 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
-- : No applicable standard

Construction-phase dispersion modeling was conducted per the approach described below, including model set-up, characterization of construction-phase emission sources, estimation of modeled emissions, and identification of background ambient air concentrations. The modeled pollutant concentrations, combined with the background ambient air concentrations, were compared to the applicable NAAQS and/or CAAQS, based on the attainment pollutants and averaging times presented in Table DR64-1.

Dispersion Model Setup

Consistent with the construction-phase health risk assessment (HRA) included in the applicant's Supplemental Filing (TN# 239409, 08/20/2021, p. 3.3-28), the U.S. Environmental Protection Agency (EPA)-approved AERMOD modeling system (Version 12121) was used to calculate downwind ambient concentrations of criteria air pollutants. The meteorological data, property boundary, and receptor placement were also consistent with the construction-phase HRA described in the applicant's Supplemental Filing (TN# 239409, 08/20/2021, Section 3.3.5.2).

Source Characterization

Since emissions from construction-phase activities are generated from both tailpipe exhaust and fugitive dust, two source types were used to characterize emissions release in the dispersion model. Exhaust tailpipe emissions were characterized as a grid of 437 point sources covering the entire property, with a spacing of 25 meters and stack exhaust parameters consistent with the applicant's Supplemental Filing (TN# 239409, 08/20/2021, p. 3.3-29). Fugitive dust emissions from roadways, grading activities, and material loading/unloading were characterized as a single area-poly source within the property, with a 50-foot buffer from the nearest property boundary and assuming a ground-level release. This approach is conservative for modeling ground-level fugitive emissions with no initial vertical dimension and assumes grading activities would not continuously occur within 50-feet of the proposed facility fence line. Figure DR64-1 shows the AERMOD model setup.

Figure DR64-1. Model Layout

Table DR64-2 summarizes the source parameter characterization within AERMOD.

Table DR64-2. Construction-Phase Model Source Parameters

Source ID	Source Description	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	Release Height (m)	Initial Vertical Dimension (m)
CPS_01 – CPS_437	Grid of Construction Point Sources	4.6	533	18	0.13	--	--
AS_01	Area-Poly Fugitive Source	--	--	--	--	0.0	0.0

Notes:
m: meter(s)
m/s: meter(s) per second
K: degrees Kelvin

Emissions Estimation

Since construction emissions would occur for 10-hours per day between the hours of 7:00 a.m. and 7:00 p.m., the AERMOD HROFDAY factor was used. This allows the model to only calculate emissions from construction during the hours in which the equipment could operate.

Emissions from the construction-phase activities of tailpipe exhaust and fugitive dust were calculated from the emissions presented in the applicant's Supplemental Filing (TN# 239413, 08/20/2021, Appendix 3.3A), with the following additional refinements:

- Removed demolition emissions to reflect the fact that all structures previously onsite have been removed since the initial filing of the Supplemental Filing (TN# 239409, 08/20/2021).
- Fugitive dust mitigation increased from 55 percent to 61 percent based on watering disturbed areas every 3 hours (control efficiency taken from Table XI-A of the South Coast Air Quality Management District's (SCAQMD) *California Environmental Quality Act (CEQA) Air Quality Handbook* for Construction & Demolition[1]) for the following sources of fugitive dust:
  - Loading of debris/building waste
  - Dismemberment and collapse of structures
  - Grading equipment passes
  - Truck dumping on a pile or loading to a truck from a pile
- Fugitive dust mitigation increased from 55 percent to 84 percent based on applying dust suppressant annually (control efficiency taken from Table XI-A of the SCAQMD's *CEQA Air Quality Handbook* for Travel Over Unpaved Roads) for unpaved roads throughout the site.
- Assumed a mix of Tier 3/Tier 4 equipment for $PM_{2.5}$ emissions, consistent with the approach used in the Supplemental Filing (TN# 239409, 08/20/2021) to estimate PM_{10} and NO_x emissions.

The control measures described above will be in addition to those presented in the Supplemental Filing (TN# 239409, 08/20/2021, p. 3.3-15), but will similarly be incorporated into the project's design features and implemented by the applicant during construction activities.

A revised Appendix 3.3A is included as Attachment DR64-1. Table DR64-3 summarizes the emissions used to establish emission rates for construction-phase dispersion modeling.

