
STACK Infrastructure

CEC Submittal

Trade Zone Park Second Revised
Modeling Assessment

San Jose, California

Prepared for



Prepared by

Atmospheric Dynamics, Inc.



ATMOSPHERIC DYNAMICS, INC
Meteorological & Air Quality Modeling

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Second Revised Analyses for Air Quality and Public Health for Operations and Construction

The revised analysis presented herein for the Stack Infrastructure Trade Zone Park Data Center addresses the following changes and revisions:

- The advanced manufacturing building will now incorporate one (1) Caterpillar C-32 engine
- Data center buildings SVY-05 and SVY-06 will still utilize 36 Caterpillar 3516E engines and two (2) Caterpillar C-32 engines (no change)
- The total number of engines will now be 39
- There will be no changes to the maximum hourly or daily emissions as the previous emissions associated with the testing the 8 larger Caterpillar 3516E engines will remain the worst-case scenario
- The annual emissions have been revised to reflect the addition of the single Caterpillar C-32 engine

The tables which follow have been revised for the operational air quality and HRA results and for the construction/operations overlap period. There are no revisions to the construction analysis based on the small revisions to the building designs.

Revised Annual Emissions

Facility wise emission associated with the additional one (1) Caterpillar C-32 are provide in Attachment 1. Since there will be no changes to the hourly or daily emissions from the project associated with the routine testing and maintenance (R&M), only the annual emissions based on both 50 hours of R&M plus the 100 hours of emergency operation are provided in Table 1.

Table 1
Scenario 2 and 4 Emissions Summary for CAT 3516E and CAT C32 Engines

Period	NO _x	CO	VOC	SO ₂	PM10/2.5	CO _{2e}
CAT C-32 (50 hours)						
Max Annual, tons	0.37	0.63	0.03	0.001	0.004	121.54
CAT C32 (100 hours emergency operation)						
Max Annual, tons	0.24	1.27	0.07	0.002	0.007	243.07
CAT C32 (150 hours of operation)						
Max Annual, tons	0.615	1.901	0.102	0.004	0.011	346.6
Total Facility Wide Emissions (M&R)						
Tons per Year	12.52	21.38	1.15	0.041	0.131	4,368.4



Revised Impact Assessment (Air Quality and Public Health)

The following tables 2 through 5 summarize the revised modeled concentrations based on the 50 hours per year of operation with the daily testing hours occurring between 7:00 AM and 7:00 PM. The total number of engines will now be 39 and the placement of the engines are depicted in Figure 1. There are no changes to the stack parameters on either the 3516E or the C-32 engines.

Table 2
Modeled Operational Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m ³)	Background (µg/m ³)	Total (µg/m ³)	Ambient Air Quality Standards (µg/m ³)	
					CAAQS	NAAQS
<i>3-/8-/24-Hour Maxima shown for one engine operating up to 12 hours/day (7AM-7PM)</i>						
NO ₂ *	1-hour maximum (CAAQS)	90.49	112.9	203.39	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)**	2.37	85.3	87.7	-	188
	Annual maximum	1.28	20.0	21.3	57	100
CO	1-hour maximum	269.94	2,061	2,330.9	23,000	Top 40,000
	8-hour maximum	208.02	1,680	1,888.0	10,000	10,000
SO ₂	1-hour maximum (CAAQS)	0.52	38.0	38.5	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)**	0.44	5.2	5.6	-	196
	24-hour maximum	0.11	3.9	4.01	105	365
	Annual maximum	0.011	0.44	0.45	-	80
PM10	24-hour maximum (CAAQS)	0.33	134	134.3	50	-
	24-hour 6 th highest over 5 years (NAAQS)	0.27	74.8	75.1	-	150
	Annual maximum (CAAQS)	0.032	24.8	24.8	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.24	33.3	33.5	-	35
	Annual maximum (CAAQS)	0.032	11.5	11.5	12	-
	3-year average of annual concentrations (NAAQS)	0.029	9.8	9.8	-	12.0

*1-hour NO₂ impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO₂ impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO₂/NO_x ambient ratios of 0.5/0.9.

** Impacts for the 1-hour statistical-based NO₂ and SO₂ NAAQS are based on the annual average emissions per USEPA guidance documents for intermittent sources like emergency generators. Impacts for the 1-hour NO₂ and SO₂ CAAQS are based on the 1-hour emission rate since these CAAQS are “values that are not to be exceeded”.



