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Huntington Beach Energy Project

(12-AFC-02)

Resubmission of Data Response, Set 4

(Updated Response to Data Request 104 [Air Quality])

Submitted to
California Energy Commission

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Contents

Section	Page
Introduction	1
Air Quality (104).....	2

Tables

DR104-11	Maximum Modeled PM Impacts from Construction and the Ambient Air Quality Standards
DR104-12	Estimate of Street Sweeping Miles
DR104-13	Maximum Modeled PM Impacts from Block 1 Operation with Construction of Block 2 and the Ambient Air Quality Standards
DR104-14	Maximum Modeled PM Impacts from HBEP Operation with Demolition of Units 1 and 2 and the Ambient Air Quality Standards
DR104-15	Maximum Modeled PM Impacts from HBEP Construction and Demolition of Units 3 and 4 and the Ambient Air Quality Standards

Attachments

DR104-5R2	Revised Appendix 5.1A, Construction Emission Calculations
DR104-6	Supporting Documentation for Analysis of PM Impacts from Construction
DR104-7	Supporting Documentation for Analysis of PM Impacts from Block 1 Operation with Construction of Block 2
DR104-8	Supporting Documentation for Analysis of PM Impacts from HBEP Operation with Demolition of Units 1 and 2
DR104-9	Supporting Documentation for Analysis of PM Impacts from HBEP Construction and Demolition of Units 3 and 4

Introduction

Attached is AES Southland Development, LLC's (AES or the Applicant) updated response to the California Energy Commission (CEC) Staff's Data Request, Set 4 (Air Quality, request 104) regarding the Huntington Beach Energy Project (HBEP) (12-AFC-02) Application for Certification (AFC).

The response is keyed to the Data Request number. New or revised tables are numbered in reference to the Data Request number and sequentially from the first Data Request submission. For example, the first table used in response to Data Request 104 would be numbered Table DR104-1, but a new table used in this revised response would be numbered Table DR104-11 as it is intended to follow sequentially from a previous submission. The first attachment used in response to Data Request 104 would be Attachment DR104-1, and so on, with the exception of new attachments numbered to follow sequentially from a previous submission. Tables or attachments from previous submissions that have been revised have "R1" or "R2" following the original number, indicating a first or second revision, respectively.

Air Quality (104)

BACKGROUND

Based on CEC Staff's review of the construction-related particulate matter (PM) emissions impacts presented in Applicant's resubmitted response to Data Request 104 (TN# 201570), Staff concluded that impacts of PM with an aerodynamic diameter less than or equal to 10 microns (PM_{10}) and PM with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) during the construction period would be significant because they would cause exceedances of ambient air quality standards (AAQS).¹ As a result, CEC Staff recommended that the Applicant further revise HBEP construction-related PM emissions impacts for the Data Request 104 response.

DATA REQUEST

104. Please continue to refine the modeling, consider staggering construction activities to reduce concurrent emissions, and implement additional mitigation measures to reduce construction emissions and potential impacts.

Response: Applicant's response to CEC Staff's Data Request 104 using five (5) years of data (2008 to 2012) collected at the John Wayne Airport meteorological monitoring station, owned and operated by the National Weather Service (NWS), in conjunction with the corresponding 1-minute automated surface observational system (ASOS) data,² was submitted to the CEC on November 4, 2013. Following this submission, CEC Staff identified errors in the documentation for the fugitive dust construction emission calculations. As such, portions of the response to Data Request 104 related to construction emission estimates were revised and submitted to the CEC on January 15, 2014. Following this submission, CEC Staff concluded in the Preliminary Staff Assessment Part B that PM_{10} and $PM_{2.5}$ construction-related impacts were still significant and needed to be further revised. Based on CEC Staff's recommendations, Applicant conducted additional modeling and incorporated additional mitigation measures into the construction emission estimates. The revised results are presented below.

Construction Impacts Analysis

The dispersion modeling for the HBEP construction impacts analysis followed the methodology outlined in the original response to Data Request 104, which was submitted to the CEC on November 4, 2013, with one exception. For this submission, the receptor grid was revised to exclude receptors located within the Southern California Edison (SCE) switchyard. These receptors were reasonably excluded because access to the switchyard is controlled through the AES property. Additionally, the construction emission estimates were revised to incorporate proposed Condition of Certification AQ-SC3, Construction Fugitive Dust Control, which requires the use of soil stabilizers in place of watering unpaved roads and disturbed areas. This revision increased the fugitive dust control efficiency for unpaved roads, grading, and bulldozing activities to 84 percent, per Tables XI-A and XI-D of the South Coast Air Quality Management District (SCAQMD) California Environmental Quality Act (CEQA) Handbook. The revised construction emission estimates are included in Attachment DR104-5R2.

Table DR104-11, which is a revision to the PM impacts presented in Data Request 104 Table DR104-1R2, indicates that the 24-hour $PM_{2.5}$ construction impact combined with the 98th percentile 24-hour background concentration will be below the 24-hour federal AAQS. Therefore, HBEP construction will not

¹ Please refer to Page 4.1-1 of the CEC's Preliminary Staff Assessment Part B (TN 201839).

² Twice-daily National Climatic Data Center soundings from the San Diego Miramar NWS station (Station #03190) were also utilized in developing the AERMOD-ready meteorological data file.

cause or contribute to the violation of the 24-hour PM_{2.5} standard and the 24-hour PM_{2.5} impacts will be less than significant.

The annual PM₁₀ background concentration exceeds the state AAQS without adding the modeled concentrations. In addition, the 24-hour PM₁₀ and annual PM_{2.5} background concentrations nearly equal the state AAQS without adding the modeled concentrations. As a result, the predicted 24-hour PM₁₀ and annual PM₁₀ and PM_{2.5} construction impacts combined with the background concentrations will be greater than the AAQS and could potentially contribute to a violation of the standards. Based on the modeling analysis, fugitive dust is a significant contributor to the predicted concentrations, but the maximum PM₁₀ and PM_{2.5} concentrations will remain near the property boundary.

A summary of the dispersion modeling input files for this scenario, as well as the complete modeling results, are presented in Attachment DR104-6, which is a partial revision to Data Request 104 Attachment DR104-2R2. The AERMOD input and output files have been separately prepared and are included with this submission on CD.

TABLE DR104-11

Maximum Modeled PM Impacts from Construction and the Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m ³)	Background Concentration ^a (µg/m ³)	Total Predicted Concentration (µg/m ³)	State Standard (µg/m ³)	Federal Standard (µg/m ³)
PM ₁₀	24-hour	14.6	45.0	59.6	50	150
	Annual	2.31	24.2	26.5	20	—
PM _{2.5}	24-hour ^b	4.71	27.5	32.2	—	35
	Annual	1.32	11.0	12.3	12	12

^a Consistent with the CEC's Preliminary Staff Assessment Part B (TN 201839), background concentrations were the highest concentrations monitored during 2010 through 2012 at the North Long Beach monitoring station, unless otherwise noted.

^b Total predicted concentration for the federal 24-hour PM_{2.5} standard is the maximum modeled concentration combined with the 3-year average of 98th percentile background concentrations.

