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Amendment to 22-SPPE-2 Microsoft Data Center SJC04/06, July 2024

This amendment to 22-SPPE-2 addresses the following proposed changes to the project;

- Changes to the building locations and overall facility plot plan.
- Changes to construction emissions for the existing phased and new non-phased construction scenarios.
- Changes to the types and numbers of emergency diesel engines proposed for use at the facility and the resultant changes to emissions.
- Changes to the location of the engines based upon the revised plot plan as well as the revised placement of some of the engines due to design changes.
- Revised project fence line

As a result of these proposed changes this amendment presents revised data for the following:

- Revised emissions estimates for the engine changes noted above.
- Revised ambient air quality data.
- Revised air quality impact modeling.
- Revised air quality modeling for the health risk assessments.
- Revised health risk assessments.

Although this amendment follows the same basic outline of the original Air Quality and Public Health section of the SPPE, a significant portion of the original text has been removed. The removed text consists of a number of general discussions in the SPPE that need not be repeated herein as these discussions remain valid and unchanged.

1.0 AIR QUALITY

This section presents the revised evaluation of emissions and impacts resulting from the construction and operation of the Microsoft Backup Generating Facility (MBGF), which supports the Microsoft Data Center (SJC04 and SJC06). The revised MBGF will be comprised of **38** diesel engines, which will provide emergency backup power. This section also presents the proposed mitigation measures to be used in order to minimize emissions and limit impacts to below established significance thresholds. This revised section is based upon an analysis prepared by Atmospheric Dynamics, Inc. in accordance with the California Energy Commission (CEC) application requirements for a Small Power Plant Exemption (SPPE) pursuant to the power plant siting regulations, and the rules and regulations of the Bay Area Air Quality Management District (BAAQMD or District). This revised analysis is but one part of a larger analysis, which seeks an SPPE Decision from the CEC and an Authority to Construct from the BAAQMD.

The following revised Appendices contain support data for the Air Quality and Public Health analyses.

Appendix AQ1 – Emissions Data for Criteria and Toxic Pollutants
Appendix AQ2 – Equipment Specifications and Emissions Control System Information
Appendix AQ3 – Air Quality Impact Modeling Support Data
Appendix AQ4 – Construction and Miscellaneous Emissions Evaluation and Support Data
Appendix AQ5 – Risk Assessment Support Data

1.1 ENVIRONMENTAL SETTING

Text not included in the amendment.

1.1.1.1 *Existing Air Quality*

Text not included in the amendment.

Existing Conditions. The existing air quality conditions in the project area are summarized in revised Tables 4.3-3. Table 4.3-4 provides the background ambient air concentrations of criteria pollutants for the previous three (3) years as measured at certified monitoring stations near the project site. To evaluate the potential for air quality degradation as a result of the project, modeled project air concentrations are combined with the respective background concentrations as presented in revised Table 4.3-4 and used for comparison to the NAAQS and CAAQS.

Revised Table 4.3-3: Measured Ambient Air Quality Concentrations by Year

Pollutant	Units	AvgTime	Concentration Value Type	2021	2022	2023
Ozone	ppm	1-Hr	CAAQS-1st Highs/3-yr Max	0.098	0.090	0.087
Ozone	ppm	8-Hr	CAAQS-1st Highs/3-yr Max	0.084	0.074	0.068
Ozone	ppm	8-Hr	NAAQS-4th Highs/3-yr Avg	0.072	0.062	0.059
NO_2	ppb	1-Hr	CAAQS-1st Highs/3-yr Max	47	47	59
NO_2	ppb	1-Hr	NAAQS-98th%s/3-yr Avg	39	44	44
NO_2	ppb	Annual	CAAQS/NAAQS-AAM/3-yr Max	8.73	9.46	9.28
CO	ppm	1-Hr	CAAQS-1st Highs/3-yr Max	1.7	1.7	1.9
			NAAQS-2nd Highs/3-yr Max	1.6	1.5	1.6
CO	ppm	8-Hr	CAAQS-1st Highs/3-yr Max	1.5	1.4	1.4
			NAAQS-2nd Highs/3-yr Max	1.3	1.3	1.4
SO_2	ppb	1-Hr	CAAQS-1st Highs/3-yr Max	1.8	2	35.7
			NAAQS-99th%s/3-yr Avg	2	2	2
		24-Hr	CAAQS-1st Highs/3-yr Max	0.7	0.9	1.9
			NAAQS-2nd Highs/3-yr Max	0.5	0.6	0.5
		Annual	CAAQS/NAAQS-AAM/3-yr Max	0.17	0.22	0.09
PM10*	$\mu g/m^3$	24-Hr	CAAQS-1st Highs/3-yr Max	134	42	41
			NAAQS-2nd Highs/3-yr 4th High	91	41	41
		Annual	CAAQS-AAM/3-yr Max	24.8	20.1	21.3
PM2.5	$\mu g/m^3$	24-Hr	NAAQS-98th%/3-yr Avg	23	27	27
		Annual	CAAQS –AAM/3-yr Max	8.9	10.1	8.2
			NAAQS-AAM/3-yr Avg	8.9	10.1	8.2

Notes: Values for 158 East Jackson Street, San Jose, CA, the nearest BAAQMD monitoring site (all applicable pollutants measured)
Data sources: EPA AIRS website-Monitored Values. PM10 data for 2023 for the Jackson St. station was not available, therefore data for the period 2020-2022 was used. AAM data is also not available on EPA Airs, Therefore CARB ADAM data was used of 2020-2022.

Tables are provided in revised Appendix AQ-3 that presents a detailed summary of the air quality monitoring data derived from the EPA AIRS. The values presented in revised Table 4.3-4 represent the highest concentrations from all sets of data, by pollutant for similar averaging times.

Revised Table 4.3-4: **Background Air Quality Data Summary**

Pollutant and Averaging Time	**AQ Data Value**	**Units**	**Background Value ($\mu g/m^3$)**
Ozone – 1-hour Maximum CAAQS	0.098	ppm	192.4
Ozone – 8-hour Maximum CAAQS	0.084	ppm	164.9
Ozone – 3-year average 4th High NAAQS	0.064	ppm	141.4
PM10 – 24-hour Maximum CAAQS	134	$\mu g/m^3$	134
PM10 - 24-hour 3-year 4th High NAAQS	41	$\mu g/m^3$	41
PM10 – Annual Maximum CAAQS	24.8	$\mu g/m^3$	24.8
PM2.5 – 3-Year Average of Annual 24-hour 98th Percentiles NAAQS	25.7	$\mu g/m^3$	25.7
PM2.5 – Annual Maximum CAAQS	10.1	$\mu g/m^3$	10.1
PM2.5 - 3-Year Average of Annual Values NAAQS	9.1	$\mu g/m^3$	9.1
CO – 1-hour Maximum CAAQS	1.9	ppm	2175
CO - 1-hour High, 2nd High NAAQS	1.6	ppm	1832
CO – 8-hour Maximum CAAQS	1.5	ppm	1718
CO - 8-hour High, 2nd High NAAQS	1.3	ppm	1603
NO_2 – 1-hour Maximum CAAQS	59	ppb	111
NO_2 - 3-Year Average of Annual 98th Percentile 1-hour Daily Maxima NAAQS	42.3	ppb	80
NO_2 – Annual Maximum CAAQS/NAAQS	9.46	ppb	17.8
SO_2 – 1-hour Maximum CAAQS	35.7	ppb	93.4
SO_2 - 3-Year Average of Annual 99th Percentile 1-hour Daily Maxima NAAQS	2	ppb	5.2
SO_2 – 3-hour Maximum NAAQS (Not Available - Used 1-hour Maxima)	35.7	ppb	93.4
SO_2 – 24-hour Maximum CAAQS	1.9	ppb	5
SO_2 - 24-hour High, 2nd High NAAQS	0.9	ppb	1.6
SO_2 – Annual Maximum NAAQS	0.22	ppb	0.6
Values for 158 East Jackson Street, San Jose, CA, the nearest BAAQMD monitoring site (all applicable pollutants measured). CARB data used for AAM for PM10 for the period 2020-2022. Conversion of ppm/ppb measurements to $\mu g/m^3$ concentrations based on: $\mu g/m^3$ = ppm x 40.9 x MW, where MW = 48, 28, 46, and 64 for ozone, CO, NO_2, and SO_2, respectively.			

