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**SCAQMD Facility ID:
115394**

**CEC Docket Number:
13-AFC-01C**

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Air Quality Impact Analysis

Air Quality Impact Analysis

Prepared in Support of Petition for Post-Certification Amendment for Installation of Two Emergency Diesel-Fired Internal Combustion Engines

Prepared for:

AES Alamitos, LLC
690 N Studebaker Road
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December 2022

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Air Quality Impact Analysis

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1.0 INTRODUCTION

1.1 Project Overview

AES Alamitos, LLC (AES; CEC Docket Number: 13-AFC-01C) submitted applications for Permits to Construct (PTC) for two (2) emergency diesel-fired Internal Combustion Engines (ICE) to the South Coast Air Quality Management District (South Coast AQMD) on April 26, 2022. The South Coast AQMD issued the permits as Permits to Construct/Operate (PTC/O) in August 2022.

The Petition for Post-Certification Amendment (PTA) was submitted to the California Energy Commission (CEC) on August 27, 2022. Per South Coast AQMD Rule 1304(a)(4), certain emergency equipment is exempt from the modeling and offset provisions of Rule 1303. The South Coast AQMD did not require a demonstration that the engines would not cause a violation of, or make significantly worse an existing violation of, a state or federal Ambient Air Quality Standard (AAQS). On September 29, 2022, the CEC notified AES that, under the California Environmental Quality Act (CEQA), the CEC requires a demonstration that operation of the engines will not cause significant impacts and will comply with all applicable state and federal AAQS.

On behalf of AES, Yorke Engineering, LLC has prepared this Air Quality Impact Analysis (AQIA) in support of the PTA. As shown herein, operation of the engines is not expected to cause a violation of, or make significantly worse an existing violation of, a state or federal AAQS.

Emissions data is provided in Section 2.0; a discussion of dispersion modeling methodology is provided in Section 3.0; and a summary of the AQIA is provided in Section 4.0.

1.2 Facility Location

The facility is located at 690 North Studebaker Road in the City of Long Beach. The surrounding area consists of industrial and residential properties. The general facility location is shown in Figure 1-1; the locations of the engines with the facility are shown in Figure 1-2.

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Figure 1-1: Facility Location

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Figure 1-2: ICE Location

2.0 EMISSION AND AAQS INFORMATION

The emission sources proposed in the PTA are two emergency diesel-fired ICE, each driving a generator. Equipment information is provided in Table 2-1. Emission information is provided in Table 2-2. VOC is excluded from Table 2-2 since there are no AAQS for VOC.

The AQIA requires the evaluation of emissions over the averaging period that corresponds to each applicable state [California Ambient Air Quality Standard (CAAQS)] and federal [National Ambient Air Quality Standard (NAAQS)] AAQS. The CAAQS and NAAQS are shown in Table 2-3. AQIA emission rates are shown in Table 2-4.

Calculation spreadsheets are provided in Appendix A.

Table 2-1: Equipment Information

Parameter	Value
Engine Specification	
Manufacturer	Perkins
Model	2806C-E18TTAG7
Engine Family Name	NCPXL18.1NYS
Engine Output	1,112 bhp
Engine Tier	2
Diesel Particulate Filter (DPF) Specification	
Manufacturer	Miratech
Model	LTRV24-21-10-R1
Control Efficiency	85%

Table 2-2: Emission Information

Pollutant	Emission Rate (g/bhp-hr)	Emission Rate ¹ [Per Engine] (lb/hr)
NOx	3.84	9.405E+00
SOx	0.005 ²	1.225E-02
CO	0.16	3.919E-01
PM10 ³	0.003	7.348E-03
PM2.5 ³	0.003	7.348E-03

Notes:

1. Emission Rate (lb/hr) = Emission Rate (g/bhp-hr) x Engine Output (bhp) / 454.
2. Equivalent to 15 ppmw fuel sulfur content.
3. Controlled emissions, i.e., post-DPF. 0.02 g/bhp-hr x (1 – 85%) = 0.003 g/bhp-hr.

Table 2-3: Applicable CAAQS and NAAQS

Pollutant	Averaging Time	CAAQS ^a	NAAQS ^b
NO ₂	1-Hour	0.18 ppm	100 ppb ^c
	Annual	0.030 ppm	0.053 ppm
SO ₂	1-Hour	0.25 ppm	75 ppb ^d
	24-Hour	0.04 ppm	0.14 ppm
	Annual	--	0.030 ppm
CO	1-Hour	20 ppm	35 ppmv
	8-Hour	9.0 ppm	9 ppm
PM10	24-Hour	50 ug/m ³	150 ug/m ³ [e]
	Annual	20 ug/m ³	--
PM2.5	24-Hour	--	35 ug/m ³ [f]
	Annual	12 ug/m ³	12.0 ug/m ³ [g]

Notes:

- a. The CAAQS are values that are not to be exceeded.
- b. Except where indicated, the NAAQS are not to be exceeded more than once a year.
- c. To attain the 1-hour NAAQS, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb.
- d. To attain the 1-hour NAAQS, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb.
- e. To attain the 24-hour NAAQS, the expected number of days per calendar year with a 24-hour average concentration above 150 ug/m³ must be equal or less than one.
- f. To attain the 24-hour NAAQS, 98 percent of the daily concentrations, averaged over three years, must be equal to or less than 35 ug/m³.
- g. To attain the annual NAAQS, the annual mean, averaged over three years, must not exceed 12.0 ug/m³.