µg/m³ = micrograms per cubic meter

Air Quality Improvement Projects

As described in Applicant's January 15, 2014 revised response to Data Request 104, all potential HBEP air quality impacts resulting from construction and operation will be mitigated to less-than-significant levels through a combination of emission offsets, air quality improvement projects, and the permanent shutdown of existing electrical utility steam boilers. Under the provisions of SCAQMD Rule 1304(a)(2) and Regulation XX Regional Clean Air Incentives Market (RECLAIM), all emissions of state and federal non-attainment pollutants or their precursors will be offset through the retirement of PM₁₀ and volatile organic compound (VOC) offsets from the SCAQMD internal bank of offsets and the Reclaim Trading Credit (RTC) requirements for oxides of nitrogen (NO_x) and sulfur dioxide (SO₂). In addition to the retired offsets and RTCs, the HBEP will result in the permanent closure and retirement of Huntington Beach Generating Station Units 1 and 2 and Redondo Beach Generating Station Units 6 and 8, thereby eliminating all emissions from these additional sources. HBEP will also be subject to SCAQMD Rule 1304.1 fees, estimated at over \$70 million dollars, which must be used to fund air quality improvement projects consistent with the SCAQMD's Air Quality Management Plan, with a priority for air quality improvement projects in the communities surrounding the location of the subject electrical generating facility.

Applicant expects the above actions (i.e., combination of emission offsets, participation in RECLAIM, the shutdown of existing sources, and the funding of over \$70 million in air quality improvement projects) to mitigate all potential air quality impacts from the construction and operation of HBEP to a less than significant level. However, CEC Staff suggested that these actions would not alone mitigate construction-related fugitive dust impacts to a less than significant level due to the spatial and temporal nature of these reductions. Rather, CEC Staff recommended that Applicant fund additional air quality improvement projects

that would occur simultaneously with the construction period. Therefore, to further mitigate any potential construction-related fugitive dust impacts to a less than significant level, Applicant proposes to sweep roadways in the project vicinity during the construction period with SCAQMD-certified street sweepers.

The number of miles of sweeping required to reduce local emissions to less than significant levels were calculated from the emissions reduction needed, the control efficiency achieved by sweeping frequency, fugitive dust emission factors for paved roads (see Attachment DR104-5R2), and an assumed daily vehicle volume. For purposes of this analysis, the daily vehicle volume was taken from Tables 5.12-4 and 5.12-7 of the HBEP AFC, assuming only the Pacific Coast Highway will be swept since it will be most affected by the HBEP construction activities.

The PM₁₀ emissions reduction needed was based on the estimated maximum daily emission rate resulting in a 24-hour modeled impact that, when combined with a background concentration of 45 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), would be less than the AAQS. Based on the modeling results presented in Table DR104-11, this would require a reduction of approximately 66 percent in emissions during the worst-case month of construction. Similarly, the PM_{2.5} emissions reduction needed was based on the estimated annual emission rate resulting in an annual modeled impact that, when combined with a background concentration of 11.0 $\mu\text{g}/\text{m}^3$, would be less than the AAQS. Based on the modeling results presented in Table DR104-11, this would require a reduction of approximately 24 percent in emissions during the worst-case year of construction.

Based on results presented in Table DR104-12, AES proposes to sweep 3.5 miles once per month for the duration of the construction period to achieve the necessary PM emissions reductions to assure the modeled PM impacts, combined with background concentrations, are below the applicable AAQS. As such, street sweeping would improve air quality in the project vicinity concurrently with construction activities, thereby mitigating construction-related fugitive dust impacts to less than significant. The detailed street sweeper emissions calculations are presented in Attachment DR104-6 and include an estimate of the number of miles of sweeping required for the daily construction emissions associated with each of the overlap scenarios.

TABLE DR104-12
Estimate of Street Sweeping Miles

Pollutant	Emissions Reduction Needed (lb/day)	Street Sweeping Once per Month	
		Control Efficiency ^a	Miles to Sweep
PM ₁₀	8.26	9%	3.34
PM _{2.5}	0.79	9%	1.28

^a Control efficiencies were taken from Table XI-C of the SCAQMD CEQA Handbook for street sweeping local, arterial, and collector streets.

Construction Overlap Impacts Analysis

The dispersion modeling for the HBEP construction overlap impacts analysis followed the methodology outlined in the original response to Data Request 104, which was submitted to the CEC on November 4, 2013, with one exception. As noted previously, this submission includes a revised receptor grid that excludes receptors located within the SCE switchyard because switchyard access is controlled through the AES property. Additionally, the fugitive dust control efficiency was revised to reflect the use of soil stabilizers on unpaved roads and disturbed areas during construction activities.

Block 1 Operation with Construction of Block 2

Table DR104-13, which is a revision to the PM impacts presented in Data Request 104 Table DR104-8R, indicates that the maximum modeled PM_{2.5} concentrations combined with the background concentrations do not exceed the AAQS. Therefore, Block 1 operation with construction of Block 2 will not cause or contribute to the violation of a PM_{2.5} standard and the PM_{2.5} impacts will be less than significant.

The annual PM₁₀ background concentration exceeds the state AAQS without adding the modeled concentration. In addition, the 24-hour PM₁₀ background concentration nearly equals the state AAQS without adding the modeled concentration. As a result, the predicted 24-hour and annual PM₁₀ construction impacts combined with the background concentrations will be greater than the AAQS and could potentially contribute to a violation of the standards. Based on the modeling analysis, although fugitive dust is a significant contributor to the predicted concentrations, the maximum PM₁₀ and PM_{2.5} concentrations will remain at or near the property boundary.

As noted above, AES proposes to perform 3.5 miles of street sweeping per month during the duration of the construction period to reduce the construction PM₁₀ and PM_{2.5} impacts to less than significant levels. The HBEP Block 1 operational PM₁₀ and PM_{2.5} impacts will be mitigated through surrender of emission reduction credits consistent with South Coast Air Quality Management District Rule 1304(a)(2). Therefore, construction air quality impacts from the operation of HBEP Block 1 and construction of Block 2 are less than significant.

A summary of the dispersion modeling input files for this scenario, as well as the complete modeling results, are presented in Attachment DR104-7, which is a partial revision to Data Request 104 Attachment DR104-4R2. The AERMOD input and output files have been separately prepared and are included with this submission on DVD.

TABLE DR104-13

Maximum Modeled PM Impacts from Block 1 Operation with Construction of Block 2 and the Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m ³)	Background Concentration ^a (µg/m ³)	Total Predicted Concentration (µg/m ³)	State Standard (µg/m ³)	Federal Standard (µg/m ³)
PM ₁₀	24-hour	7.60	45.0	52.6	50	150
	Annual	1.25	24.2	25.5	20	—
PM _{2.5}	24-hour ^b	1.41	27.5	28.9	—	35
	Annual	0.24	11.0	11.2	12	12

^a Consistent with the CEC's Preliminary Staff Assessment Part B (TN 201839), background concentrations were the highest concentrations monitored during 2010 through 2012 at the North Long Beach monitoring station, unless otherwise noted.

^b Total predicted concentration for the federal 24-hour PM_{2.5} standard is the maximum modeled concentration combined with the 3-year average of 98th percentile background concentrations.

HBEP Operation with Demolition of Huntington Beach Generating Station Units 1 and 2

Table DR104-14, which is a revision to the PM impacts presented in Data Request 104 Table DR104-9R2, indicates that the maximum modeled PM_{2.5} concentrations combined with the background concentrations do not exceed the AAQS. Therefore, operation of HBEP (Blocks 1 and 2) with demolition of Huntington Beach Generating Station Units 1 and 2 will not cause or contribute to the violation of a PM_{2.5} standard and the PM_{2.5} impacts will be less than significant.

The annual PM₁₀ background concentration exceeds the state AAQS without adding the modeled concentration. In addition, the 24-hour PM₁₀ background concentration nearly equals the state AAQS without adding the modeled concentration. As a result, the predicted 24-hour and annual PM₁₀ construction impacts combined with the background concentrations will be greater than the AAQS and could potentially contribute to a violation of the standards. Based on the modeling analysis, although fugitive dust is a significant contributor to the predicted concentrations, the maximum PM₁₀ and PM_{2.5} concentrations will remain at or near the property boundary.