Table DR64-3. Onsite Construction Emissions for Modeling

Onsite Construction [a]	Criteria Pollutant Emissions [d]						
	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	Fugitive PM_{10}	Fugitive $PM_{2.5}$
Maximum Daily Emissions (lb/day)	56.3	45.5	0.15	2.01	2.01	34.0	3.40
Maximum Hourly Emissions (lb/hour) [b]	4.69	3.79	0.01	0.17	0.17	2.83	0.28
Average Annual Emissions (tpy) [c]	4.07	2.56	0.01	0.12	0.12	1.43	0.14

Notes:

[a] For purposes of determining air quality impacts associated with construction activities, only emissions from onsite construction activities were evaluated. This includes emissions resulting from operation of onsite construction equipment and vehicles, as well as onsite fugitive dust emissions. It was also assumed that construction activities would occur for up to 10 hours per day.

[b] Hourly project emissions were calculated based on the assumption that these construction emissions could occur within a 12-hour window.

[c] Maximum project emissions were averaged over the entire construction duration (17 months) to determine a 12-month total for modeling.

[d] Modeling will be limited to the hours of 7 am to 7 pm in accordance with the local municipal codes for noise.

lb/day: pound(s) per day

lb/hour: pound(s) per hour

tpy: ton(s) per year

Total non-fugitive emissions (exhaust emissions) were split equally between each point source modeled. All fugitive emissions were modeled as being released from the single area-poly source.

To establish emission rates for modeling, the short-term hourly emission rates for the 1-hour, 3-hour, 8-hour, and 24-hour averaging times used the maximum 1-hour estimated emission rate. Annual emissions were input into AERMOD assuming the annual pounds per year would be evenly distributed over the potential hours of operation. That is, out of a potential 8,760 hours per year, construction activities would only occur over 50-percent of the time (12 hours in a day).

[1] South Coast Air Quality Management District (SCAQMD). 2007. *California Environmental Quality Act Air Quality Handbook*. April. Available at http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/fugitive-dust.

Background Concentrations

Consistent with the background ambient air concentrations used for the operational-phase ambient air quality analysis in the applicant's Supplemental Filing (TN# 239409, 08/20/2021, p. 3.3-5), Table DR64-4 presents the background ambient air concentrations used for the construction-phase ambient air quality analysis. As with Table DR64-1, nonattainment criteria air pollutants are identified and were not modeled. For each modeled criteria air pollutant and averaging time, these background ambient air concentrations were added to the applicable AERMOD-predicted concentrations at receptors at or beyond the fenceline for comparison to the NAAQS and/or CAAQS.

Table DR64-4. Background Ambient Air Concentrations

Pollutant	Averaging Time	NAAQS Background Concentration (µg/m³)	CAAQS Background Concentration (µg/m³)
PM_{10}	24-Hour	134	Nonattainment
	Annual	--	Nonattainment
$PM_{2.5}$	24-Hour	Nonattainment	--
	Annual	11.17	Nonattainment
CO	1-Hour	2,864	2,864
	8-Hour	2,406	2,406
SO_2	1-Hour	6.11	38
	3-Hour	38	--
	24-Hour	3.93	3.93
	Annual	0.55	--
NO_x	Annual	22.7	22.7
	1-Hour	97.8	162

Notes:
Background values were collected from Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California, as reported by the U.S. Environmental Protection Agency (EPA) on the Monitor Values Report Website (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report).
-- : No applicable standard
µg/m³: micrograms per cubic meter

Model Results

Based on the approach described above, Tables DR64-5 and DR64-6 summarize the total predicted construction-phase pollutant concentrations compared to the NAAQs and CAAQS, respectively.

Table DR64-5. NAAQS Model Results

Pollutant	Averaging Time	NAAQS Modeled Concentration (µg/m³)	Background Concentration (µg/m³) [a]	Total Predicted Concentration (µg/m³)	Primary NAAQS (µg/m³)
PM_{10}	24-Hour [b]	13.29	134	147.29	150
$PM_{2.5}$	Annual [c]	0.16	11.17	11.3	12
CO	1-Hour [d]	28.0	2,864	2,892	40,000
	8-Hour [d]	13.0	2,406	2,419	10,000
SO_2	1-Hour [e]	0.07	6.11	6.2	196
	3-Hour [f]	0.06	38.00	38.1	1300
	24-Hour [f]	0.02	3.93	3.9	365
	Annual [f]	<0.01	0.55	0.6	80
NO_x	Annual [f]	1.00	22.70	23.7	100
	1-Hour [g]	22.0	97.80	119.8	188

