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Laurelwood Data Center
(19-SPPE-01)

Data Response Set 1B
(Responses to Data Requests 25, 26, 31 to 34, 36, 45 to 47, 67, 73 to 75, and 77 to 79 and Staff Queries 1 to 4, G, and K)

Submitted to
California Energy Commission

Prepared by
MECP1 Santa Clara 1, LLC

with technical assistance from

JACOBS

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Contents

Attachments

Introduction

Attached are MECP1 Santa Clara 1, LLC's (MECP or the Applicant) responses to the California Energy Commission (CEC) Data Request, Sets 1 through 3 regarding the Laurelwood Data Center (LDC) (19-SPPE-01) Small Power Plant Exemption (SPPE). In addition, this submittal includes responses to informal data requests from Staff received via email on March 13, 2019 and April 23, 2019.

All of these responses pertain to Air Quality, are presented in the same order as the CEC presented them, and are keyed to the Data Request or Staff Query numbers or letters. All Data Request responses are provided first, followed by the Staff Query responses.

New or revised graphics or tables are numbered in reference to the Data Request or Staff Query number or letter. For example, the first table used in response to Data Request 25 would be numbered Table DR25-1. The first figure used in response to Data Request 25 would be Figure DR25-1, and so on.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

Data Requests – Air Quality (25, 26, 31-34, 36, 45-47, 67, 73-75, and 77-79)

Background: Emergency Generator Engine Testing and Maintenance

Table 2-4 on page 2-24 of the project description shows the annual expected testing and maintenance events. Table 2-4 shows that the monthly testing would be 8 times per year and the quarterly testing would be 3 times per year. Staff needs to understand why monthly and quarterly testing is not needed for the remaining 4 months and 1 quarter. Staff needs to know how quickly the engines would reach the testing or maintenance loads of 50 percent or 100 percent.

The applicant modeled impacts of the engines for the 100-percent load case. However, 100-percent load does not always result in worst-case ground-level impacts. During lower load testing or maintenance operations, differences in emission rates, exhaust temperatures, and exhaust velocities could lead to lower plume rise and less dispersion, which could result in higher ground-level impacts. Staff needs to know whether the engines would be required to stay at certain load points other than those shown in Table 2-4 for substantial time (more than half an hour). Staff needs to know the impacts of the engines at these load points.

Table 2-4 shows hourly fuel consumption rate of 160 gallons/hour (gal/hr) for both 50 percent load and 100 percent load cases. Page 3 of 4 of the Caterpillar specification sheet for C175-16 Diesel Generator Sets provided by Jerry Salamy of Jacobs on March 18, 2019 in response to a staff email shows different fuel consumption rates. For example, for standby operation, the fuel consumption rates for 50 percent load with fan and 100 percent load with fan are shown as 130.4 gal/hr and 214.2 gal/hr respectively.

Data Requests

25) *Please provide impacts analysis of the engines at 50 percent load during the monthly testing events.*

Response: Attachment DR-25 provides an air quality impact analysis where all 56 standby generators operate at 50 percent load for up to 50 hours per year. As shown, this improbable operational scenario would not cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). Additionally, because modeled ground-level concentrations of particulate matter are less for this 50 percent load scenario, as compared to the 100 percent load scenario results, an additional health risk assessment (HRA) for this lower impacts scenario is not necessary. (See also the discussion in Atatchmnent DR-25.) These results are further supported by the location of maximum particulate matter impact being similar between the 50 and 100 percent load scenario results. The modeling files have been included with this submittal on DVD.

26) *Please provide impacts analyses of the engines at intermediate load points if they would be required to stay at these load points for more than half an hour.*

Response: Attachment DR-26 provides an air quality impact analysis where all 56 standby generators operate at 75 percent load for up to 50 hours per year. As shown, this improbable operational scenario would not cause or contribute to an exceedance of the NAAQS or CAAQS. Additionally, because modeled ground-level concentrations of particulate matter are less for this 75 percent load scenario, as compared to the 100 percent load scenario, an additional HRA was for this lower impact scenario is not necessary. These results are further supported by the location of maximum particulate matter impact being similar between the 75 and 100 percent load scenario results. The modeling files have been included with this submittal on DVD.

Background: Stack Exit Velocity

Staff noticed that the applicant used the stack exit velocity of 121.75 meters per second (m/s), stack diameter of 0.36 m (14 inches [in]), and stack height of 12.19 m (40 feet [ft]) in the impact analyses. The modeled stack exit velocity is much higher than the normally expected upper bound of 50 m/s in AERMOD. Using higher stack exit velocity would lead to lower modeled ground-level impacts.

Data Requests

31) *Please confer with the vendor to make sure that the modeled stack diameter and stack height would be representative of the actual stack parameters.*

    Response: The Applicant's engineers have clarified that a stack diameter of 20 inches is more representative of the actual stack. The as-modeled stack height of 40 feet is still considered representative of the stacked generators. The unstacked generators have been modeled with a stack height of 18 feet.

32) *If necessary, please revise the impacts analysis using the stack parameters that are representative of the actual stack parameters.*

    Response: Attachment DR-32 provides a revised air quality impact analysis and HRA for the 100 percent load scenario, which incorporates the new stack diameter of 20 inches, a 40-foot stack height for stacked generators, an 18-foot stack height for unstacked generators, and the updated site plan (Transaction Number 228748). As shown, this operational scenario would neither cause or contribute to an exceedance of the NAAQS or CAAQS nor result in significant health risk impacts.

    The results of the HRA for construction activities are presented in Table 11 of Attachment DR-32. The HRA results show that the excess cancer risks and chronic hazard indices (HIs) for the hypothetical Maximally Exposed Individual Resident (MEIR), the hypothetical Maximally Exposed Individual Worker (MEIW), or the hypothetical Maximally Exposed Sensitive Receptor (MESR) are all well below the BAAQMD's significance thresholds. Similarly, the results of the HRA for facilitywide LDC operation are presented in Table 13 of Attachment DR-32. The operations HRA demonstrates that the incremental cancer risk and chronic and acute HIs at each of the MEIR, MEIW, and MESR are less than the BAAQMD's significance thresholds. Therefore, predicted health risk impacts associated with project construction and operation are less than significant.

    The modeling files have been included with this submittal on DVD.

Background: Rural or Urban Dispersion Option

The air quality modeling files provided by the applicant show that the applicant used the rural dispersion option in AERMOD. However, other projects in the area have used urban dispersion option. In addition, BAAQMD may have guidance on the population to be used with the urban dispersion option for the region.

Data Request

33) *Please confirm with BAAQMD about whether the project needs to be modeled using the urban dispersion option and the population to be used with the urban dispersion option. Please justify the choice of dispersion option.*

Response: The new and revised air quality impact analyses and HRA provided in response to DR-25, 26, and 32 uses the urban dispersion option in AERMOD, as recommended, with a population of 1,938,153.[1]

Background: NO2 National Ambient Air Quality Standard Impacts

Table 3.3-11 on page 3.3-16 of the application shows comparison of modeled results to the National Ambient Air Quality Standards (NAAQS). Table 3.3-11 shows the maximum modeled 1-hour NO2 impact to be 101.16 µg/m3. However, the air quality modeling CD provided by the applicant shows higher impacts than 101.16 µg/m3. The following provides an example of the higher impacts shown in the AERMOD output file 'Operation\AERMOD\NO2\5yrs\ aermod.out', as shown herein. The 1-hour NO2 NAAQS of 188 µg/m3 would be computed to be exceeded according to this AERMOD output file. However, the form of the federal standard is expressed as the 8th highest one-hour value averaged over three years, making it difficult to evaluate for intermittent engine operations.

Data Requests

34) *Please provide the maximum modeled 1-hour NO2 NAAQS impact to be consistent with the AERMOD output file 'Operation\AERMOD\NO2\5yrs\ aermod.out'.*

Response: The new and revised AERMOD files provided in response to DR-25, 26, and 32 demonstrate compliance with both the 1-hour nitrogen dioxide (NO_2) NAAQS and CAAQS.

36) *If necessary, please revise the 1-hour NO2 modeling to show compliance with the 1-hour NO2 NAAQS of 188 µg/m3.*

Response: Please see the response to DR-34, confirming compliance with the 1-hour NO2 NAAQS of 188 µg/m3.

Background: Meteorological Data Processing

The application describes how the AERMOD-ready meteorological data were processed. The applicant provided these files in the air quality modeling CD. However, the applicant did not provide the input data files used in AERMET to verify the development of the AERMOD-ready meteorological data. Staff needs these files to verify the development of the AERMOD-ready meteorological data. Staff needs to verify the reference height for surface wind measurement of 7.9 m shown in the AERMOD-ready meteorological data files, instead of the normal height of 10 m. In addition, staff needs to know whether the BAAQMD has accepted the use of the AERMOD-ready meteorological data provided by the applicant.

Data Requests

45) *Please provide the input data files used in AERMET to verify the development of the AERMOD-ready meteorological data.*

Response: The Applicant requested AERMOD-ready meteorological data from the BAAQMD for use with this project, but it was not received until March 13, 2019, which is after the SPPE application was submitted to the CEC. Accordingly, in lieu of providing copies of the AERMET input data files, the Applicant has incorporated the BAAQMD-provided meteorological data into the new and revised air quality impact analyses and HRA provided in response to DR-25, 26, and 32.

46) *Please verify that the reference height for surface wind measurement of 7.9 m is correct.*

[1] Estimate obtained from https://censusreporter.org/profiles/05000us06085-santa-clara-county-ca/.

Response: The Applicant has confirmed that the reference height for surface wind measurement (also referred to as the anemometer height) is 7.9 meters.

47) *Please consult with BAAQMD to make sure the AERMOD-ready meteorological data used in the application are acceptable.*

Response: As noted in the response to DR-45, BAAQMD provided AERMOD-ready meteorological data on March 13, 2019, which has been incorporated into the Applicant's new and revised air quality impact analyses and HRA. Of the two surface stations located in the project area, the San Jose International Airport is most representative of the project site given its proximity to the project site (just over a mile) and its similar spatial orientation and distance from the San Francisco Bay.

Background: Emission Factors

Table DR-21 on page 9 of the Data Response Set 1A (TN 227626) shows emission factors, daily and annual emissions estimates for the standby generators. Note "d" under **Table DR-21** states that the emission factors were taken from EPA's list of certified nonroad compression ignition engines, assuming the project's generators would be best represented by the certification for Caterpillar's 2017 HCPXL78.1NZS family. Staff obtained the EPA's list of certified nonroad compression ignition engines from the EPA website: https://www.epa.gov/sites/production/files/2019-02/nonroad-compression-ignition-2011-present.xlsx. From the list, staff extracted the following emission factors (g/kWh) for Tier 2 Caterpillar engines with ratings greater than 560 kW. Staff noticed that the NOx emission factor of 3.78 g/hp-hr (5.07 g/kWh) that the applicant used in **Table DR-21** is lower than those for other Tier 2 Caterpillar engines with ratings greater than 560 kW. Staff needs to know how the applicant determined that the Caterpillar's 2017 HCPXL78.1NZS family would be representative of the project's generators.

Model Year	Engine Family	NMHC	NOx	NMHC+NOx	CO	PM	CO_2
2019	KCPXL106.NZS	0.22	5.59	5.8	1.7	0.09	784.22
2019	KCPXL106.NZS	0.48	5.32	5.8	1.5	0.11	1366.11
2019	KCPXL78.1NZS	0.17	5.33	5.5	1.5	0.13	694.02
2019	KCPXL78.1NZS	0.24	5.63	5.9	1.2	0.15	722.08
2019	KCPXL78.1NZS	0.26	5.07	5.3	0.9	0.12	688.4
2018	JCPXL106.NZS	0.22	5.59	5.8	1.7	0.09	784.22
2018	JCPXL106.NZS	0.48	5.32	5.8	1.5	0.11	1366.11
2018	JCPXL78.1NZS	0.17	5.33	5.5	1.5	0.13	694.02
2018	JCPXL78.1NZS	0.24	5.63	5.9	1.2	0.15	722.08
2018	JCPXL78.1NZS	0.26	5.07	5.3	0.9	0.12	688.4
2017	HCPXL106.NZS	0.22	5.59	5.8	1.7	0.09	784.22
2017	HCPXL78.1NZS	0.26	5.07	5.3	0.9	0.12	688.4
2016	GCPXL106.NZS	0.22	5.59	5.8	1.7	0.09	784.22
2016	GCPXL78.1NZS	0.24	5.63	5.9	1.2	0.15	722.09
2015	FCPXL106.NZS	0.22	5.59	5.8	1.7	0.09	784.22

South Coast Air Quality Management District (SCAQMD) also certified several classes of emergency generators. Staff found the following SCAQMD certified emission factors for Caterpillar C175 (3000 KWe) generator from the SCAQMD website: http://www.aqmd.gov/docs/default-source/permitting/product-certification/ice-cert-equip.xlsx. Staff believes the unit for these emission factors should be g/hp-hr. For example, the NOx emission factor certified by SCAQMD is 4.3 g/hp-hr (5.77 g/kWh), rather than 3.78 g/hp-hr (5.07 g/kWh) used in the applicant's data responses.

Engine Mfg.	Model	Engine Rating	Exp. Date	Comments	HC**	NOx	HC + NOx	CO	PM
Caterpillar	C175 (3000 KWe)	4423 BHP	12/31/2019	TIER 2	0.11	4.30	4.41	0.57	0.05

67) *If the choice of the emission factors cannot be justified, please use the more conservative SCAQMD emission factors shown in the table above or the Tier 2 emission standards to conduct an updated air quality impact assessment.*

Response: The Applicant plans to purchase a model year 2019 or 2018 Caterpillar C175-16. Because consistent with the Commission's requirements at this permitting stage the Applicant has not yet purchased the generators, use of the emission factors described for this specific Caterpillar engine is reasonable and appropriate. The Applicant agrees that the South Coast Air Quality Management District (SCAQMD) emission factors are only "more conservative" for NO_X but less conservative for the other criteria pollutants. Therefore, the Applicant has used the more conservative U.S. Environmental Protection Agency (EPA) emission factors for volatile organic compounds (VOCs),[2] carbon monoxide (CO), and particulate matter (PM) and the more conservative SCAQMD NO_X emission factor (compared to EPA's factor) for estimating emissions and assessing air quality impacts, where applicable. This approach, focusing on more conservative assumption, is botha prprorpiate and cosntent with practices in the Commissions AFC proceedings. These emission factors are shown in Table DR-67, and incorporated into the new and revised air quality impact analyses provided in response to DR-25, 26, and 32.

Table DR-67 Standby Generator Emission Factors

Pollutant	Emission Factor[a]	Emission Factor Units
NO_x	4.30	g/hp-hr
VOCs	0.48	g/kWh
CO	1.50	g/kWh
PM	0.11	g/kWh

[a] Tier 2 emission factors taken from EPA's list of certified nonroad compression ignition engines or SCAQMD's internal combustion engine emergency generator certification database, assuming the project's generators would be best represented by the certification for Model Year 2018/2019 Caterpillar 175-16.

g/hp-hr = gram(s) per horsepower-hour

g/kWh = gram(s) per kilowatt-hour

Background: NO2 Background Data

Page 17 of the Data Response Set 1A (TN 227626) shows that for purposes of 1-hour NO_2 CAAQS modeling, the background profile uses the high-1st-high hourly values averaged across the three most recent and complete years of data. The CAAQS for NO_2 are values not to be exceeded. Using high-1st-high hourly values averaged over 3 years might be conservative for most of the modeling hours, but not for those hours with measurements higher than the 3-year averages. Staff needs additional analysis to demonstrate that using the high-1st-high hourly values averaged over 3 years is conservative for the 1-

[2] VOC emission factors are best represented by the non-methane hydrocarbon (NMHC) emission factors.

hour NO_2 CAAQS analysis. Staff needs such analysis to conclude whether or not the project would comply with the 1-hour NO_2 CAAQS.

The applicant provided spreadsheets for the NO_2 raw data and methodology used in the development of the NO_2 background profiles. In the sheet named "98thPercentile", the value for hour 0:00 during December-February for 2015 was shown as 65.1 ppb, which is higher than the value of 34.0 ppb for hour 0:00 during December-February for 2015 in the sheet named "CAAQS_Background". This shouldn't be the case since the applicant used high-2nd-high values as the 98th percentile and high-1st-high values for the CAAQS background. This problem should be resolved before the background data are added in the revised modeling.

73) *Please demonstrate that using the high-1st-high hourly values averaged over 3 years is conservative for the 1-hour NO2 CAAQS analysis. If necessary, a comparison of the total impacts with the use of the 3-year averaged high-1st-high values and those with the use of concurrent hourly background data would be needed.*

Response: The 1-hour NO_2 background profile used for comparison to the 1-hour NO_2 CAAQS standard has been revised to pull the high-first-high maximum hourly season-hour values from the 3 years of data to ensure a conservative model design value. The revised profile is included with this submittal on DVD, and is summarized in Appendix DR32-B of Attachment DR-32.

74) *Please double check the NO2 background data to make sure the above mentioned problem with the 98th percentile background data is resolved.*

Response: The 1-hour NO_2 background profile used for comparison to the 1-hour NO_2 NAAQS standard has been reviewed to confirm the specified background profile value is correct and below the respective value in the 1-hour NO_2 CAAQS background profile. As a reminder, this profile uses the high-second-high (H2H) hourly season-hour values averaged across the 3 years of data to represent the 98th percentile. The H2H is determined to be the 98th percentile based upon any single season having no more than 92 possible data points for any given hour.[3] The profile is included with this submittal on DVD, and is summarized in Appendix DR32-B of Attachment DR-32.

BACKGROUND: Daily NOx Emissions

Applicant's response to informal data request #68 (emailed and dated 5/1/2019) states that annual testing will be performed on up to 4 standby generators per day. Since the annual testing would take 2 hours per generator, the total daily testing hours during annual testing would be 8 hours (=2x4). Using the NOx emission factor of 4.3 g/hp-hr for C175-16 from SCAQMD, the hourly emission rate would be 41.93 lbs/hr (=4.3x4423/453.6). And the total NOx daily emissions for the 8 hours of annual testing would be 335.4 lbs (=41.93x8), which would be higher than the daily NOx emissions of 184.4 lbs shown in Table DR-40 from Data Response Set 1A (TN 227626). With 2.2 lbs/day and 5.2 lbs/day of NOx emissions from mobile sources and facility upkeep respectively, the total unmitigated daily NOx emission would be 342.8 lbs/day (=335.4+2.2+5.2). With the mitigation of 194.4 lbs/day shown in DR-40, the mitigated NOx emissions would be 148.4 lbs/day (=342.8-194.4), which would exceed the BAAQMD daily threshold of significance of 54 lbs/day for NOx. According to BAAQMD CEQA Guidelines 2017, if mitigated levels of any criteria air pollutant or precursor would still exceed the applicable Threshold of Significance, the impact to air quality

[3] Refer to Exhibit 9-5 of EPA's *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (2015), available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NMXM.pdf. Although this table was written for particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) analyses, the 1-hour NO_2 standard follows the same statistical design value (i.e., 98th percentile, 5-year average). Therefore, use of this table is appropriate.

would remain significant and unavoidable. Staff needs to know whether the applicant would limit the daily testing hours during annual testing to make sure that the mitigated daily emissions would not exceed BAAQMD daily thresholds of significance. Staff needs such information to conclude whether or not the project impact to air quality would remain significant and unavoidable.

75) Please provide a revised Table DR-40 to show daily and annual unmitigated and mitigated emissions with the revised emission factors and compare them with the BAAQMD thresholds of significance.

Response: As requested, a revised Table DR-40 is provided below, which reflects use of the emission factors described in the response to DR-67 and assumes no more than 4 engine operating hours per day at 100 percent load. As shown, the incorporation of the required NO_X mitigation, in the form of offsets, reduces LDC's operational air quality impacts to a less than significant level. Therefore, the LDC operational emissions are not cumulatively considerable.

Table DR-40-R1 Criteria Pollutant Emissions BAAQMD CEQA Significance Threshold Comparison

	Average Daily Emissions (lbs/day)[a]					
	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Standby Generators	14.0	43.6	167.7	0.2	0.5	0.5
Mobile Sources	0.1	2.5	2.2	0.0	0.2	0.1
Facility Upkeep	22.4	4.4	5.2	0.0	0.4	0.4
Unmitigated Project Emissions	36.5	50.5	175.2	0.2	1.1	1.0
Mitigation[b]	0.0	0.0	194.4	0.0	0.0	0.0
Total Mitigated Emissions	36.5	50.5	-19.3	0.2	1.1	1.0
BAAQMD Daily Thresholds of Significance	54	--	54	--	82	54
Exceeds Daily Threshold (Y/N)?	N	N	N	N	N	N
	Maximum Annual Emissions (tpy)					
Annual Operation	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Standby Generators	4.9	15.3	58.7	0.1	0.2	0.2
Mobile Sources	0.0	0.5	0.4	0.0	0.0	0.0
Facility Upkeep	4.1	0.8	1.0	0.0	0.1	0.1
Unmitigated Project Emissions	9.0	16.5	35.0	0.1	0.3	0.3
Mitigation[c]	0.0	0.0	35.0	0.0	0.0	0.0
Total Mitigated Emissions	9.0	16.5	0.0	0.1	0.3	0.3
BAAQMD Annual Thresholds of Significance	10	--	10	--	15	10
Exceeds Annual Threshold (Y/N)?	N	N	N	N	N	N

[a] Assumes no more than 4 engine operating hours per day.

[b] Based on a requested annual NOx limit of less than 35 tons per year divided by 12 months per year and 30 days per month.

[c] Based on a requested annual NOx limit of less than 35 tons per year.

lbs/day = pound(s) per day

PM_{10} = particulate matter with aerodynamic diameter less than or equal to 10 microns

$PM_{2.5}$ = particulate matter with aerodynamic diameter less than or equal to 2.5 microns

BACKGROUND: Testing and Maintenance Events

Applicant's response to informal data request #71 (emailed and dated 5/1/2019) states that preventative maintenance for Medium Voltage Switchgear would occur once every three years, which would require 4 hours of generator operation every three years. Table 2-4 in the SPPE application shows that the UPS testing would take 3 hours and the switchgear testing would take 1 hour. However, the detailed testing profile for the 3-year Medium Voltage Breaker/Transformer Testing from Data Response Set 1A (TN 227626) shows that the duration of the testing would be 180 minutes (3 hours). Both UPS and switchgear testing were shown in the detailed testing profile from Data Response Set 1A (TN 227626). Staff needs to understand whether the 3-year Medium Voltage Breaker/Transformer Testing would last 3 hours or 4 hours. Staff needs to understand whether the UPS testing and switchgear testing shown in Table 2-4 of the SPPE application are now combined into the 3-year Medium Voltage Breaker/Transformer Testing.

Table 3.3-8 Standby Generator Assumptions of the SPPE application shows that for ambient air quality standards with averaging periods 3-hour, 8-hour, and 24-hour, the applicant assumed all generators could each operate at 100 percent load for a maximum of 3 hours per day for testing and maintenance purposes. If the 3-year Medium Voltage Breaker/Transformer Testing would last 4 hours, instead of 3 hours, staff needs revised modeling analysis to match the 4-hour testing or justification of why the existing assumption is conservative.

77) *Please clarify whether the 3-year Medium Voltage Breaker/Transformer Testing would last 3 hours or 4 hours.*

    Response: The 3-year Medium Voltage Breaker/Transformer Testing would last 4 hours once every 3 year.

78) *If the 3-year Medium Voltage Breaker/Transformer Testing would last 4 hours, instead of 3 hours, please revise modeling analysis to match the 4-hour testing or provide justification of why the assumption of 3-hour testing is conservative.*

    Response: The new and revised air quality impact analyses provided in response to DR-25, 26, and 32 account for the possibility that each generator could operate up to a maximum of four hours per day, consistent with the duration of the 3-year Medium Voltage Breaker/Transformer Testing.

79) *Please provide an updated Table 2-4 to be consistent with the most current assumptions of testing and maintenance profiles.*

    Response: A revised Table 2-4 was included in Transaction Number 228748.

Staff Queries, March 13, 2019 – Air Quality (1-4)

1) *Appendices 3.3-A through 3.3-E include detailed emissions and impacts calculations. Staff needs original spreadsheet files of these estimates with live, embedded formulas to complete analysis of the project. Please provide the spreadsheet versions of Appendices 3.3-A through 3.3-E worksheets with the embedded formulas live and intact.*

   Response: The following files have been submitted via electronic mail to Staff:

   - Microsoft Excel workbooks for the following:
     - Appendix DR25-A, in support of the air quality impact analysis presented in Attachment DR-25;
     - Appendix DR26-A, in support of the air quality impact analysis presented in Attachment DR-26;
     - Appendices DR32-A to DR32-D, in support of the air quality impact analysis and HRA presented in Attachment DR-32
   - CalEEMod input and output for the facility upkeep emission estimates (Excel workbook and PDF);
   - Standby generator specification sheets; and
   - Tables identifying the excess cancer risk and acute/chronic hazard indices for the point of maximum impact.

2) *The applicant estimated the construction emissions based on applicant's own spreadsheets with emission factors from CalEEMod, EMFAC2014, and AP-42. The applicant estimated the facility upkeep emissions during operation using CalEEMod. Staff needs all the inputs/assumptions that the applicant used in the spreadsheets and in CalEEMod as well as the output files to check the emissions estimates. Please provide the input and output files for CalEEMod and any inputs/assumptions and output files used for emission calculations.*

   Response: Please see the response to Staff Query 1.

3) *The applicant estimated the emissions of the engines based on the manufacturer's performance data sheets, 'CAT_C175-3MW-performance.pdf' and 'CAT_C175-3MW-specsheet.pdf', which were mentioned under Appendix 3.3B, Table 2. Staff needs these data sheets to complete analysis of the project. Please provide copies of these manufacturer's performance data sheets.*

   Response: Please see the response to Staff Query 1.

4) *The application did not provide point of maximum impact (PMI) in Appendix 3.3D, Tables 3 and 4 for construction and Appendix 3.3E, Table 3 for operation. Therefore, for both construction and operation, please provide the health risk impacts (including cancer risk, chronic non-cancer health index, acute non-cancer hazard index, and UTM coordinates) at PMI.*

   Response: Please see the response to Staff Query 1.

Staff Queries, April 23, 2019 – Air Quality (G and K)

g) *When you submit the modeling files, please make sure the .PLT files (or plotfile) are also included. It would be easier for me to double check the modeling results. Otherwise, I'll have to re-run everything to see if the results match what you provided in your tables. I just found another example of inconsistency between the modeling results and those shown in the tables. The following data were extracted from the file Operation\AERMOD\CO\2015\aermod.out for 1-hour CO impacts. It seems a lot of the results shown here are higher than the value of 6,370.87 ug/m3 shown in Table 3.3-12 of the SPPE application. When you revise the imapcts tables, please make sure they are consistent with the modeling files.*

Response: The new and revised AERMOD results presented in response to DR-25, 26, and 32 now match what is provided in the modeling files included with this submittal on DVD. The plotfiles have been included with the modeling file submission, as requested.

k) *As you know, my staff has identified several technical issues concerning the air quality/public health impact modeling done for Laurelwood. At one time, we were expecting to receive updated files by "mid-April". These are yet to arrive as far as I know. However, we did identify and send to you some additional issues for you to address in the modeling, so I understand why you did not make the mid-April date.*

Response: The new and revised air quality impact analyses and HRA have been provided in response to DR-25, 26, and 32, and correct the technical issues previously identified by Staff.

Attachment DR-25: Air Quality Impact Analysis for 50 Percent Load Scenario

Air Quality Impact Analysis for 50 Percent Load Scenario

An ambient air quality impact analysis was conducted to compare potential worst-case ground-level impacts resulting from the Laurelwood Data Center (LDC), operating at 50 percent load, with established state and federal ambient air quality standards and applicable Bay Area Air Quality Management District (BAAQMD) significance criteria. Potential air quality impacts from the 100 percent load scenario were evaluated in response to Data Request 32, using the same methodology described here. The analysis was conducted in accordance with the air quality impact analysis guidelines presented in U.S. Environmental Protection Agency's (EPA) 40 Code of Federal Regulations Part 51, Appendix W: *Guideline on Air Quality Models* (EPA, 2017).

The analysis includes an evaluation of the possible effects of simple, intermediate, and complex terrain, and aerodynamic effects (downwash) due to nearby buildings and structures on plume dispersion and ground-level concentrations. A numerical Gaussian plume model was used in the analysis. The model assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution of gaseous concentrations about the plume centerline. Gaussian dispersion models are approved by EPA and BAAQMD for regulatory use and are based on conservative assumptions (that is, the models tend to over-predict potential impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, limited chemical reactions, and so forth).

The sections below present the following information:

- Dispersion modeling methodology for evaluating the potential impacts on ambient air quality
- Modeling source data used to evaluate the potential impacts on ambient air quality
- Dispersion modeling results compared to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS)
- Discussion of expected health risk assessment (HRA) results

Dispersion Modeling Methodology

Model Selection and Model Options. The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 18081) was used with regulatory default options, as recommended in EPA's *Guideline on Air Quality Models* (EPA, 2017). The following supporting pre-processing programs for AERMOD were also used:

- BPIP-PRIME (Version 04274)
- AERMET (Version 18081)
- AERMAP (Version 11103)

AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short-range (less than 50 kilometers [km]) dispersion from the source. The model incorporates the Plume Rise Model Enhancement (PRIME) algorithm for modeling building downwash. AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. AERMOD was run with the following options:

- Regulatory default options
- Direction-specific building downwash
- Hour of day factor
- Urban population
- Actual receptor elevations and hill height scales obtained from AERMAP

The modeled facility layout is consistent with that used for the 100 percent load scenario, as presented in Appendix DR32-B, Figure 1 of Attachment DR-32.

Meteorological Data. The analysis was performed with 5 years of data provided by the BAAQMD. The data were collected at the San Jose International Airport surface station (WBAN: 23293) for calendar years 2013 through 2017. The San Jose International Airport surface station is located approximately 4.5 km southeast from the site and best represents the topography at the site. The concurrent daily upper air sounding data from the Oakland International Airport station (WBAN: 23230) were also included. The data were preprocessed with AERMET (Version 18081) by the BAAQMD for direct use in AERMOD.

Table 1 presents a summary of the percent completeness of wind speed and wind direction data. A cumulative wind rose for data from 2013 to 2017 from the AERMET processed surface files for the San Jose International Airport is consistent with that used for the 100 percent load scenario, as presented in Appendix DR32-B, Figure 3 of Attachment DR-32. The 5-year mean wind speed is 3.19 meters per second (m/s).

Table 1 Meteorological Data Completeness

Parameter	2013	2014	2015	2016	2017
Valid Wind Direction and Speed Observations	8,738	8,751	8,757	8,768	8,752
Possible Observations	8,760	8,760	8,760	8,784	8,760
Percent Complete (%)	99.75	99.90	99.97	99.82	99.91

Building Downwash. Building influences on stacks are calculated by incorporating the updated EPA Building Profile Input Program (BPIP) for use with the PRIME algorithm. Building tier options in BPIP were used where applicable. In addition to the buildings and structures associated with the project, five buildings surrounding the facility fence line were included in the model due to their height and proximity to the site. Appendix DR32-B, Figure 1 of Attachment DR-32 shows the facility layout and these five buildings on the exterior of the property boundary. The stack heights used in the dispersion modeling were the actual stack height since the proposed stack heights are less than good engineering practice stack height.