As noted above, AES proposes to perform 3.5 miles of street sweeping per month during the duration of the construction period to reduce the construction PM₁₀ and PM_{2.5} impacts to less than significant levels. The HBEP operational PM₁₀ and PM_{2.5} impacts will be mitigated through surrender of emission reduction credits

consistent with South Coast Air Quality Management District Rule 1304(a)(2). Therefore, construction air quality impacts from the operation of HBEP and demolition of Huntington Beach Generation Station Units 1 and 2 are less than significant.

A summary of the dispersion modeling input files for this scenario, as well as the complete modeling results, are presented in Attachment DR104-8, which is a partial revision to Data Request 104 Attachment DR104-4R2. The AERMOD input and output files have been separately prepared and are included with this submission on DVD.

TABLE DR104-14

Maximum Modeled PM Impacts from HBEP Operation with Demolition of Units 1 and 2 and the Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Background Concentration ^a ($\mu\text{g}/\text{m}^3$)	Total Predicted Concentration ($\mu\text{g}/\text{m}^3$)	State Standard ($\mu\text{g}/\text{m}^3$)	Federal Standard ($\mu\text{g}/\text{m}^3$)
PM ₁₀	24-hour	16.1	45.0	61.1	50	150
	Annual	2.81	24.2	27.0	20	—
PM _{2.5}	24-hour ^b	3.70	27.5	31.2	—	35
	Annual	0.56	11.0	11.6	12	12

^a Consistent with the CEC's Preliminary Staff Assessment Part B (TN 201839), background concentrations were the highest concentrations monitored during 2010 through 2012 at the North Long Beach monitoring station, unless otherwise noted.

^b Total predicted concentration for the federal 24-hour PM_{2.5} standard is the maximum modeled concentration combined with the 3-year average of 98th percentile background concentrations.

HBEP Construction and Demolition of Huntington Beach Generating Station Units 3 and 4

Table DR104-15, which is a revision to the PM impacts presented in Data Request 104 Table DR104-10R2, indicates that the 24-hour PM_{2.5} construction impact combined with the 98th percentile 24-hour background concentration will be below the 24-hour federal AAQS. Therefore, HBEP construction will not cause or contribute to the violation of the 24-hour PM_{2.5} standard and the 24-hour PM_{2.5} impacts will be less than significant.

The annual PM₁₀ background concentration exceeds the state AAQS without adding the modeled concentration. In addition, the 24-hour PM₁₀ and annual PM_{2.5} background concentrations nearly equal the state AAQS without adding the modeled concentrations. As a result, the predicted 24-hour PM₁₀ and annual PM₁₀ and PM_{2.5} construction impacts combined with the background concentrations will be greater than the AAQS and could potentially contribute to a violation of the standards. Based on the modeling analysis, although fugitive dust is a significant contributor to the predicted concentrations, the maximum PM₁₀ and PM_{2.5} concentrations will remain at or near the property boundary.

As noted above, AES proposes to perform 3.5 miles of street sweeping per month during the duration of the construction period to reduce the construction PM₁₀ and PM_{2.5} impacts to less than significant levels.

A summary of the dispersion modeling input files for this scenario, as well as the complete modeling results, are presented in Attachment DR104-9, which is a partial revision to Data Request 104 Attachment DR104-4R2. The AERMOD input and output files have been separately prepared and are included with this submission on DVD.

TABLE DR104-15

Maximum Modeled PM Impacts from HBEP Construction and Demolition of Units 3 and 4 and the Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Background Concentration ^a ($\mu\text{g}/\text{m}^3$)	Total Predicted Concentration ($\mu\text{g}/\text{m}^3$)	State Standard ($\mu\text{g}/\text{m}^3$)	Federal Standard ($\mu\text{g}/\text{m}^3$)
PM ₁₀	24-hour	15.0	45.0	60.0	50	150
	Annual	4.80	24.2	29.0	20	—
PM _{2.5}	24-hour ^b	4.29	27.5	31.8	—	35
	Annual	1.27	11.0	12.3	12	12

^a Consistent with the CEC's Preliminary Staff Assessment Part B (TN 201839), background concentrations were the highest concentrations monitored during 2010 through 2012 at the North Long Beach monitoring station, unless otherwise noted.

^b Total predicted concentration for the federal 24-hour PM_{2.5} standard is the maximum modeled concentration combined with the 3-year average of 98th percentile background concentrations.

**Attachment DR104-5R2
Revised Appendix 5.1A, Construction Emission
Calculations**

APPENDIX 5.1A-R

Construction Emission Estimates

(Criteria and Greenhouse Gas)

Tables 5.1A.1R through 5.1A.9R summarize the construction emissions from the demolition of the existing Peaker 5 unit and storage tank and stack 3 and 4.

Table 5.1A.1R	Onsite Construction Equipment Exhaust Emissions
Table 5.1A.2R	Onsite Motor Vehicle Exhaust Emissions
Table 5.1A.3R	Onsite Demolition Fugitive Dust Emissions
Table 5.1A.4R	Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions
Table 5.1A.5R	Equations Used to Calculate Criteria Pollutant and GHG Emissions
Table 5.1A.6R	Number of Onsite Construction Equipment and Motor Vehicles
Table 5.1A.7R	Construction Equipment Exhaust Criteria Pollutant Emission Factors
Table 5.1A.8R	Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors
Table 5.1A.9R	Onsite and Offsite Greenhouse Gas Emission Factors

Tables 5.1A.10R through 5.1A.18R summarize the construction emissions from the construction of Block 1.

Table 5.1A.10R	Onsite Construction Equipment Exhaust Emissions
Table 5.1A.11R	Onsite Motor Vehicle Exhaust Emissions
Table 5.1A.12R	Onsite Construction Fugitive Dust Emissions
Table 5.1A.13R	Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions
Table 5.1A.14R	Equations Used to Calculate Criteria Pollutant and GHG Emissions
Table 5.1A.15R	Number of Onsite Construction Equipment and Motor Vehicles
Table 5.1A.16R	Construction Equipment Exhaust Criteria Pollutant Emission Factors
Table 5.1A.17R	Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors
Table 5.1A.18R	Onsite and Offsite Greenhouse Gas Emission Factors

Tables 5.1A.19R through 5.1A.27R summarize the construction emissions from the construction of Block 2.

Table 5.1A.19R	Onsite Construction Equipment Exhaust Emissions
Table 5.1A.20R	Onsite Motor Vehicle Exhaust Emissions
Table 5.1A.21R	Onsite Construction Fugitive Dust Emissions
Table 5.1A.22R	Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions
Table 5.1A.23R	Equations Used to Calculate Criteria Pollutant and GHG Emissions
Table 5.1A.24R	Number of Onsite Construction Equipment and Motor Vehicles
Table 5.1A.25R	Construction Equipment Exhaust Criteria Pollutant Emission Factors
Table 5.1A.26R	Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors
Table 5.1A.27R	Onsite and Offsite Greenhouse Gas Emission Factors

Tables 5.1A.28R through 5.1A.36R summarize the construction emissions from the demolition of existing Units 1 and 2.

Table 5.1A.28R	Onsite Construction Equipment Exhaust Emissions
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Table 5.1A.29R	Onsite Motor Vehicle Exhaust Emissions
Table 5.1A.30R	Onsite Demolition Fugitive Dust Emissions
Table 5.1A.31R	Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions
Table 5.1A.32R	Equations Used to Calculate Criteria Pollutant and GHG Emissions
Table 5.1A.33R	Number of Onsite Construction Equipment and Motor Vehicles
Table 5.1A.34R	Construction Equipment Exhaust Criteria Pollutant Emission Factors
Table 5.1A.35R	Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors
Table 5.1A.36R	Onsite and Offsite Greenhouse Gas Emission Factors

Tables 5.1A.37R through 5.1A.45R summarize the construction emissions from the construction of Buildings 33 and 34.