Notes:
[a] Background concentrations from the Jackson Street Monitor (Site ID 060850005) were used to estimate the total predicted concentrations.
[b] The total predicted concentration for the PM_{10} 24-hour standard is the 6th highest value over the five modeled years (2013-2017) combined with the representative background concentration.
[c] The total predicted concentration for the $PM_{2.5}$ annual standard is the maximum 5-year average combined with the representative background concentration.
[d] The total predicted concentrations for the CO standards, 1-hour and 8-hour, are the high-2nd-high modeled concentrations of the five individual years modeled (2013-2017) combined with the representative background concentrations.
[e] The total predicted concentration for the SO_2 1-hour standard is the high-4th-high modeled concentration averaged over five years combined with the representative hourly background concentration.
[f] The total predicted concentrations for the SO_2 standards, annual, 24-hour, and 3-hour, and NO_x annual standard are the highest modeled concentrations of the five individual years modeled (2013-2017) combined with the representative background concentrations.
[g] The total predicted concentrations for the NO_x 1-hour standard is the 5-year average, high-8th-high modeled concentrations combined with the representative hourly background concentrations.

Table DR64-6. CAAQS Model Results

Pollutant	Averaging Time	CAAQS Maximum Modeled Concentration (µg/m³) [a]	Background Concentration (µg/m³) [b]	Total Predicted Concentration (µg/m³)	CAAQS (µg/m³)
CO	1-Hour	28.22	2,864	2,892.2	23,000
	8-Hour	13.17	2,406	2,419.2	10,000
SO_2	1-Hour	0.07	38	38.1	655
	24-Hour	0.02	3.930	3.9	105
NO_x	Annual	1.00	22.7	23.7	57
	1-Hour	22.80	162.0	184.8	339

Notes:
[a] The maximum modeled concentration for each pollutant and averaging period are the high-1st-high concentrations for comparison to the CAAQS.
[b] Maximum background concentrations from the Jackson Street Monitor (Site ID 060850005) were used to estimate the total predicted concentrations.

Based on the total predicted concentrations from dispersion modeling of the proposed project's construction-phase emissions, the CAAQS and NAAQS for which the SFBAAB is in attainment would not be exceeded. This supports the less-than-significant impact conclusion presented in the Supplemental Filing (TN# 239413, 08/20/2021, p. 3.3-33).

65) Please support the analysis of construction-phase criteria pollutant impacts by describing how the construction sources are represented in the dispersion model and how concentrations of criteria air pollutants during different averaging times are derived. This information should demonstrate how daytime-only construction activities are represented in the consideration of 1-hour and daily impacts.

Response: Please see the response to Data Request #64.

Land Use and Planning Data Requests

Background: Exemption from Natural Gas Prohibition

The Supplemental Filing provides a general discussion of multiple ways the project could be exempt from the City of San Jose's prohibition of natural gas infrastructure. The applicant states on page 3.11-9:

> *Section 17.845.030 of the (City of San Jose) Municipal Code prohibits natural gas infrastructure within newly constructed buildings and natural gas infrastructure extending into any system or device within a building for which an equivalent all-electric system or design is available. However, Section 17.845.040(B) provides an exception to the prohibition of natural gas infrastructure for facilities with a distributed energy resource that protects public health, safety, or economic welfare in the event of an electric grid outage, until December 31, 2024. The project would include 224 natural gas-fired generators, which will operate for load shedding, demand response and behind the meter RA in support of the electric grid as well as provide emergency power to the Project. Therefore, the project meets the necessary operational requirements for the protection of public health, safety, and economic welfare in the event of an electric grid outage. With concurrence from the City of San Jose, the project would be eligible for the exception provided under Section 17.845.040(B) of the Municipal Code. Further, the Applicant may apply for the Limited Exemption for Manufacturing and Industrial Facilities or the Hardship Exemption provided under Sections 17.845.045 and 17.845.050 of the Municipal Code, respectively.*

Data Request

83) Please provide a focused, specific description of the basis for how the project is exempt from the natural gas infrastructure prohibition discussed in Section 17.845 of the City of San Jose Municipal Code and correspondence with the City confirming the exemption.

Response: The City of San José's has been requested to provide their opinion of the applicability of Municipal Code Section 17.845 exemption to the San José Data Center project. The response will be filed when received.