Receptor Grid. The ambient air boundary was defined by the fence line surrounding the project site. The selection of receptors in AERMOD were as follows:

- 25-meter (m) spacing along the fence line
- 50-m spacing from the fence line to 500 m from the grid origin
- 100-m spacing from beyond 500 m to 1 km from the fence line
- 500-m spacing from beyond 1 km to 5 km from the fence line
- 1,000-m spacing from beyond 5 km to 10 km from the fence line

AERMAP (Version 11103) was used to process terrain elevation data to obtain the elevation for all receptors using National Elevation Dataset files prepared by the U.S. Geological Survey. AERMAP first determined the base elevation at each receptor. AERMAP created hill height scale by searching for the terrain height and location that has the greatest influence on dispersion for each individual source and receptor. Both the base elevation and hill height scale data were produced for each receptor by AERMAP as a file or files that were directly accessed by AERMOD. All receptor locations were expressed in the Universal Transverse Mercator North American Datum 1983, Zone 10 coordinate system. The modeled receptor grid is consistent with that used for the 100 percent load scenario, as presented in Appendix DR32-B, Figure 2 of Attachment DR-32.

Sensitive Receptors. Sensitive receptors, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations which are more sensitive to the effects of toxic substance exposure. Examples of receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences could include houses, apartments, and senior living complexes. Medical facilities could include hospitals, convalescent homes, and health clinics.

Playgrounds could be play areas associated with parks or community centers (BAAQMD, 2017). The potential sensitive receptor locations evaluated in the HRA for LDC include (BAAQMD, 2012):

- Residential dwellings, including apartments, houses, condominiums
- Schools, colleges, and universities
- Daycares
- Hospitals
- Senior-care facilities

A sensitive receptor search was conducted within the 2-km zone of influence. It was determined that the sensitive receptors include primarily schools, elementary through college-level, and a hospital. The area directly north and east of the project site consists of various businesses. The nearest residential neighborhoods are located approximately 1 mile north and east of the site.

The sensitive receptors were used as discrete receptor locations in the model for consistency with the 100 percent load scenario, which required sensitive receptor locations to conduct an HRA, as described in Attachment DR-32.

Refined Analysis for 1-Hour Nitrogen Dioxide (NO_2). For comparison to the NAAQS and CAAQS, NO_2 modeling followed a Tier 2 approach described in Section 4.2.3.4 of EPA's *Guideline on Air Quality Models* (EPA, 2017). The Tier 2 analysis assumes an ambient equilibrium between nitric oxide (NO) and NO_2 using the Ambient Ratio Method 2 (ARM2) approach, in which the conversion of NO to NO_2 is predicted using hourly ambient nitrogen oxides (NO_X) monitoring data. For this modeling, the Ambient Ratio Method 2 (ARM2) option was used with an in-stack NO_2/NO_X ratio (ISR) of 0.1 and a maximum out-of-stack NO_2/NO_X ratio of 0.9. The NO_2 ISR Database (EPA, 2016), developed using EPA-verified testing, indicates that diesel internal combustion engines typically have an ISR of 0.03. Therefore, this modeling conservatively used 0.1 as an ISR for use in ARM2.

The model also included seasonal hour (SEASHR) background data for NO_2. The 1-hour NO_2 background profiles were calculated as a SEASHR profile that provides a single background value for each hour of the day for each of the four seasons. Data for these background profiles were obtained from EPA's Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California for years 2015, 2016, and 2017. For purposes of modeling for comparison to the CAAQS, the background profile uses the high-first-high (H1H) maximum hourly values from the three years of data. For purposes of modeling for comparison to the NAAQS, the background profile conservatively uses the high-second-high (H2H) hourly values averaged across the three years of data to represent the 98th percentile. The H2H is determined to be the 98th percentile based upon any single season having no more than 92 possible data points for any given hour. Copies of the background profiles used in this analysis are included in Appendix DR25-A.

Hour of Day Factor. An Hour of Day (HROFDY) factor modeling refinement was used in AERMOD to characterize daily operating hours from 8 a.m. until 5 p.m. Each generator can operate a maximum of 4 hours per day only during the 8 a.m. to 5 p.m. time frame. The HROFDY factor was utilized for the 24-hour averaging period and was not included for the annual averaging period.

Urban Factor. The site is located in the Santa Clara region of California, and is considered an urban area since the land use predominantly surrounding the project is classified as urban. Therefore, the model used a single urban area in AERMOD. The population estimate of Santa Clara County in 2017 was 1,938,153 people (U.S. Census Bureau Reporter, 2017). This population was included in the model to help define the differential heating effect that develops at night due to the urban population.

Modeling Source Data

Source Characterization. All 56 standby generators have been modeled as point sources, based on the operating assumptions specified in Table 2.

Table 2 Standby Generator Operating Assumptions

Averaging Period	Operating Assumption
1-hour and 3-hour	Assumes a single generator could operate at 50 percent load at a time for maintenance and testing purposes.
8-hour and 24-hour	Assumes all generators could each operate at 50 percent load for a maximum of 4 hours per day for testing and maintenance purposes.
Annual	Assumes all generators could each operate at 50 percent load for a maximum of 50 hours per year.

Modeled source parameters for the diesel generators were determined from manufacturer and performance data. Table 3 includes the modeled source parameters for each generator. The base elevation for each source was estimated based on a central elevation within the facility fence line. Consistent with the project design, the modeling assumes the entire surface within the property boundary would be graded to this elevation; therefore, all buildings and sources would have this same elevation. Based on the facility design and layout, 44 of the 56 proposed generators will be in a double-stacked formation with a higher total stack height. The remaining 12 generators will not be stacked and will comprise of a single generator exhaust point on the southern side of a proposed building. A table showing individual source parameters for all 56 generators is included in Appendix DR25-A.

Table 3 Standby Generator Source Parameters

Source	Base Elevation (m)	Stack Height (m)	Exhaust Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Stacked Generator (44)	9	12.19	732.04	40.32	0.51
Unstacked Generator (12)	9	5.49	732.04	40.32	0.51

Note:

K = degrees Kelvin

Modeled emission rates were developed as described in Attachment DR-32 for the following criteria pollutants, assuming each engine has a power rating of 2,305 horsepower at 50 percent load: NO_2, carbon monoxide (CO), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), and sulfur dioxide (SO_2). The 1-hour and 3-hour modeled emission rates demonstrate the maximum amount of pollutant released in any given hour. Modeled emission rates for the 8-hour and 24-hour averaging periods were calculated assuming each generator would only operate for 4 hours in a given 24-hour period, consistent with the possibility of the 3-Year Medium Voltage Breaker / Transformer Test occurring on any day of the year. Annual modeled emission rates assume each generator could operate a maximum of 50 hours per year. Table 4 includes the modeled emission rates for each criteria pollutant from a single generator. Emission rates for all 56 generators are presented in Appendix DR25-A.

Table 4 Modeled Criteria Pollutant Emission Rates for a Single Standby Generator

Pollutant	Averaging Period	Emission Rate (lb/hr)
NO_2	1-hour[a]	21.85
	Annual[b]	0.12
CO	1-hour[a]	5.68
	8-hour[c]	2.84
$PM_{2.5}$	24-hour[c]	1.04E-02
	Annual[b]	3.57E-04
PM_{10}	24-hour[c]	1.04E-02
	Annual[b]	3.57E-04

Table 4 Modeled Criteria Pollutant Emission Rates for a Single Standby Generator

Pollutant	Averaging Period	Emission Rate (lb/hr)
SO_2	1-hour[a]	2.76E-02
	3-hour[a]	2.76E-02
	24-hour[c]	4.60E-03
	Annual[b]	1.57E-04

[a] Maximum emission rate in any given hour.

[b] Averaged over a year (8,760 hours).

[c] Calculated to demonstrate that each generator will only operate a maximum of 4 hours within a 24-hour period.

Note:

lb/hr = pound(s) per hour

Dispersion Modeling Results

Results from the dispersion modeling analysis were compared to the NAAQS, CAAQS, and Significant Impact Levels (SILs)[1], as appropriate. As summarized in Table 5, the potential impacts of PM_{10} (24-hour), $PM_{2.5}$ (24-hour and annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), and NO_2 (1-hour and annual) are below their respective NAAQS.

Table 5 Comparison of Modeled Results to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)[a]	Total Predicted Concentration (µg/m³)	NAAQS (µg/m³)
PM_{10}	24-hour[b]	1.25	69.00	70.25	150
$PM_{2.5}$	24-hour[c]	1.01	31.00	32.01	35
	Annual[d]	0.01	9.70	9.71	12
CO	1-hour[e]	1,209.21	2,748.47	3,957.68	40,000
	8-hour[e]	387.69	2,061.35	2,449.04	10,000
SO_2	1-hour[f]	5.42	6.11	11.53	196
	3-hour[g]	5.50	9.42	14.92	1,300
	24-hour[g]	0.61	2.88	3.49	365
	Annual[g]	0.01	0.79	0.79	80
NO_2	Annual[g]	4.71	24.10	28.81	100
	1-hour[h]	91.86	N/A	91.86	188

[a] Background concentrations were included from Table 3.3-1c of the Small Power Plant Exemption (SPPE) Application to estimate the total predicted concentrations.

[b] The total predicted concentration for the 24-hour PM_{10} standard is the 6th-highest value over the five modeled years (2013-2017) combined with the maximum background concentration.

[c] The total predicted concentration for the 24-hour $PM_{2.5}$ standard is the 5-year average, high-8th-high modeled concentration combined with the 3-year average background concentration.

[d] The total predicted concentration for the annual $PM_{2.5}$ standard is the maximum 5-year average modeled concentration combined with the maximum background concentration.

[1] The SIL determines whether potential ambient impacts of the emitted pollutant would cause or significantly contribute to an exceedance of a standard (that is, impacts below the SIL indicate the project would not cause or significantly contribute to an exceedance).

Table 5 Comparison of Modeled Results to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Background Concentration (μg/m³)[a]	Total Predicted Concentration (μg/m³)	NAAQS (μg/m³)

[e] The total predicted concentrations for the 1-hour and 8-hour CO standards are the high-2nd-high modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[f] The total predicted concentration for the 1-hour SO_2 standard is the high-4th-high modeled concentration averaged over 5 years combined with the 3-year average background concentration.

[g] The total predicted concentrations for the annual SO_2, 3-hour SO_2, 24-hour SO_2, and annual NO_2 standards are the highest modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[h] The 1-hour NO_2 maximum modeled concentration accounts for a seasonal hour (SEASHR) background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time.

Notes:

N/A = Not applicable because the background is included in the model

μg/m³ = microgram(s) per cubic meter

As summarized in Table 6, potential impacts of $PM_{2.5}$ (annual), CO (1-hour and 8-hour), SO_2 (1-hour and 24-hour), and NO_2 (1-hour and annual) were also below the CAAQS. Because the PM_{10} background concentrations are already above the CAAQS, the project's modeled PM_{10} (annual and 24-hour) concentrations were compared to the SILs, instead of the CAAQS, to demonstrate that the project would not cause or contribute to an exceedance. The SIL modeling results are presented in Table 7.

Table 6 Comparison of Modeled Results to the California Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)[a]	Background Concentration (μg/m³)[b]	Total Predicted Concentration (μg/m³)	CAAQS (μg/m³)
$PM_{2.5}$	Annual	0.01	10.60	10.61	12
CO	1-hour	1,476.42	2,748.47	4,224.89	23,000
	8-hour	408.19	2,061.35	2,469.54	10,000
SO_2	1-hour	7.16	9.42	16.59	655
	24-hour	0.61	2.88	3.49	105
NO_2[c]	Annual	4.71	24.10	28.81	57
	1-hour	126.90	N/A	126.90	339

[a] Unless otherwise noted, the maximum modeled concentration for each pollutant and averaging period are the high-1st-high concentrations for comparison to the CAAQS.

[b] Background concentrations were included from Table 3.3-1c of the SPPE Application to estimate the total predicted concentrations.

[c] The 1-hour NO_2 maximum modeled concentration accounts for a seasonal hour (SEASHR) background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time for testing and maintenance.

Note:

N/A = Not applicable because the background is included in the model

Table 7 Comparison of Modeled PM_{10} Results to the Significant Impact Levels

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)[a]	SIL (µg/m³)
PM_{10}	24-hour	1.39	5
	Annual	0.01	1

[a] Modeled concentration is the maximum high-1st-high value of the 5 individual modeled years (2013-2017).

Health Risk Assessment

As mentioned in the Dispersion Modeling Methodology section above, sensitive receptors were used as discrete receptor locations in the model for consistency with the 100 percent load scenario, which required sensitive receptor locations to conduct an HRA, as described in Attachment DR-32. The primary driver of health risks in the 100 percent load scenario HRA was diesel particulate matter (DPM) resulting from diesel fuel combustion by the standby generators, best represented by PM_{10}.

Table 8 demonstrates that the maximum modeled ground-level concentration of annual PM_{10} is lower for the 50 percent load scenario than the 100 percent load scenario. Because health risk effects associated with DPM are expected to be proportional to modeled ground-level concentrations of PM_{10}, health risk effects for the 50 percent load scenario are expected to be less than those for the 100 percent load scenario. Therefore, the health risk effects for the 50 percent load scenario would be less than the BAAQMD's California Environmental Quality Act significance thresholds.

Table 8 Comparison of Annual PM_{10} Results for 50 and 100 Percent Loads

Pollutant	Averaging Time	Percent Load (%)	Maximum Modeled Concentration (µg/m³)[a]
PM_{10}	Annual	50	0.01
	Annual	100	0.02

[a] Modeled concentration is the maximum high-1st-high value of the 5 individual modeled years (2013-2017).

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Appendix DR25-A: AERMOD Modeling Inputs and Results

Appendix DR25-A, Table 1
Source Parameters for Operational AERMOD Modeling - 50% Load
EdgeCore LDC
June 2019

Source ID [a]	Stack Release Type	Source Description	Easting (X) (m) [b]	Northing (Y) (m) [b]	Base Elevation (m) [c]	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
GEN_1_50P	RAINCAP	Generator 1	591,459.44	4,137,987.04	9	12.19	732.04	40.32	0.51
GEN_2_50P	RAINCAP	Generator 2	591,459.44	4,137,987.54	9	12.19	732.04	40.32	0.51
GEN_3_50P	RAINCAP	Generator 3	591,459.44	4,137,990.78	9	12.19	732.04	40.32	0.51
GEN_4_50P	RAINCAP	Generator 4	591,459.44	4,137,991.28	9	12.19	732.04	40.32	0.51
GEN_5_50P	RAINCAP	Generator 5	591,459.44	4,137,997.01	9	12.19	732.04	40.32	0.51
GEN_6_50P	RAINCAP	Generator 6	591,459.44	4,137,997.51	9	12.19	732.04	40.32	0.51
GEN_7_50P	RAINCAP	Generator 7	591,459.44	4,138,000.74	9	12.19	732.04	40.32	0.51
GEN_8_50P	RAINCAP	Generator 8	591,459.44	4,138,001.24	9	12.19	732.04	40.32	0.51
GEN_9_50P	RAINCAP	Generator 9	591,459.44	4,138,006.98	9	12.19	732.04	40.32	0.51
GEN_10_50P	RAINCAP	Generator 10	591,459.44	4,138,007.48	9	12.19	732.04	40.32	0.51
GEN_11_50P	RAINCAP	Generator 11	591,459.44	4,138,010.71	9	12.19	732.04	40.32	0.51
GEN_12_50P	RAINCAP	Generator 12	591,459.44	4,138,011.21	9	12.19	732.04	40.32	0.51
GEN_13_50P	RAINCAP	Generator 13	591,459.44	4,138,016.95	9	12.19	732.04	40.32	0.51
GEN_14_50P	RAINCAP	Generator 14	591,459.44	4,138,017.45	9	12.19	732.04	40.32	0.51
GEN_15_50P	RAINCAP	Generator 15	591,459.44	4,138,020.68	9	12.19	732.04	40.32	0.51
GEN_16_50P	RAINCAP	Generator 16	591,459.44	4,138,021.18	9	12.19	732.04	40.32	0.51
GEN_17_50P	RAINCAP	Generator 17	591,459.44	4,138,026.91	9	12.19	732.04	40.32	0.51
GEN_18_50P	RAINCAP	Generator 18	591,459.44	4,138,027.41	9	12.19	732.04	40.32	0.51
GEN_19_50P	RAINCAP	Generator 19	591,459.44	4,138,030.65	9	12.19	732.04	40.32	0.51
GEN_20_50P	RAINCAP	Generator 20	591,459.44	4,138,031.15	9	12.19	732.04	40.32	0.51
GEN_21_50P	RAINCAP	Generator 21	591,459.44	4,138,036.88	9	12.19	732.04	40.32	0.51
GEN_22_50P	RAINCAP	Generator 22	591,459.44	4,138,037.38	9	12.19	732.04	40.32	0.51
GEN_23_50P	RAINCAP	Generator 23	591,459.44	4,138,040.62	9	12.19	732.04	40.32	0.51
GEN_24_50P	RAINCAP	Generator 24	591,459.44	4,138,041.12	9	12.19	732.04	40.32	0.51
GEN_25_50P	RAINCAP	Generator 25	591,459.44	4,138,046.85	9	12.19	732.04	40.32	0.51
GEN_26_50P	RAINCAP	Generator 26	591,459.44	4,138,047.35	9	12.19	732.04	40.32	0.51
GEN_27_50P	RAINCAP	Generator 27	591,459.44	4,138,050.58	9	12.19	732.04	40.32	0.51
GEN_28_50P	RAINCAP	Generator 28	591,459.44	4,138,051.08	9	12.19	732.04	40.32	0.51
GEN_29_50P	RAINCAP	Generator 29	591,563.09	4,137,881.30	9	12.19	732.04	40.32	0.51
GEN_30_50P	RAINCAP	Generator 30	591,563.73	4,137,881.66	9	12.19	732.04	40.32	0.51
GEN_31_50P	RAINCAP	Generator 31	591,566.63	4,137,882.95	9	12.19	732.04	40.32	0.51
GEN_32_50P	RAINCAP	Generator 32	591,567.11	4,137,883.27	9	12.19	732.04	40.32	0.51
GEN_33_50P	RAINCAP	Generator 33	591,572.22	4,137,885.84	9	12.19	732.04	40.32	0.51
GEN_34_50P	RAINCAP	Generator 34	591,572.66	4,137,886.04	9	12.19	732.04	40.32	0.51
GEN_35_50P	RAINCAP	Generator 35	591,575.40	4,137,887.45	9	12.19	732.04	40.32	0.51
GEN_36_50P	RAINCAP	Generator 36	591,575.91	4,137,887.73	9	12.19	732.04	40.32	0.51
GEN_37_50P	RAINCAP	Generator 37	591,580.96	4,137,890.23	9	12.19	732.04	40.32	0.51
GEN_38_50P	RAINCAP	Generator 38	591,581.44	4,137,890.50	9	12.19	732.04	40.32	0.51
GEN_39_50P	RAINCAP	Generator 39	591,584.08	4,137,891.79	9	12.19	732.04	40.32	0.51
GEN_40_50P	RAINCAP	Generator 40	591,584.55	4,137,892.06	9	12.19	732.04	40.32	0.51
GEN_41_50P	RAINCAP	Generator 41	591,593.03	4,137,896.26	9	12.19	732.04	40.32	0.51
GEN_42_50P	RAINCAP	Generator 42	591,590.25	4,137,894.83	9	12.19	732.04	40.32	0.51
GEN_43_50P	RAINCAP	Generator 43	591,593.50	4,137,896.46	9	12.19	732.04	40.32	0.51
GEN_44_50P	RAINCAP	Generator 44	591,589.94	4,137,894.64	9	12.19	732.04	40.32	0.51
GEN_45_50P	RAINCAP	Generator 45	591,598.79	4,137,899.17	9	5.49	732.04	40.32	0.51
GEN_46_50P	RAINCAP	Generator 46	591,602.18	4,137,900.87	9	5.49	732.04	40.32	0.51
GEN_47_50P	RAINCAP	Generator 47	591,607.80	4,137,903.85	9	5.49	732.04	40.32	0.51
GEN_48_50P	RAINCAP	Generator 48	591,611.32	4,137,905.61	9	5.49	732.04	40.32	0.51
GEN_49_50P	RAINCAP	Generator 49	591,616.61	4,137,908.18	9	5.49	732.04	40.32	0.51
GEN_50_50P	RAINCAP	Generator 50	591,619.93	4,137,910.01	9	5.49	732.04	40.32	0.51
GEN_51_50P	RAINCAP	Generator 51	591,625.83	4,137,912.86	9	5.49	732.04	40.32	0.51
GEN_52_50P	RAINCAP	Generator 52	591,629.08	4,137,914.49	9	5.49	732.04	40.32	0.51
GEN_53_50P	RAINCAP	Generator 53	591,634.71	4,137,917.20	9	5.49	732.04	40.32	0.51
GEN_54_50P	RAINCAP	Generator 54	591,637.82	4,137,918.76	9	5.49	732.04	40.32	0.51
GEN_55_50P	RAINCAP	Generator 55	591,643.72	4,137,921.40	9	5.49	732.04	40.32	0.51
GEN_56_50P	RAINCAP	Generator 56	591,646.90	4,137,923.30	9	5.49	732.04	40.32	0.51

Notes:

[a] Source ID's may differ from what appears in the modeling files due to the truncation of characters in the modeling program.

[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

[c] Base elevations were determined from a central point inside the facility fenceline.

Appendix DR25-A, Table 2
Modeled Emission Rates - 50% Load
EdgeCore LDC
June 2019

Source ID [a]	Modeled Emission Rates (lb/hr)											
	NO_2		CO		$PM_{2.5}$		PM_{10}		SO_2			
	1-hour [b]	Annual [c]	1-hour [b]	8-hour [d]	24-hour [d]	Annual [c]	24-hour [d]	Annual [c]	1-hour [b]	3-hour [b]	24-hour [d]	Annual [c]
GEN_1_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_2_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_3_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_4_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_5_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_6_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_7_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_8_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_9_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_10_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_11_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_12_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_13_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_14_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_15_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_16_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_17_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_18_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_19_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_20_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_21_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_22_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_23_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_24_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_25_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_26_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_27_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_28_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_29_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_30_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_31_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_32_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_33_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_34_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_35_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_36_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_37_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_38_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_39_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_40_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_41_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_42_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_43_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_44_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_45_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_46_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_47_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_48_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_49_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_50_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_51_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_52_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_53_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_54_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_55_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04
GEN_56_50P	21.85	0.12	5.68	2.84	1.04E-02	3.57E-04	1.04E-02	3.57E-04	2.76E-02	2.76E-02	4.60E-03	1.57E-04

Notes:

[a] Source ID's may differ from what appears in the modeling files due to the truncation of characters in the modeling program.

[b] Maximum emission rate in any given hour.

[c] Averaged over a year (8,760 hours).

[d] Calculated to demonstrate that each generator will only operate at a maximum of four hours within a 24-hour period.

Appendix DR25-A, Table 3

Detailed Model Results for 1-hour NO_2 - 50% Load

EdgeCore LDC

Source ID [a]	Modeled 1-hour NO_2 Concentration [b, c] (μg/m³)	CAAQS (μg/m³)	Exceeds the CAAQS?
GEN_1_50P	126.90	339	No
GEN_2_50P	126.90	339	No
GEN_3_50P	126.90	339	No
GEN_4_50P	126.90	339	No
GEN_5_50P	126.90	339	No
GEN_6_50P	126.90	339	No
GEN_7_50P	126.90	339	No
GEN_8_50P	126.90	339	No
GEN_9_50P	126.90	339	No
GEN_10_50P	126.90	339	No
GEN_11_50P	126.90	339	No
GEN_12_50P	126.90	339	No
GEN_13_50P	126.90	339	No
GEN_14_50P	126.90	339	No
GEN_15_50P	126.90	339	No
GEN_16_50P	126.90	339	No
GEN_17_50P	126.90	339	No
GEN_18_50P	126.90	339	No
GEN_19_50P	126.90	339	No
GEN_20_50P	126.90	339	No
GEN_21_50P	126.90	339	No
GEN_22_50P	126.90	339	No
GEN_23_50P	126.90	339	No
GEN_24_50P	126.90	339	No
GEN_25_50P	126.90	339	No
GEN_26_50P	126.90	339	No
GEN_27_50P	126.90	339	No
GEN_28_50P	126.90	339	No
GEN_29_50P	126.90	339	No
GEN_30_50P	126.90	339	No
GEN_31_50P	126.90	339	No
GEN_32_50P	126.90	339	No
GEN_33_50P	126.90	339	No
GEN_34_50P	126.90	339	No
GEN_35_50P	126.90	339	No
GEN_36_50P	126.90	339	No
GEN_37_50P	126.90	339	No
GEN_38_50P	126.90	339	No
GEN_39_50P	126.90	339	No
GEN_40_50P	126.90	339	No
GEN_41_50P	126.90	339	No
GEN_42_50P	126.90	339	No
GEN_43_50P	126.90	339	No
GEN_44_50P	126.90	339	No
GEN_45_50P	126.90	339	No
GEN_46_50P	126.90	339	No
GEN_47_50P	126.90	339	No
GEN_48_50P	126.90	339	No
GEN_49_50P	126.90	339	No
GEN_50_50P	126.90	339	No
GEN_51_50P	126.90	339	No
GEN_52_50P	126.90	339	No
GEN_53_50P	126.90	339	No
GEN_54_50P	126.90	339	No
GEN_55_50P	126.90	339	No
GEN_56_50P	126.90	339	No

Note:

[a] Source ID's may differ from what appears in the modeling files due to the truncation of characters in the modeling program.

[b] Modeled concentrations are the high-first-high results from each individual modeled year (2013-2017).

[c] The modeled concentration for the generators is equal to 126.90μg/m³. The reason for this re-occuring result is due to concentrations included in the CAAQS 1-Hour NO_2 background profile. The background profile included in the modeling has a maximum value of 126.90μg/m³, but this value does not occur during the specified hours of operation, from 8 a.m. to 5 p.m. The modeled result of 126.90μg/m³ demonstrates that the generator will not have a 1-hour NO_2 impact greater than the background concentration.