Table 2-4: AQIA Emission Rates

Pollutant	1-Hour Averaging Period		8-Hour Averaging Period		24-Hour Averaging Period		Annual Averaging Period	
	lb/hr ¹	g/s ²	lb/8-hr ³	g/s ⁴	lb/24-hr ⁵	g/s ⁶	lb/yr ⁷	g/s ⁸
NO2	9.405E+00	1.186E+00	--	--	--	--	4.703E+02	6.770E-03
SO2	1.225E-02	1.544E-03	--	--	2.939E-01	1.544E-03	6.123E-01	8.815E-06
CO	3.919E-01	4.942E-02	3.135E+00	4.942E-02	--	--	--	--
PM10	--	--	--	--	1.764E-01	9.267E-04	3.674E-01	5.289E-06
PM2.5	--	--	--	--	1.764E-01	9.267E-04	3.674E-01	5.289E-06

Notes:

1. 1-Hour Averaging Period (lb/hr) = Emission Rate (lb/hr)
2. 1-Hour Averaging Period (g/s) = 1-Hour Averaging Period (lb/hr) x 454 / 3,600
3. 8-Hour Averaging Period (lb/8-hr) = 1-Hour Averaging Period (lb/hr) x 8 Hours
4. 8-Hour Averaging Period (g/s) = 8-Hour Averaging Period (lb/8-hr) / 8 Hours x 454 / 3,600
5. 24-Hour Averaging Period (lb/24-hr) = 1-Hour Averaging Period (lb/hr) x 24 Hours
6. 24-Hour Averaging Period (g/s) = 24-Hour Averaging Period (lb/24-hr) / 24 Hours x 454 / 3,600
7. Annual Averaging Period (lb/yr) = 1-Hour Averaging Period (lb/hr) x 50 Hours [Annual Limit on Maintenance & Testing]
8. Annual Averaging Period (g/s) = Annual Averaging Period (lb/yr) / 8,760 Hours x 454 / 3,600

3.0 DISPERSION MODELING

Dispersion modeling was conducted to estimate engine impacts to ambient air. Dispersion modeling methodology is discussed in this section. Electronic files have been provided separately. Emission sources and buildings are shown in Figure 3-1. Receptors are shown in Figure 3-2.

3.1 Dispersion Model

The dispersion model used to prepare the AQIA is shown in Appendix B, Table B-1.

3.2 Engine Source Parameters

Engine source parameters are shown in Table 3-1.

Table 3-1: Engine Source Parameters

UTM E (m)	UTM N (m)	Stack Diameter (ft)	Release Height (ft)	Stack Temperature (Deg F)	Exhaust Flowrate (acf m)
West ICE					
398081.07	3736851.07	0.896	30	918	6,397
East ICE					
398158.02	3736904.55	0.896	30	918	6,397

3.3 Buildings

All significant buildings were included in the dispersion model for the purpose of estimating building downwash. Building downwash effects were assessed using the Building Profile Input Program for Prime (BPIPPRM).

3.4 Dispersion Modeling Methodology and Options/Assumptions

The AQIA was prepared from:

- A model setup that demonstrates compliance with the applicable CAAQS and NAAQS for all pollutants, except for the 1-hour CAAQS and NAAQS for NO₂ [Run A]; and
- A model setup that demonstrates compliance with the 1-hour CAAQS and NAAQS for NO₂ [Run B].

Runs A and B each contains an emission source for each engine at the corresponding emission rate from Table 2-4. Emission sources are summarized in Table 3-2. The emission sources from each row of Table 3-2 are assigned to a source group for the AQIA for each pollutant/averaging period.

Table 3-2: Model Emission Sources

Run	Pollutant / Averaging Period	West ICE Source ID	East ICE Source ID	Emission Rate per Source (g/s)
A	NO ₂ / Annual	ICEWNO2	ICEENO2	6.770E-03
A	SO ₂ / 1-Hour, 24-Hour	ICEWSO2	ICEESO2	1.544E-03

Run	Pollutant / Averaging Period	West ICE Source ID	East ICE Source ID	Emission Rate per Source (g/s)
A	SO2 / Annual	ICEWSO2A	ICEESO2A	8.815E-06
A	CO / 1-Hour, 8-Hour	ICEWCO	ICEECO	4.942E-02
A	PM10, PM2.5 / 24-Hour	ICEWPM24	ICEEPM24	9.267E-04
A	PM10, PM2.5 / Annual	ICEWPMA	ICEEPMA	5.289E-06
B	NO2 / 1-Hour	ICEWNO21	ICEENO21	1.186E+00

Run A assumes that all NOx is converted to NO2. Run B includes the NOx to NO2 conversion options described in Section 3.5. Dispersion model options/assumptions for Run A and Run B are shown in Appendix B, Table B-2 and Appendix B, Table B-3, respectively.