1.1.1.2 *Regulatory Background*

Partial Text not included in the amendment.

Compression Ignition (CI) Diesel Engines Emission Standards

Based on 40 CFR 60.4202, emergency CI engines rated at > 560 kW are subject to the emissions standards in 40 CFR 89.112, Table 1, as follows:

- Tier 4 – NO_x 0.5 g/bhp-hr
- Tier 4 – NMHC 0.14 g/bhp-hr
- Tier 4 – CO 2.6 g/bhp-hr
- Tier 4 – PM 0.02 g/bhp-hr

The Tier 4 standards above apply to the following engines:

- Caterpillar C175-16, 4376 bhp, 3100 kWe
- Caterpillar C27, 1214 bhp, 800 kWe

The Tier 3 standards are as follows:

- Tier 3 – NO_x 2.85 g/bhp-hr
- Tier 3 – NMHC 0.15 g/bhp-hr
- Tier 3 – CO 2.6 g/bhp-hr
- Tier 3 – PM 0.15 g/bhp-hr

The Tier 3 standards apply to the following engines:

- John Deere JU4H-UFAD5G Fire Pump engine, 118 bhp, 88 kWe.

The proposed CAT C175-17 and C27 diesel-fired engines will be equipped with the "ecoCube" catalyst systems and diesel particulate filters (DPF) which will result in the engines meeting the EPA/CARB Tier 4 emissions standards, as well as the BACT requirements of the BAAQMD for engines rated at greater than 1000 bhp. The John Deere fire pump engine will comply with the Tier 3 standards.

BACT Requirements (BAAQMD Policy)

A review of BACT for CI-Stationary Emergency Standby engines rated at greater than 1000 BHP (BAAQMD Policy Memo, BACT Determination for Diesel Back-Up Engines Greater than or equal to 1,000 Brake Horsepower (12/21/20), i.e., the CAT C175-16 and CAT C27, indicates that BACT for engines in the stated size range would be compliance with the EPA Tier 4-Final standards as follows:

- PM 0.02 g/bhp-hr
- NO_x 0.5 g/bhp-hr
- NMHC 0.14 g/bhp-hr
- CO 2.6 g/bhp-hr
- SO_2 fuel sulfur content not to exceed 15 ppmw (~0.005 g/bhp-hr)

The remaining engines proposed for the MBGF, which are all rated at less than 1,000 BHP, meet the current BAAQMD BACT requirements.

1.1.2 <u>Impact Discussion</u>

Text not included in the amendment.

1.1.2.1 *Significance Criteria*

Text not included in the amendment.

1.1.2.2 *Impact Summary*

Text not included in the amendment.

1.1.2.3 *Project Emissions, Air Quality Impact Analysis, and Health Risk Assessment*

PROJECT EMISSIONS

Construction. Revised project construction emissions of CO, VOCs, NO_x, SO_2, PM10, PM2.5, and CO2e were evaluated. Detailed construction emission calculations are presented in revised Appendix AQ4. Onsite construction emissions from construction of the project will result from site preparation and grading activities, building erection and parking lot construction activities, "finish" construction activities, and the use of onsite construction equipment. Construction emissions from the project include emissions from both SJC04 and SJC06. Offsite construction emissions will be derived primarily from materials transport to and from the site, worker travel, and construction of the reclaim water line. The following revised constriction scenarios were evaluated:

- **Phased Scenario**-Emissions from the 50-month construction period (25 months for SJC04 and 25 months for SJC06) were estimated using the CalEEMod program. Construction of SJC06 is tentatively scheduled to commence within 1 month after the conclusion of construction of SJC04.
- **Non-Phased Scenario**-Emissions from the 25-month construction period were estimated using the CalEEMod program. Construction of SJC04 and SJC06 will occur concurrently during the 25-month period.
- Current construction scheduling indicates that for the <u>Phased Scenario</u> there will be an overlap period where the engines associated with SJC04 will operate for the 25-month period while SJC06 is being constructed. The anticipated construction start date for either scenario is anticipated to be January 2025. Construction support data and the CalEEMod analysis output are presented in revised Appendix AQ-4.

The BAAQMD CEQA Air Quality Guidelines considers exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. BAAQMD recommends a 1,000-foot zone of influence around project boundaries. Since construction activities are typically temporary and mitigation measures as delineated below are proposed to be implemented, and since there are no identified sensitive receptors within 1000 ft. of the site boundary, community risk impacts from construction activities would be *less than significant*.

Table 4.3-6: Mitigated Criteria Pollutant Emissions from Construction Activities

Table 4.3-6 has been replaced by Tables 4.3-6a through 4.3-6e as follows:

Table 4.36a SJC04/SJC06 Non-Phased Construction and Miscellaneous Post-Construction Operations Emissions Summary

Pollutant	ROG	NOx	CO	SO2	PM10 Fug	PM10 Exh	PM10 Total	PM2.5 Fug	PM2.5 Exh	PM2.5 Total	CO2e
Period, tons	3.42	3.03	5.41	.021	.361	.034	.395	.132	.033	.165	2203.7
Max Yr, tons	1.774	2.656	2.638	.0154	.288	.0274	.315	.110	.0264	.1364	1694.2
Max Year	2026	2025	2026	2025	2025	2025	2025	2025	2025	2025	2025
Avg Max Month, lbs	295.7	442.7	439.7	2.57	48	4.57	52.2	18.3	4.4	22.7	-
Avg Max Day, lbs	13.44	20.1	20	.117	2.18	.21	2.4	.83	.20	1.03	-
Post-Const Ops, tpy	2.35	.56	1.065	.00434	.06	.04	.10	.02	.04	.05	1921.5

Notes:
There was no non-phased analysis for the previous (initial) analysis.
Est. Start Date: 1-1-25 (25 months total const period)
Max month emissions are the max year emissions divided by 12.
Max day emissions are the max month emissions divided by 22 (avg 22 work-days per month).
Misc Ops emissions are for site use, etc., and do not include emissions for M&R Testing of the Emergency Engines.