Appendix DR25-A, Table 4
Building and Tank Dimensions
EdgeCore LDC
June 2019

Building Dimensions

Building Name	Description	Base Elevation [a] (m)	Tier Height (ft)	Corner 1 East (X) (m) [b]	Corner 1 North (Y) (m) [b]	Corner 2 East (X) (m) [b]	Corner 2 North (Y) (m) [b]	Corner 3 East (X) (m) [b]	Corner 3 North (Y) (m) [b]	Corner 4 East (X) (m) [b]	Corner 4 North (Y) (m) [b]	Corner 5 East (X) (m) [b]	Corner 5 North (Y) (m) [b]	Corner 6 East (X) (m) [b]	Corner 6 North (Y) (m) [b]	Corner 7 East (X) (m) [b]	Corner 7 North (Y) (m) [b]	Corner 8 East (X) (m) [b]	Corner 8 North (Y) (m) [b]	Corner 9 East (X) (m) [b]	Corner 9 North (Y) (m) [b]	Corner 10 East (X) (m) [b]	Corner 10 North (Y) (m) [b]	Corner 11 East (X) (m) [b]	Corner 11 North (Y) (m) [b]	Corner 12 East (X) (m) [b]	Corner 12 North (Y) (m) [b]
Bldg1	Building 1	9	95.5	591,516.74	4,137,945.05	591,539.39	4,137,890.95	591,660.60	4,137,951.30	591,636.56	4,138,004.90																
Bldg1	Building 1	9	117.5	591,535.03	4,137,931.33	591,548.68	4,137,938.10	591,554.10	4,137,927.18	591,540.44	4,137,920.41																
Bldg1	Building 1	9	117.5	591,553.26	4,137,941.10	591,566.91	4,137,947.87	591,572.32	4,137,936.94	591,558.67	4,137,930.18																
Bldg1	Building 1	9	117.5	591,571.48	4,137,950.87	591,585.14	4,137,957.63	591,590.55	4,137,946.71	591,576.90	4,137,939.94																
Bldg1	Building 1	9	117.5	591,589.71	4,137,960.63	591,603.37	4,137,967.40	591,608.78	4,137,956.47	591,595.12	4,137,949.71																
Bldg1	Building 1	9	117.5	591,607.94	4,137,970.40	591,621.60	4,137,977.16	591,627.01	4,137,966.24	591,613.35	4,137,959.47																
Bldg1	Building 1	9	117.5	591,638.90	4,137,999.59	591,630.20	4,137,995.46	591,634.27	4,137,986.72	591,642.93	4,137,990.70																
Bldg2	Building 2	9	98.5	591,478.19	4,138,093.83	591,536.71	4,138,093.83	591,536.71	4,137,981.36	591,478.19	4,137,981.36																
Bldg2	Building 2	9	120.5	591,496.48	4,138,081.64	591,508.67	4,138,081.64	591,508.67	4,138,066.40	591,496.48	4,138,066.40																
Bldg2	Building 2	9	120.5	591,496.48	4,138,062.40	591,508.67	4,138,062.40	591,508.67	4,138,047.16	591,496.48	4,138,047.16																
Bldg2	Building 2	9	120.5	591,496.48	4,138,043.16	591,508.67	4,138,043.16	591,508.67	4,138,027.92	591,496.48	4,138,027.92																
Bldg2	Building 2	9	120.5	591,496.48	4,138,023.92	591,508.67	4,138,023.92	591,508.67	4,138,008.68	591,496.48	4,138,008.68																
Bldg2	Building 2	9	120.5	591,496.48	4,138,004.68	591,508.67	4,138,004.68	591,508.67	4,137,989.44	591,496.48	4,137,989.44																
Bldg2	Building 2	9	120.5	591,485.19	4,138,093.83	591,494.19	4,138,093.83	591,494.19	4,138,084.83	591,485.19	4,138,084.83																
Enc1	Generator Enclosure	9	36	591,457.74	4,137,985.55	591,475.88	4,137,985.55	591,475.88	4,137,989.28	591,457.74	4,137,989.28																
Enc2	Generator Enclosure	9	36	591,457.74	4,137,989.28	591,475.88	4,137,989.28	591,475.88	4,137,993.02	591,457.74	4,137,993.02																
Enc3	Generator Enclosure	9	36	591,457.74	4,137,995.52	591,475.88	4,137,995.52	591,475.88	4,137,999.25	591,457.74	4,137,999.25																
Enc4	Generator Enclosure	9	36	591,457.74	4,137,999.25	591,475.88	4,137,999.25	591,475.88	4,138,002.99	591,457.74	4,138,002.99																
Enc5	Generator Enclosure	9	36	591,457.74	4,138,005.49	591,475.88	4,138,005.49	591,475.88	4,138,009.22	591,457.74	4,138,009.22																
Enc6	Generator Enclosure	9	36	591,457.74	4,138,009.22	591,475.88	4,138,009.22	591,475.88	4,138,012.95	591,457.74	4,138,012.95																
Enc7	Generator Enclosure	9	36	591,457.74	4,138,015.45	591,475.88	4,138,015.45	591,475.88	4,138,019.19	591,457.74	4,138,019.19																
Enc8	Generator Enclosure	9	36	591,457.74	4,138,019.19	591,475.88	4,138,019.19	591,475.88	4,138,022.92	591,457.74	4,138,022.92																
Enc9	Generator Enclosure	9	36	591,457.74	4,138,025.42	591,475.88	4,138,025.42	591,475.88	4,138,029.15	591,457.74	4,138,029.15																
Enc10	Generator Enclosure	9	36	591,457.74	4,138,029.15	591,475.88	4,138,029.15	591,475.88	4,138,032.89	591,457.74	4,138,032.89																
Enc11	Generator Enclosure	9	36	591,457.74	4,138,035.39	591,475.88	4,138,035.39	591,475.88	4,138,039.12	591,457.74	4,138,039.12																
Enc12	Generator Enclosure	9	36	591,457.74	4,138,039.12	591,475.88	4,138,039.12	591,475.88	4,138,042.86	591,457.74	4,138,042.86																
Enc13	Generator Enclosure	9	36	591,457.74	4,138,045.36	591,475.88	4,138,045.36	591,475.88	4,138,049.09	591,457.74	4,138,049.09																
Enc14	Generator Enclosure	9	36	591,457.74	4,138,049.09	591,475.88	4,138,049.09	591,475.88	4,138,052.82	591,457.74	4,138,052.82																
Enc15	Generator Enclosure	9	36	591,554.26	4,137,895.72	591,557.61	4,137,897.37	591,565.66	4,137,881.12	591,562.31	4,137,879.47																
Enc16	Generator Enclosure	9	36	591,557.61	4,137,897.37	591,560.95	4,137,899.03	591,569.00	4,137,882.78	591,565.66	4,137,881.12																
Enc17	Generator Enclosure	9	36	591,563.19	4,137,900.14	591,566.54	4,137,901.80	591,574.59	4,137,885.55	591,571.24	4,137,883.89																
Enc18	Generator Enclosure	9	36	591,566.54	4,137,901.80	591,569.88	4,137,903.46	591,577.93	4,137,887.21	591,574.59	4,137,885.55																
Enc19	Generator Enclosure	9	36	591,572.12	4,137,904.57	591,575.47	4,137,906.22	591,583.52	4,137,889.97	591,580.17	4,137,888.32																
Enc20	Generator Enclosure	9	36	591,575.47	4,137,906.22	591,578.81	4,137,907.88	591,586.87	4,137,891.63	591,583.52	4,137,889.97																
Enc21	Generator Enclosure	9	36	591,581.05	4,137,908.99	591,584.40	4,137,910.65	591,592.45	4,137,894.40	591,589.11	4,137,892.74																
Enc22	Generator Enclosure	9	36	591,584.40	4,137,910.65	591,587.75	4,137,912.31	591,595.80	4,137,896.06	591,592.45	4,137,894.40																
Enc23	Generator Enclosure	9	14.2	591,589.99	4,137,913.42	591,593.33	4,137,915.07	591,601.38	4,137,898.82	591,598.04	4,137,897.17																
Enc24	Generator Enclosure	9	14.2	591,593.33	4,137,915.07	591,596.68	4,137,916.73	591,604.73	4,137,900.48	591,601.38	4,137,898.82																
Enc25	Generator Enclosure	9	14.2	591,598.92	4,137,917.84	591,602.26	4,137,919.50	591,610.31	4,137,903.25	591,606.97	4,137,901.59																
Enc26	Generator Enclosure	9	14.2	591,602.26	4,137,919.50	591,605.61	4,137,921.16	591,613.66	4,137,904.91	591,610.31	4,137,903.25																
Enc27	Generator Enclosure	9	14.2	591,607.85	4,137,922.27	591,611.19	4,137,923.93	591,619.25	4,137,907.67	591,615.90	4,137,906.02																
Enc28	Generator Enclosure	9	14.2	591,611.19	4,137,923.93	591,614.54	4,137,925.58	591,622.59	4,137,909.33	591,619.25	4,137,907.67																
Enc29	Generator Enclosure	9	14.2	591,616.78	4,137,926.69	591,620.13	4,137,928.35	591,628.18	4,137,912.10	591,624.83	4,137,910.44																
Enc30	Generator Enclosure	9	14.2	591,620.13	4,137,928.35	591,623.47	4,137,930.01	591,631.52	4,137,913.76	591,628.18	4,137,912.10																
Enc31	Generator Enclosure	9	14.2	591,625.71	4,137,931.12	591,629.06	4,137,932.78	591,637.11	4,137,916.52	591,633.76	4,137,914.87																
Enc32	Generator Enclosure	9	14.2	591,629.06	4,137,932.78	591,632.40	4,137,934.43	591,640.45	4,137,918.18	591,637.11	4,137,916.52																
Enc33	Generator Enclosure	9	14.2	591,634.64	4,137,935.54	591,637.99	4,137,937.20	591,646.04	4,137,920.95	591,642.69	4,137,919.29																
Enc34	Generator Enclosure	9	14.2	591,637.99	4,137,937.20	591,641.33	4,137,938.86	591,649.39	4,137,922.61	591,646.04	4,137,920.95																
Sub	Substation	9	16	591,449.11	4,137,961.62	591,502.45	4,137,961.62	591,502.45	4,137,907.21	591,449.11	4,137,907.21																
Ext1	Exterior Building 1	7	40	591,318.79	4,138,226.00	591,322.63	4,138,226.00	591,322.63	4,138,232.14	591,420.49	4,138,232.14	591,420.49	4,138,227.30	591,428.30	4,138,227.30	591,428.30	4,138,158.46	591,424.58	4,138,158.46	591,424.58	4,138,140.97	591,323.74	4,138,140.97	591,323.74	4,138,175.21	591,318.53	4,138,175.21
Ext2	Exterior Building 2	7	93	591,447.65	4,138,238.39	591,505.33	4,138,238.39	591,505.33	4,138,181.83	591,545.52	4,138,181.83	591,545.52	4,138,129.74	591,447.65	4,138,129.74												
Ext3	Exterior Building 3	9	35	591,636.98	4,138,126.47	591,712.14	4,138,167.70	591,714.53	4,138,163.56	591,719.92	4,138,166.26	591,742.44	4,138,129.24	591,736.78	4,138,125.80	591,740.38	4,138,120.40	591,663.80	4,138,078.31	591,661.48	4,138,082.86	591,656.54	4,138,079.94	591,635.86	4,138,118.60		
Ext4	Exterior Building 4	9	50	591,683.73	4,138,069.15	591,739.93	4,138,099.95	591,765.33	4,138,057.01	591,707.11	4,138,024.87																
Ext5	Exterior Building 5	7	180	591,441.09	4,138,341.35	591,441.09	4,138,288.08	591,497.29	4,138,288.08	591,497.29	4,138,292.57	591,446.26	4,138,341.35	591,441.32	4,138,341.35												

Notes:

[a] Base elevations for buildings within the facility fenceline were determined from a central point inside the facility fenceline.

[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

Tank Dimensions

Tank Name	Description	Base Elevation [a] (m)	Center East (X) (m) [b]	Center North (Y) (m) [b]	Tank Height (ft)	Tank Diameter (m)
Tank1	Water Tank 1	9	591,493.00	4,137,974.00	48	4.1656
Tank2	Water Tank 2	9	591,499.00	4,137,974.00	48	4.1656
Tank3	Water Tank 3	9	591,505.00	4,137,974.00	48	4.1656
Tank4	Water Tank 4	9	591,511.00	4,137,974.00	48	4.1656
Tank5	Water Tank 5	9	591,517.00	4,137,974.00	48	4.1656
Tank6	Water Tank 6	9	591,523.00	4,137,974.00	48	4.1656
Tank7	Water Tank 7	9	591,529.00	4,137,974.00	48	4.1656
Tank8	Water Tank 8	9	591,554.61	4,137,970.08	48	4.1656
Tank9	Water Tank 9	9	591,549.54	4,137,967.71	48	4.1656
Tank10	Water Tank 10	9	591,522.49	4,137,955.20	48	4.1656
Tank11	Water Tank 11	9	591,544.46	4,137,965.68	48	4.1656
Tank12	Water Tank 12	9	591,528.23	4,137,957.90	48	4.1656
Tank13	Water Tank 13	9	591,539.39	4,137,962.98	48	4.1656
Tank14	Water Tank 14	9	591,533.98	4,137,959.93	48	4.1656

Notes:

[a] Base elevations were determined from a central point inside the facility fenceline.

[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

Appendix DR25-A, Table 5

Seasonal-Hour NAAQS and CAAQS NO_2 Background Data

EdgeCore LDC

June 2019

Hour of Day	NAAQS Background Concentration by Season (ppb) [a]				CAAQS Background Concentration by Season (ppb) [a]			
	Dec-Feb	Mar-May	June-Aug	Sept-Nov	Dec-Feb	Mar-May	June-Aug	Sept-Nov
Hr.1	32.9	28.8	18.9	38.2	34.3	34.3	27.3	44.8
Hr.2	30.5	27.3	17.9	33.0	32.7	33.3	29.0	35.1
Hr.3 [b]	27.4	24.5	18.5	29.7	30.4	28.7	25.4	33.2
Hr.4 [b]	27.4	24.5	18.5	29.7	30.4	28.7	25.4	33.2
Hr.5	24.3	21.7	19.0	26.3	28.1	24.1	21.7	31.3
Hr.6	25.8	27.2	21.7	32.9	29.8	31.7	31.2	35.0
Hr.7	29.6	29.7	23.5	37.0	31.8	34.1	26.7	40.2
Hr.8	33.8	32.1	26.0	38.0	38.8	34.6	30.2	48.6
Hr.9	38.8	31.3	26.8	41.5	40.3	37.5	31.0	49.6
Hr.10	39.8	30.5	25.4	39.6	46.9	37.4	28.8	44.2
Hr.11	39.6	28.0	24.6	38.2	41.8	33.2	35.4	46.4
Hr.12	37.4	25.1	21.0	32.6	43.5	33.7	27.0	42.9
Hr.13	36.7	20.9	17.1	30.1	39.8	25.7	21.3	34.3
Hr.14	35.0	16.6	15.4	26.8	40.7	25.9	19.7	31.4
Hr.15	35.6	11.7	12.9	26.2	39.5	21.1	16.4	34.1
Hr.16	31.5	10.7	12.4	23.6	41.8	14.9	16.2	39.0
Hr.17	35.5	12.1	11.1	26.2	48.8	17.3	15.8	30.9
Hr.18	44.8	15.4	12.2	34.3	47.2	20.4	17.5	39.7
Hr.19	45.9	19.5	16.3	42.2	52.2	36.8	22.0	61.2
Hr.20	45.7	24.2	17.0	48.7	51.1	36.9	24.4	67.5
Hr.21	45.4	27.0	16.8	47.7	49.5	39.6	38.2	65.1
Hr.22	42.3	32.9	19.6	42.6	49.3	43.9	38.0	59.1
Hr.23	38.2	33.0	19.7	43.5	41.3	38.5	48.7	54.6
Hr.24	35.8	30.4	20.3	41.5	38.5	40.3	46.7	48.3

Notes:

[a] Backgroud concentrations by Season and Hour of Day obtained from the EPA Air Quality System monitoring station in San Jose, California (Site ID 060850005).

[b] Hours 3 and 4 are when monitor self calibrations or other activities occur, such that data points are not available. Therefore, both hours reflect the average of the hour before and after (Hours 2 and 5).

Attachment DR-26: Air Quality Impact Analysis for 75 Percent Load Scenario

Air Quality Impact Analysis for 75 Percent Load Scenario

An ambient air quality impact analysis was conducted to compare potential worst-case ground-level impacts resulting from the Laurelwood Data Center (LDC), operating at 75 percent load, with established state and federal ambient air quality standards and applicable Bay Area Air Quality Management District (BAAQMD) significance criteria. Potential air quality impacts from the 100 percent load scenario were evaluated in response to Data Request 32, using the same methodology described here. The analysis was conducted in accordance with the air quality impact analysis guidelines presented in U.S. Environmental Protection Agency's (EPA) 40 Code of Federal Regulations Part 51, Appendix W: *Guideline on Air Quality Models* (EPA, 2017).

The analysis includes an evaluation of the possible effects of simple, intermediate, and complex terrain, and aerodynamic effects (downwash) due to nearby buildings and structures on plume dispersion and ground-level concentrations. A numerical Gaussian plume model was used in the analysis. The model assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution of gaseous concentrations about the plume centerline. Gaussian dispersion models are approved by EPA and BAAQMD for regulatory use and are based on conservative assumptions (that is, the models tend to over-predict potential impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, limited chemical reactions, and so forth).

The sections below present the following information:

- Dispersion modeling methodology for evaluating the potential impacts on ambient air quality
- Modeling source data used to evaluate the potential impacts on ambient air quality
- Dispersion modeling results compared to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS)
- Discussion of expected health risk assessment (HRA) results

Dispersion Modeling Methodology

Model Selection and Model Options. The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 18081) was used with regulatory default options, as recommended in EPA's *Guideline on Air Quality Models* (EPA, 2017). The following supporting pre-processing programs for AERMOD were also used:

- BPIP-PRIME (Version 04274)
- AERMET (Version 18081)
- AERMAP (Version 11103)

AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short-range (less than 50 kilometers [km]) dispersion from the source. The model incorporates the Plume Rise Model Enhancement (PRIME) algorithm for modeling building downwash. AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. AERMOD was run with the following options:

- Regulatory default options
- Direction-specific building downwash
- Hour of day factor
- Urban population
- Actual receptor elevations and hill height scales obtained from AERMAP

The modeled facility layout is consistent with that used for the 100 percent load scenario, as presented in Appendix DR32-B, Figure 1 of Attachment DR-32.

Meteorological Data. The analysis was performed with 5 years of data provided by the BAAQMD. The data were collected at the San Jose International Airport surface station (WBAN: 23293) for calendar years 2013 through 2017. The San Jose International Airport surface station is located approximately 4.5 km southeast from the site and best represents the topography at the site. The concurrent daily upper air sounding data from the Oakland International Airport station (WBAN: 23230) were also included. The data were preprocessed with AERMET (Version 18081) by the BAAQMD for direct use in AERMOD.

Table 1 presents a summary of the percent completeness of wind speed and wind direction data. A cumulative wind rose for data from 2013 to 2017 from the AERMET processed surface files for the San Jose International Airport is consistent with that used for the 100 percent load scenario, as presented in Appendix DR32-B, Figure 3 of Attachment DR-32. The 5-year mean wind speed is 3.19 meters per second (m/s).

Table 1 Meteorological Data Completeness

Parameter	2013	2014	2015	2016	2017
Valid Wind Direction and Speed Observations	8,738	8,751	8,757	8,768	8,752
Possible Observations	8,760	8,760	8,760	8,784	8,760
Percent Complete (%)	99.75	99.90	99.97	99.82	99.91

Building Downwash. Building influences on stacks are calculated by incorporating the updated EPA Building Profile Input Program (BPIP) for use with the PRIME algorithm. Building tier options in BPIP were used where applicable. In addition to the buildings and structures associated with the project, five buildings surrounding the facility fence line were included in the model due to their height and proximity to the site. Appendix DR32-B, Figure 1 of Attachment DR-32 shows the facility layout and these five buildings on the exterior of the property boundary. The stack heights used in the dispersion modeling were the actual stack height since the proposed stack heights are less than good engineering practice stack height.

Receptor Grid. The ambient air boundary was defined by the fence line surrounding the project site. The selection of receptors in AERMOD were as follows:

- 25-meter (m) spacing along the fence line
- 50-m spacing from the fence line to 500 m from the grid origin
- 100-m spacing from beyond 500 m to 1 km from the fence line
- 500-m spacing from beyond 1 km to 5 km from the fence line
- 1,000-m spacing from beyond 5 km to 10 km from the fence line

AERMAP (Version 11103) was used to process terrain elevation data to obtain the elevation for all receptors using National Elevation Dataset files prepared by the U.S. Geological Survey. AERMAP first determined the base elevation at each receptor. AERMAP created hill height scale by searching for the terrain height and location that has the greatest influence on dispersion for each individual source and receptor. Both the base elevation and hill height scale data were produced for each receptor by AERMAP as a file or files that were directly accessed by AERMOD. All receptor locations were expressed in the Universal Transverse Mercator North American Datum 1983, Zone 10 coordinate system. The modeled receptor grid is consistent with that used for the 100 percent load scenario, as presented in Appendix DR32-B, Figure 2 of Attachment DR-32.

Sensitive Receptors. Sensitive receptors, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations which are more sensitive to the effects of toxic substance exposure. Examples of receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences could include houses, apartments, and senior living complexes. Medical facilities could include hospitals, convalescent homes, and health clinics.

Playgrounds could be play areas associated with parks or community centers (BAAQMD, 2017). The potential sensitive receptor locations evaluated in the HRA for LDC include (BAAQMD, 2012):

- Residential dwellings, including apartments, houses, condominiums
- Schools, colleges, and universities
- Daycares
- Hospitals
- Senior-care facilities

A sensitive receptor search was conducted within the 2-km zone of influence. It was determined that the sensitive receptors include primarily schools, elementary through college-level, and a hospital. The area directly north and east of the project site consists of various businesses. The nearest residential neighborhoods are located approximately 1 mile north and east of the site.

The sensitive receptors were used as discrete receptor locations in the model for consistency with the 100 percent load scenario, which required sensitive receptor locations to conduct an HRA, as described in Attachment DR-32.

Refined Analysis for 1-Hour Nitrogen Dioxide (NO_2). For comparison to the NAAQS and CAAQS, NO_2 modeling followed a Tier 2 approach described in Section 4.2.3.4 of EPA's *Guideline on Air Quality Models* (EPA, 2017). The Tier 2 analysis assumes an ambient equilibrium between nitric oxide (NO) and NO_2 using the Ambient Ratio Method 2 (ARM2) approach, in which the conversion of NO to NO_2 is predicted using hourly ambient nitrogen oxides (NO_X) monitoring data. For this modeling, the Ambient Ratio Method 2 (ARM2) option was used with an in-stack NO_2/NO_X ratio (ISR) of 0.1 and a maximum out-of-stack NO_2/NO_X ratio of 0.9. The NO_2 ISR Database (EPA, 2016), developed using EPA-verified testing, indicates that diesel internal combustion engines typically have an ISR of 0.03. Therefore, this modeling conservatively used 0.1 as an ISR for use in ARM2.

The model also included seasonal hour (SEASHR) background data for NO_2. The 1-hour NO_2 background profiles were calculated as a SEASHR profile that provides a single background value for each hour of the day for each of the four seasons. Data for these background profiles were obtained from EPA's Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California for years 2015, 2016, and 2017. For purposes of modeling for comparison to the CAAQS, the background profile uses the high-first-high (H1H) maximum hourly values from the three years of data. For purposes of modeling for comparison to the NAAQS, the background profile conservatively uses the high-second-high (H2H) hourly values averaged across the three years of data to represent the 98th percentile. The H2H is determined to be the 98th percentile based upon any single season having no more than 92 possible data points for any given hour. Copies of the background profiles used in this analysis are included in Appendix DR26-A.

Hour of Day Factor. An Hour of Day (HROFDY) factor modeling refinement was used in AERMOD to characterize daily operating hours from 8 a.m. until 5 p.m. Each generator can operate a maximum of 4 hours per day only during the 8 a.m. to 5 p.m. time frame. The HROFDY factor was utilized for the 24-hour averaging period and was not included for the annual averaging period.

Urban Factor. The site is located in the Santa Clara region of California, and is considered an urban area since the land use predominantly surrounding the project is classified as urban. Therefore, the model used a single urban area in AERMOD. The population estimate of Santa Clara County in 2017 was 1,938,153 people (U.S. Census Bureau Reporter, 2017). This population was included in the model to help define the differential heating effect that develops at night due to the urban population.

Modeling Source Data

Source Characterization. All 56 standby generators have been modeled as point sources, based on the operating assumptions specified in Table 2.

Table 2 Standby Generator Operating Assumptions

Averaging Period	Operating Assumption
1-hour and 3-hour	Assumes a single generator could operate at 75 percent load at a time for maintenance and testing purposes.
8-hour and 24-hour	Assumes all generators could each operate at 75 percent load for a maximum of 4 hours per day for testing and maintenance purposes.
Annual	Assumes all generators could each operate at 75 percent load for a maximum of 50 hours per year.

Modeled source parameters for the diesel generators were determined from manufacturer and performance data. Table 3 includes the modeled source parameters for each generator. The base elevation for each source was estimated based on a central elevation within the facility fence line. Consistent with the project design, the modeling assumes the entire surface within the property boundary would be graded to this elevation; therefore, all buildings and sources would have this same elevation. Based on the facility design and layout, 44 of the 56 proposed generators will be in a double-stacked formation with a higher total stack height. The remaining 12 generators will not be stacked and will comprise of a single generator exhaust point on the southern side of a proposed building. A table showing individual source parameters for all 56 generators is included in Appendix DR26-A.

Table 3 Standby Generator Source Parameters

Source	Base Elevation (m)	Stack Height (m)	Exhaust Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Stacked Generator (44)	9	12.19	736.37	46.85	0.51
Unstacked Generator (12)	9	5.49	736.37	46.85	0.51

Note:

K = degrees Kelvin

Modeled emission rates were developed as described in Attachment DR-32 for the following criteria pollutants, assuming each engine has a power rating of 3,364 horsepower at 75 percent load: NO_2, carbon monoxide (CO), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), and sulfur dioxide (SO_2). The 1-hour and 3-hour modeled emission rates demonstrate the maximum amount of pollutant released in any given hour. Modeled emission rates for the 8-hour and 24-hour averaging periods were calculated assuming each generator would only operate for 4 hours in a given 24-hour period, consistent with the possibility of the 3-Year Medium Voltage Breaker / Transformer Test occurring on any day of the year. Annual modeled emission rates assume each generator could operate a maximum of 50 hours per year. Table 4 includes the modeled emission rates for each criteria pollutant from a single generator. Emission rates for all 56 generators are presented in Appendix DR26-A.

Table 4 Modeled Criteria Pollutant Emission Rates for a Single Standby Generator

Pollutant	Averaging Period	Emission Rate (lb/hr)
NO_2	1-hour[a]	31.89
	Annual[b]	0.18
CO	1-hour[a]	8.30
	8-hour[c]	4.15
$PM_{2.5}$	24-hour[c]	1.52E-02
	Annual[b]	5.21E-04
PM_{10}	24-hour[c]	1.52E-02
	Annual[b]	5.21E-04

Table 4 Modeled Criteria Pollutant Emission Rates for a Single Standby Generator

Pollutant	Averaging Period	Emission Rate (lb/hr)
SO_2	1-hour[a]	3.50E-02
	3-hour[a]	3.50E-02
	24-hour[c]	5.83E-03
	Annual[b]	2.00E-04

[a] Maximum emission rate in any given hour.

[b] Averaged over a year (8,760 hours).

[c] Calculated to demonstrate that each generator will only operate a maximum of 4 hours within a 24-hour period.

Note:

lb/hr = pound(s) per hour

Dispersion Modeling Results

Results from the dispersion modeling analysis were compared to the NAAQS, CAAQS, and Significant Impact Levels (SILs)[1], as appropriate. As summarized in Table 5, the potential impacts of PM_{10} (24-hour), $PM_{2.5}$ (24-hour and annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), and NO_2 (1-hour and annual) are below their respective NAAQS.

Table 5 Comparison of Modeled Results to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)[a]	Total Predicted Concentration (µg/m³)	NAAQS (µg/m³)
PM_{10}	24-hour[b]	1.74	69.00	70.74	150
$PM_{2.5}$	24-hour[c]	1.35	31.00	32.35	35
	Annual[d]	0.02	9.70	9.72	12
CO	1-hour[e]	1,700.88	2,748.47	4,449.34	40,000
	8-hour[e]	542.15	2,061.35	2,603.50	10,000
SO_2	1-hour[f]	6.61	6.11	12.72	196
	3-hour[g]	6.74	9.42	16.17	1,300
	24-hour[g]	0.74	2.88	3.62	365
	Annual[g]	0.01	0.79	0.79	80
NO_2	Annual[g]	6.27	24.10	30.37	100
	1-hour[h]	96.65	N/A	96.65	188

[a] Background concentrations were included from Table 3.3-1c of the Small Power Plant Exemption (SPPE) Application to estimate the total predicted concentrations.

[b] The total predicted concentration for the 24-hour PM_{10} standard is the 6th-highest value over the five modeled years (2013-2017) combined with the maximum background concentration.

[c] The total predicted concentration for the 24-hour $PM_{2.5}$ standard is the 5-year average, high-8th-high modeled concentration combined with the 3-year average background concentration.

[d] The total predicted concentration for the annual $PM_{2.5}$ standard is the maximum 5-year average modeled concentration combined with the maximum background concentration.

[1] The SIL determines whether potential ambient impacts of the emitted pollutant would cause or significantly contribute to an exceedance of a standard (that is, impacts below the SIL indicate the project would not cause or significantly contribute to an exceedance).

Table 5 Comparison of Modeled Results to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)[a]	Total Predicted Concentration (µg/m^3)	NAAQS (µg/m^3)

[e] The total predicted concentrations for the 1-hour and 8-hour CO standards are the high-2nd-high modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[f] The total predicted concentration for the 1-hour SO_2 standard is the high-4th-high modeled concentration averaged over 5 years combined with the 3-year average background concentration.

[g] The total predicted concentrations for the annual SO_2, 3-hour SO_2, 24-hour SO_2, and annual NO_2 standards are the highest modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[h] The 1-hour NO_2 maximum modeled concentration accounts for a seasonal hour (SEASHR) background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time.

Notes:

N/A = Not applicable because the background is included in the model

µg/m^3 = microgram(s) per cubic meter

As summarized in Table 6, potential impacts of $PM_{2.5}$ (annual), CO (1-hour and 8-hour), SO_2 (1-hour and 24-hour), and NO_2 (1-hour and annual) were also below the CAAQS. Because the PM_{10} background concentrations are already above the CAAQS, the project's modeled PM_{10} (annual and 24-hour) concentrations were compared to the SILs, instead of the CAAQS, to demonstrate that the project would not cause or contribute to an exceedance. The SIL modeling results are presented in Table 7.

Table 6 Comparison of Modeled Results to the California Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)[a]	Background Concentration (µg/m^3)[b]	Total Predicted Concentration (µg/m^3)	CAAQS (µg/m^3)
$PM_{2.5}$	Annual	0.02	10.60	10.62	12
CO	1-hour	2,104.45	2,748.47	4,852.92	23,000
	8-hour	567.57	2,061.35	2,628.92	10,000
SO_2	1-hour	8.87	9.42	18.29	655
	24-hour	0.74	2.88	3.62	105
NO_2[c]	Annual	6.27	24.10	30.37	57
	1-hour	135.73	N/A	135.73	339

[a] Unless otherwise noted, the maximum modeled concentration for each pollutant and averaging period are the high-1st-high concentrations for comparison to the CAAQS.

[b] Background concentrations were included from Table 3.3-1c of the SPPE Application to estimate the total predicted concentrations.

[c] The 1-hour NO_2 maximum modeled concentration accounts for a seasonal hour (SEASHR) background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time for testing and maintenance.

Note:

N/A = Not applicable because the background is included in the model

Table 7 Comparison of Modeled PM_{10} Results to the Significant Impact Levels

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)[a]	SIL (µg/m³)
PM_{10}	24-hour	1.93	5
	Annual	0.02	1

[a] Modeled concentration is the maximum high-1st-high value of the 5 individual modeled years (2013-2017).

Health Risk Assessment

As mentioned in the Dispersion Modeling Methodology section above, sensitive receptors were used as discrete receptor locations in the model for consistency with the 100 percent load scenario, which required sensitive receptor locations to conduct an HRA, as described in Attachment DR-32. The primary driver of health risks in the 100 percent load scenario HRA was diesel particulate matter (DPM) resulting from diesel fuel combustion by the standby generators, best represented by PM_{10}.

Table 8 demonstrates that the maximum modeled ground-level concentration of annual PM_{10} is lower for the 75 percent load scenario than the 100 percent load scenario. Because health risk effects associated with DPM are expected to be proportional to modeled ground-level concentrations of PM_{10}, health risk effects for the 75 percent load scenario are expected to be less than those for the 100 percent load scenario. Therefore, the health risk effects for the 75 percent load scenario would be less than the BAAQMD's California Environmental Quality Act significance thresholds.

Table 8 Comparison of Annual PM_{10} Results for 75 and 100 Percent Loads

Pollutant	Averaging Time	Percent Load (%)	Maximum Modeled Concentration (µg/m³)[a]
PM_{10}	Annual	75	0.018
	Annual	100	0.021

[a] Modeled concentration is the maximum high-1st-high value of the 5 individual modeled years (2013-2017).