Table 5.1A.37R	Onsite Construction Equipment Exhaust Emissions
Table 5.1A.38R	Onsite Motor Vehicle Exhaust Emissions
Table 5.1A.39R	Onsite Construction Fugitive Dust Emissions
Table 5.1A.40R	Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions
Table 5.1A.41R	Equations Used to Calculate Criteria Pollutant and GHG Emissions
Table 5.1A.42R	Number of Onsite Construction Equipment and Motor Vehicles
Table 5.1A.43R	Construction Equipment Exhaust Criteria Pollutant Emission Factors
Table 5.1A.44R	Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors
Table 5.1A.45R	Onsite and Offsite Greenhouse Gas Emission Factors

Tables 5.1A.46R through 5.1A.48R summarize the construction emissions from all stages of the project.

Table 5.1A.46R	Onsite Construction Exhaust and Fugitive Emissions Summary
Table 5.1A.47R	Offsite Construction Exhaust and Fugitive Emissions Summary
Table 5.1A.48R	Onsite and Offsite Construction Exhaust and Fugitive Emissions Summary

Tables 5.1A.49R through 5.1A.57R summarize the construction emissions from the demolition of existing Units 3 and 4.

Table 5.1A.49R	Onsite Construction Equipment Exhaust Emissions
Table 5.1A.50R	Onsite Motor Vehicle Exhaust Emissions
Table 5.1A.51R	Onsite Demolition Fugitive Dust Emissions
Table 5.1A.52R	Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions
Table 5.1A.53R	Equations Used to Calculate Criteria Pollutant and GHG Emissions
Table 5.1A.54R	Number of Onsite Construction Equipment and Motor Vehicles
Table 5.1A.55R	Construction Equipment Exhaust Criteria Pollutant Emission Factors
Table 5.1A.56R	Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors
Table 5.1A.57R	Onsite and Offsite Greenhouse Gas Emission Factors

Tables 5.1A.58R through 5.1A.60R summarize the construction emissions from all stages of the project and cumulative projects.

Table 5.1A.58R	Onsite Construction Exhaust and Fugitive Emissions Summary
Table 5.1A.59R	Offsite Construction Exhaust and Fugitive Emissions Summary
Table 5.1A.60R	Onsite and Offsite Construction Exhaust and Fugitive Emissions Summary

Table 5.1A.1R Onsite Construction Equipment Exhaust Emissions

Construction Equipment CO Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	CO Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33	68.33
Excavator	129.94	129.94	129.94	259.88	259.88	259.88	259.88	259.88	389.83	389.83	389.83	389.83	389.83	389.83	389.83
Grader	134.53	134.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	134.53	134.53	134.53
Cranes	0.00	0.00	81.01	121.51	121.51	121.51	121.51	121.51	121.51	121.51	81.01	81.01	81.01	81.01	81.01
Tractor/Loader/Backhoe	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98	43.98
Rubber Tired Loader	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69	51.69
Crawler Tractor	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75	87.75
Air Compressor	58.32	58.32	116.64	116.64	116.64	116.64	116.64	116.64	116.64	116.64	116.64	116.64	116.64	116.64	116.64
Forklift	0.00	0.00	57.07	57.07	114.13	114.13	114.13	114.13	114.13	114.13	114.13	57.07	57.07	57.07	57.07
Roller	64.33	64.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.33	64.33	64.33	64.33
Onsite Total (lbs/month)	638.86	638.86	636.40	806.84	863.91	863.91	863.91	863.91	993.85	953.34	953.34	960.61	1,095.14	1,095.14	1,095.14
Onsite Total (lbs/day) ^a	27.78	27.78	27.67	35.08	37.56	37.56	37.56	37.56	43.21	41.45	41.45	41.77	47.61	47.61	47.61
Onsite Total (tons/year)	5.70														

Construction Equipment VOC Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	VOC Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46	22.46
Excavator	20.52	20.52	20.52	41.04	41.04	41.04	41.04	41.04	61.56	61.56	61.56	61.56	61.56	61.56	61.56
Grader	23.85	23.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.85	23.85	23.85
Cranes	0.00	0.00	27.59	41.39	41.39	41.39	41.39	41.39	41.39	27.59	27.59	27.59	27.59	27.59	27.59
Tractor/Loader/Backhoe	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28	7.28
Rubber Tired Loader	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55
Crawler Tractor	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01	21.01
Air Compressor	12.47	12.47	24.94	24.94	24.94	24.94	24.94	24.94	24.94	24.94	24.94	24.94	24.94	24.94	24.94
Forklift	0.00	0.00	8.28	8.28	16.56	16.56	16.56	16.56	16.56	16.56	8.28	8.28	8.28	8.28	8.28
Roller	13.77	13.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.77	13.77	13.77	13.77
Onsite Total (lbs/month)	131.92	131.92	142.63	176.95	185.22	185.22	185.22	185.22	205.74	191.95	191.95	197.44	221.29	221.29	221.29
Onsite Total (lbs/day) ^a	5.74	5.74	6.20	7.69	8.05	8.05	8.05	8.05	8.95	8.35	8.35	8.58	9.62	9.62	9.62
Onsite Total (tons/year)	1.18														

Construction Equipment NOx Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	NOx Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	162.75	162.75	162.75	162.75	162.75	162.75	162.75	162.75	162.75	143.87	143.87	143.87	143.87	143.87	143.87
Excavator	144.68	144.68	144.68	289.35	289.35	289.35	289.35	289.35	434.03	384.50	384.50	384.50	384.50	384.50	384.50
Grader	175.25	175.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	158.54	158.54	158.54
Cranes	0.00	0.00	247.44	371.16	371.16	371.16	371.16	371.16	371.16	225.10	225.10	225.10	225.10	225.10	225.10
Tractor/Loader/Backhoe	48.91	48.91	48.91	48.91	48.91	48.91	48.91	48.91	48.91	44.57	44.57	44.57	44.57	44.57	44.57
Rubber Tired Loader	66.05	66.05	66.05	66.05	66.05	66.05	66.05	66.05	66.05	61.02	61.02	61.02	61.02	61.02	61.02
Crawler Tractor	125.28	125.28	125.28	125.28	125.28	125.28	125.28	125.28	125.28	117.26	117.26	117.26	117.26	117.26	117.26
Air Compressor	78.82	78.82	157.64	157.64	157.64	157.64	157.64	157.64	157.64	145.49	145.49	145.49	145.49	145.49	145.49
Forklift	0.00	0.00	58.75	58.75	117.50	117.50	117.50	117.50	117.50	104.10	104.10	52.05	52.05	52.05	52.05
Roller	88.42	88.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.23	82.23	82.23	82.23
Onsite Total (lbs/month)	890.17	890.17	1,011.50	1,279.90	1,338.65	1,338.65	1,338.65	1,338.65	1,483.32	1,225.90	1,225.90	1,256.08	1,414.62	1,414.62	1,414.62
Onsite Total (lbs/day) ^a	38.70	38.70	43.98	55.65	58.20	58.20	58.20	58.20	64.49	53.30	53.30	54.61	61.51	61.51	61.51
Onsite Total (tons/year)	8.03														

Table 5.1A.1R Onsite Construction Equipment Exhaust Emissions

Construction Equipment SOx Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	SOx Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Excavator	0.23	0.23	0.23	0.46	0.46	0.46	0.46	0.46	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Grader	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.24
Cranes	0.00	0.00	0.35	0.53	0.53	0.53	0.53	0.53	0.53	0.35	0.35	0.35	0.35	0.35	0.35
Tractor/Loader/Backhoe	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Rubber Tired Loader	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Crawler Tractor	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Air Compressor	0.09	0.09	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Forklift	0.00	0.00	0.10	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.10	0.10	0.10
Roller	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10
Onsite Total (lbs/month)	1.21	1.21	1.42	1.83	1.93	1.93	1.93	1.93	2.16	1.98	1.98	1.98	2.22	2.22	2.22
Onsite Total (lbs/day) ^a	0.05	0.05	0.06	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.10	0.10	0.10
Onsite Total (tons/year)	0.01														