Table 4.36b SJC04 (Phased) Phase 1 Construction and Miscellaneous Post-Construction Operations Emissions Summary

Pollutant	ROG	NOx	CO	SO2	PM10 Fug	PM10 Exh	PM10 Total	PM2.5 Fug	PM2.5 Exh	PM2.5 Total	CO2e
Period, tons	1.73	1.66	3.70	.012	.25	.02	.27	.01	.02	.12	1274.2
Max Yr, tons	.913	1.402	1.96	.0088	.21	.016	.225	.087	.015	.102	952.2
Max Year	2026	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025
Avg Max Month, lbs	152.2	233.7	326.7	1.47	35	2.7	37.5	14.5	2.5	17	-
Avg Max Day, lbs	6.92	10.62	14.85	.067	1.59	.123	1.7	.66	.114	.773	-
Post-Const Ops, tpy	1.42	.273	.472	.002	.024	.02	.043	.0074	.02	.026	946.6

Notes:
Est. Start Date: 1-1-25 (25 months const period per phase)
Max month emissions are the max year emissions divided by 12.
Max day emissions are the max month emissions divided by 22 (avg 22 work-days per month).
Misc Ops emissions are for site use, etc., and do not include emissions for M&R Testing of the Emergency Engines.

Table 4.3-6c SJC06 (Phased) Phase 2 Construction and Miscellaneous Post-Construction Operations Emissions Summary

Pollutant	ROG	NOx	CO	SO2	PM10 Fug	PM10 Exh	PM10 Total	PM2.5 Fug	PM2.5 Exh	PM2.5 Total	CO2e
Period, tons	1.7	1.53	2.45	.0097	.35	.016	.368	.095	.016	.11	1043
Max Yr, tons	1.62	1.28	1.02	.007	.222	.013	.235	.06	.012	.072	756.4
Max Year	2029	2027	2027	2027	2027	2027	2027	2027	2027	2027	2027
Avg Max Month, lbs	270	213.3	170	1.17	37	2.17	39.17	10	2	12	-
Avg Max Day, lbs	12.3	9.7	7.7	.053	1.7	.1	1.8	.45	.09	.55	-
Post-Const Ops, tpy	1.42	.271	.47	.002	.024	.019	.043	.0074	.019	.026	944

Notes:
Est. Start Date: 3-1-27 (25 months const period per phase)
Max month emissions are the max year emissions divided by 12.
Max day emissions are the max month emissions divided by 22 (avg 22 work-days per 30 day period).
Misc Ops emissions are for site use, etc., and do not include emissions for M&R Testing of the Emergency Engines.

Table 4.3-6d SJC04/06 Reclaim Water Line Offsite Construction Emissions Summary

Pollutant	ROG	NOx	CO	SO2	PM10 Fug	PM10 Exh	PM10 Total	PM2.5 Fug	PM2.5 Exh	PM2.5 Total	CO2e
Period, tons	0.00892	0.0411	0.3599	0.00068	0.00564	0.00108	0.00672	0.00151	0.00108	0.00259	67.2
Max Yr, tons	0.00892	0.0411	0.3599	0.00068	0.00564	0.00108	0.00672	0.00151	0.00108	0.00259	67.2
Max Year	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025
Avg Max Month, lbs	4.46	20.55	179.95	0.34	2.82	0.54	3.36	0.755	0.54	1.3	-
Avg Max Day, lbs	0.20	9.93	8.18	0.015	0.13	0.025	0.153	0.034	0.025	0.06	-

Notes:
Max month emissions are the max year emissions divided by 4 (4 month construction period).
Max day emissions are the max month emissions divided by 22 (avg 22 work-days per month).

Table 4.3-6e SJC0406 Phase 1 and 2 Overlap Construction Year (2027) Emissions (no M&R Test Emissions)

Pollutant	ROG	NOx	CO	SO2	PM10 Fug	PM10 Exh	PM10 Total	PM2.5 Fug	PM2.5 Exh	PM2.5 Total	CO2e
Overlap Year, tons	.788	1.29	1.19	.0071	.223	.0132	.236	.0604	.013	.073	780.9
Avg Max Month, lbs	131.3	215	198.3	1.18	37.2	2.2	39.3	10.1	2.17	12.17	-
Avg Max Day, lbs	5.97	9.77	9.01	.054	1.69	.10	1.79	.46	.10	.55	-

Notes:

Max month emissions are the max year emissions divided by 12.

Max day emissions are the max monthly emissions divided by 22 (avg 22 work-days per month).

Assumptions for Tables 4.3-6a through 6e:

1. Both construction options were assumed to start in January 2025. (This allowed for a consistent comparison of emissions.)
2. The Non-Phased construction option assumed the entire facility was constructed in 25 months.
3. The phased construction option assumed that each phase lasted for 25 months, with SJC04 constructed first, followed immediately by SJC06.
4. SJC04 (Phase 1) incorporated by necessity the following support facilities: electrical substation, water storage tankage area, tank support building, as well as a majority of the parking and internal site access roads, etc.
5. SJC06 (Phase 2) consisted primarily of the main building construction and its immediate parking lot and access areas.
6. Construction of the Reclaim Water Line (offsite emissions) was also started and completed in 2025 as it is also necessary for the operation of both SJC04 and SJC06.
7. The applicant supplied the revised cut and fill values. A round trip (RT) mileage value for soil export from the site assumed a very high value of 150 miles (per the Applicant to accommodate hauling routes outside of the air basin).
8. Due to item 4 above, a significant portion of the site preparation and grading activities will occur in Phase 1 (SJC04), but site prep and finish grading work may still be required for SJC06, therefore periods and equipment were still allocated for these activities in SJC06.

Based on the summaries presented above, none of the construction scenarios, i.e., onsite or offsite construction emissions, exceed the current BAAQMD CEQA construction thresholds.

As shown in Table 4.3-6a through 6e, construction of the project would not generate VOCs, NO_x, SO_x, PM10 and PM2.5 emissions in excess of BAAQMD's numeric significance thresholds. The BAAQMD's CEQA Guidelines consider fugitive dust impacts to be less than significant through the application of best management practices (BMPs).

Mitigation Incorporated into the Construction Phase and Project Design:

Text not included in the amendment.

Operation. Operational emissions of NO_x, VOCs, CO, SO_2, PM10, PM2.5, and GHGs were evaluated. Diesel particulate matter (DPM) was the only TAC considered to result from operation of the project. Detailed operation emission calculations are presented in Appendix AQ1. Primary operation emissions are a result of diesel fuel combustion from the standby diesel engines. Secondary operational emissions (as derived from the CalEEMod analyses) from facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, electricity use, and offsite vehicle trips for worker commutes and material deliveries were considered de minimus. Notwithstanding the foregoing, drift emissions from the SJC04 and SJC06 building indirect cooling systems were also evaluated. Each of the primary emission sources are described in more detail below.