References

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Appendix DR26-A: AERMOD Modeling Inputs and Results

Appendix DR26-A, Table 1
Source Parameters for Operational AERMOD Modeling - 75% Load
EdgeCore LDC
June 2019

Source ID [a]	Stack Release Type	Source Description	Easting (X) (m) [b]	Northing (Y) (m) [b]	Base Elevation (m) [c]	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
GEN_1_75P	RAINCAP	Generator 1	591,459.44	4,137,987.04	9	12.19	736.37	46.85	0.51
GEN_2_75P	RAINCAP	Generator 2	591,459.44	4,137,987.54	9	12.19	736.37	46.85	0.51
GEN_3_75P	RAINCAP	Generator 3	591,459.44	4,137,990.78	9	12.19	736.37	46.85	0.51
GEN_4_75P	RAINCAP	Generator 4	591,459.44	4,137,991.28	9	12.19	736.37	46.85	0.51
GEN_5_75P	RAINCAP	Generator 5	591,459.44	4,137,997.01	9	12.19	736.37	46.85	0.51
GEN_6_75P	RAINCAP	Generator 6	591,459.44	4,137,997.51	9	12.19	736.37	46.85	0.51
GEN_7_75P	RAINCAP	Generator 7	591,459.44	4,138,000.74	9	12.19	736.37	46.85	0.51
GEN_8_75P	RAINCAP	Generator 8	591,459.44	4,138,001.24	9	12.19	736.37	46.85	0.51
GEN_9_75P	RAINCAP	Generator 9	591,459.44	4,138,006.98	9	12.19	736.37	46.85	0.51
GEN_10_75P	RAINCAP	Generator 10	591,459.44	4,138,007.48	9	12.19	736.37	46.85	0.51
GEN_11_75P	RAINCAP	Generator 11	591,459.44	4,138,010.71	9	12.19	736.37	46.85	0.51
GEN_12_75P	RAINCAP	Generator 12	591,459.44	4,138,011.21	9	12.19	736.37	46.85	0.51
GEN_13_75P	RAINCAP	Generator 13	591,459.44	4,138,016.95	9	12.19	736.37	46.85	0.51
GEN_14_75P	RAINCAP	Generator 14	591,459.44	4,138,017.45	9	12.19	736.37	46.85	0.51
GEN_15_75P	RAINCAP	Generator 15	591,459.44	4,138,020.68	9	12.19	736.37	46.85	0.51
GEN_16_75P	RAINCAP	Generator 16	591,459.44	4,138,021.18	9	12.19	736.37	46.85	0.51
GEN_17_75P	RAINCAP	Generator 17	591,459.44	4,138,026.91	9	12.19	736.37	46.85	0.51
GEN_18_75P	RAINCAP	Generator 18	591,459.44	4,138,027.41	9	12.19	736.37	46.85	0.51
GEN_19_75P	RAINCAP	Generator 19	591,459.44	4,138,030.65	9	12.19	736.37	46.85	0.51
GEN_20_75P	RAINCAP	Generator 20	591,459.44	4,138,031.15	9	12.19	736.37	46.85	0.51
GEN_21_75P	RAINCAP	Generator 21	591,459.44	4,138,036.88	9	12.19	736.37	46.85	0.51
GEN_22_75P	RAINCAP	Generator 22	591,459.44	4,138,037.38	9	12.19	736.37	46.85	0.51
GEN_23_75P	RAINCAP	Generator 23	591,459.44	4,138,040.62	9	12.19	736.37	46.85	0.51
GEN_24_75P	RAINCAP	Generator 24	591,459.44	4,138,041.12	9	12.19	736.37	46.85	0.51
GEN_25_75P	RAINCAP	Generator 25	591,459.44	4,138,046.85	9	12.19	736.37	46.85	0.51
GEN_26_75P	RAINCAP	Generator 26	591,459.44	4,138,047.35	9	12.19	736.37	46.85	0.51
GEN_27_75P	RAINCAP	Generator 27	591,459.44	4,138,050.58	9	12.19	736.37	46.85	0.51
GEN_28_75P	RAINCAP	Generator 28	591,459.44	4,138,051.08	9	12.19	736.37	46.85	0.51
GEN_29_75P	RAINCAP	Generator 29	591,563.09	4,137,881.30	9	12.19	736.37	46.85	0.51
GEN_30_75P	RAINCAP	Generator 30	591,563.73	4,137,881.66	9	12.19	736.37	46.85	0.51
GEN_31_75P	RAINCAP	Generator 31	591,566.63	4,137,882.95	9	12.19	736.37	46.85	0.51
GEN_32_75P	RAINCAP	Generator 32	591,567.11	4,137,883.27	9	12.19	736.37	46.85	0.51
GEN_33_75P	RAINCAP	Generator 33	591,572.22	4,137,885.84	9	12.19	736.37	46.85	0.51
GEN_34_75P	RAINCAP	Generator 34	591,572.66	4,137,886.04	9	12.19	736.37	46.85	0.51
GEN_35_75P	RAINCAP	Generator 35	591,575.40	4,137,887.45	9	12.19	736.37	46.85	0.51
GEN_36_75P	RAINCAP	Generator 36	591,575.91	4,137,887.73	9	12.19	736.37	46.85	0.51
GEN_37_75P	RAINCAP	Generator 37	591,580.96	4,137,890.23	9	12.19	736.37	46.85	0.51
GEN_38_75P	RAINCAP	Generator 38	591,581.44	4,137,890.50	9	12.19	736.37	46.85	0.51
GEN_39_75P	RAINCAP	Generator 39	591,584.08	4,137,891.79	9	12.19	736.37	46.85	0.51
GEN_40_75P	RAINCAP	Generator 40	591,584.55	4,137,892.06	9	12.19	736.37	46.85	0.51
GEN_41_75P	RAINCAP	Generator 41	591,593.03	4,137,896.26	9	12.19	736.37	46.85	0.51
GEN_42_75P	RAINCAP	Generator 42	591,590.25	4,137,894.83	9	12.19	736.37	46.85	0.51
GEN_43_75P	RAINCAP	Generator 43	591,593.50	4,137,896.46	9	12.19	736.37	46.85	0.51
GEN_44_75P	RAINCAP	Generator 44	591,589.94	4,137,894.64	9	12.19	736.37	46.85	0.51
GEN_45_75P	RAINCAP	Generator 45	591,598.79	4,137,899.17	9	5.49	736.37	46.85	0.51
GEN_46_75P	RAINCAP	Generator 46	591,602.18	4,137,900.87	9	5.49	736.37	46.85	0.51
GEN_47_75P	RAINCAP	Generator 47	591,607.80	4,137,903.85	9	5.49	736.37	46.85	0.51
GEN_48_75P	RAINCAP	Generator 48	591,611.32	4,137,905.61	9	5.49	736.37	46.85	0.51
GEN_49_75P	RAINCAP	Generator 49	591,616.61	4,137,908.18	9	5.49	736.37	46.85	0.51
GEN_50_75P	RAINCAP	Generator 50	591,619.93	4,137,910.01	9	5.49	736.37	46.85	0.51
GEN_51_75P	RAINCAP	Generator 51	591,625.83	4,137,912.86	9	5.49	736.37	46.85	0.51
GEN_52_75P	RAINCAP	Generator 52	591,629.08	4,137,914.49	9	5.49	736.37	46.85	0.51
GEN_53_75P	RAINCAP	Generator 53	591,634.71	4,137,917.20	9	5.49	736.37	46.85	0.51
GEN_54_75P	RAINCAP	Generator 54	591,637.82	4,137,918.76	9	5.49	736.37	46.85	0.51
GEN_55_75P	RAINCAP	Generator 55	591,643.72	4,137,921.40	9	5.49	736.37	46.85	0.51
GEN_56_75P	RAINCAP	Generator 56	591,646.90	4,137,923.30	9	5.49	736.37	46.85	0.51

Notes:
[a] Source ID's may differ from what appears in the modeling files due to the truncation of characters in the modeling program.
[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.
[c] Base elevations were determined from a central point inside the facility fenceline.

Appendix DR26-A, Table 2
Modeled Emission Rates - 75% Load
EdgeCore LDC
June 2019

Source ID [a]	Modeled Emission Rates (lb/hr)											
	NO_2		CO		$PM_{2.5}$		PM_{10}		SO_2			
	1-hour [b]	Annual [c]	1-hour [b]	8-hour [d]	24-hour [d]	Annual [c]	24-hour [d]	Annual [c]	1-hour [b]	3-hour [b]	24-hour [d]	Annual [c]
GEN_1_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_2_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_3_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_4_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_5_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_6_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_7_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_8_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_9_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_10_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_11_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_12_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_13_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_14_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_15_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_16_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_17_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_18_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_19_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_20_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_21_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_22_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_23_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_24_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_25_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_26_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_27_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_28_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_29_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_30_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_31_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_32_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_33_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_34_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_35_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_36_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_37_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_38_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_39_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_40_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_41_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_42_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_43_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_44_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_45_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_46_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_47_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_48_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_49_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_50_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_51_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_52_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_53_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_54_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_55_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04
GEN_56_75P	31.89	0.18	8.30	4.15	1.52E-02	5.21E-04	1.52E-02	5.21E-04	3.50E-02	3.50E-02	5.83E-03	2.00E-04

Notes:
[a] Source ID's may differ from what appears in the modeling files due to the truncation of characters in the modeling program.
[b] Maximum emission rate in any given hour.
[c] Averaged over a year (8,760 hours).
[d] Calculated to demonstrate that each generator will only operate at a maximum of four hours within a 24-hour period.

Appendix DR26-A, Table 3

Detailed Model Results for 1-hour NO_2 - 75% Load

EdgeCore LDC

Source ID [a]	Modeled 1-hour NO_2 Concentration [b, c] (µg/m³)	CAAQS (µg/m³)	Exceeds the CAAQS?
GEN_1_75P	126.90	339	No
GEN_2_75P	126.90	339	No
GEN_3_75P	126.90	339	No
GEN_4_75P	126.90	339	No
GEN_5_75P	126.90	339	No
GEN_6_75P	126.90	339	No
GEN_7_75P	126.90	339	No
GEN_8_75P	126.90	339	No
GEN_9_75P	130.61	339	No
GEN_10_75P	131.65	339	No
GEN_11_75P	135.73	339	No
GEN_12_75P	135.28	339	No
GEN_13_75P	129.73	339	No
GEN_14_75P	129.22	339	No
GEN_15_75P	129.05	339	No
GEN_16_75P	128.93	339	No
GEN_17_75P	126.90	339	No
GEN_18_75P	126.90	339	No
GEN_19_75P	126.90	339	No
GEN_20_75P	126.90	339	No
GEN_21_75P	126.90	339	No
GEN_22_75P	126.90	339	No
GEN_23_75P	126.90	339	No
GEN_24_75P	126.90	339	No
GEN_25_75P	126.90	339	No
GEN_26_75P	126.90	339	No
GEN_27_75P	126.90	339	No
GEN_28_75P	126.90	339	No
GEN_29_75P	127.64	339	No
GEN_30_75P	127.35	339	No
GEN_31_75P	126.90	339	No
GEN_32_75P	126.90	339	No
GEN_33_75P	126.90	339	No
GEN_34_75P	126.90	339	No
GEN_35_75P	126.90	339	No
GEN_36_75P	126.90	339	No
GEN_37_75P	126.90	339	No
GEN_38_75P	126.90	339	No
GEN_39_75P	126.90	339	No
GEN_40_75P	126.90	339	No
GEN_41_75P	126.90	339	No
GEN_42_75P	126.90	339	No
GEN_43_75P	126.90	339	No
GEN_44_75P	126.90	339	No
GEN_45_75P	129.94	339	No
GEN_46_75P	130.70	339	No
GEN_47_75P	126.90	339	No
GEN_48_75P	126.90	339	No
GEN_49_75P	126.90	339	No
GEN_50_75P	126.90	339	No
GEN_51_75P	126.90	339	No
GEN_52_75P	126.90	339	No
GEN_53_75P	126.90	339	No
GEN_54_75P	126.90	339	No
GEN_55_75P	126.90	339	No
GEN_56_75P	126.90	339	No

Note:

[a] Source ID's may differ from what appears in the modeling files due to the truncation of characters in the modeling program.

[b] Modeled concentrations are the high-first-high results from each individual modeled year (2013-2017).

[c] The modeled concentration for some generators is equal to 126.90 µg/m³. The reason for this re-occuring result is due to concentrations included in the CAAQS 1-Hour NO_2 background profile. The background profile included in the modeling has a maximum value of 126.90 µg/m³, but this value does not occur during the specified hours of operation, from 8 a.m. to 5 p.m. The modeled result of 126.90 µg/m³ demonstrates that the generator will not have a 1-hour NO_2 impact greater than the background concentration.

Appendix DR26-A, Table 4
Building and Tank Dimensions
EdgeCore LDC
June 2019

Building Dimensions

Building Name	Description	Base Elevation [a] (m)	Tier Height (ft)	Corner 1 East (X) (m) [b]	Corner 1 North (Y) (m) [b]	Corner 2 East (X) (m) [b]	Corner 2 North (Y) (m) [b]	Corner 3 East (X) (m) [b]	Corner 3 North (Y) (m) [b]	Corner 4 East (X) (m) [b]	Corner 4 North (Y) (m) [b]
Bldg1	Building 1	9	95.5	591,516.74	4,137,945.05	591,539.39	4,137,890.95	591,660.60	4,137,951.30	591,636.56	4,138,004.90
Bldg1	Building 1	9	117.5	591,535.03	4,137,931.33	591,548.68	4,137,938.10	591,554.10	4,137,927.18	591,540.44	4,137,920.41
Bldg1	Building 1	9	117.5	591,553.26	4,137,941.10	591,566.91	4,137,947.87	591,572.32	4,137,936.94	591,558.67	4,137,930.18
Bldg1	Building 1	9	117.5	591,571.48	4,137,950.87	591,585.14	4,137,957.63	591,590.55	4,137,946.71	591,576.90	4,137,939.94
Bldg1	Building 1	9	117.5	591,589.71	4,137,960.63	591,603.37	4,137,967.40	591,608.78	4,137,956.47	591,595.12	4,137,949.71
Bldg1	Building 1	9	117.5	591,607.94	4,137,970.40	591,621.60	4,137,977.16	591,627.01	4,137,966.24	591,613.35	4,137,959.47
Bldg1	Building 1	9	117.5	591,638.90	4,137,999.59	591,630.20	4,137,995.46	591,634.27	4,137,986.72	591,642.93	4,137,990.70
Bldg2	Building 2	9	98.5	591,478.19	4,138,093.83	591,536.71	4,138,093.83	591,536.71	4,137,981.36	591,478.19	4,137,981.36
Bldg2	Building 2	9	120.5	591,496.48	4,138,081.64	591,508.67	4,138,081.64	591,508.67	4,138,066.40	591,496.48	4,138,066.40
Bldg2	Building 2	9	120.5	591,496.48	4,138,062.40	591,508.67	4,138,062.40	591,508.67	4,138,047.16	591,496.48	4,138,047.16
Bldg2	Building 2	9	120.5	591,496.48	4,138,043.16	591,508.67	4,138,043.16	591,508.67	4,138,027.92	591,496.48	4,138,027.92
Bldg2	Building 2	9	120.5	591,496.48	4,138,023.92	591,508.67	4,138,023.92	591,508.67	4,138,008.68	591,496.48	4,138,008.68
Bldg2	Building 2	9	120.5	591,496.48	4,138,004.68	591,508.67	4,138,004.68	591,508.67	4,137,989.44	591,496.48	4,137,989.44
Bldg2	Building 2	9	120.5	591,485.19	4,138,093.83	591,494.19	4,138,093.83	591,494.19	4,138,084.83	591,485.19	4,138,084.83
Enc1	Generator Enclosure	9	36	591,457.74	4,137,985.55	591,475.88	4,137,985.55	591,475.88	4,137,989.28	591,457.74	4,137,989.28
Enc2	Generator Enclosure	9	36	591,457.74	4,137,989.28	591,475.88	4,137,989.28	591,475.88	4,137,993.02	591,457.74	4,137,993.02
Enc3	Generator Enclosure	9	36	591,457.74	4,137,995.52	591,475.88	4,137,995.52	591,475.88	4,137,999.25	591,457.74	4,137,999.25
Enc4	Generator Enclosure	9	36	591,457.74	4,137,999.25	591,475.88	4,137,999.25	591,475.88	4,138,002.99	591,457.74	4,138,002.99
Enc5	Generator Enclosure	9	36	591,457.74	4,138,005.49	591,475.88	4,138,005.49	591,475.88	4,138,009.22	591,457.74	4,138,009.22
Enc6	Generator Enclosure	9	36	591,457.74	4,138,009.22	591,475.88	4,138,009.22	591,475.88	4,138,012.95	591,457.74	4,138,012.95
Enc7	Generator Enclosure	9	36	591,457.74	4,138,015.45	591,475.88	4,138,015.45	591,475.88	4,138,019.19	591,457.74	4,138,019.19
Enc8	Generator Enclosure	9	36	591,457.74	4,138,019.19	591,475.88	4,138,019.19	591,475.88	4,138,022.92	591,457.74	4,138,022.92
Enc9	Generator Enclosure	9	36	591,457.74	4,138,025.42	591,475.88	4,138,025.42	591,475.88	4,138,029.15	591,457.74	4,138,029.15
Enc10	Generator Enclosure	9	36	591,457.74	4,138,029.15	591,475.88	4,138,029.15	591,475.88	4,138,032.89	591,457.74	4,138,032.89
Enc11	Generator Enclosure	9	36	591,457.74	4,138,035.39	591,475.88	4,138,035.39	591,475.88	4,138,039.12	591,457.74	4,138,039.12
Enc12	Generator Enclosure	9	36	591,457.74	4,138,039.12	591,475.88	4,138,039.12	591,475.88	4,138,042.86	591,457.74	4,138,042.86
Enc13	Generator Enclosure	9	36	591,457.74	4,138,045.36	591,475.88	4,138,045.36	591,475.88	4,138,049.09	591,457.74	4,138,049.09
Enc14	Generator Enclosure	9	36	591,457.74	4,138,049.09	591,475.88	4,138,049.09	591,475.88	4,138,052.82	591,457.74	4,138,052.82
Enc15	Generator Enclosure	9	36	591,554.26	4,137,895.72	591,557.61	4,137,897.37	591,565.66	4,137,881.12	591,562.31	4,137,879.47
Enc16	Generator Enclosure	9	36	591,557.61	4,137,897.37	591,560.95	4,137,899.03	591,569.00	4,137,882.78	591,565.66	4,137,881.12
Enc17	Generator Enclosure	9	36	591,563.19	4,137,900.14	591,566.54	4,137,901.80	591,574.59	4,137,885.55	591,571.24	4,137,883.89
Enc18	Generator Enclosure	9	36	591,566.54	4,137,901.80	591,569.88	4,137,903.46	591,577.93	4,137,887.21	591,574.59	4,137,885.55
Enc19	Generator Enclosure	9	36	591,572.12	4,137,904.57	591,575.47	4,137,906.22	591,583.52	4,137,889.97	591,580.17	4,137,888.32
Enc20	Generator Enclosure	9	36	591,575.47	4,137,906.22	591,578.81	4,137,907.88	591,586.87	4,137,891.63	591,583.52	4,137,889.97
Enc21	Generator Enclosure	9	36	591,581.05	4,137,908.99	591,584.40	4,137,910.65	591,592.45	4,137,894.40	591,589.11	4,137,892.74
Enc22	Generator Enclosure	9	36	591,584.40	4,137,910.65	591,587.75	4,137,912.31	591,595.80	4,137,896.06	591,592.45	4,137,894.40
Enc23	Generator Enclosure	9	14.2	591,589.99	4,137,913.42	591,593.33	4,137,915.07	591,601.38	4,137,898.82	591,598.04	4,137,897.17
Enc24	Generator Enclosure	9	14.2	591,593.33	4,137,915.07	591,596.68	4,137,916.73	591,604.73	4,137,900.48	591,601.38	4,137,898.82
Enc25	Generator Enclosure	9	14.2	591,598.92	4,137,917.84	591,602.26	4,137,919.50	591,610.31	4,137,903.25	591,606.97	4,137,901.59
Enc26	Generator Enclosure	9	14.2	591,602.26	4,137,919.50	591,605.61	4,137,921.16	591,613.66	4,137,904.91	591,610.31	4,137,903.25
Enc27	Generator Enclosure	9	14.2	591,607.85	4,137,922.27	591,611.19	4,137,923.93	591,619.25	4,137,907.67	591,615.90	4,137,906.02
Enc28	Generator Enclosure	9	14.2	591,611.19	4,137,923.93	591,614.54	4,137,925.58	591,622.59	4,137,909.33	591,619.25	4,137,907.67
Enc29	Generator Enclosure	9	14.2	591,616.78	4,137,926.69	591,620.13	4,137,928.35	591,628.18	4,137,912.10	591,624.83	4,137,910.44
Enc30	Generator Enclosure	9	14.2	591,620.13	4,137,928.35	591,623.47	4,137,930.01	591,631.52	4,137,913.76	591,628.18	4,137,912.10
Enc31	Generator Enclosure	9	14.2	591,625.71	4,137,931.12	591,629.06	4,137,932.78	591,637.11	4,137,916.52	591,633.76	4,137,914.87
Enc32	Generator Enclosure	9	14.2	591,629.06	4,137,932.78	591,632.40	4,137,934.43	591,640.45	4,137,918.18	591,637.11	4,137,916.52
Enc33	Generator Enclosure	9	14.2	591,634.64	4,137,935.54	591,637.99	4,137,937.20	591,646.04	4,137,920.95	591,642.69	4,137,919.29
Enc34	Generator Enclosure	9	14.2	591,637.99	4,137,937.20	591,641.33	4,137,938.86	591,649.39	4,137,922.61	591,646.04	4,137,920.95
Sub	Substation	9	16	591,449.11	4,137,961.62	591,502.45	4,137,961.62	591,502.45	4,137,907.21	591,449.11	4,137,907.21
Ext1	Exterior Building 1	7	40	591,318.79	4,138,226.00	591,322.63	4,138,226.00	591,322.63	4,138,232.14	591,420.49	4,138,232.14
Ext2	Exterior Building 2	7	93	591,447.65	4,138,238.39	591,505.33	4,138,238.39	591,505.33	4,138,181.83	591,545.52	4,138,181.83
Ext3	Exterior Building 3	9	35	591,636.98	4,138,126.47	591,712.14	4,138,167.70	591,714.53	4,138,163.56	591,719.92	4,138,166.26
Ext4	Exterior Building 4	9	50	591,683.73	4,138,069.15	591,739.93	4,138,099.95	591,765.33	4,138,057.01	591,707.11	4,138,024.87
Ext5	Exterior Building 5	7	180	591,441.09	4,138,341.35	591,441.09	4,138,288.08	591,497.29	4,138,288.08	591,497.29	4,138,292.57

Building Name	Corner 5 East (X) (m) [b]	Corner 5 North (Y) (m) [b]	Corner 6 East (X) (m) [b]	Corner 6 North (Y) (m) [b]	Corner 7 East (X) (m) [b]	Corner 7 North (Y) (m) [b]	Corner 8 East (X) (m) [b]	Corner 8 North (Y) (m) [b]	Corner 9 East (X) (m) [b]	Corner 9 North (Y) (m) [b]	Corner 10 East (X) (m) [b]	Corner 10 North (Y) (m) [b]	Corner 11 East (X) (m) [b]	Corner 11 North (Y) (m) [b]	Corner 12 East (X) (m) [b]	Corner 12 North (Y) (m) [b]
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Enc32																
Enc33																
Enc34																
Sub																
Ext1	591,420.49	4,138,227.30	591,428.30	4,138,227.30	591,428.30	4,138,158.46	591,424.58	4,138,158.46	591,424.58	4,138,140.97	591,323.74	4,138,140.97	591,323.74	4,138,175.21	591,318.53	4,138,175.21
Ext2	591,545.52	4,138,129.74	591,447.65	4,138,129.74												
Ext3	591,742.44	4,138,129.24	591,736.78	4,138,125.80	591,740.38	4,138,120.40	591,663.80	4,138,078.31	591,661.48	4,138,082.86	591,656.54	4,138,079.94	591,635.86	4,138,118.60		
Ext4																
Ext5	591,446.26	4,138,341.35	591,441.32	4,138,341.35												

Notes:
[a] Base elevations for buildings within the facility fenceline were determined from a central point inside the facility fenceline.
[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

Tank Dimensions

Tank Name	Description	Base Elevation [a] (m)	Center East (X) (m) [b]	Center North (Y) (m) [b]	Tank Height (ft)	Tank Diameter (m)
Tank1	Water Tank 1	9	591,493.00	4,137,974.00	48	4.1656
Tank2	Water Tank 2	9	591,499.00	4,137,974.00	48	4.1656
Tank3	Water Tank 3	9	591,505.00	4,137,974.00	48	4.1656
Tank4	Water Tank 4	9	591,511.00	4,137,974.00	48	4.1656
Tank5	Water Tank 5	9	591,517.00	4,137,974.00	48	4.1656
Tank6	Water Tank 6	9	591,523.00	4,137,974.00	48	4.1656
Tank7	Water Tank 7	9	591,529.00	4,137,974.00	48	4.1656
Tank8	Water Tank 8	9	591,554.61	4,137,970.08	48	4.1656
Tank9	Water Tank 9	9	591,549.54	4,137,967.71	48	4.1656
Tank10	Water Tank 10	9	591,522.49	4,137,955.20	48	4.1656
Tank11	Water Tank 11	9	591,544.46	4,137,965.68	48	4.1656
Tank12	Water Tank 12	9	591,528.23	4,137,957.90	48	4.1656
Tank13	Water Tank 13	9	591,539.39	4,137,962.98	48	4.1656
Tank14	Water Tank 14	9	591,533.98	4,137,959.93	48	4.1656

Notes:
[a] Base elevations were determined from a central point inside the facility fenceline.
[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

Appendix DR26-A, Table 5

Seasonal-Hour NO_2 Background Data

EdgeCore LDC

June 2019

Hour of Day	NAAQS Background Concentration by Season (ppb) [a]				CAAQS Background Concentration by Season (ppb) [a]			
	Dec-Feb	Mar-May	June-Aug	Sept-Nov	Dec-Feb	Mar-May	June-Aug	Sept-Nov
Hr.1	32.9	28.8	18.9	38.2	34.3	34.3	27.3	44.8
Hr.2	30.5	27.3	17.9	33.0	32.7	33.3	29.0	35.1
Hr.3 [b]	27.4	24.5	18.5	29.7	30.4	28.7	25.4	33.2
Hr.4 [b]	27.4	24.5	18.5	29.7	30.4	28.7	25.4	33.2
Hr.5	24.3	21.7	19.0	26.3	28.1	24.1	21.7	31.3
Hr.6	25.8	27.2	21.7	32.9	29.8	31.7	31.2	35.0
Hr.7	29.6	29.7	23.5	37.0	31.8	34.1	26.7	40.2
Hr.8	33.8	32.1	26.0	38.0	38.8	34.6	30.2	48.6
Hr.9	38.8	31.3	26.8	41.5	40.3	37.5	31.0	49.6
Hr.10	39.8	30.5	25.4	39.6	46.9	37.4	28.8	44.2
Hr.11	39.6	28.0	24.6	38.2	41.8	33.2	35.4	46.4
Hr.12	37.4	25.1	21.0	32.6	43.5	33.7	27.0	42.9
Hr.13	36.7	20.9	17.1	30.1	39.8	25.7	21.3	34.3
Hr.14	35.0	16.6	15.4	26.8	40.7	25.9	19.7	31.4
Hr.15	35.6	11.7	12.9	26.2	39.5	21.1	16.4	34.1
Hr.16	31.5	10.7	12.4	23.6	41.8	14.9	16.2	39.0
Hr.17	35.5	12.1	11.1	26.2	48.8	17.3	15.8	30.9
Hr.18	44.8	15.4	12.2	34.3	47.2	20.4	17.5	39.7
Hr.19	45.9	19.5	16.3	42.2	52.2	36.8	22.0	61.2
Hr.20	45.7	24.2	17.0	48.7	51.1	36.9	24.4	67.5
Hr.21	45.4	27.0	16.8	47.7	49.5	39.6	38.2	65.1
Hr.22	42.3	32.9	19.6	42.6	49.3	43.9	38.0	59.1
Hr.23	38.2	33.0	19.7	43.5	41.3	38.5	48.7	54.6
Hr.24	35.8	30.4	20.3	41.5	38.5	40.3	46.7	48.3

Notes:

[a] Backgroud concentrations by Season and Hour of Day obtained from the EPA Air Quality System monitoring station in San Jose, California (Site ID 060850005).

[b] Hours 3 and 4 are when monitor self calibrations or other activities occur, such that data points are not available. Therefore, both hours reflect the average of the hour before and after (Hours 2 and 5).

Attachment DR-32: Revised Air Quality Impact Analysis and Health Risk Assessment for 100 Percent Load Scenario

Revised Air Quality Impact Analysis and Health Risk Assessment for 100 Percent Load Scenario

A revised ambient air quality impact analysis was conducted to compare potential worst-case ground-level impacts resulting from the Laurelwood Data Center (LDC), operating at 100 percent load,[1] with established state and federal ambient air quality standards and applicable Bay Area Air Quality Management District (BAAQMD) significance criteria. The analysis was conducted in accordance with the air quality impact analysis guidelines presented in U.S. Environmental Protection Agency's (EPA) 40 Code of Federal Regulations Part 51, Appendix W: *Guideline on Air Quality Models* (EPA, 2017).

A revised health risk assessment (HRA) was also conducted to compare risk from construction and operation of the project to the BAAQMD's California Environmental Quality Act (CEQA) significance thresholds. An HRA requires both dispersion modeling of the facility and characterization of the resultant risk using risk assessment methodology approved by the Office of Environmental Health Hazard Assessment (OEHHA). A Tier 1 assessment was performed, which uses a standard point-estimate approach with standard OEHHA assumptions (OEHHA, 2015).

The document below present the following information:

- Development of construction and operation emission estimates for the following pollutants:
  - Criteria pollutants, including carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NO_X), sulfur dioxide (SO_2), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$)
  - Toxic air contaminants (TACs)
- Air quality impact analysis, which addresses:
  - Dispersion modeling methodology
  - Modeling source data
  - Dispersion modeling results compared to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS)
- HRA, which addresses:
  - Risk characterization methodology
  - Emissions and HRA methodology
  - HRA results compared to the BAAQMD's CEQA significance thresholds

Project Emissions

Construction. Short-term construction emissions of CO, VOCs, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated in Section 3.3 of the Small Power Plant Exemption (SPPE) Application (Transaction Number 227273-1 and 227273-2), and have not changed as a result of the revised project design. The only TAC considered to result from construction activities was diesel particulate matter (DPM), which was assumed equal to onsite exhaust PM_{10} emissions. Detailed construction emission calculations were presented in Appendix 3.3-A of the SPPE Application. Construction emissions are a result of construction equipment, material movement, paving activities, and on- and offsite vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles. Estimated criteria pollutant construction emissions for the project were summarized in Table 3.3-3 of the SPPE Application, and conservatively assume that all construction activity would occur concurrently.

Based on the results presented in Table 3.3-3 of the SPPE Application, construction of the project would not generate VOCs, NO_X, PM_{10}, or $PM_{2.5}$ emissions in excess of BAAQMD's numeric thresholds. To

[1] Air quality impacts from the 100 percent load scenario were originally evaluated in Section 3.3 of the Small Power Plant Exemption (SPPE) Application, using the same methodology described here unless otherwise noted.

assure fugitive potential dust impacts are less than significant, the Applicant will incorporate the BAAQMD's recommended best management practices as a project design feature.

Operation. Operational emissions of CO, VOCs, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. TACs were only considered to result from operation of the standby diesel generators. Detailed operation emission calculations are presented in Appendix DR32-A, which is a revised version of Appendix 3.3-B of the SPPE Application. Operation emissions are a result of diesel fuel combustion from the standby diesel generators, offsite vehicle trips for worker commutes and material deliveries, and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use. Each of these emission sources are described in more detail below.

Stationary Sources. The project's 56 standby diesel generators would result in stationary combustion emissions. The generators proposed for installation are Caterpillar Model 175-16, with a certified Tier 2 rating and an engine output of 4,423 horsepower at full load. All generators would be equipped with a Miratech LTR® Diesel Particulate Filter System, which is expected to control particulate matter by at least 85 percent. All generators would be tested routinely to ensure they would function during an emergency.

During routine readiness testing, criteria pollutants and TACs would be emitted directly from the generators. Criteria pollutant emissions from generator testing were quantified using Tier 2 emission factors published by the EPA and South Coast Air Quality Management District (SCAQMD) for model year 2018/2019 engines, as specified in Appendix DR32-A and agreed to by California Energy Commission Staff, and account for particulate matter controls. SO_2 emissions were based on the maximum sulfur content allowed in California diesel (15 parts per million by weight per Title 13, Section 2281, California Code of Regulations [CCR]), and an assumed 100 percent conversion of fuel sulfur to SO_2. TAC emissions resulting from diesel stationary combustion were assumed equal to PM_{10} emissions or estimated using speciated emission factors from *AP-42* (EPA, 1996). It was assumed that testing would occur for no more than 50 hours per year, as limited by the Airborne Toxic Control Measure for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR). Consistent with BAAQMD permitting methods, no load factor was applied. Emissions resulting from emergency operations were not estimated because, when permitting standby diesel generators, the BAAQMD typically limits only emissions resulting from non-emergency use.

Table 1, which is a revised version of Table 3.3-4 of the SPPE Application, provides daily and annual criteria pollutant emission estimates assuming each generator is operated 50 hours per year, with daily emissions estimated assuming all generators are operated at 50 hours per year, and then averaged over the year to get a daily average maximum emissions estimate.[2] Per BAAQMD's Regulation 2, Rule 2, new sources with a Potential to Emit of 10.0 pound(s) per day (lb/day) or more of any single pollutant must be equipped with Best Available Control Technology (BACT). As shown in Table 1, daily NO_X emissions from the standby generators exceed the BAAQMD 10.0 lb/day limit. Accordingly, these sources will be equipped with a Diesel Particulate Filter System, which is considered BACT (BAAQMD, 2010). BAAQMD's Regulation 2, Rule 2 also requires new sources that emit more than 10 tons per year of NO_X to fully offset emissions. As shown in Table 1, annual NO_X emissions from the standby generators would total approximately 59 tons per year. Accordingly, the NO_X emissions will be fully offset through the air permitting process.