Construction Equipment PM₁₀ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	PM ₁₀ Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.12	5.12	5.12	5.12	5.12	5.12
Excavator	7.87	7.87	7.87	15.74	15.74	15.74	15.74	15.74	23.60	20.71	20.71	20.71	20.71	20.71	20.71
Grader	9.66	9.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.74	8.74	8.74
Cranes	0.00	0.00	8.55	12.82	12.82	12.82	12.82	12.82	12.82	7.72	7.72	7.72	7.72	7.72	7.72
Tractor/Loader/Backhoe	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.20	3.20	3.20	3.20	3.20	3.20
Rubber Tired Loader	5.44	5.44	5.44	5.44	5.44	5.44	5.44	5.44	5.44	4.89	4.89	4.89	4.89	4.89	4.89
Crawler Tractor	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64	9.79	9.79	9.79	9.79	9.79	9.79
Air Compressor	6.77	6.77	13.55	13.55	13.55	13.55	13.55	13.55	13.55	12.06	12.06	12.06	12.06	12.06	12.06
Forklift	0.00	0.00	3.20	3.20	6.39	6.39	6.39	6.39	6.39	5.64	5.64	2.82	2.82	2.82	2.82
Roller	7.30	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	6.68	6.68	6.68
Onsite Total (lbs/month)	57.17	57.17	58.73	70.87	74.06	74.06	74.06	74.06	81.93	69.14	69.14	72.99	81.73	81.73	81.73
Onsite Total (lbs/day) ^a	2.49	2.49	2.55	3.08	3.22	3.22	3.22	3.22	3.56	3.01	3.01	3.17	3.55	3.55	3.55
Onsite Total (tons/year)	0.45														

Construction Equipment PM_{2.5} Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	PM _{2.5} Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.78	5.12	5.12	5.12	5.12	5.12	5.12
Excavator	7.87	7.87	7.87	15.74	15.74	15.74	15.74	15.74	23.60	20.71	20.71	20.71	20.71	20.71	20.71
Grader	9.66	9.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.74	8.74	8.74
Cranes	0.00	0.00	8.55	12.82	12.82	12.82	12.82	12.82	12.82	7.72	7.72	7.72	7.72	7.72	7.72
Tractor/Loader/Backhoe	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.20	3.20	3.20	3.20	3.20	3.20
Rubber Tired Loader	5.44	5.44	5.44	5.44	5.44	5.44	5.44	5.44	5.44	4.89	4.89	4.89	4.89	4.89	4.89
Crawler Tractor	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64	9.79	9.79	9.79	9.79	9.79	9.79
Air Compressor	6.77	6.77	13.55	13.55	13.55	13.55	13.55	13.55	13.55	12.06	12.06	12.06	12.06	12.06	12.06
Forklift	0.00	0.00	3.20	3.20	6.39	6.39	6.39	6.39	6.39	5.64	5.64	2.82	2.82	2.82	2.82
Roller	7.30	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	6.68	6.68	6.68
Onsite Total (lbs/month)	57.17	57.17	58.73	70.87	74.06	74.06	74.06	74.06	81.93	69.14	69.14	72.99	81.73	81.73	81.73
Onsite Total (lbs/day) ^a	2.49	2.49	2.55	3.08	3.22	3.22	3.22	3.22	3.56	3.01	3.01	3.17	3.55	3.55	3.55
Onsite Total (tons/year)	0.45														

Table 5.1A.1R Onsite Construction Equipment Exhaust Emissions

Construction Equipment CO₂ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	CO ₂ Emissions (metric tons/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48	14.48
Excavator	10.20	10.20	10.20	20.40	20.40	20.40	20.40	20.40	30.60	30.60	30.60	30.60	30.60	30.60	30.60
Grader	10.61	10.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.61	10.61	10.61
Cranes	0.00	0.00	15.51	23.26	23.26	23.26	23.26	23.26	23.26	15.51	15.51	15.51	15.51	15.51	15.51
Tractor/Loader/Backhoe	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05
Rubber Tired Loader	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47
Crawler Tractor	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67
Air Compressor	4.04	4.04	8.08	8.08	8.08	8.08	8.08	8.08	8.08	8.08	8.08	8.08	8.08	8.08	8.08
Forklift	0.00	0.00	4.49	4.49	8.98	8.98	8.98	8.98	8.98	8.98	8.98	4.49	4.49	4.49	4.49
Roller	4.44	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	4.44	4.44	4.44
Onsite Total (metric tons/month)	55.96	55.96	64.95	82.90	87.40	87.40	87.40	87.40	97.60	89.84	89.84	89.79	100.40	100.40	100.40
Onsite Total (metric tons/day)^a	2.43	2.43	2.82	3.60	3.80	3.80	3.80	3.80	4.24	3.91	3.91	3.90	4.37	4.37	4.37
Onsite Total (metric tons/year)	1,100.76														

Construction Equipment N₂O Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	N ₂ O Emissions (metric tons/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Excavator	0.0003	0.0003	0.0003	0.0005	0.0005	0.0005	0.0005	0.0005	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Grader	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003
Cranes	0.0000	0.0000	0.0004	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Tractor/Loader/Backhoe	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Rubber Tired Loader	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Crawler Tractor	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Air Compressor	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Forklift	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Roller	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001
Onsite Total (metric tons/month)	0.0014	0.0014	0.0017	0.0021	0.0022	0.0022	0.0022	0.0022	0.0025	0.0023	0.0023	0.0023	0.0026	0.0026	0.0026
Onsite Total (metric tons/day)^a	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Onsite Total (metric tons/year)	0.0280														

Construction Equipment CH₄ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	CH ₄ Emissions (metric tons/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Excavator	0.0006	0.0006	0.0006	0.0012	0.0012	0.0012	0.0012	0.0012	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Grader	0.0006	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	0.0006
Cranes	0.0000	0.0000	0.0009	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Tractor/Loader/Backhoe	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Rubber Tired Loader	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Crawler Tractor	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Air Compressor	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Forklift	0.0000	0.0000	0.0003	0.0003	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0003	0.0003	0.0003	0.0003
Roller	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0003
Onsite Total (metric tons/month)	0.0032	0.0032	0.0037	0.0047	0.0050	0.0050	0.0050	0.0050	0.0055	0.0051	0.0051	0.0051	0.0057	0.0057	0.0057
Onsite Total (metric tons/day)^a	0.0001	0.0001	0.0002												
Onsite Total (metric tons/year)	0.0625														

Notes:
^a Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls', the days per month are as follows: 23

Table 5.1A.2R Onsite Motor Vehicle Exhaust Emissions

Onsite Construction Vehicle CO Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	CO Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	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	0.03
Onsite Stake Truck	0.05	0.05	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.05	0.05	0.05	0.05
Onsite Dump Truck	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Onsite Total (lbs/day)	0.14	0.14	0.19	0.14	0.14	0.14	0.14								
Vehicle Type	CO Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Onsite Stake Truck	1.21	1.21	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.42	1.21	1.21	1.21	1.21
Onsite Dump Truck	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Onsite Total (lbs/month)	3.19	3.19	4.40	3.19	3.19	3.19	3.19								
Onsite Total (tons/year)	0.02														