Stationary Sources. The project's 38 emergency standby diesel generators will be comprised of the following equipment:

- 32 – C175-16 diesel-fired engines, each rated at 4,376 HP (~3100 kWe) at 100% Load
- 4 – C27 diesel-fired engines, each rated at 1,214 HP (~800 kWe) at 100% Load
- 2 – John Deere JU4H-UFAD5G diesel Fire Pump engines, each rated at 118 HP (~88 kWe) at 100% Load

The generators proposed for installation are made by Caterpillar, with certified EPA Tier ratings as noted above. The fire pump engine is made by John Deere with a certified EPA Tier rating as noted above. All of the engines would be operated routinely, i.e., readiness and maintenance testing, to ensure that they would function normally during an emergency event.

Each of the data center buildings (SJC04 and SJC06) will be equipped with thirty-two (32) roof-mounted indirect cooling units. Each unit will contain two (2) cells with two (2) fans per cell. These units will be equipped with drift eliminators rated at 0.0005% efficiency. The Applicants design staff notes that indirect cooling will only be required for 7807 hours/yr (emissions will be based on 8760 hrs/yr). Emissions from the indirect cooling systems were based on applicant data that showed 4 cycles of concentration using the reclaimed water analysis data supplied by the San Jose/Santa Clara Water Pollution Control Plant for calendar year 2021. The building cooling systems are exempt from the BAAQMD permitting regulations.

Revised Appendix AQ1 presents the detailed emissions calculations for the proposed engines, fuel storage tanks, and indirect cooling systems. Revised Appendix AQ2 contains the manufacturers specification sheets for the engines and the air pollution control systems.

During routine readiness testing, criteria pollutants and TACs (as DPM) would be emitted directly from the generators. Criteria pollutant emissions from generator and fire pump testing were quantified using information provided by the manufacturer, as specified in Appendix AQ1. SO_2 emissions were based on the maximum sulfur content allowed in California diesel (15 parts per million by weight), and an assumed 100 percent conversion of fuel sulfur to SO_2. DPM emissions resulting from diesel stationary combustion were assumed equal to PM10/2.5 emissions. For conservative evaluation purposes, it was assumed that testing would occur for no more than 50 hours per year. 50 hours per year per engine is the limit specified by the Airborne Toxic Control Measure for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR). The Applicant is not proposing a test schedule, i.e., hours versus load points. Testing will be done based upon the Applicants judgment, taking into account the manufacturers recommendations, staff availability, and need. Maintenance and readiness testing may occur at loads ranging from 10 to 100% load. For purposes of this application, emissions were assumed to occur at 100% load. Tables AQ1-1 through AQ1-4 in Appendix AQ1 present the engine emissions based upon the 100% load point, number of engines tested, etc. The engines were each evaluated for the following emissions scenarios:

- Each engine running for 100 hours per year for Declared Emergency operations, at 100% load, at the compliance emissions levels from the applicable EPA Tier.
- Each engine running for 50 hours per year for Maintenance and Readiness operations, at 100% load, using composite emissions factors to address both uncontrolled and controlled emissions during such testing for the C175-16 and C27 engines, while the Fire pump engines were evaluated at the appropriate EPA Tier compliance levels.

The tables which follow present emissions summaries for the three engine types for each of the scenarios noted above in terms of the worst case hourly, daily, and annual emissions. Maximum daily emissions are based on the assumption that only eight (8) of the engines will be tested on any day (and these eight (8) engines will not be run concurrently). The eight (8) engine test day will most likely be comprised of seven (7) of the C175 engines and one (1) of the C27 engines, but for purposes of defining worst case daily emissions and impacts a test day consisting of 8 - C175 engines was evaluated.

Table 4.3-7: Emergency Operations Emissions Summary

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Max Hourly, lbs	154.4	802.7	43.2	1.54	6.17	-
Max Daily, lbs	3704.6	19264.1	1037.3	37.05	148.2	-
Max Annual, tons	7.72	40.1	2.2	0.08	0.31	7579
CAT C27						

Max Hourly, lbs	5.36	27.84	1.50	0.06	0.22	-
Max Daily, lbs	128.5	668.0	36.0	1.28	5.14	-
Max Annual, tons	0.26	1.4	0.08	0.002	0.01	256.1
Fire Pump						
Max Hourly, lbs	1.48	1.35	0.08	0.001	0.08	-
Max Daily, lbs	35.6	32.5	1.87	0.06	1.87	-
Max Annual, tons	0.07	0.07	0.001	0.0001	0.004	23.6

Table 4.3-8: M&R Testing Emissions Summary

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Single Engine Max Hourly, lbs	14.47	25.1	1.74	0.05	0.193	-
8 Engines Max Daily, lbs	115.8	200.7	13.9	0.39	1.54	-
All Engines Max Annual, tons	11.6	20.1	1.4	0.04	0.154	3789
CAT C27						
Single Engine Max Hourly, lbs	4.02	6.96	0.48	0.013	0.054	-
Single Engine Max Daily, lbs	4.02	6.96	0.48	0.013	0.054	-
All Engines Max Annual, tons	0.4	0.70	0.05	0.001	0.006	128
Fire Pump						
Single Engine Max Hourly, lbs	0.74	0.68	0.04	0.001	0.039	-
Single Engine Max Daily, lbs	0.74	0.68	0.04	0.001	0.039	-
All Engines Max Annual, tons	0.04	0.03	0.001	0.0001	0.002	11.8

Table 4.3-9: Emergency Operations Emissions Summary

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Max Annual, tons	7.72	40.13	2.16	0.077	0.309	7579
CAT C27						
Max Annual, tons	0.26	1.40	0.08	0.002	0.01	256
Fire Pump						
Max Annual, tons	0.07	0.07	0.001	0.0001	0.004	23.6

Table 4.3-10: M&R Testing Emissions Summary

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Max Annual, tons	11.58	20.07	1.39	0.039	0.154	3789
CAT C27						
Max Annual, tons	0.20	0.35	0.025	0.001	0.003	
Fire Pump						
Max Annual, tons	0.08	0.06	0.002	0.0002	0.004	11.8

Table 4.3-11 presents maximum daily and annual emissions data for the various testing scenarios in comparison to the BAAQMD CEQA significance thresholds.

Table 4.3-11: Facility Scenario Emissions and BAAQMD CEQA Significance Levels (M&R Testing)

Scenario	Lbs/Day					
	NO_x	CO	VOC	SO_2	PM10	PM2.5
BAAQMD CEQA Thresholds	54	NA	54	NA	82	54
Worst Case Daily Engine Emissions[1]	115.77	200.67	13.89	0.386	1.544	1.544
Fuel VOC Losses	-	-	0.053	-	-	-
Indirect Cooling based on Max Demand	-	-	-	-	13.54	13.54
Daily Emissions	115.77	200.67	13.94	0.386	15.08	15.08
Significance Threshold Exceeded	Yes	NA	No	NA	No	No

Scenario	Tons/Yr					
	NO_x	CO	VOC	SO_2	PM10	PM2.5
BAAQMD CEQA Thresholds	10	NA	10	NA	15	10
Fuel VOC Losses	-	-	0.01	-	-	-
Indirect Cooling based on Peak Demand	-	-	-	-	1.87	1.87
Worst Case Annual Engine Emissions[2]	12.02	20.8	1.44	0.04	0.162	0.162
Annual Emissions	12.02	20.8	1.44	0.04	0.162	0.162
Significance Threshold Exceeded	Yes	NA	No	NA	No	No

[1] Based on the emissions for an 8 engine test day (8 - C175 engines).
[2] Based on the summation of the CAT C175, CAT C27, and Fire Pump engines.
[2] Worst case CO2e emissions are 3929.4 tpy (3564.1 Mtons/yr) from M&R Testing.