Table 3
SVYBGF Residential/Sensitive/Worker Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	876	597880 E 4139965 N	2.50E-05	0.00577	-	NA
MEIR	1112	597740 E 4140265 N	3.15E-06	0.000728	-	NA
MEIS	1620	597500 E 4140405 N	1.45E-06	0.000376	-	NA
MEIW	951	597840 E 4140025 N	5.71E-06	0.00439	-	NA

Notes: See acronym definitions above.

The PMI noted above is located in a parking lot due east of the project.

All MEIR maximum impacts were on the first floor of the multistory structure.

Table 4
Modeled Overlap (Construction + Operation) Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m ³)	Background (µg/m ³)	Total (µg/m ³)	Ambient Air Quality Standards (µg/m ³)	
					CAAQS	NAAQS
<i>Construction occurs for up to 12 hours/day (7AM-7PM)</i>						
NO ₂ *	1-hour maximum (CAAQS)	80.19	112.9	193.1	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)	5.16	85.3	90.5	-	188
	Annual maximum	1.43	20.0	22.1	57	100
CO	1-hour maximum	280.54	2,061	2,341.5	23,000	40,000
	8-hour maximum	219.44	1,680	1,899.4	10,000	10,000
SO ₂	1-hour maximum (CAAQS)	0.51	38	38.5	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)	0.071	5.2	5.3	-	196
	24-hour maximum	0.12	3.9	4.0	105	365
	Annual maximum	0.010	0.55	0.56	-	80
PM10	24-hour maximum (CAAQS)	12.52	134	146.5	50	-
	Annual maximum (CAAQS)	4.12	24.8	28.9	20	-
PM2.5	3-year average of 24-hour yearly 98th %	4.19	33.3	37.5	-	35
	3-year average of annual concentrations (NAAQS)	1.49	9.8	11.3	-	12.0

*1-hour NO₂ impacts evaluated with Ambient Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO₂ impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO₂/NO_x ambient ratios of 0.5/0.9.



Table 5
SVYBGF Overlap (Construction + Operation) Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	987	597820 E 4140085 N	5.12E-06	0.00299	-	NA
MEIR	1112	597740 E 4140265 N	7.22E-07	0.000422	-	NA
MEIS	1620	597500 E 4140405 N	1.13E-06	0.000188	-	NA
MEIW	949	597840 E 4140065 N	3.20E-07	0.00295	-	NA

Notes: See acronym definitions above.

The PMI noted above is located in a parking lot due east of the project.

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.

SVY06 construction period is 16.5 months (HRA used 2-year exposure period.)

FAH=1 for all age groups from 3rd trimester to 16 years, for MEIR and MEIS.

FAH not used for MEIW.

* MEIS – Mabel Mattos Elementary School

All MEIR maximum impacts were on the first floor of the multistory structure.

Combined Community Risk Impacts

As discussed in the SPPE, the project site is affected by several sources of TACs. Table 5 presents the revised cancer and non-cancer risks associated with each source affecting the project site. The sum of impacts from combined sources (i.e., all sources within 1,000 feet of the project) plus the operations of the project would be below the BAAQMD risk thresholds. Therefore, the impact from combined community risk would be considered less than significant.

Table 6
Impacts from Combined Sources

Source	Maximum Cancer Risk (per million)	Hazard Index	Annual PM _{2.5} concentration (µg/m ³)
Montague Expressway Traffic	5.0	<0.01	0.51
Existing Background Sources.	38.6	0.272	0.0096
SGBF	3.15	<0.01	0.029
<i>Combined Sources</i> ¹	46.75	0.273	0.55
<i>BAAQMD Threshold – Combined Sources</i>	100	10.0	0.8

Note: ¹The combined source level is an overestimate because the maximum impact from each source is assumed to occur at the same location.

Conclusion

Based on the revised project layout and the revised dispersal of the engines, the overall project air quality and public health impacts continue to demonstrate compliance with the applicable



ambient air quality standards and Bay Area Air Quality Management District (BAAQMD) CEQA significance thresholds.

Attachments

All modeling input and output files, support files, and HRA files will be supplied in electronic format.



Figure 1
 Revised Project General Arrangement



Attachment 1