Onsite Construction Vehicle VOC Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	VOC Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Stake Truck	0.03	0.03	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03	0.03	0.03	0.03
Onsite Dump Truck	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	0.03
Onsite Total (lbs/day)	0.064	0.064	0.095	0.064	0.064	0.064	0.064								
Vehicle Type	VOC Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Onsite Stake Truck	0.71	0.71	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	0.71	0.71	0.71	0.71
Onsite Dump Truck	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Onsite Total (lbs/month)	1.48	1.48	2.19	1.48	1.48	1.48	1.48								
Onsite Total (tons/year)	0.01														

Onsite Construction Vehicle SOx Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	SOx Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010
Onsite Stake Truck	0.00016	0.00016	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033	0.00016	0.00016	0.00016	0.00016
Onsite Dump Truck	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016
Onsite Total (lbs/day)	0.00042	0.00042	0.00059	0.00042	0.00042	0.00042	0.00042								
Vehicle Type	SOx Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223	0.00223
Onsite Stake Truck	0.00375	0.00375	0.00750	0.00750	0.00750	0.00750	0.00750	0.00750	0.00750	0.00750	0.00750	0.00375	0.00375	0.00375	0.00375
Onsite Dump Truck	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375	0.00375
Onsite Total (lbs/month)	0.00974	0.00974	0.01349	0.00974	0.00974	0.00974	0.00974								
Onsite Total (tons/year)	0.00008														

Onsite Construction Vehicle NOx Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	NOx Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Onsite Stake Truck	0.093	0.093	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.187	0.08	0.08	0.08	0.08
Onsite Dump Truck	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.08	0.08	0.08	0.08
Onsite Total (lbs/day)	0.19	0.19	0.28	0.25	0.25	0.17	0.17	0.17							
Vehicle Type	NOx Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Stake Truck	2.15	2.15	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	3.79	3.79	3.79	3.79
Onsite Dump Truck	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	1.90	1.90	1.90	1.90
Onsite Total (lbs/month)	4.36	4.36	6.51	5.75	5.75	3.86	3.86	3.86							
Onsite Total (tons/year)	0.03														

Table 5.1A.2R Onsite Motor Vehicle Exhaust Emissions

Onsite Construction Vehicle PM₁₀ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	PM ₁₀ Emissions (lbs/day)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.00	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
Onsite Stake Truck	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.009	0.009	0.004	0.004	0.004	0.004	
Onsite Dump Truck	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.004	0.004	0.004	0.004	0.004	0.004	
Onsite Total (lbs/day)	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01							
Vehicle Type	PM ₁₀ Emissions (lbs/month) ^a															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
Onsite Stake Truck	0.12	0.12	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.20	0.20	0.10	0.10	0.10	0.10	
Onsite Dump Truck	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.10	0.10	0.10	0.10	0.10	0.10	
Onsite Total (lbs/month)	0.27	0.27	0.39	0.33	0.33	0.23	0.23	0.23	0.23							
Onsite Total (tons/year)	0.00															

Onsite Construction Vehicle PM_{2.5} Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	PM _{2.5} Emissions (lbs/day)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Onsite Stake Truck	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	
Onsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Onsite Total (lbs/day)	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01							
Vehicle Type	PM _{2.5} Emissions (lbs/month) ^a															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
Onsite Stake Truck	0.11	0.11	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.18	0.18	0.09	0.09	0.09	0.09	
Onsite Dump Truck	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.09	0.09	0.09	0.09	0.09	0.09	
Onsite Total (lbs/month)	0.24	0.24	0.35	0.29	0.29	0.20	0.20	0.20	0.20							
Onsite Total (tons/year)	0.00															

Onsite Construction Vehicle CO₂ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	CO ₂ Emissions (metric tons/day)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Onsite Stake Truck	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	
Onsite Dump Truck	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	0.01	
Onsite Total (metric tons/day)	0.02	0.02	0.03	0.02	0.02	0.02	0.02									
Vehicle Type	CO ₂ Emissions (metric tons/month) ^a															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
Onsite Stake Truck	0.18	0.18	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.18	0.18	0.18	0.18	
Onsite Dump Truck	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	
Onsite Total (metric tons/month)	0.47	0.47	0.65	0.47	0.47	0.47	0.47									
Onsite Total (metric tons/year)	7.22															

Onsite Construction Vehicle N₂O Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	N ₂ O Emissions (metric tons/day)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	0.000000026	
Onsite Stake Truck	0.000000010	0.000000010	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000010	0.000000010	0.000000010	0.000000010	
Onsite Dump Truck	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	0.000000010	
Onsite Total (metric tons/day)	0.000000046	0.000000046	0.000000055	0.000000046	0.000000046	0.000000046	0.000000046									
Vehicle Type	N ₂ O Emissions (metric tons/month) ^a															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Onsite Pick-up Truck	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	0.00000061	
Onsite Stake Truck	0.00000022	0.00000022	0.00000044	0.00000044	0.00000044	0.00000044	0.00000044	0.00000044	0.00000044	0.00000044	0.00000044	0.00000022	0.00000022	0.00000022	0.00000022	
Onsite Dump Truck	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	0.00000022	
Onsite Total (metric tons/month)	0.0000010	0.0000010	0.0000013	0.0000010	0.0000010	0.0000010	0.0000010									
Onsite Total (metric tons/year)	0.000015															

Table 5.1A.2R Onsite Motor Vehicle Exhaust Emissions

Onsite Construction Vehicle CH₄ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	CH ₄ Emissions (metric tons/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007	0.00000007
Onsite Stake Truck	0.00000001	0.00000001	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000001	0.00000001	0.00000001	0.00000001
Onsite Dump Truck	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001	0.00000001
Onsite Total (metric tons/day)	0.00000009	0.00000009	0.00000010	0.00000009	0.00000009	0.00000009	0.00000009								
Vehicle Type	CH ₄ Emissions (metric tons/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150	0.00000150
Onsite Stake Truck	0.00000023	0.00000023	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000023	0.00000023	0.00000023	0.00000023
Onsite Dump Truck	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023
Onsite Total (metric tons/month)	0.0000020	0.0000020	0.0000022	0.0000020	0.0000020	0.0000020	0.0000020								
Onsite Total (metric tons/year)	0.000026														

Notes:
^a The days per month are per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls', as presented on the 'Onsite Fugitive Dust' tab.

Table 5.1A.3R Onsite Demolition Fugitive Dust Emissions

Demolition Activity Levels for Peaker and Tank Area and Stack 3 & 4 Demolition

Source	Monthly Activity Levels														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Debris Generated from Mechanical Dismemberment (tons) ^a	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33	321.33

^a Debris generated from Table 5.14-3, Wastes Generated during Demolition of Peaker and Tank Area. Concrete quantities for Stack 3&4 Demolition also included (Table 5.14-3 Units 3 & 4). Only materials generated from demolition that may generate fugitive dust were included. The monthly quantities were determined as follows:

Scrap Materials	8,000	lbs/week	which equals	16.00	tons/month
Scrap Metals	2,000	tons	which equals	133.33	tons/month
Concrete	2,350	tons	which equals	156.67	tons/month
Asphalt	30	tons	which equals	2.00	tons/month
Asbestos Waste	200	tons	which equals	13.33	tons/month

The above calculations are based on the following assumptions:

Demolition will last	15	months
The construction schedule allows for	4	weeks/month

Onsite Construction Vehicle Fugitive PM₁₀ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Fugitive PM ₁₀ Emissions (lbs/day) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Onsite Stake Truck	0.69	0.69	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	0.69	0.69	0.69	0.69
Onsite Dump Truck	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Onsite Total (lbs/day)	2.77	2.77	3.47	2.77	2.77	2.77	2.77								
Vehicle Type	Fugitive PM ₁₀ Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90
Onsite Stake Truck	15.95	15.95	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	15.95	15.95	15.95	15.95
Onsite Dump Truck	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95
Onsite Total (lbs/month)	63.81	63.81	79.76	63.81	63.81	63.81	63.81								
Onsite Total (tons/year)	0.45														

Notes:

^a Emissions based on highest (controlled) unpaved road emission factor for PM₁₀.