The following should be noted with respect to Table 4.3-11 above.

1. NO_x emissions exceed the BAAQMD CEQA significance levels on the days when the 8 engine M&R tests occur, and on a TPY basis (total emissions from all engines).
2. The emissions of NO_x will be mitigated through the participation in the BAAQMD ERC Bank, or other alternative methods as negotiated with the BAAQMD.

Fuel Storage (Working and Breathing) VOC Emissions

Each of the data center buildings will be equipped with four (4) 50,000-gallon diesel fuel storage tanks, for a total of eight (8) tanks and 400,000 gallons of onsite storage. In addition, the four (4) 800 kWe engines located in the water storage and admin areas will each have its own dedicated 4,000-gallon diesel fuel storage tank. VOC working and breathing losses (for the 10 proposed tanks) are presented in Appendix AQ-1, and summarized as follows:

- Total VOC losses = 0.01 tpy or 0.0531 lbs/day.

Indirect Cooling Systems

Text not included in the amendment.

Table 4.3-12 presents the summation of emissions for all engines for the maximum of the scenarios noted above, i.e., the 150 hours per year criteria per the BAAQMD permitting policy criteria.

Table 4.3-12 BAAQMD 150 Hours per Year Emissions Summation (Tons per year)

Engines	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
All Engines	20.1	62.4	3.68	0.12	0.49	11788
Summation for all engine types. ***These values are NOT the NSR applicability values.***						

Table 4.3-13 presents data on the DPM emissions levels (worst case) for all of the engine models.

Table 4.3-13: Toxic Air Contaminant (DPM) Emissions from the Proposed Engines (Per engine basis)

Scenario	CAT C175	CAT C27	Fire Pump	
	DPM Emissions			
Maximum, lbs/hr	0.193	0.054	0.039	
Maximum, lbs/yr	9.65	2.7	1.95	

Notes: DPM is the approved surrogate compound for diesel fuel combustion for purposes of health risk assessment.
Annual emissions for each engine are based on the max allowed runtime of 50 hours per year, M&R testing as defined.

Table 4.3-14 presents the hourly and annual fuel use values for the maximum operational scenario as outlined above (M&R Testing).

Table 4.3-14 Engine Fuel Use Values

Scenario	CAT C175	CAT C27	Fire Pump	
	Fuel Use, gallons (per engine basis)			
Maximum, gals/hr	209	56.5	10.4	
Maximum, gals/yr	10450	2825	520	
Total Annual Fuel Use (All Engines)				
Annual Fuel Use, gals/yr	346,740			

Miscellaneous Operational Emissions

Miscellaneous emissions from SJC04/SJC06 operational activities (subsequent to full buildout) such as worker travel, deliveries, energy and fuel use for facility electrical, heating and cooling needs, periodic use of architectural coatings, landscaping, etc., were revised and evaluated by CalEEMod. These emissions are presented in Table 4.3-15.

Table 4.3-15: Miscellaneous Operational Emissions

Scenario	Lbs/Day					
	NO_x	CO	VOC	SO_2	PM10 Exhaust	PM2.5 Exhaust
BAAQMD CEQA Thresholds	54	NA	54	NA	82	54
SJC04/06 Lbs/avg day	2.74	5.81	12.88	0.024	0.21	0.21
Exceeds Thresholds	No	NA	No	NA	No	No

TPY						
BAAQMD CEQA Thresholds	10	NA	10	NA	15	10
SJC04/06 Tons/yr	0.56	1.06	2.35	0.0043	0.0381	0.0381
Exceeds Thresholds	No	NA	No	NA	No	No
Note: Assumes the full buildout data center is manned 365 days/yr (based on the non-phased buildout scenario). This table does NOT include the emissions from the emergency engines. All source category includes, mobile worker travel, deliveries, energy use, fuel use, waste disposal, water use, and miscellaneous area sources. Source: ADI CalEEMod analysis, April 2024.						

GHG Operations Emissions

A revised summary of GHG emissions for operations (SJC04 plus SJC06) is as follows:

- Miscellaneous Operations (Area, energy, mobile, waste, water) = 1743 Mtons CO_2e/yr
- Emergency Engines (M&R Testing only) = 3,543 Mtons CO_2e/yr
- 96 MW of energy use, 8760 hrs/yr, PG&E Carbon Intensity Factor 204 lbs CO2/Mw-hr = 77,803 Mtons CO_2e/yr (see note which follows)

(Note: The emissions noted above for the 96 MW energy profile, i.e., 77,803 Mtons CO_2e/yr are not emitted at the SJC04/06 facility. These emissions result from power generation across the PG&E system, and as such they are reported by PG&E on a specific generating facility basis. These emissions are not part of the SJC04/06 facility inventory. In addition, it should not be implied that "new" generation capacity will be required to be added to the PG&E system to supply the data center needs.

Total CO_2e emissions from facility operations are: 5,286 Mtons CO_2e/Yr. This value is below the BAAQMD significance level of 10,000 Mtons/yr for operations.

AIR QUALITY IMPACT ANALYSIS

Text not included in the amendment. Support figures showing source, building, fence line locations are provided in Appendix AQ3. Updated background air quality data is also provided in the impact tables and in Appendix AQ3.

Based on the revised results of the modeling analyses, the modeled concentrations are presented in Table 4.3-16.

Revised Table 4.3-16: Modeled Operational Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	Ambient Air Quality Standards (µg/m³)	
					CAAQS	NAAQS
3-/8-/24-Hour Maxima shown for one engine operating up to 10 hours/day (7AM-5PM)						
NO_2*	1-hour maximum (CAAQS)	130.67	111	241.67	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)**	1.75	80	81.75	-	188
	Annual maximum	2.41	17.8	20.21	57	100
CO	1-hour maximum	430.74	2175	2605.74	23,000	40,000
	8-hour maximum	176.90	1718	1894.90	10,000	10,000
SO_2	1-hour maximum (CAAQS)	0.83	93.4	94.23	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)**	0.01	5.2	5.21	-	196
	24-hour maximum	0.11	93.4	93.51	105	365
	Annual maximum	0.01	0.6	0.61	-	80
PM10	24-hour maximum (CAAQS)	0.88	134	134.88	50	-
	24-hour 6th highest over 5 years (NAAQS)	0.80	41	41.80	-	150
	Annual maximum (CAAQS)	0.21	24.8	25.01	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.67	25.7	26.37	-	35
	Annual maximum (CAAQS)	0.21	10.1	10.31	12	-
	3-year average of annual concentrations (NAAQS)	0.21	9.1	9.31	-	9.0

*1-hour NO_2 impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO_2 impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO_2/NOx ambient ratios of 0.5/0.9.