3.5 NOx to NO2 Conversion

Run B includes the Tier 3 Plume Volume Molar Ratio Method (PVMRM) option for conversion of NOx to NO2. The PVMRM option requires values for two parameters: (1) the Equilibrium NO2/NOx Ratio; and (2) the In-Stack NO2/NOx Ratio. The recommended defaults for these two parameters are 0.9 and 0.5, respectively. The United States Environmental Protection Agency (U.S. EPA) maintains a file¹ with In-Stack NO2/NOx Ratios for certain equipment/fuel combinations. Based on review of the U.S. EPA file, Run B uses a value of 0.1 for the In-Stack NO2/NOx Ratio.

Additionally, the PVMRM option requires background ozone data over the period of the meteorological data. Ozone data was downloaded for 2012², 2013³, 2014⁴, 2015⁵, and 2016⁶ from the U.S. EPA website. Data was selected as the maximum for ‘State Code’ = 6; ‘County Code’ = 37; and ‘Site Num’ = 4002 or 4006, for each hour of data. Missing hours were filled-in with a conservative value of 105 ppb.

¹ https://www.epa.gov/sites/production/files/2020-11/no2_isr_database.xlsx

² https://aqs.epa.gov/aqswab/airdata/daily_44201_2012.zip

³ https://aqs.epa.gov/aqswab/airdata/daily_44201_2013.zip

⁴ https://aqs.epa.gov/aqswab/airdata/daily_44201_2014.zip

⁵ https://aqs.epa.gov/aqswab/airdata/daily_44201_2015.zip

⁶ https://aqs.epa.gov/aqswab/airdata/daily_44201_2016.zip

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Figure 3-1: Emission Sources and Buildings

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Figure 3-2: Ambient Air Receptors

4.0 AIR QUALITY IMPACT ANALYSIS

The AQIA is summarized in Table 4-1. Calculation details and background data are provided in Appendix C.

As shown in Table 4-1, operation of the engines is not expected to cause a violation of, or make significantly worse an existing violation of, a state of federal AAQS.

Table 4-1: AQIA Summary

Pollutant	Averaging Period	Maximum Predicted Impacts	Background Concentration	Total Concentration	CAAQS	NAAQS	Rule 1303 Significant Change Threshold
NO2	1-Hour	69.63 ppb	85.3 ppb	154.9 ppb	180 ppb	--	--
	1-Hour Federal	39.70 ppb	58.4 ppb	98.1 ppb	--	100 ppb	--
	Annual	0.05 ppb	17.3 ppb	17.3 ppb	30 ppb	53 ppb	--
SO2	1-Hour	0.11 ppb	10.5 ppb	10.6 ppb	250 ppb	--	--
	1-Hour Federal	0.11 ppb	8.8 ppb	8.9 ppb	--	75 ppb	--
	24-Hour	0.04 ppb	2.2 ppb	2.2 ppb	40 ppb	140 ppb	--
	Annual	4.20E-05 ppb	0.7 ppb	0.7 ppb	--	30 ppb	--
CO	1-Hour	7.75E-03 ppm	4.7 ppm	4.7 ppm	20 ppm	35 ppm	--
	8-Hour	5.29E-03 ppm	2.1 ppm	2.1 ppm	9 ppm	9 ppm	--
PM10	24-Hour	0.06 ug/m ³	84 ug/m ³	84.1 ug/m ³	50 ug/m ³	150 ug/m ³	2.5 ug/m ³
	Annual	7.00E-05 ug/m ³	32.3 ug/m ³	32.3 ug/m ³	20 ug/m ³	--	1 ug/m ³
PM2.5	24-Hour	0.06 ug/m ³	26.30 ug/m ³	26.36 ug/m ³	--	35 ug/m ³	--
	Annual	7.00E-05 ug/m ³	11.38 ug/m ³	11.38 ug/m ³	12 ug/m ³	--	--
	Annual Federal	6.00E-05 ug/m ³	10.58 ug/m ³	10.58 ug/m ³	--	12	--

PM10 background concentrations exceed the CAAQS. Maximum Predicted Impacts are less than the Rule 1303 Significant Change Thresholds. For all other CAAQS and NAAQS, Maximum Predicted Impacts + Background Concentration does not exceed the applicable AAQS.

APPENDIX A – EMISSION CALCULATIONS

Facility: AES Alamitos, LLC
CEC Docket No: 13-AFC-01C

AES Alamitos, LLC

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Air Quality Impact Analysis Appendix A

Table A-1 Emission Rates

Engine Rating (bhp)	NOx		SOx		CO		PM10		PM2.5	
	Emission Rate (g/bhp-hr)	Emission Rate ¹ (lb/hr)	Emission Rate ² (g/bhp-hr)	Emission Rate ¹ (lb/hr)	Emission Rate (g/bhp-hr)	Emission Rate ¹ (lb/hr)	Emission Rate ³ (g/bhp-hr)	Emission Rate ¹ (lb/hr)	Emission Rate ³ (g/bhp-hr)	Emission Rate ¹ (lb/hr)
1,112	3.84	9.405E+00	0.005	1.225E-02	0.16	3.919E-01	0.003	7.348E-03	0.003	7.348E-03