[2] Daily emission rates were averaged over the period of a year since the standby generators could potentially be tested at any time of day or day of the year.

Table 1 Criteria Pollutant Emissions from All Standby Generators

Evaluation Period	Pollutant	Emissions	BAAQMD Thresholds	Exceeds Threshold?
Average Daily Emissions (lb/day)[a]	NO_x[c]	326	54	Yes
	VOCs	27.1	54	No
	CO[d]	84.8	--	N/A
	SO_2	0.35	--	N/A
	PM_{10}	0.93	82	No
	$PM_{2.5}$	0.93	54	No
Maximum Annual Emissions (tons per year)[b]	NO_x[c]	58.7	10	Yes
	VOCs	4.89	10	No
	CO[d]	15.3	--	N/A
	SO_2	0.06	--	N/A
	PM_{10}	0.17	15	No
	$PM_{2.5}$	0.17	10	No

[a] The average daily emissions were derived from the maximum annual emissions, assuming 12 months per year and 30 days per month.

[b] The maximum annual emissions were estimated assuming that all 56 generators would operate 50 hours per year.

[c] NO_X emissions will be fully offset through the air permitting process with the BAAQMD.

[d] In the absence of a mass-based threshold, CO and SO_2 potential impacts were evaluated through air dispersion modeling, as described in Section 3.3.3.2.

Notes:

-- = No mass-based threshold has been adopted for this pollutant

N/A = Not applicable because no mass-based threshold is available

Table 2, which is a revised version of Table 3.3-5 of the SPPE Application, provides hourly and annual TAC emission estimates, again assuming each generator is operated 50 hours per year. The characterization of TAC emissions used to conduct the HRA are described later in this response, for purposes of demonstrating compliance with BAAQMD's Regulation 2, Rule 5. The federal Clean Air Act requires Maximum Achievable Control Technology (MACT) on new sources that emit more than 10 tons per year of any single hazardous air pollutant (HAP) or more than 25 tons per year of any combination of HAPs. As shown in Table 2, the project's annual emissions of any single HAP or combination of HAPs will be below the MACT thresholds.

Table 2 Toxic Air Contaminant Emissions from All Standby Generators

Pollutant	Hourly Emissions (lb/hr)[a]	Annual Emissions (tons per year)[b]
Acenaphthene	7.75E-03	1.94E-04
Acenaphthylene	1.53E-02	3.82E-04
Acetaldehyde[d]	4.17E-02	1.04E-03
Acrolein[d]	1.30E-02	3.26E-04
Anthracene	2.04E-03	5.09E-05
Benz(a)anthracene	1.03E-03	2.57E-05
Benzene[d]	1.28E+00	3.21E-02
Benzo(a)pyrene	4.25E-04	1.06E-05
Benzo(b)fluoranthene	1.84E-03	4.59E-05

Table 2 Toxic Air Contaminant Emissions from All Standby Generators

Pollutant	Hourly Emissions (lb/hr)[a]	Annual Emissions (tons per year)[b]
Benzo(g,h,i)perylene	9.20E-04	2.30E-05
Benzo(k)fluoranthene	3.61E-04	9.02E-06
Chyrsene	2.53E-03	6.33E-05
Dibenz(a,h)anthracene	5.73E-04	1.43E-05
DPM[c]	6.72E+00	1.68E-01
Fluoranthene	6.67E-03	1.67E-04
Fluorene	2.12E-02	5.30E-04
Formaldehyde[d]	1.31E-01	3.27E-03
Indeno(1,2,3-cd)pyrene	6.85E-04	1.71E-05
Naphthalene[d]	2.15E-01	5.38E-03
Phenanthrene	6.75E-02	1.69E-03
Propylene	4.62E+00	1.15E-01
Pyrene	6.14E-03	1.54E-04
Toluene[d]	4.65E-01	1.16E-02
Total PAHs	3.51E-01	8.77E-03
Xylenes[d]	3.19E-01	7.99E-03

[a] Hourly emissions were estimated assuming that all 56 generators could be operated concurrently. In practice, standard operating procedures will limit testing to one generator per hour.

[b] The annual emissions were estimated assuming that all 56 generators would operate 50 hours per year.

[c] DPM emissions were assumed equal to exhaust PM_{10} emissions.

[d] These pollutants are HAPs identified by the EPA.

Notes:

lb/hr = pound(s) per hour

PAH = Polycyclic Aromatic Hydrocarbon

Mobile Sources. Approximately 54 employees, including 8 environmental personnel, 18 operations personnel, 3 mechanics, and 25 security or administrative personnel, would be employed at the project site on a daily basis. There would be an average of 74 total daily vehicle trips, including vendor and employee trips, which would result in mobile source criteria pollutant emissions. These emissions were estimated using vehicle exhaust and idling emission factors from EMFAC2014. Emissions resulting from mobile source operation are included in Table 3 for completeness, but are unchanged from the original evaluation presented in Section 3.3 of the SPPE Application.

Area and Energy Sources. The project would result in area and energy source criteria pollutant emissions associated with facility upkeep (that is, operation and maintenance). Area sources include landscaping activities, consumer product use, and periodic painting emissions. Energy sources include natural gas combustion for space heating, from sources assumed exempt from BAAQMD permitting.[3] Facility upkeep emissions were estimated using the California Emissions Estimator Model (CalEEMod),

[3] Note that CalEEMod does not calculate criteria pollutant emissions associated with electricity consumption, because that is considered an indirect source of emissions. Accordingly, the energy source criteria pollutant emissions only include emissions from natural gas combustion. Similarly, criteria pollutant emissions associated with waste generation and water use would be tied to electricity consumption and are not included in this analysis.

based on the square footage of the buildings to be constructed and paved areas. Emissions resulting from area sources are included in Table 3. These emissions were assumed unchanged from the original evaluation presented in Section 3.3 of the SPPE Application, because building square footage is not expected to significantly change as a result of the revised project design.

Table 3 Criteria Pollutant Emissions from Facility Operation

Source	VOCs	NO_x	PM_{10}	$PM_{2.5}$
Area Sources (lb/day)	21.8	0.00	0.00	0.00
Energy Sources (lb/day)[a]	0.57	5.22	0.40	0.40
Mobile Sources (lb/day)	0.11	2.22	0.22	0.10
Stationary Sources (lb/day)[b]	27.1	326	0.93	0.93
Total Average Daily Emissions (lb/day)	49.6	334	1.55	1.43
BAAQMD Thresholds (lb/day)	54	54	82	54
Exceeds Threshold?	No	Yes	No	No

[a] Criteria pollutant emissions from energy sources are only calculated from natural gas use. CalEEMod does not calculate criteria pollutant emissions produced by electricity consumption.

[b] As required by BAAQMD Regulation 2, Rule 2, stationary source NO_X emissions will be fully offset. Annual NO_X emissions from the standby generators would be approximately 59 tons per year (Table 1).

As shown in Table 3, which is a revised version of Table 3.3-6 from the SPPE Application, operation of the project would not generate VOCs, PM_{10}, or $PM_{2.5}$ emissions in excess of BAAQMD's numeric thresholds. While NO_X emissions would exceed BAAQMD's numeric threshold, emissions from the standby generators would be fully offset during the permit process resulting in a less-than-significant impact.

Air Quality Impact Analysis

An ambient air quality impact analysis was conducted to compare the potential worst-case ground-level impacts resulting from the LDC with established state and federal ambient air quality standards and applicable BAAQMD significance criteria. The analysis was conducted in accordance with the air quality impact analysis guidelines presented in EPA's 40 Code of Federal Regulations Part 51, Appendix W: *Guideline on Air Quality Models* (EPA, 2017).

The analysis includes an evaluation of the possible effects of simple, intermediate, and complex terrain, and aerodynamic effects (downwash) due to nearby buildings and structures on plume dispersion and ground-level concentrations. A numerical Gaussian plume model was used in the analysis. The model assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution of gaseous concentrations about the plume centerline. Gaussian dispersion models are approved by EPA and BAAQMD for regulatory use and are based on conservative assumptions (that is, the models tend to over-predict potential impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, no chemical reactions, and so forth).

The subsections below present the following information:

- Dispersion modeling methodology for evaluating the potential impacts on ambient air quality
- Modeling source data used to evaluate the potential impacts on ambient air quality
- Dispersion modeling results compared to the CAAQS and NAAQS

JACOBS

Dispersion Modeling Methodology

Model Selection and Model Options. The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 18081) was used with regulatory default options, as recommended in EPA's *Guideline on Air Quality Models* (EPA, 2017). The following supporting pre-processing programs for AERMOD were also used:

- BPIP-PRIME (Version 04274)
- AERMET (Version 18081)
- AERMAP (Version 11103)

AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short-range (less than 50 kilometers [km]) dispersion from the source. The model incorporates the Plume Rise Model Enhancement (PRIME) algorithm for modeling building downwash. AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. AERMOD was run with the following options:

- Regulatory default options
- Direction-specific building downwash
- Hour of day factor
- Urban population
- Actual receptor elevations and hill height scales obtained from AERMAP

The modeled facility layout is presented in Appendix DR32-B, Figure 1, which is a revised version of Appendix 3.3-C, Figure 1 of the SPPE Application.

Meteorological Data. The analysis was performed with 5 years of data provided by the BAAQMD. The data were collected at the San Jose International Airport surface station (WBAN: 23293) for calendar years 2013 through 2017. The San Jose International Airport surface station is located approximately 4.5 km southeast from the site and best represents the topography at the site. The concurrent daily upper air sounding data from the Oakland International Airport station (WBAN: 23230) were also included. The data were preprocessed with AERMET (Version 18081) by the BAAQMD for direct use in AERMOD.

Table 4, which is a revised version of Table 3.3-7 of the SPPE Application, presents a summary of the percent completeness of wind speed and wind direction data. A cumulative wind rose for data from 2013 to 2017 from the AERMET processed surface files for the San Jose International Airport is shown in Appendix DR32-B, Figure 3, which is a revised version of Appendix 3.3-C, Figure 3 of the SPPE Application. The 5-year mean wind speed is 3.19 meters per second (m/s).

Table 4 Meteorological Data Completeness

Parameter	2013	2014	2015	2016	2017
Valid Wind Direction and Speed Observations	8,738	8,751	8,757	8,768	8,752
Possible Observations	8,760	8,760	8,760	8,784	8,760
Percent Complete (%)	99.75	99.90	99.97	99.82	99.91

Building Downwash. Building influences on stacks are calculated by incorporating the updated EPA Building Profile Input Program (BPIP) for use with the PRIME algorithm. Building tier options in BPIP were used where applicable. In addition to the buildings and structures associated with the project, five buildings surrounding the facility fence line were included in the model due to their height and proximity to the site. Appendix DR32-B, Figure 1 shows the facility layout and these five buildings on the exterior of the property boundary. The stack heights used in the dispersion modeling were the actual stack height since the proposed stack heights are less than good engineering practice stack height.

Receptor Grid. The ambient air boundary was defined by the fence line surrounding the project site. The selection of receptors in AERMOD were as follows:

- 25-meter (m) spacing along the fence line
- 50-m spacing from the fence line to 500 m from the grid origin
- 100-m spacing from beyond 500 m to 1 km from the fence line
- 500-m spacing from beyond 1 km to 5 km from the fence line
- 1,000-m spacing from beyond 5 km to 10 km from the fence line

AERMAP (Version 11103) was used to process terrain elevation data to obtain the elevation for all receptors using National Elevation Dataset files prepared by the U.S. Geological Survey. AERMAP first determined the base elevation at each receptor. AERMAP created hill height scale by searching for the terrain height and location that has the greatest influence on dispersion for each individual source and receptor. Both the base elevation and hill height scale data were produced for each receptor by AERMAP as a file or files that were directly accessed by AERMOD. All receptor locations were expressed in the Universal Transverse Mercator North American Datum 1983, Zone 10 coordinate system. The modeled receptor grid is shown in Appendix DR32-B, Figure 2, which is a revised version of Appendix 3.3-C, Figure 2 of the SPPE Application.

Sensitive Receptors. Sensitive receptors, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations which are more sensitive to the effects of toxic substance exposure. Examples of receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences could include houses, apartments, and senior living complexes. Medical facilities could include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers (BAAQMD, 2017). The potential sensitive receptor locations evaluated in the HRA for LDC include (BAAQMD, 2012):

- Residential dwellings, including apartments, houses, condominiums
- Schools, colleges, and universities
- Daycares
- Hospitals
- Senior-care facilities

A sensitive receptor search was conducted within the 2-km zone of influence. It was determined that the sensitive receptors include primarily schools, elementary through college-level, and a hospital. The area directly north and east of the project site consists of various businesses. The nearest residential neighborhoods are located approximately 1 mile north and east of the site.

The sensitive receptors were used as discrete receptor locations in the model for purposes of conducting the HRA, as described in Section 3.3.3.3 of the SPPE Application.

Refined Analysis for 1-Hour Nitrogen Dioxide (NO_2). For comparison to the NAAQS and CAAQS, NO_2 modeling followed a Tier 2 approach described in Section 4.2.3.4 of EPA's *Guideline on Air Quality Models* (EPA, 2017). The Tier 2 analysis assumes an ambient equilibrium between nitric oxide (NO) and NO_2 using the Ambient Ratio Method 2 (ARM2) approach, in which the conversion of NO to NO_2 is predicted using hourly ambient NO_X monitoring data. For this modeling, the ARM2 option was used with an in-stack NO_2/NO_X ratio (ISR) of 0.1 and a maximum out-of-stack NO_2/NO_X ratio of 0.9. The NO_2 ISR Database (EPA, 2016), developed using EPA-verified testing, indicates that diesel internal combustion engines typically have an ISR of 0.03. Therefore, this modeling conservatively used 0.1 as an ISR for use in ARM2.

The model also included seasonal hour (SEASHR) background data for NO_2. The 1-hour NO_2 background profiles were calculated as a SEASHR profile that provides a single background value for each hour of the day for each of the four seasons. Data for these background profiles were obtained from EPA's Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California for years 2015, 2016, and 2017. For purposes of modeling for comparison to the CAAQS, the background profile uses the high-first-high (H1H) maximum hourly values from the three years of data. For purposes of modeling for comparison to the NAAQS, the background profile conservatively uses the high-second-high (H2H) hourly values averaged across the three years of data to represent the 98th percentile. The H2H is determined to be the 98th percentile based upon any single season having no more than 92 possible data points for any given hour. Copies of the background profiles used in this analysis are included in Appendix DR32-B.

Hour of Day Factor. An Hour of Day (HROFDY) factor modeling refinement was used in AERMOD to characterize daily operating hours from 8 a.m. until 5 p.m. Each generator can operate a maximum of 4 hours per day only during the 8 a.m. to 5 p.m. time frame. The HROFDY factor was utilized for the 24-hour averaging period and was not included for the annual averaging period.

Urban Factor. The site is located in the Santa Clara region of California, and is considered an urban area since the land use predominantly surrounding the project is classified as urban. Therefore, the model used a single urban area in AERMOD. The population estimate of Santa Clara County in 2017 was 1,938,153 people (U.S. Census Bureau Reporter, 2017). This population was included in the model to help define the differential heating effect that develops at night due to the urban population.

Modeling Source Data

Source Characterization. All 56 standby generators have been modeled as point sources, based on the assumptions specified in Table 5, which is a revised version of Table 3.3-8 of the SPPE Application.

Table 5 Standby Generator Operating Assumptions

Averaging Period	Operating Assumption
1-hour and 3-hour	Assumes a single generator could operate at 100 percent load at a time for maintenance and testing purposes.
8-hour and 24-hour	Assumes all generators could each operate at 100 percent load for a maximum of 4 hours per day for testing and maintenance purposes.
Annual	Assumes all generators could each operate at 100 percent load for a maximum of 50 hours per year.

Modeled source parameters for the diesel generators were determined from manufacturer and performance data. Table 6, which is a revised version of Table 3.3-9 from the SPPE Application, includes the modeled source parameters for each generator. The base elevation for each source was estimated based on a central elevation within the facility fence line. Consistent with the project design, the modeling assumes the entire surface within the property boundary would be graded to this elevation; therefore, all buildings and sources would have this same elevation. Based on the facility design and layout, 44 of the 56 proposed generators will be in a double-stacked formation with a higher total stack height. The remaining 12 generators will not be stacked and will comprise of a single generator exhaust point on the southern side of a proposed building. A table showing individual source parameters for all 56 generators is included in Appendix DR32-B.

Table 6 Standby Generator Source Parameters

Source	Base Elevation (m)	Stack Height (m)	Exhaust Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Stacked Generator (44)	9	12.19	750.87	59.66	0.51
Unstacked Generator (12)	9	5.49	750.87	59.66	0.51

Note:

K = degrees Kelvin

Modeled criteria pollutant emission rates were developed as described above. The 1-hour and 3-hour modeled emission rates demonstrate the maximum amount of pollutant released in any given hour. Modeled emission rates for the 8-hour and 24-hour averaging periods were calculated assuming each generator would only operate for 4 hours in a given 24-hour period, consistent with the possibility of the 3-Year Medium Voltage Breaker / Transformer Test occurring on any day of the year. Annual modeled emission rates assume each generator could operate a maximum of 50 hours per year. Table 7, which is a revised version of Table 3.3-10 of the SPPE Application, includes the modeled emission rates for each criteria pollutant from a single generator. Emission rates for all 56 generators are presented in Appendix DR32-B.

Table 7 Modeled Criteria Pollutant Emission Rates for a Single Standby Generator

Pollutant	Averaging Period	Emission Rate (lb/hr)
NO_2	1-hour[a]	41.93
	Annual[b]	0.24
CO	1-hour[a]	10.91
	8-hour[c]	5.45
$PM_{2.5}$	24-hour[c]	2.00E-02
	Annual[b]	6.85E-04
PM_{10}	24-hour[c]	2.00E-02
	Annual[b]	6.85E-04
SO_2	1-hour[a]	4.53E-02
	3-hour[a]	4.53E-02
	24-hour[c]	7.55E-03
	Annual[b]	2.59E-04

[a] Maximum emission rate in any given hour.

[b] Averaged over a year (8,760 hours).

[c] Calculated to demonstrate that each generator will only operate a maximum of 4 hours within a 24-hour period.

Dispersion Modeling Results

Results from the dispersion modeling analysis were compared to the NAAQS, CAAQS, and Significant Impact Levels (SILs)[4], as appropriate. As summarized in Table 8, which is a revised version of Table 3.3-11 of the SPPE Application, the potential impacts of PM_{10} (24-hour), $PM_{2.5}$ (24-hour and annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), and NO_2 (1-hour and annual) are below their respective NAAQS.

Table 8 Comparison of Modeled Results to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)[a]	Total Predicted Concentration (µg/m³)	NAAQS (µg/m³)
PM_{10}	24-hour[b]	2.13	69.00	71.13	150
$PM_{2.5}$	24-hour[c]	1.56	31.00	32.56	35
	Annual[d]	0.02	9.70	9.72	12
CO	1-hour[e]	2,111.31	2,748.47	4,859.77	40,000
	8-hour[e]	658.83	2,061.35	2,720.18	10,000

[4] The SIL determines whether potential ambient impacts of the emitted pollutant would cause or significantly contribute to an exceedance of a standard (that is, impacts below the SIL indicate the project would not cause or significantly contribute to an exceedance).

Table 8 Comparison of Modeled Results to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	Background Concentration (µg/m³)[a]	Total Predicted Concentration (µg/m³)	NAAQS (µg/m³)
SO_2	1-hour[f]	8.00	6.11	14.11	196
	3-hour[g]	8.25	9.42	17.68	1,300
	24-hour[g]	0.89	2.88	3.76	365
	Annual[g]	0.01	0.79	0.79	80
NO_2	Annual[g]	7.31	24.10	31.41	100
	1-hour[h]	102.31	N/A	102.31	188

[a] Background concentrations were included from Table 3.3-1c of the SPPE Application to estimate the total predicted concentrations.

[b] The total predicted concentration for the 24-hour PM_{10} standard is the 6th-highest value over the 5 modeled years (2013-2017) combined with the maximum background concentration.

[c] The total predicted concentration for the 24-hour $PM_{2.5}$ standard is the 5-year average, high-8th-high modeled concentration combined with the 3-year average background concentration.

[d] The total predicted concentration for the annual $PM_{2.5}$ standard is the maximum 5-year average modeled concentration combined with the maximum background concentration.

[e] The total predicted concentrations for the 1-hour and 8-hour CO standards are the high-2nd-high modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[f] The total predicted concentration for the 1-hour SO_2 standard is the high-4th-high modeled concentration averaged over 5 years combined with the 3-year average background concentration.

[g] The total predicted concentrations for the annual SO_2, 3-hour SO_2, 24-hour SO_2, and annual NO_2 standards are the highest modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[h] The 1-hour NO_2 maximum modeled concentration accounts for a seasonal hour (SEASHR) background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time.

Note:

µg/m³ = microgram(s) per cubic meter

N/A = Not applicable because the background is included in the model

As summarized in Table 9, which is a revised version of Table 3.3-12 of the SPPE Application, the potential impacts of $PM_{2.5}$ (annual), CO (1-hour and 8-hour), SO_2 (1-hour and 24-hour), and NO_2 (1-hour and annual) were also below the CAAQS. Because the PM_{10} background concentrations are already above the CAAQS, the project's modeled PM_{10} (annual and 24-hour) concentrations were compared to the SILs, instead of the CAAQS, to demonstrate that the project would not cause or contribute to an exceedance. The SIL modeling results are presented in Table 10, which is a revised version of Table 3.3-13 of the SPPE Application.

Table 9 Comparison of Modeled Results to the California Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)[b]	Total Predicted Concentration ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	0.02	10.60	10.62	12
CO	1-hour	2,658.92	2,748.47	5,407.39	23,000
	8-hour	684.71	2,061.35	2,746.05	10,000
SO_2	1-hour	11.04	9.42	20.47	655
	24-hour	0.89	2.88	3.76	105
NO_2[c]	Annual	7.31	24.10	31.41	57
	1-hour	145.91	N/A	145.91	339

[a] The maximum modeled concentration for each pollutant and averaging period are the high-1st-high concentrations for comparison to the CAAQS.

[b] Background concentrations were included from Table 3.3-1c of the SPPE Application to estimate the total predicted concentrations.

[c] The 1-hour NO_2 maximum modeled concentration accounts for a seasonal hour (SEASHR) background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time for testing and maintenance.

Note:

N/A = Not applicable because the background is included in the model

Table 10 Comparison of Modeled PM_{10} Results to the Significant Impact Levels

Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu g/m^3$)[a]	SIL ($\mu g/m^3$)
PM_{10}	24-hour	2.34	5
	Annual	0.02	1

[a] Modeled concentration is the maximum high-1st-high value of the 5 individual modeled years (2013-2017).

Health Risk Assessment

An HRA requires both dispersion modeling of the facility, as described above, and characterization of the resultant risk using approved risk assessment methodology. The Hotspot and Reporting Program Version 2 (HARP2, Version 19121), or OEHHA methodology, was used to calculate risk. This section describes the use of HARP2 or OEHHA methodology to characterize risk from construction and operation of the facility. The results are reported for comparison to the appropriate thresholds.

HRA Approach and Risk Characterization

As recommended by the 2015 OEHHA Guidance, a Tier 1 assessment was performed. The Tier 1 assessment is the most conservative of the four tier assessment methodologies identified in the OEHHA Guidance and uses a standard point-estimate approach with standard OEHHA assumptions (OEHHA, 2015).

The HRA included potential health impacts from TAC exposure on receptors through the inhalation, dermal absorption, soil ingestion, and mother's milk pathways, as required by OEHHA Guidance. The inhalation cancer potency, oral slope factor values, and Reference Exposure Levels (RELs) used to characterize health risks associated with the modeled impacts were obtained from the *Consolidated*

Table of OEHHA/ARB Approved Risk Assessment Health Values (OEHHA & California Air Resources Board [CARB], 2018). The pathways for surface drinking water, still-water fishing, and subsistence farming are not applicable per regulatory guidance and thus were not included in the assessment. Residential exposure through the consumption of homegrown produce was included. OEHHA default exposures were assumed for the mother's milk, homegrown produce, and soil exposure pathways.

Cancer. Cancer risk was evaluated based on the annual TAC ground-level concentrations, as calculated from AERMOD, and the 2015 OEHHA assumptions for inhalation cancer potency, oral slope factor, frequency, and breathing rate of exposed persons. Residential cancer risks were estimated using the conservative assumption of 30-year continuous exposure duration, as required by the 2015 OEHHA Guidance. Worker exposure was based on a 25-year, 8-hours-per-day exposure for an adult (OEHHA, 2015).

Cancer risk results are expressed on a number-per-million basis. The cancer risk for the Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), or Maximally Exposed Sensitive Receptor (MESR) was compared to the carcinogenic threshold level. These results are presented below.

An HRA was also conducted based on the project's construction emissions. The construction duration was estimated to last 14 months; therefore, a 2-year exposure duration, which represents a conservative approach (that is, modeled results tend to be over-predictive), was used to calculate cancer risk due to construction emissions.

Non-cancer Chronic Exposure. Chronic toxicity is defined as adverse health effects from prolonged chemical exposure caused by chemicals accumulating in the body. To assess chronic non-cancer exposures from project construction and operation, annual TAC ground-level concentrations were compared with the RELs developed by OEHHA to obtain a chronic hazard index (HI). The REL is a concentration in ambient air at, or below which, no adverse health effects are anticipated. Non-cancer chronic health risks were calculated as a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are summed with the resulting totals expressed as HIs for each organ system. The non-cancer chronic risk for the MEIR, MEIW, or MESR was compared to the non-cancer chronic threshold level. These results are presented below.

Non-cancer Acute Exposure. Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. To assess acute non-cancer exposures from project operation, 1-hour TAC ground-level concentrations were compared with the acute REL to obtain an acute HI. Similar to assessing chronic non-cancer health risks, acute health risks were calculated as a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ were summed with the resulting totals expressed as HIs for each organ system. The non-cancer acute risk for the MEIR, MEIW, or MESR was compared to the non-cancer acute threshold level. These results are presented below.

TACs. TACs considered in evaluating the potential health impacts of the LDC are those included in BAAQMD Regulation 2, Rule 5. The only TAC evaluated in the construction HRA was DPM. The TACs evaluated in the operational HRA were DPM and speciated total organic gases (TOG) in diesel exhaust. The TACs from speciated TOG include:

- Acetaldehyde
- Acrolein
- Benzene
- Formaldehyde
- Naphthalene
- Propylene
- Toluene

- Total Polycyclic Aromatic Hydrocarbons (PAHs)
- Xylene

The Total PAHs include Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, and Indeno(1,2,3-cd)pyrene. The cancer risk, chronic HI, and acute HI predicted by the HRA for the construction and operation of LDC were based on TAC emissions from the LDC. These emissions estimates were used to compare to BAAQMD thresholds and as inputs to the HRA.

Construction HRA

A screening HRA was conducted to evaluate the potential health risks due to construction of the LDC, as discussed below. DPM was the only TAC modeled as it was assumed to be equal to exhaust PM_{10} emissions from onsite construction equipment and vehicles.

Emissions. Because DPM is the only TAC expected to be emitted during construction, it was the only TAC to be included in the screening HRA. DPM emissions result from exhaust of onsite diesel-fueled construction equipment and vehicles. DPM emissions for the construction activities were derived from the construction emission estimates presented in Appendix 3.3-A of the SPPE Application. For modeling, these emissions were averaged over the construction period (14 months) and spatially distributed within the construction area. These emission rates are unchanged from what was presented in Table 3.3-14 of the SPPE Application, with detailed calculations presented in Appendix DR32-C.

Methodology. The air dispersion of emitted DPM was modeled using AERMOD (Version 18081). The modeled output (maximum ground-level concentrations), along with equations from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015), were used to estimate the cancer and chronic (non-cancer) health risks for residential and worker exposure to DPM emissions. Acute (non-cancer) health risks were not estimated because there is no acute inhalation REL for DPM, thus indicating that DPM is not known to result in acute health hazards (OEHHA, 2015; OEHHA & CARB, 2018). Details regarding the model selection, model options, meteorological data, and receptor grid spacing used to conduct this screening HRA are consistent with those described for the air quality impact analysis above. The modeled source parameters and health risk estimates, which are specific to the screening HRA, are described in more detail below.

Source Parameters. The construction exhaust emissions were modeled as a set of point sources spaced approximately 25 m apart over the construction area with a horizontal stack release. The horizontal release type is an AERMOD beta option (that is, nonregulatory default option), which negates mechanical plume rise. This conservative approach was used because it is unknown whether the construction equipment will have vertically oriented exhaust stacks. Stack release parameters consisted of a stack release temperature of 533 degrees Kelvin (K) (500 degrees Fahrenheit), a stack diameter of 0.127 m (5 inches), and a release height of 4.6 m (15 feet) based on data for typical construction equipment. Modeling was also restricted to the hours of 8 a.m. to 6 p.m., which was assumed to coincide with the expected daily construction schedule. A detailed summary of the modeling inputs is presented in Appendix DR32-C.

Health Risk Estimates. The screening HRA estimated the 2-year rolling cancer risks during a 30-year exposure duration (starting with exposure during the third trimester) for residential exposure and a 25-year exposure duration (from age 16 to 40) for worker exposure, aligned with the expected construction duration, at the MEIR, MEIW, and MESR. The excess cancer risks were estimated using the following:

- Equations 3.4.1.1 and 8.2.4A from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015) for residential exposure
- Equations 5.4.1.2A, 5.4.1.2B, and 8.2.4B from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015) for worker exposure

- The maximum annual ground-level concentrations used to estimate risk were determined through dispersion modeling with AERMOD
- The construction emission estimates modeled were presented in Table 3.3-14 of the SPPE Application

Chronic risks were also estimated for the MEIR, MEIW, and MESR, based on the same emission rates and ground-level concentrations described above. To calculate chronic risk, as characterized by a health index, the maximum annual ground-level concentration was divided by the DPM REL of 5 microgram(s) per cubic meter (µg/m^3) (OEHHA & CARB, 2018).

Results. The results of the screening HRA for construction activities are presented in Table 11, which is a revised version of Table 3.3-15 of the SPPE Application, and show that the excess cancer risks and chronic HIs at the MEIR, MEIW, and MESR are less than the BAAQMD's significance thresholds of 10 in 1 million and 1, respectively. Therefore, predicted potential impacts associated with the finite construction activities are less than significant. It should be noted that these less-than-significant impacts are conservative given the conservative assumptions used in developing the DPM emission estimates and the DPM cancer potency safety factor inherent in OEHHA's calculations. Detailed calculations are provided in Appendix DR32-C.

Table 11 Construction Health Risks at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	0.51	1.27	1.21	10
Chronic Non-cancer HI	0.0004	0.05	0.0008	1

Operational HRA

A complete HRA was conducted to evaluate the potential health risks associated with airborne emissions from routine operation of the LDC. The HRA process requires four general steps to estimate potential health impacts: (1) identify and quantify project-generated emissions; (2) evaluate pollutant transport (air dispersion modeling) to estimate ground-level TAC concentrations at each receptor location; (3) assess human exposure; and (4) use a risk characterization model to estimate the potential health risk at each receptor location. The methods used in this HRA are described in more detail below.