** Impacts for the 1-hour statistical-based NO_2 and SO_2 NAAQS are based on the annual average emissions per USEPA guidance documents for intermittent sources like emergency generators. Impacts for the 1-hour NO_2 and SO_2 CAAQS are based on the 1-hour emission rate since these CAAQS are "values that are not to be exceeded".

Revised Table 4.3-17: Modeled Construction Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	Ambient Air Quality Standards (µg/m³)	
					CAAQS	NAAQS
Construction occurs for up to 10 hours/day (7AM-5PM)						
NO_2*	1-hour maximum (CAAQS)	11.16	111	122.16	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)	8.43	80	88.43	-	188
	Annual maximum	1.3	17.8	19.1	57	100

Revised Table 4.3-17: Modeled Construction Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (μg/m³)	Background (μg/m³)	Total (μg/m³)	Ambient Air Quality Standards (μg/m³)	
					CAAQS	NAAQS
CO	1-hour maximum	12.52	2,175	2187.52	23,000	40,000
	8-hour maximum	5.99	1,718	1723.99	10,000	10,000
SO_2	1-hour maximum (CAAQS)	0.07	93.4	93.47	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)	0.06	5.2	5.26	-	196
	24-hour maximum	0.02	93.4	93.42	105	365
	Annual maximum	0.01	0.60	0.61	-	80
PM10	24-hour maximum (CAAQS)	3.3	134	137.3	50	-
	Annual maximum (CAAQS)	1.3	24.8	26.1	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.83	25.7	26.53	-	35
	3-year average of annual concentrations (NAAQS)	0.46	9.1	9.56	-	9.0

*1-hour NO_2 impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO_2 impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO_2/NOx ambient ratios of 0.5/0.9.

The revised air quality modeling support data will be submitted to Staff electronically.

Based on the modeling results in Table2 4.3-16 and 4.3-17, the only combined modeled impacts and background concentrations greater than the standards are for the 24-hour and annual PM10 CAAQS and the 24-hour PM2.5 NAAQS and annual PM2.5 CAAQS. These exceedances are only because the background concentrations already exceed the standards. Modeled project impacts in these instances are less than the USEPA and/or BAAQMD significance levels and thus, the project will not cause or contribute to an exceedance of any air quality standard for any averaging time period. The project will therefore comply with the CAAQS and NAAQS.

PUBLIC HEALTH AND HEALTH RISK ASSESSMENT

Text not included in the amendment.

Public Health Impact Study Methods

Emissions of toxic pollutants (diesel particulate matter-DPM) potentially associated with the facility were estimated using emission factors for PM10 derived from the following:

- Each engine running for 50 hours per year for Maintenance and Readiness operations, at 100% load, using composite emissions factors to address both uncontrolled and controlled emissions during such testing for the C175-16 and C27 engines, while the Fire pump engines were evaluated at the appropriate EPA Tier compliance levels.

Revised Table 4.3-20 delineates the maximum hourly and annual emissions of the identified air toxic pollutants (DPM) from the emergency backup engines.

Revised Table 4.3-20: Maximum MBGF Hourly and Annual Air Toxic Emissions

Emergency Standby Engines				
Engine Model	**Toxic**	**Max Hour Emissions (per engine, Lbs/Hr**	**Max Annual Emissions (per engine) Lbs/Year**	**Max Annual Emissions (all engines) Lbs/Year**
CAT C175	DPM	0.193	9.65	308.8
CAT C27	DPM	0.054	2.7	5.4
FIRE PUMP	DPM	0.039	1.95	3.9
Note: CAT C175-16 and C27 are equipped with DPF. Fire Pump has no DPM controls.				

Construction Phase Impacts

The proposed project would be a source of air pollutant emissions during project construction. The BAAQMD CEQA Air Quality Guidelines considers exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. BAAQMD recommends a 1,000-foot zone of influence around project boundaries. Results of the revised construction related health risk assessment indicate that the risk values from construction would be as follows in Table 4.3-21:

Revised Table 4.3-21: SJC04/06 Construction Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	2855	594610.0, 4137305.0	4.44E-06	0.0016	-	NA
MEIR	4948	593250.0, 4138225.0	9.07E-08	0.000032	-	NA
MEIS	4953	593250.0, 4138475.0	7.45E-08	0.000026	-	NA
MEIW	2796	594590.0, 4137245.0	2.85E-07	0.0014	-	NA

Notes: See acronym definitions above.
The PMI noted above is located the southeast fence line.
DPM is the surrogate compound for construction equipment diesel exhaust. No acute REL has been established for DPM.
50 month construction period (HRA used 5 years as a conservative exposure period.)
FAH=1 for all age groups from 3rd trimester to 16 years, for MEIR and MEIS.
FAH not used for MEIW.
MEIS – Montague Elementary School

These values are well below the significance thresholds for construction health risk impacts, and as such the community risk impacts from construction activities would be *less than significant*.

<u>Characterization Of Risks from Operations Toxic Air Pollutants</u>

The excess lifetime cancer risk associated with operational concentrations in air estimated for the MBGF PMI location is calculated to be 2.74E-05 or 27.4 per million which is located on the southeast project fence line. Excess lifetime cancer risks less than 10×10^{-6}, for sources with T-BACT, are unlikely to represent significant public health impacts that require additional controls of facility emissions. Risks higher than 1×10^{-6} may or may not be of concern, depending upon several factors. These include the conservatism of assumptions used in risk estimation, size of the potentially exposed population and toxicity of the risk-driving chemicals. Health effects risk thresholds are listed on Table 4.3-22. Risks associated with pollutants potentially emitted from the facility are presented in Tables 4.3-23 and 4.3-24. The chronic hazard indices for all scenarios are well below 1.0. It should be noted that DPM does not currently have an acute hazard index value, and as such, acute health effects were not evaluated in the HRA. Further description of the methodology used to calculate health risks associated with emissions to the air can be found in the HARP User's Manual dated 12/2003 and the ADMRT Manual dated 3/2015 (CARB 2015). As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the PMI. However, the location of the PMI is on the project fence line, adjacent to an existing parking lot and does not reflect the potential impact at any of the sensitive receptors, all of which have risks less than 10E-06 or 10 in a million.

Revised Table 4.3-23: MBGF/SJC04/06 Residential/Sensitive Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	57	594560.5, 4137293.0	2.56E-05	0.00688	-	NA
MEIR	7642	596050, 4136225	7.80E-07	0.000210	-	NA
MEIS	7772	596350.0, 4135525.0	4.46E-07	0.000120	-	NA
Notes: See acronym definitions above. The PMI noted above is located at the sourtheast fence line. The maximum chiller contribution to the HRA is 2.09E-10 at Receptor #57. This has no appreciable contribution to the total risk. MEIS – Bachrodt Elementary School						

Revised Table 4.3-24: MBGF/SJC04/06 Worker Health Risk Assessment Summary

Location	Receptor #	UTM	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	57	594560.5, 4137293.0	6.53E-06	0.00688	-	NA
MEIW	2796	594590.0, 4137245.0	4.75E-06	0.00501	-	NA
Notes: See acronym definitions above. The PMI noted above is located at the sourtheast fence line. The maximum chiller contribution to the HRA is 1.72E-11 at Receptor #57. This has no appreciable contribution to the total risk.						