¹ Emission Rate (lb/hr) = Emission Rate (g/bhp-hr) x Engine Rating (bhp) / 454

² Equivalent to 15 ppmw fuel sulfur content

³ Controlled emissions, i.e., post-DPF. 0.02 g/bhp-hr x (1 - 85%) = 0.003 g/bhp-hr

Table A-2

AQIA Emission Rates

Pollutant	1-Hour Averaging Period		8-Hour Averaging Period		24-Hour Averaging Period		Annual Averaging Period	
	lb/hr ¹	g/s ²	lb/8-hr ³	g/s ⁴	lb/24-hr ⁵	g/s ⁶	lb/yr ⁷	g/s ⁸
NO2	9.405E+00	1.186E+00	--	--	--	--	4.703E+02	6.770E-03
SO2	1.225E-02	1.544E-03	--	--	2.939E-01	1.544E-03	6.123E-01	8.815E-06
CO	3.919E-01	4.942E-02	3.135E+00	4.942E-02	--	--	--	--
PM10	--	--	--	--	1.764E-01	9.267E-04	3.674E-01	5.289E-06
PM2.5	--	--	--	--	1.764E-01	9.267E-04	3.674E-01	5.289E-06

¹ 1-Hour Averaging Period (lb/hr) = Emission Rate (lb/hr)

² 1-Hour Averaging Period (g/s) = 1-Hour Averaging Period (lb/hr) x 454 / 3,600

³ 8-Hour Averaging Period (lb/8-hr) = 1-Hour Averaging Period (lb/hr) x 8 Hours

⁴ 8-Hour Averaging Period (g/s) = 8-Hour Averaging Period (lb/8-hr) / 8 Hours x 454 / 3,600

⁵ 24-Hour Averaging Period (lb/24-hr) = 1-Hour Averaging Period (lb/hr) x 24 Hours

⁶ 24-Hour Averaging Period (g/s) = 24-Hour Averaging Period (lb/24-hr) / 24 Hours x 454 / 3,600

⁷ Annual Averaging Period (lb/yr) = 1-Hour Averaging Period (lb/hr) x Annual Maintenance & Testing Hours

Annual Maintenance & Testing Hours **50**

⁸ Annual Averaging Period (g/s) = Annual Averaging Period (lb/yr) / 8,760 Hours x 454 / 3,600

APPENDIX B – MODEL OPTIONS

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Appendix B

Table B-1 Models

Dispersion Modeling
AERMOD v 22112
AERMET v 16216
AERMAP v 18081
Software Interface: Lakes Environmental Software; AERMOD View™, Version 11.2.0

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Appendix B

Table B-2 Dispersion Model Options/Assumptions for Run A

Parameter	Value				Comments	
Control Pathway						
Regulatory Options	Default	<input checked="" type="checkbox"/>	Non-Default	<input type="checkbox"/>	--	
Output Type	Concentration	<input checked="" type="checkbox"/>	Dry Deposition	<input type="checkbox"/>	--	
	Total Deposition	<input type="checkbox"/>	Wet Deposition	<input type="checkbox"/>		
Depletion Options	Dry Depletion	<input type="checkbox"/>	Wet Depletion	<input type="checkbox"/>	--	
	Disable Dry Depletion	<input type="checkbox"/>	Disable Wet Depletion	<input type="checkbox"/>		
Pollutant	Other				--	
Averaging Time Options	1-Hour (H1H); 8-Hour (H1H); 24-Hour (H1H); Annual (Avg)				Model output also includes the max annual average for each MET year.	
Dispersion Coefficient	Rural	<input type="checkbox"/>	Urban	<input checked="" type="checkbox"/>	Per current South Coast AQMD guidance, urban is the default, and the default urban area population for projects in Los Angeles County is 9,818,605 persons. The project includes a single urban source group that includes all emission sources.	
Terrain Height Options	Elevated <input checked="" type="checkbox"/>				--	
	Non-Default Regulatory Options					
Receptor Elevations / Hill Heights	Flat	<input type="checkbox"/>	Flat & Elevated	<input type="checkbox"/>	--	
Source Pathway						
Building Downwash	Include	<input checked="" type="checkbox"/>	Exclude	<input type="checkbox"/>	--	
Background Concentrations	Include	<input type="checkbox"/>	Exclude	<input checked="" type="checkbox"/>	This project does not consider background concentrations.	
Source Groups	NO2ANN	Includes: ICEWNO2, ICEENO2			--	
	SO2124	Includes: ICEWSO2, ICEESO2				
	SO2ANN	Includes: ICEWSO2A, ICEESO2A				
	CO18	Includes: ICEWC0, ICEECO				
	PM24	Includes: ICEWP24, ICEEPM24				
	PMANN	Includes: ICEWPMA, ICEEPMA				
Urban Groups	--					
Variable Emissions	N/A					