Emissions. TAC emissions associated with project operation consist of combustion byproducts produced by 56 standby generators, all of which are fired exclusively on diesel fuel. Chemicals to be evaluated were DPM and speciated TOG in diesel exhaust. DPM was the only TAC modeled in HARP2 with annual emission rates per Appendix D of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015). DPM is used as a surrogate for the whole diesel exhaust. Because diesel exhaust has acute health risk associated with it that is not accounted for within DPM's health risk, the diesel exhaust is speciated for the short-term period. Emissions were calculated using the methodology described above and are summarized in Table 2. These estimates conservatively assume that all 56 generators would operate at 100 percent load for 50 hours per year. Consistent with Appendix D of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015*)*, cancer and non-cancer chronic risks were modeled based on annual DPM emissions, and non-cancer acute risks were modeled based on hourly emissions of Acetaldehyde, Acrolein, Benzene, DPM, Formaldehyde, Naphthalene, Propylene, Toluene, Total PAHs, and Xylenes. Detailed emission calculations are provided in Appendix DR32-A.

Table 12, which is a revised version of Table 3.3-16 of the SPPE Application, provides modeled hourly and annual TAC emission rates for each individual generator. These pollutants were identified as TACs per BAAQMD Regulation 2, Rule 5, Table 2-5-1. The speciated PAHs were modeled as Total PAH in

HARP2, with Naphthalene separately included. DPM was the only TAC modeled in HARP2 with annual emission rates per Appendix D of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015).

Table 12 Modeled Toxic Air Contaminant Emission Rates for a Single Standby Generator

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)
Acetaldehyde	7.45E-04	N/A
Acrolein	2.33E-04	N/A
Benzene	2.29E-02	N/A
DPM[a]	1.20E-01	6.00E+00
Formaldehyde	2.33E-03	N/A
Naphthalene	3.84E-03	N/A
Propylene	8.25E-02	N/A
Toluene	8.31E-03	N/A
Total PAH	6.27E-03	N/A
Xylenes	5.71E-03	N/A

[a] DPM emission rates were assumed equal to exhaust PM_{10} emission rates.

Note:

lb/yr = pound(s) per year

N/A = Not applicable because only DPM was modeled for the annual scenario, per OEHHA Guidance (OEHHA, 2015).

Methodology. The HRA was conducted in accordance with the following guidance:

- *Air Toxic Hot Spots Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2015)
- *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines* (BAAQMD, 2016)
- *Guideline on Air Quality Models* (EPA, 2017)

The HRA modeling was conducted using the CARB's HARP2 Air Dispersion Modeling and Risk Assessment Tool (ADMRT). To facilitate calculation of annual TAC ground-level concentrations at each modeled receptor, the AERMOD air dispersion modeling output plot files were imported into HARP2.

Risk Characterization. The results of the dispersion modeling analysis represent an intermediate product in the HRA process as the AERMOD output plot files were imported into HARP2, and HARP2 was subsequently used to determine cancer, chronic, and acute health risks. AERMOD (Version 18081) was used to predict ground-level concentrations of TAC emissions associated with LDC operation. The model selection, model options, source parameters, meteorological data, and receptor grid spacing are consistent with those described above and not repeated here. A unit emission rate (1 gram per second [g/s]) was used to model each source, as outlined in the HARP2 ADMRT manual.[5] Cancer risks and chronic and acute non-cancer exposures were assessed as previously described.

Results. The results of the HRA for facilitywide LDC operation are presented in Table 13, which is a revised version of Table 3.3-17 of the SPPE Application, and show that the incremental cancer risk and chronic and acute HI at each of the MEIR, MEIW, and MESR are less than the BAAQMD's significance thresholds of 10 in 1 million and 1, respectively. Additionally, as shown in Table 8, the project's incremental increase in annual average $PM_{2.5}$ concentration is 0.02 μg/m^3, which is below the BAAQMD's

[5] Note that the HARP2 ADMRT manual is made available within the "Help" module of the HARP2 program itself or the *User Manual For the Hotspots Analysis And Reporting Program Air Dispersion Modeling and Risk Assessment Tool Version 2* (CARB, 2015).

significance threshold of 0.3 µg/m^3. Therefore, predicted impacts associated with project operation are less than significant. Additional details are provided in Appendix DR32-D.

Table 13 Facility Operation Health Risks at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	0.563	1.234	1.068	10
Chronic Non-cancer HI	0.000151	3.94E-03	2.87E-04	1
Acute Non-cancer HI	0.319	0.319	0.043	1

In accordance with BAAQMD Regulation 2, Rule 5, maximum HRA results for operation of a single emission unit are presented in Table 14, which is a revised version of Table 3.3-18 of the SPPE Application. As shown, standby generator operation does trigger the regulatory requirement for Best Available Control Technology for Toxics (TBACT) as the incremental cancer risk exceeds the threshold of 1 in 1 million. Nevertheless, as stated previously, the standby generators will be equipped with a Diesel Particulate Filter System, which is considered TBACT. Therefore, the project will comply with BAAQMD Regulation 2, Rule 5 and result in less-than-significant health risk impacts. Additional details are provided in Appendix DR32-D.

Table 14 Per Unit Operation Health Risks at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	0.014	0.032	0.018	1
Chronic Non-cancer HI	3.82E-06	1.02E-04	4.90E-06	0.20
Acute Non-cancer HI	0.012	0.012	0.001	--

Note:

-- = No threshold established for this risk period.

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Appendix DR32-A: Operation Emission Estimates

Appendix DR32-A, Table 1
Operation Emissions - Summary
EdgeCore LDC
Revised May 2019

Operation Criteria Pollutant Emissions with Tier 2 Emission Factors

Annual Operation	Average Daily Emissions (lbs/day) [a]					
	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Standby Generators	27.1	84.8	326	0.35	0.93	0.93
Mobile Sources	0.11	2.47	2.22	0.02	0.22	0.10
Facility Upkeep [c]	22.4	4.42	5.22	0.03	0.40	0.40
Project Total	49.6	91.7	334	0.40	1.55	1.43
BAAQMD Daily Thresholds of Significance [b]	54	--	54	--	82	54
Exceeds Daily Threshold (Y/N)?	N	N	Y	N	N	N
Annual Operation	**Maximum Annual Emissions (tpy) [a]**					
	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Standby Generators	4.89	15.3	58.7	0.06	0.17	0.17
Mobile Sources	0.02	0.45	0.41	0.003	0.04	0.02
Facility Upkeep	4.09	0.81	0.95	0.01	0.07	0.07
Project Total	8.99	16.5	60.1	0.07	0.28	0.26
BAAQMD Annual Thresholds of Significance [b]	10	--	10	--	15	10
Exceeds Annual Threshold (Y/N)?	N	N	Y	N	N	N

Operation GHG Emissions

Annual Operation	Maximum Annual Emissions (metric tons/year) [a]			
	CO_2	CH_4	N_2O	CO_2e
Standby Generators	6,121	0.25	0.05	6,142
Mobile Sources	299	0.01	0.00	300
Facility Upkeep	253,836	28.0	2.51	255,283
Project Total	260,256	28.2	2.56	261,726
BAAQMD Thresholds of Significance [b]	--	--	--	10,000
Exceeds Threshold (Y/N)? [d]	N	N	N	N

Notes:

[a] Emissions assume concurrent operation of all 56 standby diesel generators at 100% load, even though 33 are only expected to operate at any one time, and include emissions associated with offsite vehicles and ongoing facility upkeep.

[b] BAAQMD Thresholds of Significance taken from Table 2-1 of the *2017 CEQA Air Quality Guidelines* (BAAQMD, 2017).

[c] The following factors were used to convert facility upkeep emissions from tpy to lbs/day:

1 year =	365	days
1 ton =	2,000	lbs

[d] The GHG Threshold of Significance is pertinent to only stationary sources, such that only the standby generator emissions are compared.

Appendix DR32-A, Table 2
Standby Diesel Generator: Performance Data
EdgeCore LDC
Revised June 2019

Performance Data

Parameter	Units	Tier 2 Certified Emission Factors Basis			Note
		100% Load	75% Load	50% Load	
Engine Power	BHP	4,423	3,364	2,305	1
Generator Power with Fan	MW	3.0	2.3	1.5	1, 2
Fuel Consumption	gal/hr	214.2	165.3	130.4	1, 2
Inlet Temperature	°F	131.3	127.8	126.9	1
Exhaust Stack Outlet Temperature	°F	891.9	865.8	858.0	1, 2
Exhaust Gas Outlet Flow Rate	ft^3/min (cfm)	25,620.0	20,121.0	17,314.7	1, 2
Wet Exhaust Volume Flow Rate (32 °F and 29.98 in Hg)	ft^3/min (cfm)	9,320.0	7,463.6	6,460.8	1
Dry Exhaust Volume Flow Rate (32°F and 29.98 in Hg)	ft^3/min (cfm)	8,667.2	6,958.6	6,059.1	1
Heat Input	MMBtu/hr	29.6	22.8	18.0	3
Heating Value	MMBtu/gal	0.138	0.138	0.138	4
Operation					
Number of Standby Generators	units	56	56	56	5
Annual Hours of Operation per Unit	hrs/yr	50	50	50	6
Estimated Stack Emissions					
NO_X	g/hp-hr	4.30	4.30	4.30	2, 10
CO	g/hp-hr	1.12	1.12	1.12	2, 10
VOC	g/hp-hr	0.36	0.36	0.36	2, 10
PM	g/hp-hr	0.01	0.01	0.01	2, 7, 10
SO_2 - 15 ppmw Maximum Fuel Sulfur	lb/hp-hr	1.02E-05	1.04E-05	1.20E-05	8
Stack Height for Stacked Generators	ft	40	40	40	9
Stack Height for Unstacked Generators	ft	18	18	18	9
Stack Diameter	in	20	20	20	9

Notes:

1. Reflects representative generator OEM provided information (CAT-C175-3MW-performance.pdf).

2. Reflects representative generator technical specification information for standby operation with potential site variation (CAT-C175-3MW-specsheet.pdf). Variations in generator load will change the estimated stack emissions, though all are conservatively assumed to be equal to the 100% load emission rates in the absence of more refined data.

3. Calculated from other data provided within the table.

4. The heating value of diesel is from 40 CFR 98, Table C-1 (for Distillate Fuel Oil No. 2).

5. Reflects intended project design. Although only 33 generators are expected to operate concurrently, emissions will conservatively assume all 56 could operate concurrently.

6. Regulatory limit for standby generators, per 17 CCR 93115.6.

7. Includes an 85% control of particulate matter with generator control technology. The control technology includes the combination of an oxidation catalyst and a diesel particulate filter.

8. 13 CCR 2281 limits the sulfur content of California diesel fuel to 15 ppmw (https://www.arb.ca.gov/fuels/diesel/081404dslregs.pdf). The following conversion factors were used to calculate a SO_2 emission factor from this sulfur content:

Density of Diesel Fuel (lb/gal):	7.05	[*AP-42* , Appendix A, Page A-6 (EPA, 1985)]
Molecular Weight of Sulfur:	32	
Molecular Weight of SO_2:	64	

9. Reflects information provided by project engineers (Re: Site plan alignment.msg and RE: EdgeCore Masterplan.msg).

10. The Tier 2 emission factors presented below are based on the certification for Model Year 2018/2019 Caterpillar 175-16, as obtained from EPA's Nonroad Compression Ignition Engines Certification Database (https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-vehicles-engines-and-equipment) or SCAQMD's ICE-Emergency Generator Certification Database (http://www.aqmd.gov/docs/default-source/permitting/product-certification/ice-cert-equip.xlsx):

Pollutant	Tier 2 Certified Emission Factors	Emission Factor Units	Emission Factor Source
NO_X	4.30	g/hp-hr	SCAQMD
CO	1.50	g/kWh	EPA
VOC as NMHC	0.48	g/kWh	EPA
PM	0.11	g/kWh	EPA

As needed, the above were converted to units of g/hp-hr using the following factor: 1 kW = 1.341 hp.

Appendix DR32-A, Table 3
Standby Diesel Generator: Operation Emissions - Tier 2 Criteria Pollutants
EdgeCore LDC
Revised June 2019

Units	100% Load		75% Load		50% Load	
	Per Generator	Facility-Wide [e]	Per Generator	Facility-Wide [e]	Per Generator	Facility-Wide [e]
NO_X Emissions						
(lb/hr) [a]	41.9	2,348	31.9	1,786	21.9	1,224
(lb/day) [b]	5.82	326	4.43	248	3.03	170
(lb/month) [c]	175	9,783	133	7,441	91.0	5,099
(lb/year) [d]	2,096	117,401	1,594	89,291	1,093	61,182
(tpy) [d]	1.05E+00	58.7	7.97E-01	4.46E+01	5.46E-01	3.06E+01
CO Emissions						
(lb/hr) [a]	10.91	611	8.30	465	5.68	318
(lb/day) [b]	1.51	84.8	1.15	64.5	0.79	44.2
(lb/month) [c]	45.4	2,545	34.6	1,936	23.7	1,326
(lb/year) [d]	545	30,539	415	23,227	284	15,915
(tpy) [d]	2.73E-01	15.27	2.07E-01	1.16E+01	1.42E-01	7.96E+00
VOC Emissions						
(lb/hr) [a]	3.49	195	2.65	148.7	1.82	101.9
(lb/day) [b]	0.48	27.1	0.37	20.6	0.25	14.15
(lb/month) [c]	14.54	814	11.06	619	7.58	424
(lb/year) [d]	174.5	9,773	132.7	7,433	90.9	5,093
(tpy) [d]	8.73E-02	4.89	6.64E-02	3.72E+00	4.55E-02	2.55E+00
SO_2 Emissions						
(lb/hr) [a]	0.05	2.54	0.03	1.96	0.03	1.54
(lb/day) [b]	0.01	0.35	0.005	0.27	0.004	0.21
(lb/month) [c]	0.19	10.6	0.15	8.16	0.11	6.44
(lb/year) [d]	2.27	127	1.75	97.9	1.38	77.2
(tpy) [d]	1.13E-03	0.06	8.74E-04	4.89E-02	6.89E-04	3.86E-02
PM Emissions						
(lb/hr) [a]	0.12	6.72	0.09	5.11	0.06	3.50
(lb/day) [b]	0.02	0.93	0.01	0.71	0.01	0.49
(lb/month) [c]	0.50	28.0	0.38	21.3	0.26	14.6
(lb/year) [d]	6.00	336	4.56	255	3.13	175
(tpy) [d]	3.00E-03	0.17	2.28E-03	1.28E-01	1.56E-03	8.75E-02

Notes:
[a] The hourly emission rates are for the diesel generator in standby operation only (i.e., excludes startup or shutdown emissions from normal operation).
[b] The daily emission rates are the monthly emission rates averaged over 30 days.
[c] The monthly emission rates are the yearly emission rates averaged over 12 months.
[d] The annual emission rates assume a maximum of 50 hours of operation per year for each standby generator.
[e] Facility-wide emissions assume all 56 generators could operate concurrently, although the project expects to operate no more than 33 generators at once.

Appendix DR32-A, Table 3
Standby Diesel Generator: Operation Emissions - Tier 2 Criteria Pollutants
EdgeCore LDC
Revised June 2019

Dispersion Model Inputs	100% Load	75% Load	50% Load
Stacked Generator Stack Height (ft)	40.0	40.0	40.0
Unstacked Generator Stack Height (ft)	18.0	18.0	18.0
Stack Diameter (ft)	1.67	1.67	1.67
Stack Temperature (°F)	892	866	858
Stack Velocity (ft/s)	195.72	153.71	132.27
Modeling Emissions (lb/hr)			
NO_X (1-hour)	41.93	31.89	21.85
NO_X (Annual)	0.24	0.18	0.12
CO (1-hour)	10.91	8.30	5.68
CO (8-hour) [a]	5.45	4.15	2.84
SO_2 (1-hour)	4.53E-02	3.50E-02	2.76E-02
SO_2 (3-hour) [b]	4.53E-02	3.50E-02	2.76E-02
SO_2 (24-hour) [a]	7.55E-03	5.83E-03	4.60E-03
SO_2 (Annual)	2.59E-04	2.00E-04	1.57E-04
PM_{10} (24-hour) [a]	2.00E-02	1.52E-02	1.04E-02
PM_{10} (Annual)	6.85E-04	5.21E-04	3.57E-04
$PM_{2.5}$ (24-hour) [a]	2.00E-02	1.52E-02	1.04E-02
$PM_{2.5}$ (Annual)	6.85E-04	5.21E-04	3.57E-04

Notes:

[a] Modeled the emission rate for each 8- and 24-hour averaging period, as applicable, to demonstrate that each generator will only operate a maximum of four hours per day, based on the possibility of Medium Voltage Breaker / Transformer Testing occurring once every 3 years.

[b] Since the Medium Voltage Breaker / Transformter Testing may last up to 4 hours in duration, the 3-hour SO_2 emission rate was set equal to the maximum 1-hour emission rate, based on the understanding that the generators cannot operate at more than the maximum 1-hour rate.

Appendix DR32-A, Table 4
Standby Diesel Generator: Operation Emissions - Air Toxics
EdgeCore LDC
Revised May 2019

Assumptions:

Number of Generators	56	units
Annual Hours of Operation per Unit:	50	hrs/yr
Maximum Hourly Heat Input per Unit:	30	MMBtu/hr
Maximum Annual Heat Input per Unit:	1,478	MMBtu/yr

Pollutant	Emission Factors	Facility-Wide Emissions [b]			Per Generator Emissions [b]			Classification	
	lb/MMBtu [a]	lb/hr	lb/yr	tpy	lb/hr	lb/yr	tpy	TAC [c]	HAP [d]
Acenaphthene	4.68E-06	7.75E-03	3.87E-01	1.94E-04	1.38E-04	6.92E-03	3.46E-06	--	--
Acenaphthylene	9.23E-06	1.53E-02	7.64E-01	3.82E-04	2.73E-04	1.36E-02	6.82E-06	--	--
Acetaldehye [e]	2.52E-05	4.17E-02	2.09E+00	1.04E-03	7.45E-04	3.72E-02	1.86E-05	X	X
Acrolein [e]	7.88E-06	1.30E-02	6.52E-01	3.26E-04	2.33E-04	1.16E-02	5.82E-06	X	X
Anthracene	1.23E-06	2.04E-03	1.02E-01	5.09E-05	3.64E-05	1.82E-03	9.09E-07	--	--
Benz(a)anthracene	6.22E-07	1.03E-03	5.15E-02	2.57E-05	1.84E-05	9.19E-04	4.60E-07	X	--
Benzene [e]	7.76E-04	1.28E+00	6.42E+01	3.21E-02	2.29E-02	1.15E+00	5.73E-04	X	X
Benzo(a)pyrene	2.57E-07	4.25E-04	2.13E-02	1.06E-05	7.60E-06	3.80E-04	1.90E-07	X	--
Benzo(b)fluoranthene	1.11E-06	1.84E-03	9.19E-02	4.59E-05	3.28E-05	1.64E-03	8.20E-07	X	--
Benzo(g,h,l)perylene	5.56E-07	9.20E-04	4.60E-02	2.30E-05	1.64E-05	8.22E-04	4.11E-07	--	--
Benzo(k)fluoranthene	2.18E-07	3.61E-04	1.80E-02	9.02E-06	6.44E-06	3.22E-04	1.61E-07	X	--
Chrysene	1.53E-06	2.53E-03	1.27E-01	6.33E-05	4.52E-05	2.26E-03	1.13E-06	X	--
Dibenz(a,h)anthracene	3.46E-07	5.73E-04	2.86E-02	1.43E-05	1.02E-05	5.11E-04	2.56E-07	X	--
Diesel Particulate Matter [f]	--	6.72E+00	3.36E+02	1.68E-01	1.20E-01	6.00E+00	3.00E-03	X	--
Fluoranthene	4.03E-06	6.67E-03	3.34E-01	1.67E-04	1.19E-04	5.96E-03	2.98E-06	--	--
Fluorene	1.28E-05	2.12E-02	1.06E+00	5.30E-04	3.78E-04	1.89E-02	9.46E-06	--	--
Formaldehyde [e]	7.89E-05	1.31E-01	6.53E+00	3.27E-03	2.33E-03	1.17E-01	5.83E-05	X	X
Indeno(1,2,3-cd)pyrene	4.14E-07	6.85E-04	3.43E-02	1.71E-05	1.22E-05	6.12E-04	3.06E-07	X	--
Naphthalene	1.30E-04	2.15E-01	1.08E+01	5.38E-03	3.84E-03	1.92E-01	9.61E-05	X	X
Phenanthrene	4.08E-05	6.75E-02	3.38E+00	1.69E-03	1.21E-03	6.03E-02	3.02E-05	--	--
Propylene [e]	2.79E-03	4.62E+00	2.31E+02	1.15E-01	8.25E-02	4.12E+00	2.06E-03	X	--
Pyrene	3.71E-06	6.14E-03	3.07E-01	1.54E-04	1.10E-04	5.48E-03	2.74E-06	--	--
Toluene [e]	2.81E-04	4.65E-01	2.33E+01	1.16E-02	8.31E-03	4.15E-01	2.08E-04	X	X
Total PAH	2.12E-04	3.51E-01	1.75E+01	8.77E-03	6.27E-03	3.13E-01	1.57E-04	X	--
Xylenes [e]	1.93E-04	3.19E-01	1.60E+01	7.99E-03	5.71E-03	2.85E-01	1.43E-04	X	X
TOTAL HAPs		**2.47E+00**	**1.23E+02**	**6.17E-02**	**4.41E-02**	**2.21E+00**	**1.10E-03**		
TOTAL TACs		**1.38E+01**	**6.91E+02**	**3.45E-01**	**2.47E-01**	**1.23E+01**	**6.17E-03**		

Notes:

[a] Unless otherwise noted, the emission factors are from Section 3.4, Table 3.4-4 of *AP-42* (EPA, 1996).

[b] The only source of onsite air toxics is operation of the standby diesel generators. It was assumed that all 56 generators could operate concurrently.

[c] The Toxic Air Contaminants (TACs) were identified per the Bay Area Air Quality Management District's (BAAQMD) Rule 2-5, Table 2-5-1 (http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Rules%20and%20Regs/reg%2002/rg0205.ashx).

[d] The Hazardous Air Pollutants (HAPs) were identified based on the EPA's list of HAPs (https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications).

[e] The emission factors are from Section 3.4, Table 3.4-3 of *AP-42* (EPA, 1996).

[f] Diesel particulate matter (PM) emissions were estimated from the criteria pollutant PM emissions.

Appendix DR32-A, Table 5

Standby Diesel Generator: Operation Emissions - GHGs

EdgeCore LDC

February 2019

Heat Input [a]

Total Standby Generator Diesel Use (PTE):	82,767	MMBtu/yr

Notes:

[a] The only source of onsite GHGs is operation of the standby diesel generators. It was conservatively assumed that all 56 generators could be operated concurrently.

GHG Emissions from Generator Operation

Pollutant	PTE Emissions (metric tons/year)
CO_2	6,121
CH_4	0.25
N_2O	0.05
CO_2 Equivalent (Total) [a]	6,142

Notes:

[a] The following global warming potentials were used to estimate CO_2 equivalent emissions, per 40 CFR Part 98, Table A-1:

CH_4 = 25

N_2O = 298

GHG Emission Factors [a]

Pollutant	Generator Emission Factor (kg/MMBtu)
CO_2	73.96
CH_4	3.00E-03
N_2O	6.00E-04

Notes:

[a] Emission factors from 40 CFR 98.33, Tables C-1 and C-2.

Appendix DR32-A, Table 6
Offsite Vehicles: Operation Emissions - Criteria Pollutants and GHGs
EdgeCore LDC
February 2019

Criteria Pollutant Emissions for Offsite Vehicle Operation

Emission Source	Number	Miles per Roundtrip [c]	Criteria Pollutant Emissions (lb/year) [d]					
			CO	VOC	SO_X	NO_X	PM_{10}	$PM_{2.5}$
Operation Worker Commute [a]	54	21.6	797.57	13.55	2.56	72.90	43.49	18.03
Material Deliveries [b]	20	14.6	103.97	25.32	3.19	738.67	35.84	18.39
		Total (lb/year)	**901.54**	**38.87**	**5.75**	**811.57**	**79.33**	**36.42**

Notes:

[a] Number of operational staff (daily) based on engineering estimates in Table 2.4-1 of "MECP1_Santa_Clara_1_SPPE_Data_Needs_1-23-19_Operational_Waste_Deliveries_Workers_Trips.xls."

[b] Number of material deliveries (daily) based on engineering estimates in Table 5.12-11 of "MECP1_Santa_Clara_1_SPPE_Data_Needs_1-23-19_Operational_Waste_Deliveries_Workers_Trips.xls."

[c] Roundtrip miles/day for Operation Worker Commute and Material Deliveries taken as the Urban, San Francisco Bay Area Air Basin H-W and C-NW values, respectively, from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (BREEZE, 2017).

[d] Calculations assume that workers would be onsite: 365 days/year

GHG Emissions for Offsite Vehicle Operation

Emission Source	Number	Miles per Roundtrip [c]	GHG Emissions (metric tons/year) [d]			CO_2 Equivalent Emissions (metric tons/year) [e]
			CO_2	N_2O	CH_4	
Operation Worker Commute [a]	54	21.6	140.07	0.0015	0.0074	140.72
Material Deliveries [b, f]	20	14.6	159.17	0.0005	0.0006	159.33
		Total (metric tons/year)	**299.24**	**0.0020**	**0.0079**	**300.05**

Notes:

[a] Number of operational staff (daily) based on engineering estimates in Table 2.4-1 of "MECP1_Santa_Clara_1_SPPE_Data_Needs_1-23-19_Operational_Waste_Deliveries_Workers_Trips.xls."

[b] Number of material deliveries (daily) based on engineering estimates in Table 5.12-11 of "MECP1_Santa_Clara_1_SPPE_Data_Needs_1-23-19_Operational_Waste_Deliveries_Workers_Trips.xls."

[c] Roundtrip miles/day for Operation Worker Commute and Material Deliveries taken as the Urban, San Francisco Bay Area Air Basin H-W and C-NW values, respectively, from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (BREEZE, 2017).

[d] Calculations assume that workers would be onsite: 365 days/year

[e] CO_2 equivalent emissions based on the following global warming potentials from 40 CFR 98, Table A-1:

CH_4: 25
N_2O: 298

[f] Idling CO_2 and CH_4 emissions are included for the material deliveries. Idling N_2O emissions were assumed negligible in the absence of an EMFAC-generated emission factor.

Appendix DR32-A, Table 7
Equations Used to Calculate Criteria Pollutant and GHG Emissions for Offsite Vehicles
EdgeCore LDC
February 2019

Emission Source	Pollutant(s)	Equation	Variables
Operation Worker Commute and Material Deliveries Vehicle Exhaust	CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$	E = N x VMT x D x EF / 453.6	E = Emissions (lb/year)
			N = Number of vehicles per day
			VMT = Vehicle miles traveled per roundtrip (miles/trip). Assumes one vehicle trip per day.
			D = Number of operational days per year
			EF = EMFAC2014 emission factor (g/mile)
			453.6 = Conversion from g to lb
Material Deliveries Vehicle Idling	CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$	E = N x D x I x EF / 453.6	E = Emissions (lb/year)
			N = Number of vehicles per day
			D = Number of operational days per year
			I = Idle time per vehicle per day (idle-hr)
			EF = EMFAC2014 emission factor (g/idle-hr)
			453.6 = Conversion from g to lb
Operation Worker Commute and Material Deliveries Vehicle Exhaust	CO_2	E = N x VMT x D / FE x EF x 0.001	E = Emissions (metric tons/year)
			N = Number of vehicles per day
			VMT = Vehicle miles traveled per roundtrip (miles/trip). Assumes one vehicle trip per day.
			D = Number of operational days per year
			FE = Fuel economy (mpg)
			EF = Emission factor (kg/gallon)
			0.001 = Conversion from kg to metric tons
	CH_4 and N_2O	E = N x VMT x D x EF / 1,000 x 0.001	E = Emissions (metric tons/year)
			N = Number of vehicles per day
			VMT = Vehicle miles traveled per roundtrip (miles/trip). Assumes one vehicle trip per day.
			D = Number of operational days per year
			EF = Emission factor (g/mile)
			1,000 = Conversion from g to kg
			0.001 = Conversion from kg to metric tons
Material Deliveries Vehicle Idling	CO_2 and CH_4	E = N x D x I x EF / 1,000 x 0.001	E = Emissions (metric tons/year)
			N = Number of vehicles per day
			D = Number of operational days per year
			I = Idle time per vehicle per day (idle-hr)
			EF = EMFAC2014 emission factor (g/idle-hr)
			1,000 = Conversion from g to kg
			0.001 = Conversion from kg to metric tons

Appendix DR32-A, Table 8
Offsite Vehicles: Operation Emission Factors - Criteria Pollutants
EdgeCore LDC
February 2019

Offsite Vehicle Criteria Pollutant Emission Factors for Operation

Vehicle Type	Vehicle Class [a]	Exhaust Emission Factors (g/mile) [b, c]						Fuel Economy (mpg) [d]
		CO	VOC	SO_X	NO_X	PM_{10} [e]	$PM_{2.5}$ [e]	
Operation Worker Commute	Light-duty Auto/Truck	0.850	0.014	0.003	0.078	0.046	0.019	26.68
Material Deliveries	Heavy/Medium-duty Diesel	0.415	0.103	0.013	2.914	0.152	0.078	7.01
		Idling Emission Factors (g/idle-hr) [c]						**Idle Time (idle-hrs/day) [f]**
Material Deliveries	Heavy/Medium-duty Diesel	4.769	0.812	0.064	40.320	0.094	0.090	0.083

Notes:

[a] The vehicle classes are represented as follows:

Light-duty Auto/Truck: 50% LDA Gas, 25% LDT1 Gas, and 25% LDT2 Gas values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

Heavy/Medium-duty Diesel: 50% HHDT DSL and 50% MHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

[b] Facility operations are projected to begin in December 2020, based on information provided. Therefore, 2020 emission factors were conservatively used.

[c] Exhaust and idling emission factors from EMFAC2014 for the San Francisco Bay Area Air Basin (Santa Clara County), calendar year 2020. A speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 62°F and humidity of 63% were used per Table B-1 of *CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions* (UC Davis, 2007).

[d] Fuel economy from the EMFAC2014 Web Database (http://www.arb.ca.gov/emfac/2014/) for the San Francisco Bay Area Air Basin (Santa Clara County), calendar year 2020, aggregated speed. Values were estimated by dividing the VMT (miles/day) by the Fuel Consumption (gal/day).

[e] Because of the small number of vehicles, it is assumed that the fugitive dust emissions from paved roads are negligible. As such, paved road emission factors are not included in these values.

[f] It is estimated that each material delivery vehicle idles for approximately 5 minutes each day.