Cancer risks potentially associated with facility emissions also were not assessed in terms of cancer burden. Cancer burden is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with emissions from the facility. Cancer burden is calculated as the worst-case product of excess lifetime cancer risk, at the 1×10^{-6} isopleth and the number of individuals at that risk level. Cancer burden evaluations are not required by the BAAQMD.

The chronic non-cancer hazard quotient associated with concentrations in air are shown in Table 4.3-23. The chronic non-cancer hazard quotient for all target organs falls below 1.0. As described previously, a hazard quotient less than 1.0 is unlikely to represent significant impact to public health. Since DPM does not have an acute REL, no acute hazard index or quotient was calculated. As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the PMI. If there is no significant impact associated with concentrations in air at the PMI location, it is unlikely that there would be significant impacts in any other location in the vicinity of the facility.

Detailed risk and hazard values are provided in the HARP output which will be submitted to Staff electronically.

Partial text not included in the amendment.

Operation Odors

The facility is not expected to produce any contaminants at concentrations that could produce objectionable odors.

Summary of Impacts

The health risk assessment for the MBGF indicates that the maximum cancer risk will be approximately $7.09E^{-07}$ (versus a significance threshold of 10×10^{-6} with T-BACT) at the MEIR to air toxics from MBGF emissions. This risk level is considered to be not significant. Non-cancer chronic effects for all scenarios are well below the chronic hazard index significance value.

Results from an air toxics risk assessment based on emissions modeling indicate that there will be no significant incremental public health risks from the construction and operation of the MBGF. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} will not significantly impact air quality. Potential concentrations are below the federal and California standards established to protect public health, including the more sensitive members of the population.

Construction and Operation Overlap Assessment

The following analysis addresses the emissions overlap period in which the engines from phase SJC04 will be readiness and maintenance tested during the construction of SJC06. The overlap data is summarized as follows:

- The overlap period, based upon the current construction schedule, will commence at the end of construction of SJC04 (start of construction of SJC06). The overlap period will be approximately 25 months (2.1 years).
- SJC04 consists of 16 (CAT C175) engines, 1 (CAT C27) engine, 1 (CAT C15) engine, and 1 (John Deere Fire Pump) engine.
- All of the engines will be readiness and maintenance tested during the 25-month period.
- Annual emissions (readiness/maintenance testing only) for the engines are based on 50 hours/yr each over the scheduled 2.1-year period.
- Revised Emissions from construction of SJC06 were derived from CalEEMod.

Revised Table 4.3-25 below shows the emissions summary for the overlap period.

Revised Table 4.3-25 Overlap Emissions Table

Parameter	NO_x	CO	VOC	SO_x	PM10	PM2.5
SJC04 C175-16 Emissions (16), tpy	5.8	10.03	0.69	0.019	0.077	0.077
SJC04 C27 Emissions (3), tpy	0.3	0.52	0.036	0.0009	0.003	0.003
SJC04 Fire Pump Emissions (1) tpy	0.02	0.02	0.001	0.0001	0.001	0.001
Total Engine Emissions, tpy	6.1	10.57	0.73	0.02	0.081	0.081
SJC06 Construction Emissions, tpy (2.1 years or 25 months)	1.53	2.45	1.70	0.0097	0.016	0.016
SJC06 Worst Case Construction Year and Emissions (tpy)	1.28 (2027	1.02 (2027)	1.62 (2029)	0.0068 (2027)	0.0128 (2027)	0.0123 (2027)
Total Worst Case Annual Emissions (tpy)	7.4	11.59	2.35	0.027	0.094	0.094

Notes:
1. Engines will be M&R tested for no more than 50 hours/yr. Engines will not be tested concurrently.
2. Construction will occur 5 days/wk for an average of 10 hours/day.
3. PM10/2.5 emissions are shown as “exhaust only”.

Criteria Pollutant Impacts for Overlap Scenario

Daily and hourly emissions for the backup generator engines were derived from the emissions calculations presented in Appendix AQ1, while daily and hourly emissions from construction were derived from the annualized construction emissions presented in Table 4.3-25 above. Table 4.3-26 presents the daily and hourly emissions for the overlap period.

Table 4.3-26 Daily and Hourly Emissions for the Overlap Period

Parameter	NO_x	CO	VOC	SO_x	PM10	PM2.5
M&R Testing						
1 C175-16 Engine, lbs/hr	14.47	25.08	1.74	0.05	0.193	0.193
8 C175016 Engines, lbs/day	115.8	200.7	13.9	0.39	1.54	1.54
SJC06 Average Construction Year Emissions (tons)	0.734	1.176	0.82	0.00466	0.0077	0.0077
SJC06 Average Construction Year Emissions (lbs/day)	5.56	8.91	6.21	0.035	0.058	0.058
SJC06 Average Construction Year Emissions (lbs/hr)	0.556	0.891	0.621	0.0035	0.0058	0.0058

Notes:
1. Max hourly engine emissions are based on 1 C175-16 engine (readiness/maintenance testing) for 1 hour/day.
2. Max daily engine emissions are based on 8 C175-16 engines tested for 1 hour each per day.
3. Average construction year emissions: Tons/period divided by 25 months, multiplied by 12 months.
4. Average construction for 12 months at 22 days/month = 264 days. 10 hours/day.
5. PM10/2.5 emissions are shown as “exhaust only”. All of the other pollutants are exhaust emissions.

The same background ambient air quality levels and modeling techniques from the modeling analyses of project operating impacts were used in the construction analysis. The applicable background concentrations of NO_2, SO_2, CO, PM2.5, and PM10 from the operational modeling analyses used in the construction impact analysis are shown in the following table. As with the previous modeling assessment, the USEPA-approved model AERMOD (version 21112) was used to estimate ambient impacts from construction activities, consistent with the facility operational impact analyses and the version of AERMET (version 18081) used by BAAQMD to process the meteorological data from the San Jose (surface data) and Oakland Airport (upper air data).

The emission sources for the construction site were grouped into two categories: exhaust emissions and dust emissions. Combustion equipment exhaust emissions for the overlap analysis were modeled as 23-3.048-meter-high point sources (exhaust parameters of 750 Kelvins, 64.681 m/s exit velocity, and 0.1524-meter stack diameter) placed at regular 25-meter intervals around the construction area of SVY06. Construction fugitive dust emissions were modeled as an area source covering the construction area with an effective plume height of two (2) meters (6.6 feet). Combustion and fugitive emissions were assumed to occur for 10 hours/day (7 AM to 5 PM) consistent with the expected period of onsite construction activities generating both exhaust emissions and fugitive dust. The construction impacts modeling analysis used the same receptor locations and meteorological data as used for the project operating impact analysis. A detailed discussion of the receptor locations and meteorological data is included with the discussion of the modeling analyses of project operating impacts.