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Appendix B

Table B-2 Dispersion Model Options/Assumptions for Run A

Parameter	Value			Comments
Receptor Pathway				
Flagpole Receptors	Include <input type="checkbox"/>	Exclude <input checked="" type="checkbox"/>		Per current South Coast AQMD guidance, all receptors should be set to ground-level.
Multi-Tier Receptor Grid				
	Grid Origin: Centroid of Sources Polygon			
	Tier	Distance from Center (m)	Tier Spacing (m)	--
	1	300	20	
	2	1,000	50	
	3	2,000	100	
Plant Boundary	Receptor Spacing: 20 m			The facility encompasses an area on the order of 70 acres. Primary boundary receptors are located at the vertices. Current South Coast AQMD guidance allows 75 meter receptor spacing for facilities with total area greater than or equal to 25 acres and less than 100 acres. Intermediate boundary receptors are conservatively located every 20 meters along the facility boundary. Onsite gridded receptors are disabled.
Meteorology Pathway				
Meteorological Data	Station: Long Beach Airport Years: 2012, 2013, 2014, 2015, 2016 Base Elevation of Surface Station: 10 m			Meteorological data downloaded from the South Coast AQMD website.
Terrain Pathway				
Data File	USGS_NED_13_n34w119.tif			NED GEOTIFF Digital Terrain Files. Resolution: 1/3-arcsecond (10 meters).
AERMAP Domain Options	Not Specified <input type="checkbox"/>	User-Defined Domain <input checked="" type="checkbox"/>		Elevations and hill heights are calculated from a region measuring 10,000 meters by 10,000 meters centered on the facility.

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Appendix B

Table B-3 Dispersion Model Options/Assumptions for Run B

Parameter	Value				Comments	
Control Pathway						
Regulatory Options	Default	<input checked="" type="checkbox"/>	Non-Default	<input type="checkbox"/>	--	
Output Type	Concentration	<input checked="" type="checkbox"/>	Dry Deposition	<input type="checkbox"/>	--	
	Total Deposition	<input type="checkbox"/>	Wet Deposition	<input type="checkbox"/>		
Depletion Options	Dry Depletion	<input type="checkbox"/>	Wet Depletion	<input type="checkbox"/>	--	
	Disable Dry Depletion	<input type="checkbox"/>	Disable Wet Depletion	<input type="checkbox"/>		
Pollutant	NO2; NAAQS Processing				--	
Averaging Time Options	1-Hour				--	
Dispersion Coefficient	Rural	<input type="checkbox"/>	Urban	<input checked="" type="checkbox"/>	Per current South Coast AQMD guidance, urban is the default, and the default urban area population for projects in Los Angeles County is 9,818,605 persons. The project includes a single urban source group that includes all emission sources.	
Terrain Height Options	Elevated <input checked="" type="checkbox"/>				--	
	Non-Default Regulatory Options					
	Flat	<input type="checkbox"/>	Flat & Elevated	<input type="checkbox"/>		
Receptor Elevations / Hill Heights	Run AERMOD using the AERMAP Receptor Output file (*.ROU)				--	
Source Pathway						
Building Downwash	Include	<input checked="" type="checkbox"/>	Exclude	<input type="checkbox"/>	--	
Background Concentrations	Include	<input type="checkbox"/>	Exclude	<input checked="" type="checkbox"/>	This project does not consider background concentrations.	
Source Groups	NO21	Includes: ICEWNO21, ICEENO21			--	
Urban Groups	--	Run B includes a single urban source group that includes all emission source				
Variable Emissions	Hour 0 (0000-0059)	0	Hour 1 (0100-0159)	0	Run B assumes the engines may be tested between 6am and 4pm.	
	Hour 2 (0200-0259)	0	Hour 3 (0300-0359)	0		
	Hour 4 (0400-0459)	0	Hour 5 (0500-0559)	0		
	Hour 6 (0600-0659)	1	Hour 7 (0700-0759)	1		
	Hour 8 (0800-0859)	1	Hour 9 (0900-0959)	1		
	Hour 10 (1000-1059)	1	Hour 11 (1100-1159)	1		
	Hour 12 (1200-1259)	1	Hour 13 (1300-1359)	1		
	Hour 14 (1400-1459)	1	Hour 15 (1500-1559)	1		
	Hour 16 (1600-1659)	0	Hour 17 (1700-1759)	0		
	Hour 18 (1800-1859)	0	Hour 19 (1900-1959)	0		
	Hour 20 (2000-2059)	0	Hour 21 (2100-2159)	0		
	Hour 22 (2200-2259)	0	Hour 23 (2300-2359)	0		

Facility: AES Alamitos, LLC
CEC Docket No: 13-AFC-01C

AES Alamitos, LLC

Petition for Post-Certification Amendment | Installation of Two Emergency Diesel-Fired Internal Combustion Engines