Appendix DR32-A, Table 9
Offsite Vehicles: Operation Emission Factors - GHGs
EdgeCore LDC
February 2019

Offsite Vehicle GHG Emission Factors for Operation

Fuel / Vehicle Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO_2 Emission Factors			
Gasoline	8.78	kg CO_2/gallon	The Climate Registry. 2018. *2018 Climate Registry Default Emission Factors*. Table 13.1. May.
Diesel	10.21	kg CO_2/gallon	
N_2O Emission Factors			
Gasoline Passenger Car Model Year 2014 [a]	0.0036	g N_2O/mile	The Climate Registry. 2018. *2018 Climate Registry Default Emission Factors*. Table 13.5. May.
Diesel Medium and Heavy-duty Truck Model Year 1960 - 2014 [a]	0.0048	g N_2O/mile	
CH_4 Emission Factors			
Gasoline Passenger Car Model Year 2014 [a]	0.0173	g CH_4/mile	The Climate Registry. 2018. *2018 Climate Registry Default Emission Factors*. Table 13.5. May.
Diesel Medium and Heavy-duty Truck Model Year 1960 - 2014 [a]	0.0051	g CH_4/mile	

Notes:

[a] Model Year 2014 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Offsite Vehicle GHG Idling Emission Factors for Operation

Vehicle Type	Vehicle Class [a]	Idling Emission Factors (g/idle-hr) [b]		Idle Time (idle-hrs/day) [c]
		CO_2	CH_4	
Material Deliveries	Heavy/Medium-duty Diesel	6,734.975	0.038	0.083

Notes:

[a] The Heavy/Medium-duty Diesel vehicle class is represented as 50% HHDT DSL and 50% MHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

[b] Idling emission factors from EMFAC2014 for the San Francisco Bay Area Air Basin (Santa Clara County), calendar year 2020. An average temperature of 62°F and humidity of 63% were used per Table B-1 of *CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions* (UC Davis, 2007).

[c] It is estimated that each material delivery vehicle idles for approximately 5 minutes each day.

Appendix DR32-A, Table 10
Facility Upkeep: Operation Emissions - Criteria Pollutants and GHGs
EdgeCore LDC
February 2019

Criteria Pollutant Emissions for Facility Upkeep

Emission Source	Criteria Pollutant Emissions (tpy) [c]					
	CO	VOC	SO_X	NO_X	PM_{10}	$PM_{2.5}$
Area [a]	0.01	3.98	0.00	0.00	0.00	0.00
Energy [b]	0.80	0.10	0.01	0.95	0.07	0.07
Waste	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.00
Total (tpy)	**0.81**	**4.09**	**0.01**	**0.95**	**0.07**	**0.07**

Notes:
[a] The Area Category includes emissions from architectural coating, consumer product use, and landscaping.
[b] The Energy Category accounts for natural gas use only, as CalEEMod does not estimate criteria pollutant emissions from electricity use.
[c] Emissions were estimated using CalEEMod (v. 2016.3.2), based on the square footage of buildings to be constructed and paved areas.

GHG Emissions for Facility Upkeep

Emission Source	GHG Emissions (metric tons/year) [c]			
	CO_2	N_2O	CH_4	CO_2e Equivalent
Area [a]	0.01	0.00	0.00	0.01
Energy [b]	253,327.70	2.38	11.43	254,322.42
Waste	185.53	0.00	10.96	459.65
Water	322.39	0.13	5.57	501.38
Total (metric tons/year)	**253,835.64**	**2.51**	**27.96**	**255,283.46**

Notes:
[a] The Area Category includes emissions from architectural coating, consumer product use, and landscaping.
[b] The Energy Category accounts for natural gas and electricity use.
[c] Emissions were estimated using CalEEMod (v. 2016.3.2), based on the square footage of buildings to be constructed, paved areas, and site-specific electricity intensity, as detailed below.

Facility Upkeep Details [a]

Feature	Area (square feet)
Building 1	279,744
Common Building 1	68,422
Building 2	348,800
Common Building 2A	20,327
Common Building 2B	19,800
Total Buildings	**737,093**
Paved Areas [b]	426,890

Notes:
[a] Data taken from the site plan and 'MECP1_Santa_Clara_1_SPPE_Data_Needs_01-11-19 working copy.xlsx'.
[b] The following factor was used to convert acres to square feet:
1 acre = 43,560 square feet

Calculation of Electricity Intensity

Parameter	Value
Annual Electricity Use (kWh/yr) [a]	867,240,000
Building Area (square feet)	737,093
Electricity Intensity (kWh/sqft-yr)	**1,176.57**

Notes:
[a] Calculated as 99 MW x 8,760 hours per year of operation.

Appendix DR32-B: AERMOD Modeling Inputs and Results

Appendix DR32-B, Table 1
Source Parameters for Operational AERMOD Modeling - 100% Load
EdgeCore LDC
Revised June 2019

Source ID	Stack Release Type	Source Description	Easting (X) (m) [a]	Northing (Y) (m) [a]	Base Elevation (m) [b]	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
GEN_1	RAINCAP	Generator 1	591,459.44	4,137,987.04	9	12.19	750.87	59.66	0.51
GEN_2	RAINCAP	Generator 2	591,459.44	4,137,987.54	9	12.19	750.87	59.66	0.51
GEN_3	RAINCAP	Generator 3	591,459.44	4,137,990.78	9	12.19	750.87	59.66	0.51
GEN_4	RAINCAP	Generator 4	591,459.44	4,137,991.28	9	12.19	750.87	59.66	0.51
GEN_5	RAINCAP	Generator 5	591,459.44	4,137,997.01	9	12.19	750.87	59.66	0.51
GEN_6	RAINCAP	Generator 6	591,459.44	4,137,997.51	9	12.19	750.87	59.66	0.51
GEN_7	RAINCAP	Generator 7	591,459.44	4,138,000.74	9	12.19	750.87	59.66	0.51
GEN_8	RAINCAP	Generator 8	591,459.44	4,138,001.24	9	12.19	750.87	59.66	0.51
GEN_9	RAINCAP	Generator 9	591,459.44	4,138,006.98	9	12.19	750.87	59.66	0.51
GEN_10	RAINCAP	Generator 10	591,459.44	4,138,007.48	9	12.19	750.87	59.66	0.51
GEN_11	RAINCAP	Generator 11	591,459.44	4,138,010.71	9	12.19	750.87	59.66	0.51
GEN_12	RAINCAP	Generator 12	591,459.44	4,138,011.21	9	12.19	750.87	59.66	0.51
GEN_13	RAINCAP	Generator 13	591,459.44	4,138,016.95	9	12.19	750.87	59.66	0.51
GEN_14	RAINCAP	Generator 14	591,459.44	4,138,017.45	9	12.19	750.87	59.66	0.51
GEN_15	RAINCAP	Generator 15	591,459.44	4,138,020.68	9	12.19	750.87	59.66	0.51
GEN_16	RAINCAP	Generator 16	591,459.44	4,138,021.18	9	12.19	750.87	59.66	0.51
GEN_17	RAINCAP	Generator 17	591,459.44	4,138,026.91	9	12.19	750.87	59.66	0.51
GEN_18	RAINCAP	Generator 18	591,459.44	4,138,027.41	9	12.19	750.87	59.66	0.51
GEN_19	RAINCAP	Generator 19	591,459.44	4,138,030.65	9	12.19	750.87	59.66	0.51
GEN_20	RAINCAP	Generator 20	591,459.44	4,138,031.15	9	12.19	750.87	59.66	0.51
GEN_21	RAINCAP	Generator 21	591,459.44	4,138,036.88	9	12.19	750.87	59.66	0.51
GEN_22	RAINCAP	Generator 22	591,459.44	4,138,037.38	9	12.19	750.87	59.66	0.51
GEN_23	RAINCAP	Generator 23	591,459.44	4,138,040.62	9	12.19	750.87	59.66	0.51
GEN_24	RAINCAP	Generator 24	591,459.44	4,138,041.12	9	12.19	750.87	59.66	0.51
GEN_25	RAINCAP	Generator 25	591,459.44	4,138,046.85	9	12.19	750.87	59.66	0.51
GEN_26	RAINCAP	Generator 26	591,459.44	4,138,047.35	9	12.19	750.87	59.66	0.51
GEN_27	RAINCAP	Generator 27	591,459.44	4,138,050.58	9	12.19	750.87	59.66	0.51
GEN_28	RAINCAP	Generator 28	591,459.44	4,138,051.08	9	12.19	750.87	59.66	0.51
GEN_29	RAINCAP	Generator 29	591,563.09	4,137,881.30	9	12.19	750.87	59.66	0.51
GEN_30	RAINCAP	Generator 30	591,563.73	4,137,881.66	9	12.19	750.87	59.66	0.51
GEN_31	RAINCAP	Generator 31	591,566.63	4,137,882.95	9	12.19	750.87	59.66	0.51
GEN_32	RAINCAP	Generator 32	591,567.11	4,137,883.27	9	12.19	750.87	59.66	0.51
GEN_33	RAINCAP	Generator 33	591,572.22	4,137,885.84	9	12.19	750.87	59.66	0.51
GEN_34	RAINCAP	Generator 34	591,572.66	4,137,886.04	9	12.19	750.87	59.66	0.51
GEN_35	RAINCAP	Generator 35	591,575.40	4,137,887.45	9	12.19	750.87	59.66	0.51
GEN_36	RAINCAP	Generator 36	591,575.91	4,137,887.73	9	12.19	750.87	59.66	0.51
GEN_37	RAINCAP	Generator 37	591,580.96	4,137,890.23	9	12.19	750.87	59.66	0.51
GEN_38	RAINCAP	Generator 38	591,581.44	4,137,890.50	9	12.19	750.87	59.66	0.51
GEN_39	RAINCAP	Generator 39	591,584.08	4,137,891.79	9	12.19	750.87	59.66	0.51
GEN_40	RAINCAP	Generator 40	591,584.55	4,137,892.06	9	12.19	750.87	59.66	0.51
GEN_41	RAINCAP	Generator 41	591,593.03	4,137,896.26	9	12.19	750.87	59.66	0.51
GEN_42	RAINCAP	Generator 42	591,590.25	4,137,894.83	9	12.19	750.87	59.66	0.51
GEN_43	RAINCAP	Generator 43	591,593.50	4,137,896.46	9	12.19	750.87	59.66	0.51
GEN_44	RAINCAP	Generator 44	591,589.94	4,137,894.64	9	12.19	750.87	59.66	0.51
GEN_45	RAINCAP	Generator 45	591,598.79	4,137,899.17	9	5.49	750.87	59.66	0.51
GEN_46	RAINCAP	Generator 46	591,602.18	4,137,900.87	9	5.49	750.87	59.66	0.51
GEN_47	RAINCAP	Generator 47	591,607.80	4,137,903.85	9	5.49	750.87	59.66	0.51
GEN_48	RAINCAP	Generator 48	591,611.32	4,137,905.61	9	5.49	750.87	59.66	0.51
GEN_49	RAINCAP	Generator 49	591,616.61	4,137,908.18	9	5.49	750.87	59.66	0.51
GEN_50	RAINCAP	Generator 50	591,619.93	4,137,910.01	9	5.49	750.87	59.66	0.51
GEN_51	RAINCAP	Generator 51	591,625.83	4,137,912.86	9	5.49	750.87	59.66	0.51
GEN_52	RAINCAP	Generator 52	591,629.08	4,137,914.49	9	5.49	750.87	59.66	0.51
GEN_53	RAINCAP	Generator 53	591,634.71	4,137,917.20	9	5.49	750.87	59.66	0.51
GEN_54	RAINCAP	Generator 54	591,637.82	4,137,918.76	9	5.49	750.87	59.66	0.51
GEN_55	RAINCAP	Generator 55	591,643.72	4,137,921.40	9	5.49	750.87	59.66	0.51
GEN_56	RAINCAP	Generator 56	591,646.90	4,137,923.30	9	5.49	750.87	59.66	0.51

Notes:

[a] Coordinates are provided in NAD83 UTM Projection, Zone 10.

[b] Base elevations were determined from a central point inside the facility fenceline.

Appendix DR32-B, Table 2
Modeled Emission Rates - 100% Load
EdgeCore LDC
Revised June 2019

Source ID	Modeled Emission Rates (lb/hr)											
	NO_2		CO		$PM_{2.5}$		PM_{10}		SO_2			
	1-hour [a]	Annual [b]	1-hour [a]	8-hour [c]	24-hour [c]	Annual [b]	24-hour [c]	Annual [b]	1-hour [a]	3-hour [a]	24-hour [c]	Annual [b]
GEN_1	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_2	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_3	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_4	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_5	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_6	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_7	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_8	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_9	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_10	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_11	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_12	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_13	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_14	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_15	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_16	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_17	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_18	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_19	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_20	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_21	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_22	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_23	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_24	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_25	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_26	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_27	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_28	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_29	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_30	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_31	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_32	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_33	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_34	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_35	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_36	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_37	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_38	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_39	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_40	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_41	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_42	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_43	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_44	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_45	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_46	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_47	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_48	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_49	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_50	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_51	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_52	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_53	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_54	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_55	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04
GEN_56	41.93	0.24	10.91	5.45	2.00E-02	6.85E-04	2.00E-02	6.85E-04	4.53E-02	4.53E-02	7.55E-03	2.59E-04

Notes:

[a] Maximum emission rate in any given hour.

[b] Averaged over a year (8,760 hours).

[c] Calculated to demonstrate that each generator will only operate at a maximum of four hours within a 24-hour period.

Appendix DR32-B, Table 3
Detailed Model Results for 1-hour NO_2 - 100% Load
EdgeCore LDC
Revised June 2019

Source ID	Modeled 1-hour NO_2 Concentration [a, b] ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)	Exceeds the CAAQS?
GEN_1	133.96	339	No
GEN_2	132.80	339	No
GEN_3	131.73	339	No
GEN_4	131.44	339	No
GEN_5	134.01	339	No
GEN_6	135.54	339	No
GEN_7	144.89	339	No
GEN_8	145.37	339	No
GEN_9	139.94	339	No
GEN_10	141.20	339	No
GEN_11	145.91	339	No
GEN_12	145.27	339	No
GEN_13	139.64	339	No
GEN_14	139.30	339	No
GEN_15	137.58	339	No
GEN_16	137.38	339	No
GEN_17	133.97	339	No
GEN_18	133.69	339	No
GEN_19	131.80	339	No
GEN_20	131.62	339	No
GEN_21	128.56	339	No
GEN_22	128.39	339	No
GEN_23	126.90	339	No
GEN_24	126.90	339	No
GEN_25	126.90	339	No
GEN_26	126.90	339	No
GEN_27	126.90	339	No
GEN_28	126.90	339	No
GEN_29	134.13	339	No
GEN_30	133.59	339	No
GEN_31	132.29	339	No
GEN_32	131.91	339	No
GEN_33	127.94	339	No
GEN_34	127.53	339	No
GEN_35	126.90	339	No
GEN_36	126.90	339	No
GEN_37	126.90	339	No
GEN_38	126.90	339	No
GEN_39	126.90	339	No
GEN_40	126.90	339	No
GEN_41	126.90	339	No
GEN_42	126.90	339	No
GEN_43	127.28	339	No
GEN_44	126.90	339	No
GEN_45	137.28	339	No
GEN_46	138.32	339	No
GEN_47	128.02	339	No
GEN_48	126.90	339	No
GEN_49	126.90	339	No
GEN_50	126.90	339	No
GEN_51	126.90	339	No
GEN_52	126.90	339	No
GEN_53	127.02	339	No
GEN_54	128.00	339	No
GEN_55	129.51	339	No
GEN_56	126.90	339	No

Note:

[a] Modeled concentrations are the high-first-high results from each individual modeled year (2013-2017).

[b] The modeled concentration for some generators is equal to 126.90 $\mu g/m^3$. The reason for this re-occuring result is due to concentrations included in the CAAQS 1-Hour NO_2 background profile. The background profile included in the modeling has a maximum value of 126.90 $\mu g/m^3$, but this value does not occur during the specified hours of operation, from 8 a.m. to 5 p.m. The modeled result of 126.90 $\mu g/m^3$ demonstrates that the generator will not have a 1-hour NO_2 impact greater than the background concentration.

Appendix DR32-B, Table 4
Building and Tank Dimensions
EdgeCore LDC
Revised June 2019

Building Dimensions

Building Name	Description	Base Elevation [a] (m)	Tier Height (ft)	Corner 1 East (X) (m) [b]	Corner 1 North (Y) (m) [b]	Corner 2 East (X) (m) [b]	Corner 2 North (Y) (m) [b]	Corner 3 East (X) (m) [b]	Corner 3 North (Y) (m) [b]	Corner 4 East (X) (m) [b]	Corner 4 North (Y) (m) [b]	Corner 5 East (X) (m) [b]	Corner 5 North (Y) (m) [b]	Corner 6 East (X) (m) [b]	Corner 6 North (Y) (m) [b]	Corner 7 East (X) (m) [b]	Corner 7 North (Y) (m) [b]	Corner 8 East (X) (m) [b]	Corner 8 North (Y) (m) [b]	Corner 9 East (X) (m) [b]	Corner 9 North (Y) (m) [b]	Corner 10 East (X) (m) [b]	Corner 10 North (Y) (m) [b]	Corner 11 East (X) (m) [b]	Corner 11 North (Y) (m) [b]	Corner 12 East (X) (m) [b]	Corner 12 North (Y) (m) [b]
Bldg1	Building 1	9	95.5	591,516.74	4,137,945.05	591,539.39	4,137,890.95	591,660.60	4,137,951.30	591,636.56	4,138,004.90																
Bldg1	Building 1	9	117.5	591,535.03	4,137,931.33	591,548.68	4,137,938.10	591,554.10	4,137,927.18	591,540.44	4,137,920.41																
Bldg1	Building 1	9	117.5	591,553.26	4,137,941.10	591,566.91	4,137,947.87	591,572.32	4,137,936.94	591,558.67	4,137,930.18																
Bldg1	Building 1	9	117.5	591,571.48	4,137,950.87	591,585.14	4,137,957.63	591,590.55	4,137,946.71	591,576.90	4,137,939.94																
Bldg1	Building 1	9	117.5	591,589.71	4,137,960.63	591,603.37	4,137,967.40	591,608.78	4,137,956.47	591,595.12	4,137,949.71																
Bldg1	Building 1	9	117.5	591,607.94	4,137,970.40	591,621.60	4,137,977.16	591,627.01	4,137,966.24	591,613.35	4,137,959.47																
Bldg1	Building 1	9	117.5	591,638.90	4,137,999.59	591,630.20	4,137,995.46	591,634.27	4,137,986.72	591,642.93	4,137,990.70																
Bldg2	Building 2	9	98.5	591,478.19	4,138,093.83	591,536.71	4,138,093.83	591,536.71	4,137,981.36	591,478.19	4,137,981.36																
Bldg2	Building 2	9	120.5	591,496.48	4,138,081.64	591,508.67	4,138,081.64	591,508.67	4,138,066.40	591,496.48	4,138,066.40																
Bldg2	Building 2	9	120.5	591,496.48	4,138,062.40	591,508.67	4,138,062.40	591,508.67	4,138,047.16	591,496.48	4,138,047.16																
Bldg2	Building 2	9	120.5	591,496.48	4,138,043.16	591,508.67	4,138,043.16	591,508.67	4,138,027.92	591,496.48	4,138,027.92																
Bldg2	Building 2	9	120.5	591,496.48	4,138,023.92	591,508.67	4,138,023.92	591,508.67	4,138,008.68	591,496.48	4,138,008.68																
Bldg2	Building 2	9	120.5	591,496.48	4,138,004.68	591,508.67	4,138,004.68	591,508.67	4,137,989.44	591,496.48	4,137,989.44																
Bldg2	Building 2	9	120.5	591,485.19	4,138,093.83	591,494.19	4,138,093.83	591,494.19	4,138,084.83	591,485.19	4,138,084.83																
Enc1	Generator Enclosure	9	36	591,457.74	4,137,985.55	591,475.88	4,137,985.55	591,475.88	4,137,989.28	591,457.74	4,137,989.28																
Enc2	Generator Enclosure	9	36	591,457.74	4,137,989.28	591,475.88	4,137,989.28	591,475.88	4,137,993.02	591,457.74	4,137,993.02																
Enc3	Generator Enclosure	9	36	591,457.74	4,137,995.52	591,475.88	4,137,995.52	591,475.88	4,137,999.25	591,457.74	4,137,999.25																
Enc4	Generator Enclosure	9	36	591,457.74	4,137,999.25	591,475.88	4,137,999.25	591,475.88	4,138,002.99	591,457.74	4,138,002.99																
Enc5	Generator Enclosure	9	36	591,457.74	4,138,005.49	591,475.88	4,138,005.49	591,475.88	4,138,009.22	591,457.74	4,138,009.22																
Enc6	Generator Enclosure	9	36	591,457.74	4,138,009.22	591,475.88	4,138,009.22	591,475.88	4,138,012.95	591,457.74	4,138,012.95																
Enc7	Generator Enclosure	9	36	591,457.74	4,138,015.45	591,475.88	4,138,015.45	591,475.88	4,138,019.19	591,457.74	4,138,019.19																
Enc8	Generator Enclosure	9	36	591,457.74	4,138,019.19	591,475.88	4,138,019.19	591,475.88	4,138,022.92	591,457.74	4,138,022.92																
Enc9	Generator Enclosure	9	36	591,457.74	4,138,025.42	591,475.88	4,138,025.42	591,475.88	4,138,029.15	591,457.74	4,138,029.15																
Enc10	Generator Enclosure	9	36	591,457.74	4,138,029.15	591,475.88	4,138,029.15	591,475.88	4,138,032.89	591,457.74	4,138,032.89																
Enc11	Generator Enclosure	9	36	591,457.74	4,138,035.39	591,475.88	4,138,035.39	591,475.88	4,138,039.12	591,457.74	4,138,039.12																
Enc12	Generator Enclosure	9	36	591,457.74	4,138,039.12	591,475.88	4,138,039.12	591,475.88	4,138,042.86	591,457.74	4,138,042.86																
Enc13	Generator Enclosure	9	36	591,457.74	4,138,045.36	591,475.88	4,138,045.36	591,475.88	4,138,049.09	591,457.74	4,138,049.09																
Enc14	Generator Enclosure	9	36	591,457.74	4,138,049.09	591,475.88	4,138,049.09	591,475.88	4,138,052.82	591,457.74	4,138,052.82																
Enc15	Generator Enclosure	9	36	591,554.26	4,137,895.72	591,557.61	4,137,897.37	591,565.66	4,137,881.12	591,562.31	4,137,879.47																
Enc16	Generator Enclosure	9	36	591,557.61	4,137,897.37	591,560.95	4,137,899.03	591,569.00	4,137,882.78	591,565.66	4,137,881.12																
Enc17	Generator Enclosure	9	36	591,563.19	4,137,900.14	591,566.54	4,137,901.80	591,574.59	4,137,885.55	591,571.24	4,137,883.89																
Enc18	Generator Enclosure	9	36	591,566.54	4,137,901.80	591,569.88	4,137,903.46	591,577.93	4,137,887.21	591,574.59	4,137,885.55																
Enc19	Generator Enclosure	9	36	591,572.12	4,137,904.57	591,575.47	4,137,906.22	591,583.52	4,137,889.97	591,580.17	4,137,888.32																
Enc20	Generator Enclosure	9	36	591,575.47	4,137,906.22	591,578.81	4,137,907.88	591,586.87	4,137,891.63	591,583.52	4,137,889.97																
Enc21	Generator Enclosure	9	36	591,581.05	4,137,908.99	591,584.40	4,137,910.65	591,592.45	4,137,894.40	591,589.11	4,137,892.74																
Enc22	Generator Enclosure	9	36	591,584.40	4,137,910.65	591,587.75	4,137,912.31	591,595.80	4,137,896.06	591,592.45	4,137,894.40																
Enc23	Generator Enclosure	9	14.2	591,589.99	4,137,913.42	591,593.33	4,137,915.07	591,601.38	4,137,898.82	591,598.04	4,137,897.17																
Enc24	Generator Enclosure	9	14.2	591,593.33	4,137,915.07	591,596.68	4,137,916.73	591,604.73	4,137,900.48	591,601.38	4,137,898.82																
Enc25	Generator Enclosure	9	14.2	591,598.92	4,137,917.84	591,602.26	4,137,919.50	591,610.31	4,137,903.25	591,606.97	4,137,901.59																
Enc26	Generator Enclosure	9	14.2	591,602.26	4,137,919.50	591,605.61	4,137,921.16	591,613.66	4,137,904.91	591,610.31	4,137,903.25																
Enc27	Generator Enclosure	9	14.2	591,607.85	4,137,922.27	591,611.19	4,137,923.93	591,619.25	4,137,907.67	591,615.90	4,137,906.02																
Enc28	Generator Enclosure	9	14.2	591,611.19	4,137,923.93	591,614.54	4,137,925.58	591,622.59	4,137,909.33	591,619.25	4,137,907.67																
Enc29	Generator Enclosure	9	14.2	591,616.78	4,137,926.69	591,620.13	4,137,928.35	591,628.18	4,137,912.10	591,624.83	4,137,910.44																
Enc30	Generator Enclosure	9	14.2	591,620.13	4,137,928.35	591,623.47	4,137,930.01	591,631.52	4,137,913.76	591,628.18	4,137,912.10																
Enc31	Generator Enclosure	9	14.2	591,625.71	4,137,931.12	591,629.06	4,137,932.78	591,637.11	4,137,916.52	591,633.76	4,137,914.87																
Enc32	Generator Enclosure	9	14.2	591,629.06	4,137,932.78	591,632.40	4,137,934.43	591,640.45	4,137,918.18	591,637.11	4,137,916.52																
Enc33	Generator Enclosure	9	14.2	591,634.64	4,137,935.54	591,637.99	4,137,937.20	591,646.04	4,137,920.95	591,642.69	4,137,919.29																
Enc34	Generator Enclosure	9	14.2	591,637.99	4,137,937.20	591,641.33	4,137,938.86	591,649.39	4,137,922.61	591,646.04	4,137,920.95																
Sub	Substation	9	16	591,449.11	4,137,961.62	591,502.45	4,137,961.62	591,502.45	4,137,907.21	591,449.11	4,137,907.21																
Ext1	Exterior Building 1	7	40	591,318.79	4,138,226.00	591,322.63	4,138,226.00	591,322.63	4,138,232.14	591,420.49	4,138,232.14	591,420.49	4,138,227.30	591,428.30	4,138,227.30	591,428.30	4,138,158.46	591,424.58	4,138,158.46	591,424.58	4,138,140.97	591,323.74	4,138,140.97	591,323.74	4,138,175.21	591,318.53	4,138,175.21
Ext2	Exterior Building 2	7	93	591,447.65	4,138,238.39	591,505.33	4,138,238.39	591,505.33	4,138,181.83	591,545.52	4,138,181.83	591,545.52	4,138,129.74	591,447.65	4,138,129.74												
Ext3	Exterior Building 3	9	35	591,636.98	4,138,126.47	591,712.14	4,138,167.70	591,714.53	4,138,163.56	591,719.92	4,138,166.26	591,742.44	4,138,129.24	591,736.78	4,138,125.80	591,740.38	4,138,120.40	591,663.80	4,138,078.31	591,661.48	4,138,082.86	591,656.54	4,138,079.94	591,635.86	4,138,118.60		
Ext4	Exterior Building 4	9	50	591,683.73	4,138,069.15	591,739.93	4,138,099.95	591,765.33	4,138,057.01	591,707.11	4,138,024.87																
Ext5	Exterior Building 5	7	180	591,441.09	4,138,341.35	591,441.09	4,138,288.08	591,497.29	4,138,288.08	591,497.29	4,138,292.57	591,446.26	4,138,341.35	591,441.32	4,138,341.35												

Notes:
[a] Base elevations for buildings within the facility fenceline were determined from a central point inside the facility fenceline.
[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

Tank Dimensions

Tank Name	Description	Base Elevation [a] (m)	Center East (X) (m) [b]	Center North (Y) (m) [b]	Tank Height (ft)	Tank Diameter (m)
Tank1	Water Tank 1	9	591,493.00	4,137,974.00	48	4.1656
Tank2	Water Tank 2	9	591,499.00	4,137,974.00	48	4.1656
Tank3	Water Tank 3	9	591,505.00	4,137,974.00	48	4.1656
Tank4	Water Tank 4	9	591,511.00	4,137,974.00	48	4.1656
Tank5	Water Tank 5	9	591,517.00	4,137,974.00	48	4.1656
Tank6	Water Tank 6	9	591,523.00	4,137,974.00	48	4.1656
Tank7	Water Tank 7	9	591,529.00	4,137,974.00	48	4.1656
Tank8	Water Tank 8	9	591,554.61	4,137,970.08	48	4.1656
Tank9	Water Tank 9	9	591,549.54	4,137,967.71	48	4.1656
Tank10	Water Tank 10	9	591,522.49	4,137,955.20	48	4.1656
Tank11	Water Tank 11	9	591,544.46	4,137,965.68	48	4.1656
Tank12	Water Tank 12	9	591,528.23	4,137,957.90	48	4.1656
Tank13	Water Tank 13	9	591,539.39	4,137,962.98	48	4.1656
Tank14	Water Tank 14	9	591,533.98	4,137,959.93	48	4.1656

Notes:
[a] Base elevations were determined from a central point inside the facility fenceline.
[b] Coordinates are provided in NAD83 UTM Projection, Zone 10.