Onsite Construction Vehicle Fugitive PM_{2.5} Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Fugitive PM _{2.5} Emissions (lbs/day) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Onsite Stake Truck	0.07	0.07	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.07	0.07	0.07
Onsite Dump Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Total (lbs/day)	0.28	0.28	0.35	0.28	0.28	0.28	0.28								
Vehicle Type	Fugitive PM _{2.5} Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
Onsite Stake Truck	1.60	1.60	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	1.60	1.60	1.60	1.60
Onsite Dump Truck	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Onsite Total (lbs/month)	6.38	6.38	7.98	6.38	6.38	6.38	6.38								
Onsite Total (tons/year)	0.05														

Notes:

^a Emissions based on the highest (controlled) unpaved road emission factor for PM_{2.5}.

Onsite Demolition Fugitive PM₁₀ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Demolition Activity	Fugitive PM ₁₀ Emissions (lbs/day) ^{a,b}														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dismemberment	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	0.01
Debris Loading ^c	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Onsite Total (lbs/day)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Demolition Activity	Fugitive PM ₁₀ Emissions (lbs/month) ^{a,b}														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dismemberment	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Debris Loading ^c	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
Onsite Total (lbs/month)	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
Onsite Total (tons/year)	0.03														

Notes:

^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23

^b Emissions based on the highest (controlled) emission factors for PM₁₀.

^c Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Table 5.1A.3R Onsite Demolition Fugitive Dust Emissions

Onsite Demolition Fugitive PM_{2.5} Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Demolition Activity	Fugitive PM _{2.5} Emissions (lbs/day) ^{a, b}														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dismemberment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading ^c	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	0.03
Onsite Total (lbs/day)	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	0.03
Demolition Activity	Fugitive PM _{2.5} Emissions (lbs/month) ^{a, b}														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dismemberment	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	0.03
Debris Loading ^c	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Onsite Total (lbs/month)	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Onsite Total (tons/year)	0.00														

Notes:
^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23
^b Emissions based on the highest (controlled) emission factors for PM_{2.5}.
^c Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Onsite Construction Vehicle Activity for Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Miles/Day ^a	Working Days per Month ^b
Onsite Pick-up Truck	2	23
Onsite Stake Truck	2	23
Onsite Dump Truck	1	23

Notes:
^a Estimated based on dimensions of the project site.
^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Fugitive Dust Emission Factors for Unpaved Roads

Parameter	PM ₁₀	PM _{2.5}
Mean Vehicle Weight ^a	16.5	16.5
Silt Content ^b	8.5	8.5
k ^c	1.5	0.15
a ^c	0.9	0.9
b ^c	0.45	0.45
P ^d	31	31
Emission Factor (Uncontrolled, lbs/mile) ^e	2.17	0.22
Reduction from Applying Soil Stabilizers ^f	84%	84%
Emission Factor (Controlled, lbs/mile)	0.35	0.03

Notes:
^a Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.
^b Silt content taken from Table 13.2.2-1 of Section 13.2.2 of AP-42 for a Construction Site, Scraper Route; this value is consistent with the CalEEMod defaults for the South Coast Air Basin.
^c k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of AP-42 for industrial roads.
^d P taken as the CalEEMod default for the Huntington Beach climate region of the South Coast Air Basin.
^e Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of AP-42:

$$\text{Emission Factor (lbs/mile)} = (k \text{ (lbs/mile)} \times [\text{Silt Content (\%)} / 12]^3 \times [\text{Mean Vehicle Weight (tons)} / 3]^3 \times [(365 - P) / 365])$$

^f Control efficiency taken from Table XI-D of the SCAQMD CEQA Handbook for Travel Over Unpaved Roads.

Fugitive Dust Emission Factors for Dismemberment

Parameter	PM ₁₀	PM _{2.5}
k ^a	0.35	0.053
U (mph) ^b	4.9	4.9
M (%) ^c	2.0	2.0
Emission Factor (lbs/ton) ^d	0.00110	0.00017
Reduction from Watering Every 4 Hours ^e	36%	36%
Emission Factor (Controlled, lbs/ton)	0.00070	0.00011

Notes:
^a k, the particle size multiplier, taken from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide.
^b U, the mean wind speed, taken as the CalEEMod default for the South Coast Air Basin. Converted from meters/second (m/s) to miles per hour (mph).
^c M, the material moisture content, taken from Section 4.4 of Appendix A of the CalEEMod User's Guide.
^d Emission factor calculated using the following equation from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide:

$$\text{Emission Factor (lbs/ton)} = k \times 0.0032 \times [U / 5]^{1.3} \times [M / 2]^{1.4}$$

^e Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Active Demolition and Debris Removal.

Table 5.1A.3R Onsite Demolition Fugitive Dust Emissions

Fugitive Dust Emission Factors for Debris Loading

Loading of Debris/Building Waste		
Parameter	PM ₁₀	PM _{2.5}
k ^a	0.35	0.053
EF _{L-TSP} ^b	0.058	0.058
Emission Factor (lbs/ton)^c	0.020	0.003
Reduction from Watering Every 4 Hours^d	36%	36%
Emission Factor (Controlled, lbs/ton)	0.013	0.002

Notes:

^a k taken from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide.

^b EF_{L-TSP} taken from Section 4.4 of Appendix A of the CalEEMod User's Guide.

^c Emission factor calculated using the following equation from Section 4.4 of Appendix A of the CalEEMod User's Guide:

$$\text{Emission Factor (lbs/ton)} = k \times \text{EF}_{L-TSP} \text{ (lbs/ton)}$$

^d Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Active Demolition and Debris Removal.

Table 5.1A.4R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle Usage During Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Number per Day														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks ^a	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Material Hauling Trucks ^b	0.25	0.50	0.50	0.00	1.00	1.13	6.13	6.13	6.13	6.13	6.13	6.13	6.13	0.63	0.63
Waste Hauling Trucks ^c	0.00	0.00	0.00	0.00	1.25	1.25	1.50	1.75	1.75	2.00	2.25	2.50	2.25	1.25	1.25
Construction Worker Commute ^d	0.00	10.00	12.00	25.00	33.00	37.00	43.00	46.00	51.00	49.00	44.00	23.00	20.00	18.00	12.00

Notes:

^a Offsite Delivery Trucks include trucks transporting "Consumables & Supplies", as provided in 'Huntington Beach Truck Deliveries 032112.xls'.

^b Material Hauling Trucks include trucks transporting "Fill Material", "Contractor Mobilization", "Contractor Demobilization", and "Demo Equipment", as provided in 'Huntington Beach Truck Deliveries 032112.xls'.

^c Waste Hauling Trucks include trucks transporting "Mechanical Equipment", "Electrical Equip. & Mtrls", "Concrete and Rebar", "Steel/Architectural", and "Piping, Supports, & Valves", as provided in 'Huntington Beach Truck Deliveries 032112.xls'.