Air Quality Impact Analysis

Appendix B

Table B-3 Dispersion Model Options/Assumptions for Run B

Parameter	Value			Comments
Receptor Pathway				
Flagpole Receptors	Include <input type="checkbox"/>	Exclude <input checked="" type="checkbox"/>		Per current South Coast AQMD guidance, all receptors should be set to ground-level.
Multi-Tier Receptor Grid				
	Grid Origin: Centroid of Sources Polygon			
	Tier	Distance from Center (m)	Tier Spacing (m)	--
	1	300	20	
	2	1,000	50	
	3	2,000	100	
Plant Boundary	Receptor Spacing: 20 m			The facility encompasses an area on the order of 70 acres. Primary boundary receptors are located at the vertices. Current South Coast AQMD guidance allows 75 meter receptor spacing for facilities with total area greater than or equal to 25 acres and less than 100 acres. Intermediate boundary receptors are conservatively located every 20 meters along the facility boundary. Onsite gridded receptors are disabled.
Meteorology Pathway				
Meteorological Data	Station: Long Beach Airport Years: 2012, 2013, 2014, 2015, 2016 Base Elevation of Surface Station: 10 m			Meteorological data downloaded from the South Coast AQMD website.
Terrain Pathway				
Data File	USGS_NED_13_n34w119.tif			NED GEOTIFF Digital Terrain Files. Resolution: 1/3-arcsecond (10 meters).
AERMAP Domain Options	Not Specified <input type="checkbox"/>	User-Defined Domain <input checked="" type="checkbox"/>		Elevations and hill heights are calculated from a region measuring 10,000 meters by 10,000 meters centered on the facility.

APPENDIX C – AQIA AND BACKGROUND DATA

Facility: AES Alamitos, LLC
CEC Docket No: 13-AFC-01C

AES Alamitos, LLC

Petition for Post Certification Amendment | Installation of Two Emergency Diesel-Fired Internal Combustion Engines

Air Quality Impact Analysis Appendix C

Table C-1 AQIA

Standard	Background Data Source	2018	2019	2020	Background Concentration (Conc. Units)	Modeled Concentration (ug/m³)	Modeled Concentration (Conc. Units)	Bkg. + Modeled Concentration (Conc. Units)	Ambient Air Quality Standard (Conc. Units)	Rule 1303 Significant Change Threshold (Conc. Units)	Result
NO2; Concentration Units = ppb											
California 1-Hr	SCAQMD; 33 (2018, 2019); 39 (2020)	85.3	71.8	75.3	85.3	1.31E+02	69.63	154.9	180	--	Bkg. + Modeled Concentration < AAQS
Federal 1-Hr	SCAQMD; 33 (2018, 2019); 39 (2020)	62.7	56.3	56.3	58.4	7.47E+01	39.70	98.1	100	--	Bkg. + Modeled Concentration < AAQS
California Annual	SCAQMD; 33 (2018, 2019); 39 (2020)	17.3	16.2	12.8	17.3	8.50E-02	0.05	17.3	30	--	Bkg. + Modeled Concentration < AAQS
Federal Annual	SCAQMD; 33 (2018, 2019); 39 (2020)	17.3	16.2	12.8	17.3	8.50E-02	0.05	17.3	53	--	Bkg. + Modeled Concentration < AAQS
SO2; Concentration Units = ppb											
California 1-Hr	SCAQMD; 33	10.5	8.9	9.4 (No Data)	10.5	2.77E-01	0.11	10.6	250	--	Bkg. + Modeled Concentration < AAQS
Federal 1-Hr	SCAQMD; 33	9.4	7.7	9.4	8.8	2.77E-01	0.11	8.9	75	--	Bkg. + Modeled Concentration < AAQS
California 24-Hr	EPA; Site ID 060374006	2	2.2	No Data	2.2	9.50E-02	0.04	2.2	40	--	Bkg. + Modeled Concentration < AAQS
Federal 24-Hr	EPA; Site ID 060374006	2	2.2	No Data	2.2	9.50E-02	0.04	2.2	140	--	Bkg. + Modeled Concentration < AAQS
Federal Annual	EPA; Site ID 060374006	0.7	0.45	No Data	0.7	1.10E-04	4.20E-05	0.7	30	--	Bkg. + Modeled Concentration < AAQS
CO; Concentration Units = ppm											
California 1-Hr	SCAQMD; 33	4.7	3.0	Not Available	4.7	8.88E+00	7.75E-03	4.7	20	--	Bkg. + Modeled Concentration < AAQS
Federal 1-Hr	SCAQMD; 33	4.7	3.0	Not Available	4.7	8.88E+00	7.75E-03	4.7	35	--	Bkg. + Modeled Concentration < AAQS
California 8-Hr	SCAQMD; 33	2.1	2.1	Not Available	2.1	6.06E+00	5.29E-03	2.1	9	--	Bkg. + Modeled Concentration < AAQS
Federal 8-Hr	SCAQMD; 33	2.1	2.1	Not Available	2.1	6.06E+00	5.29E-03	2.1	9	--	Bkg. + Modeled Concentration < AAQS
PM10; Concentration Units = ug/m³											
California 24-Hr	SCAQMD; 33	84	74	54	84	5.70E-02	0.06	Background > Standard	50	2.5	Bkg. + Modeled Concentration < R1303 Threshold
Federal 24-Hr	SCAQMD; 33	84	74	54	84	5.70E-02	0.06	84.1	150	--	Bkg. + Modeled Concentration < AAQS
California Annual	SCAQMD; 33	32.3	26.9	27.8	32.3	7.00E-05	7.00E-05	Background > Standard	20	1	Bkg. + Modeled Concentration < R1303 Threshold
PM2.5; Concentration Units = ug/m³											
Federal 24-Hr	SCAQMD; 77	27.70	23.20	28.00	26.30	5.70E-02	0.06	26.36	35	--	Bkg. + Modeled Concentration < AAQS
California Annual	SCAQMD; 77	11.15	9.22	11.38	11.38	7.00E-05	7.00E-05	11.38	12	--	Bkg. + Modeled Concentration < AAQS
Federal Annual	SCAQMD; 77	11.15	9.22	11.38	10.58	6.00E-05	6.00E-05	10.58	12	--	Bkg. + Modeled Concentration < AAQS