Appendix DR32-B, Table 5

Seasonal-Hour NO_2 Background Data

EdgeCore LDC

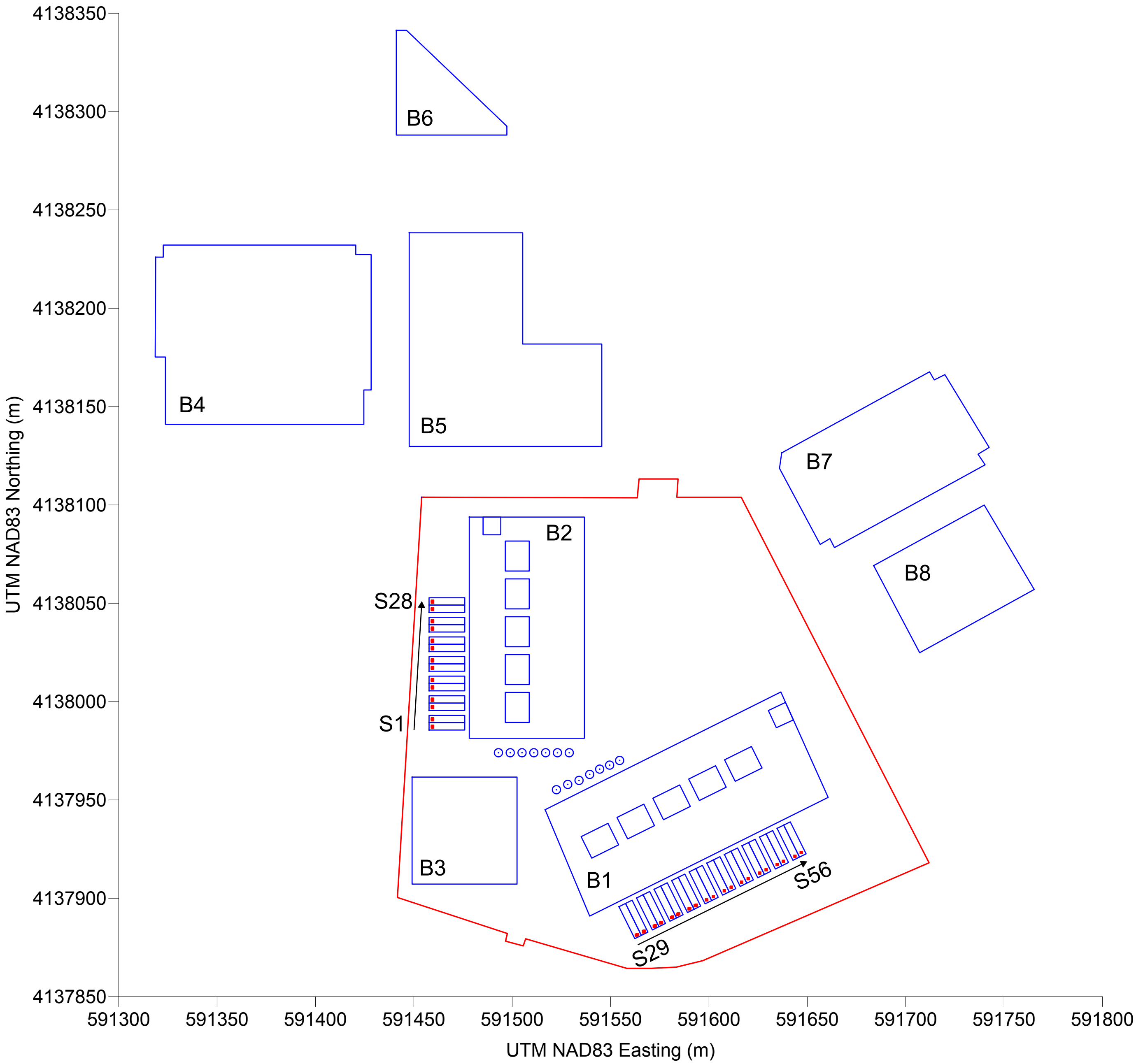
Revised June 2019

Hour of Day	NAAQS Background Concentration by Season (ppb) [a]				CAAQS Background Concentration by Season (ppb) [a]			
	Dec-Feb	Mar-May	June-Aug	Sept-Nov	Dec-Feb	Mar-May	June-Aug	Sept-Nov
Hr.1	32.9	28.8	18.9	38.2	34.3	34.3	27.3	44.8
Hr.2	30.5	27.3	17.9	33.0	32.7	33.3	29.0	35.1
Hr.3 [b]	27.4	24.5	18.5	29.7	30.4	28.7	25.4	33.2
Hr.4 [b]	27.4	24.5	18.5	29.7	30.4	28.7	25.4	33.2
Hr.5	24.3	21.7	19.0	26.3	28.1	24.1	21.7	31.3
Hr.6	25.8	27.2	21.7	32.9	29.8	31.7	31.2	35.0
Hr.7	29.6	29.7	23.5	37.0	31.8	34.1	26.7	40.2
Hr.8	33.8	32.1	26.0	38.0	38.8	34.6	30.2	48.6
Hr.9	38.8	31.3	26.8	41.5	40.3	37.5	31.0	49.6
Hr.10	39.8	30.5	25.4	39.6	46.9	37.4	28.8	44.2
Hr.11	39.6	28.0	24.6	38.2	41.8	33.2	35.4	46.4
Hr.12	37.4	25.1	21.0	32.6	43.5	33.7	27.0	42.9
Hr.13	36.7	20.9	17.1	30.1	39.8	25.7	21.3	34.3
Hr.14	35.0	16.6	15.4	26.8	40.7	25.9	19.7	31.4
Hr.15	35.6	11.7	12.9	26.2	39.5	21.1	16.4	34.1
Hr.16	31.5	10.7	12.4	23.6	41.8	14.9	16.2	39.0
Hr.17	35.5	12.1	11.1	26.2	48.8	17.3	15.8	30.9
Hr.18	44.8	15.4	12.2	34.3	47.2	20.4	17.5	39.7
Hr.19	45.9	19.5	16.3	42.2	52.2	36.8	22.0	61.2
Hr.20	45.7	24.2	17.0	48.7	51.1	36.9	24.4	67.5
Hr.21	45.4	27.0	16.8	47.7	49.5	39.6	38.2	65.1
Hr.22	42.3	32.9	19.6	42.6	49.3	43.9	38.0	59.1
Hr.23	38.2	33.0	19.7	43.5	41.3	38.5	48.7	54.6
Hr.24	35.8	30.4	20.3	41.5	38.5	40.3	46.7	48.3

Notes:

[a] Backgroud concentrations by Season and Hour of Day obtained from the EPA Air Quality System monitoring station in San Jose, California (Site ID 060850005).

[b] Hours 3 and 4 are when monitor self calibrations or other activities occur, such that data points are not available. Therefore, both hours reflect the average of the hour before and after (Hours 2 and 5).



LEGEND

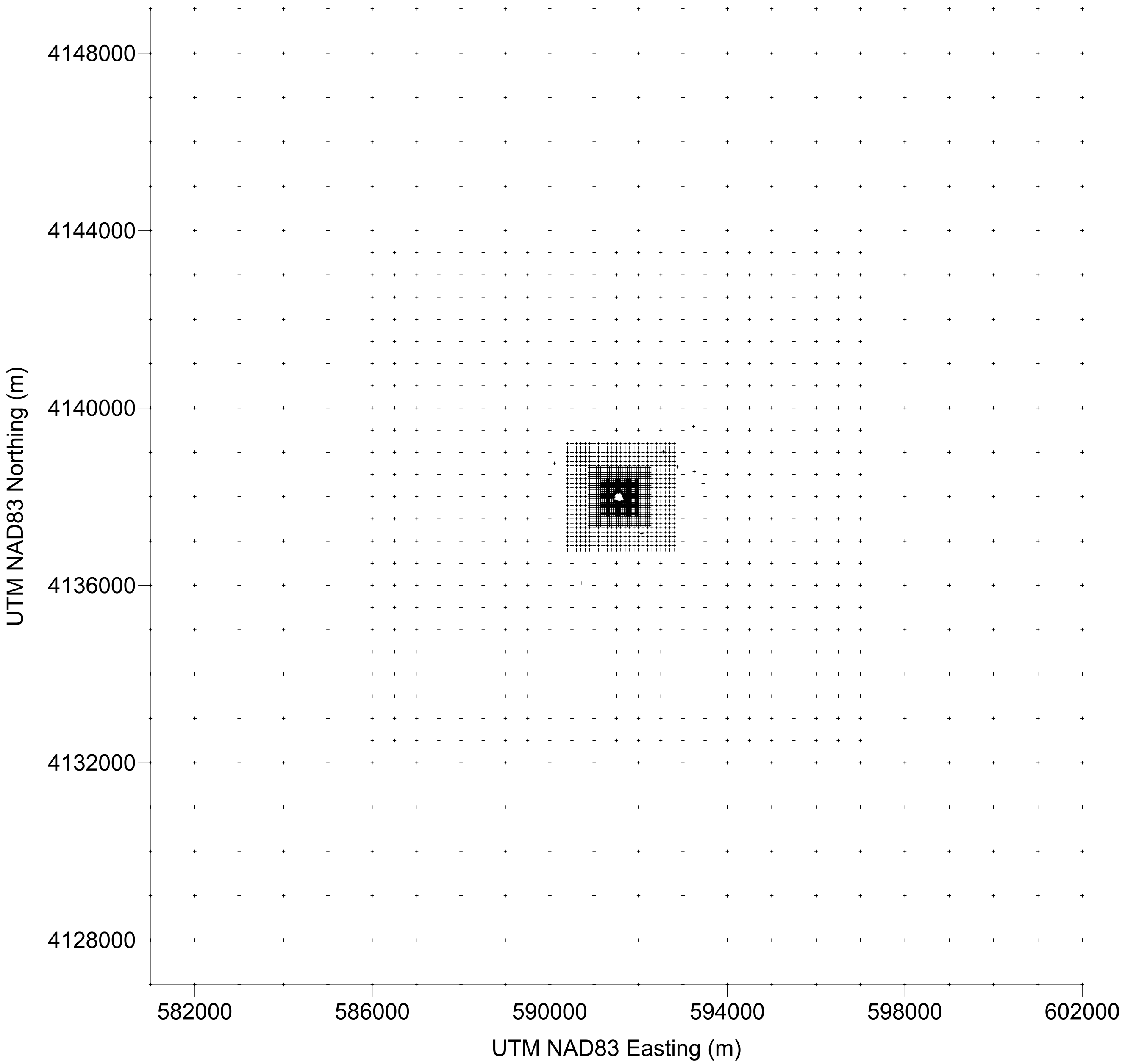
Buildings, Tanks, and Other Structures

Facility Fenceline

Point Sources
(S1-S44: Stacked Generators; S45-S56: Unstacked Generators)

Appendix DR32-B, Figure 1
Facility Layout
Laurelwood Data Center
Santa Clara, California

JACOBS



Appendix DR32-B, Figure 2
Receptor Grid
Laurelwood Data Center
Santa Clara, California

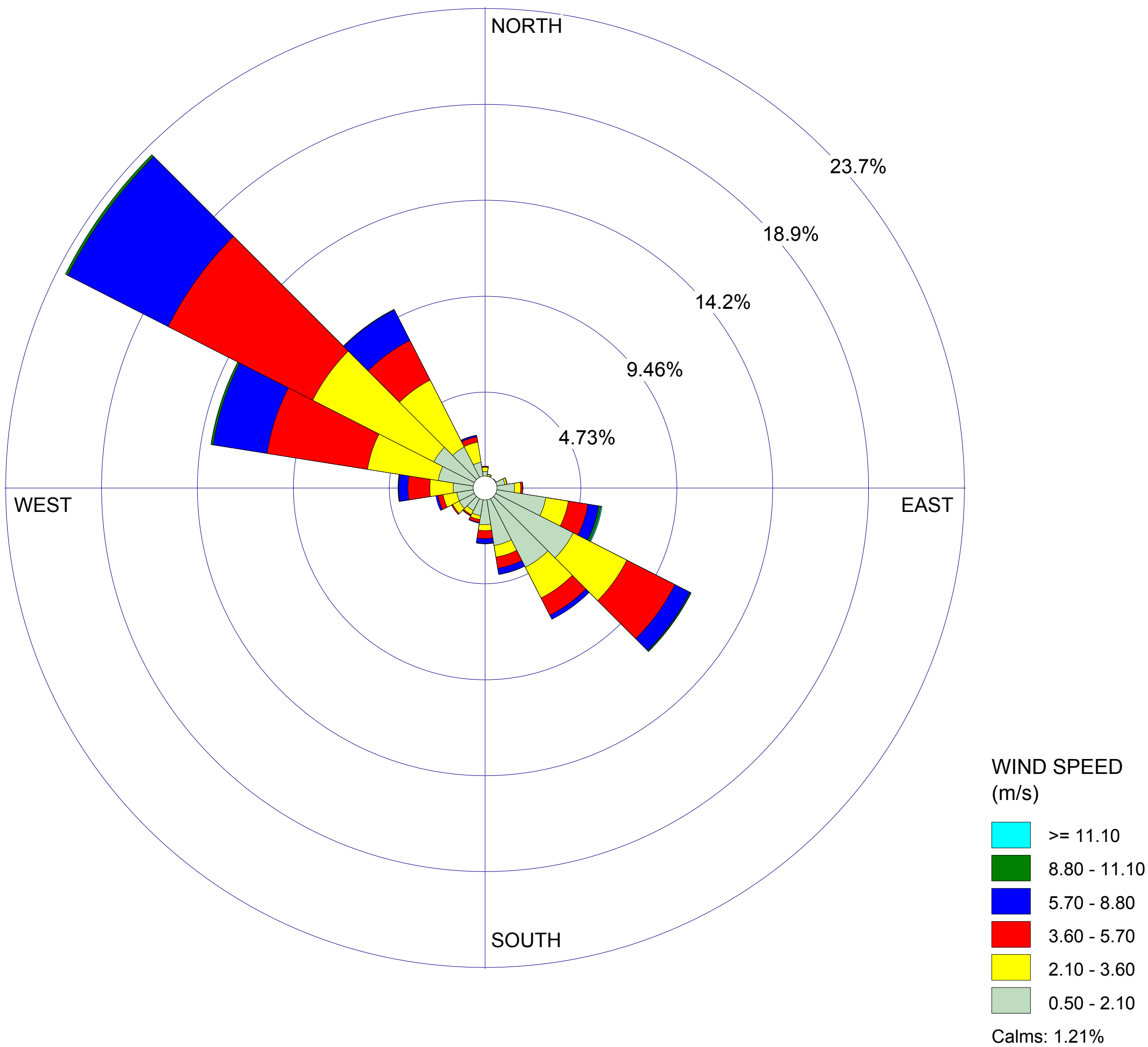
JACOBS

WIND ROSE PLOT:

San Jose Airport
Station ID 724945-23293

DISPLAY:

Wind Speed
Direction (blowing from)



DATA PERIOD:

Start Date: 1/1/2013 - 00:00
End Date: 12/31/2017 - 23:59

CALM WINDS:

1.21%

TOTAL COUNT:

43766 hrs.

AVG. WIND SPEED:

3.19 m/s

DATE:

6/20/2019

Appendix DR32-B, Figure 3
Wind Speed
Laurelwood Data Center
Santa Clara, California

JACOBS

Appendix DR32-C: Construction Health Risk Assessment

Appendix DR32-C, Table 1
Construction HRA Emission Rates
EdgeCore LDC
Revised June 2019

Emission Rates for HRA Modeling of Construction DPM Emissions

Source Grouping	**Diesel Particulate Matter** [a]	
	(g/s)	**(lb/yr average)** [b]
Construction Total	0.00684	475.35
Construction Point (per source) [c]	0.00012	8.20

Notes:

[a] Diesel particulate matter is best represented by PM_{10} emitted as a result of fuel combustion.

[b] Emission rates are the total emissions for project construction (taken from Appendix 3.3A of the Small Power Plant Exemption Application), divided by the construction duration, and only include onsite exhaust.

[c] Number of point sources modeled: 58

Appendix DR32-C, Table 2
AERMOD Source Inputs
EdgeCore LDC
Revised June 2019

AERMOD Source Inputs for LDC Construction HRA

Source ID	Stack Release Type	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [a] (g/s)
LDC_01	HORIZONTAL	591,478.98	4,138,078.94	8.00	4.6	533	18	0.127	1.179E-04
LDC_02	HORIZONTAL	591,503.98	4,138,078.94	8.00	4.6	533	18	0.127	1.179E-04
LDC_03	HORIZONTAL	591,528.98	4,138,078.94	8.00	4.6	533	18	0.127	1.179E-04
LDC_04	HORIZONTAL	591,553.98	4,138,078.94	8.74	4.6	533	18	0.127	1.179E-04
LDC_05	HORIZONTAL	591,578.98	4,138,078.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_06	HORIZONTAL	591,603.98	4,138,078.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_07	HORIZONTAL	591,478.98	4,138,053.94	8.05	4.6	533	18	0.127	1.179E-04
LDC_08	HORIZONTAL	591,503.98	4,138,053.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_09	HORIZONTAL	591,528.98	4,138,053.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_10	HORIZONTAL	591,553.98	4,138,053.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_11	HORIZONTAL	591,578.98	4,138,053.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_12	HORIZONTAL	591,603.98	4,138,053.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_13	HORIZONTAL	591,478.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_14	HORIZONTAL	591,503.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_15	HORIZONTAL	591,528.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_16	HORIZONTAL	591,553.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_17	HORIZONTAL	591,578.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_18	HORIZONTAL	591,603.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_19	HORIZONTAL	591,628.98	4,138,028.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_20	HORIZONTAL	591,478.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_21	HORIZONTAL	591,503.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_22	HORIZONTAL	591,528.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_23	HORIZONTAL	591,553.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_24	HORIZONTAL	591,578.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_25	HORIZONTAL	591,603.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_26	HORIZONTAL	591,628.98	4,138,003.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_27	HORIZONTAL	591,478.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_28	HORIZONTAL	591,503.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_29	HORIZONTAL	591,528.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_30	HORIZONTAL	591,553.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_31	HORIZONTAL	591,578.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_32	HORIZONTAL	591,603.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_33	HORIZONTAL	591,628.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_34	HORIZONTAL	591,653.98	4,137,978.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_35	HORIZONTAL	591,478.98	4,137,953.94	9.83	4.6	533	18	0.127	1.179E-04
LDC_36	HORIZONTAL	591,503.98	4,137,953.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_37	HORIZONTAL	591,528.98	4,137,953.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_38	HORIZONTAL	591,553.98	4,137,953.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_39	HORIZONTAL	591,578.98	4,137,953.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_40	HORIZONTAL	591,603.98	4,137,953.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_41	HORIZONTAL	591,628.98	4,137,953.94	9.00	4.6	533	18	0.127	1.179E-04
LDC_42	HORIZONTAL	591,653.98	4,137,953.94	9.91	4.6	533	18	0.127	1.179E-04
LDC_43	HORIZONTAL	591,478.98	4,137,928.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_44	HORIZONTAL	591,503.98	4,137,928.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_45	HORIZONTAL	591,528.98	4,137,928.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_46	HORIZONTAL	591,553.98	4,137,928.94	9.45	4.6	533	18	0.127	1.179E-04
LDC_47	HORIZONTAL	591,578.98	4,137,928.94	9.45	4.6	533	18	0.127	1.179E-04
LDC_48	HORIZONTAL	591,603.98	4,137,928.94	9.45	4.6	533	18	0.127	1.179E-04
LDC_49	HORIZONTAL	591,628.98	4,137,928.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_50	HORIZONTAL	591,653.98	4,137,928.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_51	HORIZONTAL	591,478.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_52	HORIZONTAL	591,503.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_53	HORIZONTAL	591,528.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_54	HORIZONTAL	591,553.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_55	HORIZONTAL	591,578.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_56	HORIZONTAL	591,603.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_57	HORIZONTAL	591,628.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04
LDC_58	HORIZONTAL	591,653.98	4,137,903.94	10.00	4.6	533	18	0.127	1.179E-04

Note:
[a] DPM emission rates taken from Appendix DR32-C, Table 1, assuming even distribution amongst the modeled sources within the construction area.

Appendix DR32-C, Table 3
Cancer Impacts due to Diesel Particulate Matter
EdgeCore LDC
Revised June 2019

Modeled Concentrations
Maximum annual impact of annualized project emissions

MEIR	0.00176	μg/m^3	Diesel PM
Sensitive	0.00416	μg/m^3	Diesel PM
MEIW	0.25853	μg/m^3	Diesel PM

Construction HRA per the 2015 OEHHA Guidance
Residential Calculation Procedure for Cancer Risks

MEIR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	6.10E-07	1.84E-06	1.84E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.26E-06	1.26E-06	1.26E-06	1.26E-06	1.26E-06	1.26E-06	1.26E-06	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07	5.66E-07
Risk	2.04E-08	2.46E-07	2.46E-07	4.94E-08	4.94E-08	4.94E-08	4.94E-08	4.94E-08	4.94E-08	4.27E-08	4.27E-08	4.27E-08	4.27E-08	4.27E-08	4.27E-08	4.27E-08	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09	6.49E-09
Rolling 2-yr Risk [a]			5.12E-07	2.95E-07	9.88E-08	9.88E-08	9.88E-08	9.88E-08	9.88E-08	9.21E-08	8.55E-08	8.55E-08	8.55E-08	8.55E-08	8.55E-08	8.55E-08	4.92E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08	1.30E-08
Risk per Million			0.51	0.30	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

MESR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	1.44E-06	4.35E-06	4.35E-06	3.44E-06	3.44E-06	3.44E-06	3.44E-06	3.44E-06	3.44E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06	2.98E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06	1.34E-06
Risk	4.81E-08	5.81E-07	5.81E-07	1.17E-07	1.17E-07	1.17E-07	1.17E-07	1.17E-07	1.17E-07	1.01E-07	1.01E-07	1.01E-07	1.01E-07	1.01E-07	1.01E-07	1.01E-07	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08	1.53E-08
Rolling 2-yr Risk [a]			1.21E-06	6.98E-07	2.33E-07	2.33E-07	2.33E-07	2.33E-07	2.33E-07	2.18E-07	2.02E-07	2.02E-07	2.02E-07	2.02E-07	2.02E-07	2.02E-07	1.16E-07	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08	3.07E-08
Risk per Million			1.21	0.70	0.23	0.23	0.23	0.23	0.23	0.22	0.20	0.20	0.20	0.20	0.20	0.20	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Worker Calculation Procedure for Cancer Risks

MEIW

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Dose (mg/kg/day)	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05
Risk	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07	6.35E-07
Rolling 2-yr Risk [a]		1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06	1.27E-06
Risk per Million		1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27

Note:
[a] Cancer risk was summed on a 2-year basis to conservatively mirror the duration of project construction (14 months).

Appendix DR32-C, Table 4
Chronic Impacts due to Diesel Particulate Matter
EdgeCore LDC
Revised June 2019

Construction HRA per the 2015 OEHHA Guidance
Calculation Procedure for Chronic Hazard Index

Receptor Type	Pollutant	Maximum Annual Modeled Concentration (μg/m³) [a]	REL (μg/m³) [b]	Chronic Hazard Index
MEIR	Diesel PM	0.00176	5	0.0004
MESR	Diesel PM	0.00416	5	0.0008
MEIW	Diesel PM	0.25853	5	0.0517

Notes:

[a] Maximum Annual Modeled Concentrations taken from Appendix DR32-C, Table 3.

[b] REL taken from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA & ARB, 2018).

Appendix DR32-C, Table 5
Residential Constants for Cancer Risk
EdgeCore LDC
Revised June 2019

Dose Constants

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
BR/BW	361	1090	1090	861	861	861	861	861	861	745	745	745	745	745	745	745	335	335	335	335	335	335	335	335	335	335	335	335	335	335	335
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Conversion	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Risk Constants

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	10	10	10	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ED	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
FAH	0.85	0.85	0.85	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73

Appendix DR32-C, Table 6
Worker Constants for Cancer Risk
EdgeCore LDC
Revised June 2019

Dose Constants

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
WAF [a]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BR/BW	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Conversion	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Risk Constants

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70

Notes:

[a] Conservatively assumes construction activities occur 24 hours per day, 7 days per week.

Appendix DR32-D: Operation Health Risk Assessment

Appendix DR32-D, Table 1
Emissions Inventory for the Operational HRA
EdgeCore LDC
Revised June 2019

Source ID	Modeled Emissions	Toxic Air Contaminants									
		Acetaldehye	Acrolein	Benzene	Diesel Particulate Matter [a]	Formaldehyde	Naphthalene	Propylene	Toluene	Total PAH	Xylenes
GEN_1	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_2	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_3	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_4	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_5	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_6	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_7	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_8	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_9	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_10	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_11	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_12	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_13	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_14	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_15	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_16	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_17	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03

Appendix DR32-D, Table 1
Emissions Inventory for the Operational HRA
EdgeCore LDC
Revised June 2019

Source ID	Modeled Emissions	Toxic Air Contaminants									
		Acetaldehye	Acrolein	Benzene	Diesel Particulate Matter [a]	Formaldehyde	Naphthalene	Propylene	Toluene	Total PAH	Xylenes
GEN_18	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_19	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_20	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_21	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_22	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_23	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_24	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_25	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_26	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_27	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_28	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_29	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_30	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_31	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_32	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_33	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_34	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03

Appendix DR32-D, Table 1
Emissions Inventory for the Operational HRA
EdgeCore LDC
Revised June 2019

Source ID	Modeled Emissions	Toxic Air Contaminants									
		Acetaldehye	Acrolein	Benzene	Diesel Particulate Matter [a]	Formaldehyde	Naphthalene	Propylene	Toluene	Total PAH	Xylenes
GEN_35	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_36	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_37	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_38	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_39	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_40	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_41	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_42	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_43	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_44	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_45	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_46	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_47	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_48	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_49	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_50	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_51	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03

Appendix DR32-D, Table 1
Emissions Inventory for the Operational HRA
EdgeCore LDC
Revised June 2019

Source ID	Modeled Emissions	Toxic Air Contaminants									
		Acetaldehye	Acrolein	Benzene	Diesel Particulate Matter [a]	Formaldehyde	Naphthalene	Propylene	Toluene	Total PAH	Xylenes
GEN_52	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_53	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_54	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_55	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03
GEN_56	Annual (lb/yr)	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
	Max Hourly (lb/hr)	7.45E-04	2.33E-04	2.29E-02	1.20E-01	2.33E-03	3.84E-03	8.25E-02	8.31E-03	6.27E-03	5.71E-03

Note:
[a] Only DPM was modeled for the annual scenario, per OEHHA Guidance (OEHHA, 2015).

Appendix DR32-D, Table 2
Detailed Facility-Wide Operational HRA Results
EdgeCore LDC
Revised June 2019

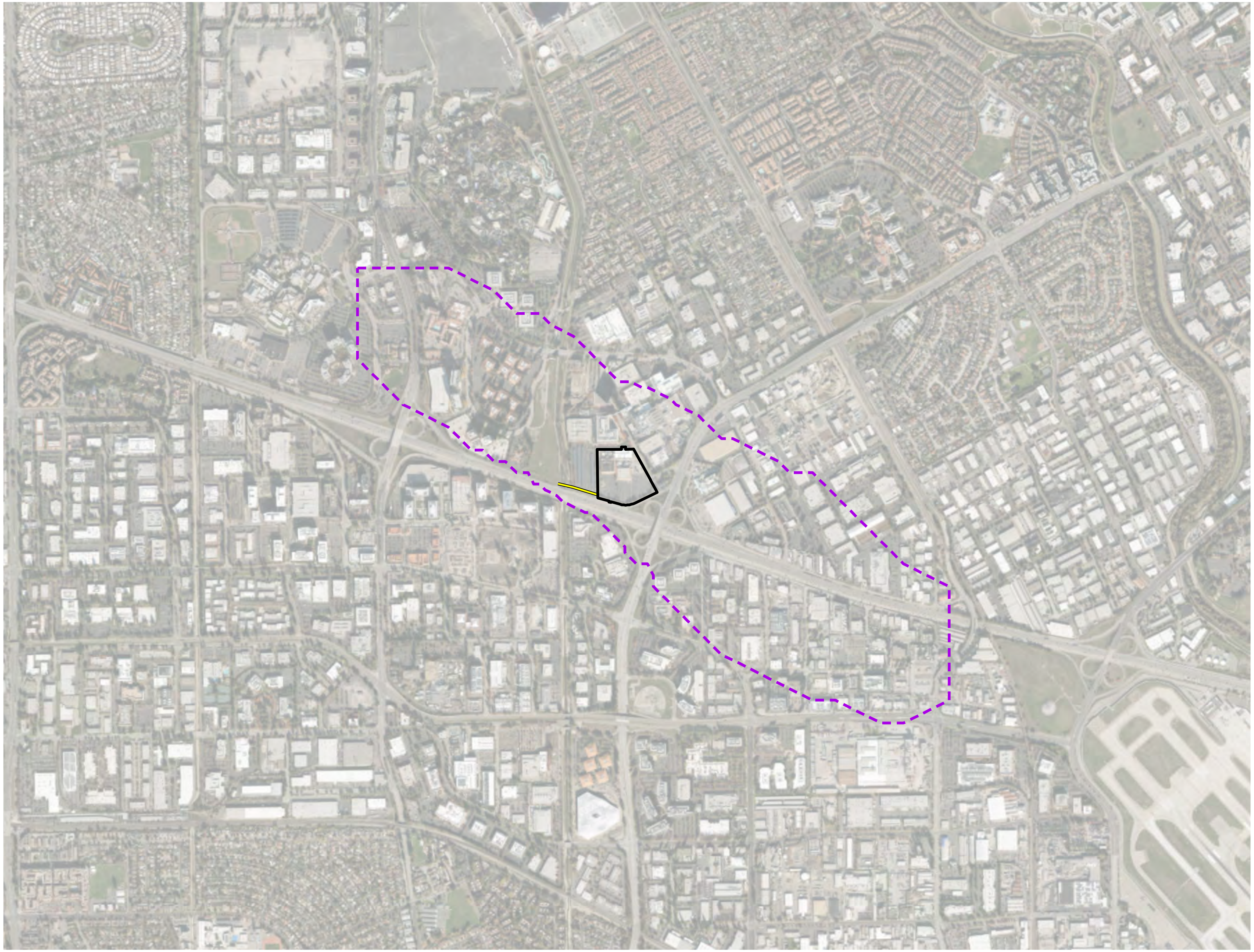
Receptor and Risk Type	Risk Value		Receptor Number	UTM Easting (m)	UTM Northing (m)	Receptor Description
MESR (Cancer, Residential Exposure)	1.068	(in 1 million)	2846	592,070	4,137,167	Granada Islamic Elementary School
MESR (Chronic)	2.87E-04		2846	592,070	4,137,167	Granada Islamic Elementary School
MESR (Acute)	0.043		2846	592,070	4,137,167	Granada Islamic Elementary School
MEIW (Cancer, Worker Exposure)	1.234	(in 1 million)	23	591,654	4,137,893	Point of Maximum Impact
MEIW (Chronic)	3.94E-03		23	591,654	4,137,893	Point of Maximum Impact
MEIW (Acute)	0.319		45	591,451	4,138,059	Point of Maximum Impact
MEIR (Cancer, Residential Exposure)	0.563	(in 1 million)	1875	591,400	4,138,900	Nearest, Highest Risk Receptor in a Residential Area
MEIR (Chronic)	1.51E-04		1875	591,400	4,138,900	Nearest, Highest Risk Receptor in a Residential Area
MEIR (Acute)	0.319		45	591,451	4,138,059	Point of Maximum Impact

Appendix DR32-D, Table 3
Detailed Single Unit Operational HRA Results
EdgeCore LDC
Revised June 2019

Receptor and Risk Type	Risk Value		Receptor Number	UTM Easting (m)	UTM Northing (m)	Receptor Description
MESR (Cancer, Residential Exposure)	0.018	(in 1 million)	2848	590,104	4,138,757	Mission Community College
MESR (Chronic)	4.90E-06		2848	590,104	4,138,757	Mission Community College
MESR (Acute)	0.001		2846	592,070	4,137,167	Granada Islamic Elementary School
MEIW (Cancer, Worker Exposure)	0.032	(in 1 million)	42	591,447	4,137,991	Point of Maximum Impact
MEIW (Chronic)	1.02E-04		42	591,447	4,137,991	Point of Maximum Impact
MEIW (Acute)	0.012		29	591,558	4,137,864	Point of Maximum Impact
MEIR (Cancer, Residential Exposure)	0.014	(in 1 million)	1875	591,400	4,138,900	Nearest, Highest Risk Receptor in a Residential Area
MEIR (Chronic)	3.82E-06		1875	591,400	4,138,900	Nearest, Highest Risk Receptor in a Residential Area
MEIR (Acute)	0.012		29	591,558	4,137,864	Point of Maximum Impact

Appendix DR32-D, Table 4
Sensitive Receptors
EdgeCore LDC
Revised June 2019

Receptor No.	UTM Easting (m)	UTM Northing (m)	Sensitive Receptor Description	Address
2843	590,723	4,136,052	Bracher Elementary	2700 Chromite Drive
2844	593,257	4,138,566	Montague Elementary	750 Laurie Avenue
2845	592,872	4,138,674	North Valley Baptist School	941 Clyde Avenue
2846	592,070	4,137,167	Granada Islamic Elementary School	3003 Scott Boulevard
2847	593,240	4,139,584	Don Callejon K-8 School	4176 Lick Mill Boulevard
2848	590,104	4,138,757	Mission Community College	3000 Mission Community College
2849	592,558	4,139,010	Agnews State Hospital	4000 Lafayette Street
2850	593,456	4,138,296	Golden State Baptist College	3520 De La Cruz Boulevard



Appendix **DR32-D**
Figure 1
Facility Residential Cancer Risk
Laurelwood Data Center
Santa Clara, California

JACOBS

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