Modeling Results

Based on the emission rates of the routine testing of the engines at SJC04 plus the construction emissions for SJC06 of NO_x, SO_2, CO, PM2.5, and PM10, the modeling options, receptor grids, and meteorological data, AERMOD calculated the short-term and annual ambient impacts for each pollutant. As mentioned above, the modeled 1-hour, 3-hour 8-hour, and 24-hour ambient impacts are based on the worst-case daily emission rates of NO_x, SO_2, CO, PM2.5, and PM10 spread over the estimated daily hours of operation. The annual impacts are based on the annual emission rates of these pollutants. The 1-hour and annual average concentrations of NO_2 were computed using ARM2 method with a NO_2/NO_x ratio of 0.5. Background concentrations were added to the modeled results.

The modeling analysis results are shown in Table 4.3-27 below, including the appropriate background levels and the resulting total ambient impacts. Modeled crossover impacts are expected to be below the most stringent state and Federal standards for all pollutants except PM10 and PM2.5, where the background already exceeds the standards (annual PM2.5 demonstrates compliance). The modeled PM10 and PM2.5 impacts are primarily due to the fugitive construction emissions.

Revised Table 4.3-27: Modeled Overlap (Construction + Operation) Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	Ambient Air Quality Standards (µg/m³)	
					CAAQS	NAAQS
Construction occurs for up to 10 hours/day (7AM-5PM)						
NO_2*	1-hour maximum (CAAQS)	130.90	111	241.90	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)	7.78	80	87.78	-	188
	Annual maximum	2.20	17.8	20.00	57	100
CO	1-hour maximum	431.87	2,175	2606.87	23,000	40,000
	8-hour maximum	176.04	1,718	1894.04	10,000	10,000
SO_2	1-hour maximum (CAAQS)	0.84	93.4	94.24	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)	0.05	5.2	5.25	-	196
	24-hour maximum	0.12	93.4	93.52	105	365
	Annual maximum	0.01	0.60	0.61	-	80
PM10	24-hour maximum (CAAQS)	3.91	134	137.91	50	-
	Annual maximum (CAAQS)	0.78	24.8	25.58	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.76	25.7	26.46	-	35
	3-year average of annual concentrations (NAAQS)	0.23	9.1	9.33	12.0	9.0

*1-hour NO_2 impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO_2 impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO_2/NOx ambient ratios of 0.5/0.9.

HRA Impacts for Overlap Scenario

An HRA was performed using HARP (ADMRT Version 21081). The HRA was performed for diesel particulate matter (DPM) only, as DPM is the accepted surrogate compound for whole diesel exhaust. The necessary output files from AERMOD were imported into HARP. Detailed descriptions of the risk assessment methods and support data are contained in the SPPE application document and are not repeated here. Assumptions used in the HRA analysis are as follows:

- The standard project receptor file was used. This file contained an extensive cartesian grid of receptors as well as the identified sensitive receptors included in the other project modeling analyses.
- The BAAQMD health tables were used (enabled in HARP)
- Two separate analyses were run as follows:
  a. Residential run, FAH=1, 2-year exposure period (see note below)
  b. Worker run, FAH=off, 2-year exposure period (see note below)
     Note: HARP does not allow fractions of years as exposure values, therefore a 3-year period was used to represent the 25-month emissions overlap.
- The PMI, MEIR, MEIW, and MEIS values were derived from the HRA output files.

Table 4.3-28: MBGF Overlap (Construction + Operation) Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	25	594419.46, 4137474.21	2.29E-04	0.141	-	NA
MEIR	7642	596050.0, 4136225.0	1.28E-06	0.000790	-	NA
MEIS	4953	593250.0, 4138475.0	9.98E-07	0.000616	-	NA
MEIW	2059	594330.0, 4137485.0	5.52E-06	0.0465	-	NA

Notes: See acronym definitions above.
The PMI noted above is located on the northern fenceline.
Testing hours for the overlap of construction and operation was set to 50 hours per engine.
DPM is the surrogate compound for construction equipment diesel exhaust. No acute REL has been established for DPM.
SJC06 construction period is 25 months (HRA used 3-year exposure period.)
The maximum chiller contribution to the HRA is 2.09E-10 at Receptor #57. This has no appreciable contribution to the total risk.
FAH=1 for all age groups from 3rd trimester to 16 years, for MEIR and MEIS.
FAH not used for MEIW.
MEIS – Montague Elementary School

CalEnviroScreen 4.0 Survey

Text not included in the amendment.

Cumulative Impacts

BAAQMD's Role in Air Quality

Text not included in the amendment.

Cumulative Thresholds of Significance

In accordance with BAAQMD CEQA Guidelines, a project impact would be considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

In May 2017, the BAAQMD updated the significance thresholds for agencies to use with environmental review of projects. These thresholds were designed to establish the level at which BAAQMD believed air pollutant emissions would cause significant impacts under CEQA.

A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus the contribution from the project, exceeds the following recommended significance thresholds in Table 4.3-29 below.

Table 4.3-29 Cumulative Significance Thresholds

Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources	
Excess Cancer Risk	100 per 1 million
Chronic Hazard Index	10.0
Annual Average $PM_{2.5}$	0.8 µg/m^3
$PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. Source: BAAQMD, 2018.	

Cumulative Impacts Assessment

Cumulative stationary and mobile source impacts were not assessed for the proposed project as the nearest sensitive receptor is 4,900 feet from the project fence line, well in excess of the 1,000 foot radius established by the BAAQMD for cumulative assessments. However, for summary purposes, cumulative risks from permitted stationary sources of TACs near the project site were identified using BAAQMD's *Stationary Source Risk and Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated screening level cancer risk and hazard impacts. This tool identified eight (8) sources within 1,000 feet of the project boundaries and the distance adjusted impacts are summarized in Table 4.3-30.

Table 4.3-30 Combined Source Listing (Post-BAAQMD Distance Adjustments)

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration (µg/m^3)
17437 Lumileds LLC	13.402	1.479E-01	3.310E-01
18923 City of San Jose MWTP	0.010	2.728E-06	2.597E-05
19141 SJC Fuel Co. LLC	0.380	7.611E-04	4.801E-04
23091 Steel Wave	0.048	9.740E-05	6.174E-05
200515 Apple Inc.	0.032	8.524E-06	3.993E-05
13367-10 San Jose Int'l Airport	0.352	5.454E-04	4.493E-04
13367-11 San Jose Int'l Airport	7.504	1.161E-02	9.568E-03
104171-Conoco Phillips	0.312	1.372E-03	0
Combined Sources[1]	22.040	0.162	0.342
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***
* The BAAQMD Distance Adjustment Multiplier Tool was used to adjust the risk from these sources using the maximum distance of 984 feet. Based on actual distances to the sensitive receptors, the summarized impacts would be much smaller than the listed results. Note: [1]The combined source level is an overestimate because the maximum impact from each source is assumed to occur at the same location.			

The previously summarized cancer risk and hazard indexes for the MBGF were well below BAAQMD CEQA significance criteria of one in a million risk (1E-06) for cancer and 1.0 for the hazard index at all sensitive receptors. Additionally, PM2.5 concentrations at all sensitive receptors are well below the BAAQMD annual significance criteria of 0.3 ug/m^3. Thus, regardless of the background cumulative impacts, the projects contributions will always be less than the BAAQMD CEQA significance levels and represent an immeasurable impact.