C (ppb) = C (ug/m³) x 24.45 / MW

C (ppm) = C (ug/m³) x 0.02445 / MW

MW NO2 46

MW SO2 64

MW CO 28

'SCAQMD' data from the District's historical Air Quality Data Tables.

<http://www.aqmd.gov/home/air-quality/historical-air-quality-data/historical-data-by-year>

'EPA' data from EPA's Monitor Values Report.

<https://www.epa.gov/outdoor-air-quality-data/monitor-values-report>

2018 AIR QUALITY MANAGEMENT DISTRICT

Carbon Monoxide ^{a)}		Ozone ^{b)}		Nitrogen Dioxide ^{c)}		Sulfur Dioxide ^{d)}	
Source/Receptor Area No.	Location	Station No.	Days of Data	Max Conc. in ppm	Max Conc. in ppm	Max Conc. in ppm	Max Conc. in ppm
		Station No.	Days of Data	1-hour	8-hour	1-hour	8-hour
LOS ANGELES COUNTY							
1	Central LA	087	365	2.0	1.7	359	0.098
2	Northwest Coastal LA County	091	359	1.6	1.3	364	0.094
3	Southwest Coastal LA County	820	342	1.8	1.5	365	0.074
4	South Coastal LA County 1	072	--	--	--	--	0.065
4	South Coastal LA County 2	077	--	--	--	--	0.060
4	South Coastal LA County 3	033	364	4.7	2.1	363	0.074
4	I-710 Near Road##	032	--	--	--	--	0.063
6	West San Fernando Valley	074	359	3.4	2.1	362	0.120
8	West San Gabriel Valley	088	365	2.0	1.4	365	0.112
9	East San Gabriel Valley 1	060	365	1.4	1.0	364	0.139
9	East San Gabriel Valley 2	591	365	1.0	0.8	365	0.140
10	Pomona/Walnut Valley	075	365	2.1	1.8	362	0.112
11	South San Gabriel Valley	085	344	2.0	1.8	352	0.115
12	South Central LA County	112	357	4.7	3.5	365	0.075
13	Santa Clarita Valley	090	365	1.0	0.8	365	0.132
ORANGE COUNTY							
16	North Orange County	3177	365	3.0	1.4	365	0.111
17	Central Orange County	3176	358	2.3	1.9	365	0.112
17	I-5 Near Road##	3131	320	2.7	2.2	365	0.071
18	North Coastal Orange County	3195	--	--	--	--	0.065
19	Saddleback Valley	3812	300	1.2	0.9	365	0.121
RIVERSIDE COUNTY							
22	Corona/Norco Area	4155	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	365	2.2	2.0	365	0.123
23	Metropolitan Riverside County 3	4165	358	2.6	2.4	355	0.129
24	Perris Valley	4149	--	--	--	365	0.107
25	Lake Elsinore	4158	361	1.1	0.8	365	0.116
26	Temecula Valley	4031	--	--	--	363	0.107
29	San Gorgonio Pass	4164	--	--	--	363	0.085
30	Cochella Valley 1**	4137	349	1.1	0.8	362	0.111
30	Cochella Valley 2**	4157	--	--	--	359	0.099
30	Cochella Valley 3**	4032	--	--	--	360	0.091
SAN BERNARDINO COUNTY							
32	Northwest San Bernardino Valley	5175	365	1.7	1.2	363	0.133
33	I-10 Near Road##	5035	339	1.6	1.3	363	0.111
33	CA-60 Near Road##	5036	--	--	--	--	0.106
34	Central San Bernardino Valley 1	5197	365	1.9	1.1	365	0.141
34	Central San Bernardino Valley 2	5203	362	2.7	2.5	362	0.138
35	East San Bernardino Valley	5204	--	--	--	365	0.136
37	Central San Bernardino Mountains	5181	--	--	--	362	0.142
38	East San Bernardino Mountains	5818	--	--	--	362	0.125
DISTRICT MAXIMUM		4.7	3.5	0.142	0.125	0.111	7
SOUTH COAST AIR BASIN		4.7	3.5	0.142	0.125	0.111	10
** Salton Sea Air Basin -- Pollutant not monitored							
AAM = Annual Arithmetic Mean ## Four near-road sites measuring one or more of the pollutants PM _{2.5} , CO and/or NO ₂ are operating near freeways; I-5, I-10, I-710 and CA-60.							
a) - The federal and state 8-hour CO standards (9 ppm and 9.0 ppm) and the federal and state 1-hour CO standards (35 ppm and 20 ppm) were not exceeded.							
b) - The current (2015) O ₃ federal standard was revised effective December 28, 2015.							
c) - The NO ₂ federal 1-hour standard is 100 ppb and the federal annual standard is 53.4 ppb. The state 1-hour and annual standards are 0.18 ppm and 0.030 ppm, respectively.							
d) - The federal SO ₂ 1-hour standard is 75 ppb (0.075 ppm). The state 1-hour SO standard is 0.25 ppm (250 ppb) and the state 24-hour SO ₂ standard is 0.04 ppm (40 ppb).							