Utilities And Service Systems Data Requests

Background

Sections 10910 et seq. of the California Water Code set forth the circumstances in which CEQA lead agencies must seek preparation of, or prepare themselves, water supply assessments (WSA) for proposed projects that meet certain criteria. One of the criteria is if a project's water demand is equal to or exceeds the total demand of 500 dwelling units. In the state of California, the demand of a dwelling unit ranges from 0.25 to 0.5 AFY, depending on several factors, such as the area and the cost of water, among many other. Using those numbers, the demand of 500 dwelling units is between 125 and 250 AFY. Since the demand of the revised San Jose Data Center project would be exceed the total for 500 dwelling units, it meets this criterion and thus a WSA is needed.

A fundamental task of a WSA is to determine whether total projected water supplies available during normal, single-dry, and multiple-dry water years will meet the projected water demand associated with a proposed project, in addition to the water supplier's existing and planned future uses. When making such a determination, the authors of the WSA must address several factors including information regarding existing water supplies, projected water demand, and dry year supply and demand. Suppliers are expressly permitted to rely on information contained in the most recently adopted Urban Water Management Plans, so long as the water needed for the proposed project was accounted for therein.

In the original SPPE application the applicant relied on a WSA that was prepared by the city of San Jose for a previous version of the San Jose Data Center. The water demand for that project was approximately 130 AFY. The city determined that it had sufficient supplies to meet the previous project's needs. CEQA allows a project to tier off an approved Environmental Impact Report (EIR) if the impact of a newly proposed project was accounted for in the approved EIR, or if the impact of the newly proposed project is comparable to that of the project for which the EIR was approved if that project has been canceled. However, the impact is substantially greater than that of the canceled project (535 AFY vs. 130 AFY). The assumption that the conclusion of the previous WSA that sufficient water supply was available for the project would still apply to the revised project, whose water demand is more than four times that of the project for which the WSA was prepared, is not valid.

Staff would like to know if the applicant contacted the City regarding the preparation of a new WSA for the revised project and the likelihood that the City would approve the request for total expected water demand (recycled and potable).

Data Requests

89) Please consult with the City on the need to prepare a new WSA for the revised project and provide any information the applicant might have regarding the time frame for the City to process the request.

Response: The SJC Data Center's projected water demand is divided into two categories, potable water demand and recycled water demand. As provided in the Applicant's SPPE Application Supplemental Filing, submitted and docketed on August 20, 2021, the Project's protected potable water demand is 1 acre feet per year (AFY), and the Project's operational recycled water demand is 535 AFY, and this information has been updated to account for the switch to natural gas emergency back-up generators. (SPPE Supplement, Vol. 2, p. 3.19-4, 3.19-6.) More recently, the Applicant obtained more detailed information on water use for the back-up generators, and recently submitted a revised data center recycled water demand figure of 423 AFY. (Transaction Number 240082). Of this recycled water demand, the project will use up to 1 acre-foot per year for landscape irrigation, which is only expected for the first year after the initial planting).

Thus, the SJC Data Center's total water demand, both for potable and recycled water, is significantly less than the previous amounts evaluated in the prior Environmental Impact Report ("EIR") and the 2017 Water Supply Assessment ("2017 WSA"), which both assumed a potable water demand for the data center use of 12.1 AFY and recycled water demand of 1,643 AFY for cooling purposes for the data

center. (See 237 Industrial Center Project Draft EIR, p. 227; 2017 WSA, p. 9.) See Table DR-89 comparing the current project water demand with the assumptions for demand in the 2017 WSA.

The background section of Staff's Data Request 89 compares the 2017 WSA's *potable* water demand figures to the current *recycled* water demand figures—resulting in an inaccurate comparison. Nevertheless, the applicant consulted with the City of San Jose regarding reliance on the previous 2017 WSA. Attachment DR-89 confirms that the City does not require a new Water Supply Assessment for the revised project given that the current water demand projections are significantly less than what was covered in the 2017 WSA.

Table DR-89 Comparison of the Water Supply Assessment Water Demand to the Project's Water Demand

Water Supply Assessment Site Use	**Potable Demand AFY**	**Recycled Demand AFY**
Light Industry	117.4	29.4
Data Center Cooling	0	1643.3
Data Center Domestic	12.1	0
Total WSA Water Demand	**129.5**	**1673**
SJC Water Demand	**1**	**423**