For information on the current standard levels and most recent revisions please refer to "Appendix II – Current Air Quality" of the "2016 AQMP" which can be accessed at <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final2016-aqmp>. Maps showing the source/receptor area boundaries can be accessed via the Internet by entering your address in the South Coast AQMD Current Hourly Air Quality Map at <https://www.aqmd.gov/aqmap>. A printed map or copy of the AQMP Appendix II is also available free of charge from the South Coast AQMD Public Information Center at 1-800-CUT-SMOG..



South Coast

Air Quality Management District

2185 Copley Drive

Diamond Bar, CA 91765-4182

www.aqmd.gov

Monitor Values Report

Geographic Area: Los Angeles-Long Beach-Anaheim, CA

Pollutant: SO₂

Year: 2018

Exceptional Events: Included (if any)

Note: The * indicates the mean does not satisfy minimum data completeness criteria.

Obs 1hr	First Max 1hr	Second Max 1hr	99th Percentile	Obs 24hr	First Max 24hr	Second Max 24hr	Days >STD	Annual Mean	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
8392	17.9	2.9	3	350	1.3	1	0	0.34	None	9	060371103	1630 N Main St, Los Angeles	Los Angeles	Los Angeles	CA	09
8634	10.5	9.9	9	359	2	2	0	0.7	None	1	060374006	2425 Webster St., Long Beach, Ca	Long Beach	Los Angeles	CA	09
8580	11.5	5.8	5	358	2	1.3	0	0.51	None	1	060375005	7201 W. Westchester Parkway	Los Angeles	Los Angeles	CA	09

Get detailed information about this report, including column descriptions, at <https://www.epa.gov/outdoor-air-quality-data/about-air-data-reports#mon>

AirData reports are produced from a direct query of the AQS Data Mart. The data represent the best and most recent information available to EPA from state agencies. However, some values may be absent due to incomplete reporting, and some values may change due to quality assurance activities. The AQS database is updated by state, local, and tribal organizations who own and submit the data.

Readers are cautioned not to rank order geographic areas based on AirData reports. Air pollution levels measured at a particular monitoring site are not necessarily representative of the air quality for an entire county or urban area.

This report is based on monitor-level summary statistics. Air quality standards for some pollutants (PM2.5 and Pb) allow for combining data from multiple monitors into a site-level summary statistic that can be compared to the standard. In those cases, the site-level statistics may differ from the monitor-level statistics upon which this report is based.

Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>
Generated: October 18, 2022

Monitor Values Report

Geographic Area: Los Angeles-Long Beach-Anaheim, CA

Pollutant: SO₂

Year: 2019

Exceptional Events: Included (if any)

Note: The * indicates the mean does not satisfy minimum data completeness criteria.

Obs 1hr	First Max 1hr	Second Max 1hr	99th Percentile	Obs 24hr	First Max 24hr	Second Max 24hr	Days >STD	Annual Mean	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
8621	10	2.8	2	361	1.4	1.1	0	0.33	None	9	060371103	1630 N Main St, Los Angeles	Los Angeles	Los Angeles	CA	09
8094	8.9	8.7	8	339	2.2	2.1	0	0.45	None	1	060374006	2425 Webster St., Long Beach, Ca	Long Beach	Los Angeles	CA	09
8625	8.2	5.5	4	360	1.1	1.1	0	0.29	None	1	060375005	7201 W. Westchester Parkway	Los Angeles	Los Angeles	CA	09

Get detailed information about this report, including column descriptions, at <https://www.epa.gov/outdoor-air-quality-data/about-air-data-reports#mon>

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Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>
Generated: October 18, 2022

Monitor Values Report

Geographic Area: Los Angeles-Long Beach-Anaheim, CA

Pollutant: SO₂

Year: 2020

Exceptional Events: Included (if any)

Note: The * indicates the mean does not satisfy minimum data completeness criteria.

Obs 1hr	First Max 1hr	Second Max 1hr	99th Percentile	Obs 24hr	First Max 24hr	Second Max 24hr	Days >STD	Annual Mean	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
7920	3.8	3.7	3	333	0.9	0.8	0	0.23*	None	9	060371103	1630 N Main St, Los Angeles	Los Angeles	Los Angeles	CA	09
8612	6	4.9	3	361	1.2	0.9	0	0.31	None	1	060375005	7201 W. Westchester Parkway	Los Angeles	Los Angeles	CA	09

Get detailed information about this report, including column descriptions, at <https://www.epa.gov/outdoor-air-quality-data/about-air-data-reports#mon>

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Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>
Generated: October 18, 2022