^d Assumed 1 commute per 1 worker; number of workers taken from 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Offsite Vehicle CO Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	CO Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Material Hauling Trucks	0.04	0.08	0.08	0.00	0.16	0.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.10	0.10
Waste Hauling Trucks	0.00	0.00	0.00	0.00	0.31	0.31	0.37	0.43	0.43	0.49	0.55	0.61	0.55	0.31	0.31
Construction Worker Commute	0.00	0.74	0.88	1.84	2.43	2.73	3.17	3.39	3.76	3.61	3.24	1.69	1.47	1.33	0.88
Offsite Total (lbs/day)	0.04	0.82	0.97	1.86	2.92	3.24	4.55	4.84	5.20	5.12	4.81	3.33	3.04	1.75	1.31
Vehicle Type	CO Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Material Hauling Trucks	0.94	1.88	1.88	0.00	3.75	4.22	22.98	22.98	22.98	22.98	22.98	22.98	22.98	2.34	2.34
Waste Hauling Trucks	0.00	0.00	0.00	0.00	7.03	7.03	8.44	9.85	9.85	11.25	12.66	14.07	12.66	7.03	7.03
Construction Worker Commute	0.00	16.95	20.34	42.37	55.92	62.70	72.87	77.95	86.42	83.04	74.56	38.98	33.89	30.50	20.34
Offsite Total (lbs/month)	0.94	18.82	22.21	42.82	67.17	74.41	104.74	111.23	119.71	117.72	110.66	76.48	69.99	40.34	30.17
Offsite Total (tons/year)	0.48														

Offsite Vehicle VOC Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	VOC Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.01	0.01	0.01	0.00	0.03	0.03	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.02	0.02
Waste Hauling Trucks	0.00	0.00	0.00	0.00	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.09	0.05	0.05
Construction Worker Commute	0.00	0.02	0.02	0.04	0.05	0.06	0.07	0.07	0.08	0.08	0.07	0.04	0.03	0.03	0.02
Offsite Total (lbs/day)	0.01	0.03	0.03	0.04	0.14	0.15	0.30	0.32	0.33	0.33	0.34	0.31	0.30	0.10	0.09
Vehicle Type	VOC Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Material Hauling Trucks	0.16	0.32	0.32	0.00	0.64	0.72	3.92	3.92	3.92	3.92	3.92	3.92	3.92	0.40	0.40
Waste Hauling Trucks	0.00	0.00	0.00	0.00	1.20	1.20	1.44	1.68	1.68	1.92	2.16	2.40	2.16	1.20	1.20
Construction Worker Commute	0.00	0.36	0.43	0.90	1.19	1.34	1.55	1.66	1.84	1.77	1.59	0.83	0.72	0.65	0.43
Offsite Total (lbs/month)	0.16	0.68	0.75	1.00	3.12	3.35	7.01	7.35	7.53	7.70	7.76	7.24	6.89	2.34	2.13
Offsite Total (tons/year)	0.03														

Table 5.1A.4R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle SOx Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	SOx Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Material Hauling Trucks	0.000	0.001	0.001	0.000	0.001	0.002	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.001	0.001
Waste Hauling Trucks	0.000	0.000	0.000	0.000	0.003	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.005	0.003	0.003
Construction Worker Commute	0.000	0.002	0.002	0.004	0.006	0.006	0.007	0.008	0.009	0.008	0.007	0.004	0.003	0.003	0.002
Offsite Total (lbs/day)	0.000	0.002	0.003	0.004	0.010	0.010	0.019	0.020	0.021	0.021	0.020	0.017	0.016	0.007	0.006
Vehicle Type	SOx Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.000	0.000	0.000	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Material Hauling Trucks	0.008	0.016	0.016	0.000	0.031	0.035	0.193	0.193	0.193	0.193	0.193	0.193	0.193	0.020	0.020
Waste Hauling Trucks	0.000	0.000	0.000	0.000	0.059	0.059	0.071	0.083	0.083	0.094	0.106	0.118	0.106	0.059	0.059
Construction Worker Commute	0.000	0.038	0.046	0.096	0.127	0.142	0.165	0.176	0.196	0.188	0.169	0.088	0.077	0.069	0.046
Offsite Total (lbs/month)	0.008	0.054	0.062	0.099	0.220	0.239	0.431	0.455	0.474	0.478	0.470	0.402	0.378	0.151	0.128
Offsite Total (tons/year)	0.002														

Offsite Vehicle NOx Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	NOx Emissions (lbs/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Material Hauling Trucks	0.13	0.25	0.25	0.00	0.51	0.57	3.11	3.11	3.11	2.75	2.75	2.75	2.75	0.28	0.28
Waste Hauling Trucks	0.00	0.00	0.00	0.00	0.95	0.95	1.14	1.33	1.33	1.35	1.51	1.68	1.51	0.84	0.84
Construction Worker Commute	0.00	0.07	0.09	0.18	0.23	0.26	0.31	0.33	0.36	0.32	0.29	0.15	0.13	0.12	0.08
Offsite Total (lbs/day)	0.13	0.32	0.34	0.24	1.75	1.85	4.62	4.83	4.86	4.47	4.60	4.63	4.45	1.29	1.25
Vehicle Type	NOx Emissions (lbs/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	1.40	1.40	1.40	1.40	1.40	1.40	1.23	1.23	1.23	1.23	1.23	1.23
Material Hauling Trucks	2.92	5.84	5.84	0.00	11.67	13.13	71.50	71.50	71.50	63.23	63.23	63.23	63.23	6.45	6.45
Waste Hauling Trucks	0.00	0.00	0.00	0.00	21.89	21.89	26.27	30.64	30.64	30.97	34.84	38.71	34.84	19.36	19.36
Construction Worker Commute	0.00	1.63	1.96	4.08	5.39	6.04	7.02	7.51	8.32	7.31	6.57	3.43	2.98	2.69	1.79
Offsite Total (lbs/month)	2.92	7.47	7.79	5.48	40.35	42.46	106.18	111.05	111.87	102.74	105.87	106.60	102.28	29.72	28.83
Offsite Total (tons/year)	0.45														

Offsite Vehicle PM₁₀ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	PM ₁₀ Emissions (lbs/day) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.01	0.02	0.02	0.00	0.05	0.06	0.30	0.30	0.30	0.29	0.29	0.29	0.29	0.03	0.03
Waste Hauling Trucks	0.00	0.00	0.00	0.00	0.09	0.09	0.11	0.13	0.13	0.14	0.16	0.18	0.16	0.09	0.09
Construction Worker Commute	0.00	0.16	0.19	0.40	0.52	0.59	0.68	0.73	0.81	0.78	0.70	0.36	0.32	0.29	0.19
Offsite Total (lbs/day)	0.01	0.18	0.21	0.40	0.67	0.74	1.10	1.16	1.24	1.21	1.15	0.84	0.77	0.41	0.31
Vehicle Type	PM ₁₀ Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11
Material Hauling Trucks	0.28	0.56	0.56	0.00	1.13	1.27	6.90	6.90	6.90	6.66	6.66	6.66	6.66	0.68	0.68
Waste Hauling Trucks	0.00	0.00	0.00	0.00	2.11	2.11	2.53	2.96	2.96	3.26	3.67	4.08	3.67	2.04	2.04
Construction Worker Commute	0.00	3.65	4.38	9.12	12.03	13.49	15.68	16.78	18.60	17.87	16.05	8.39	7.29	6.56	4.38
Offsite Total (lbs/month)	0.28	4.21	4.94	9.23	15.39	16.99	25.23	26.75	28.57	27.91	26.49	19.24	17.74	9.40	7.21
Offsite Total (tons/year)	0.12														

Notes:
^a PM₁₀ Emissions include emissions from exhaust and paved roads.

Table 5.1A.4R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle PM_{2.5} Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	PM _{2.5} Emissions (lbs/day) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.01	0.01	0.01	0.00	0.02	0.03	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.01	0.01
Waste Hauling Trucks	0.00	0.00	0.00	0.00	0.05	0.05	0.06	0.07	0.07	0.07	0.08	0.09	0.08	0.04	0.04
Construction Worker Commute	0.00	0.04	0.05	0.11	0.15	0.16	0.19	0.20	0.22	0.22	0.20	0.10	0.09	0.08	0.05
Offsite Total (lbs/day)	0.01	0.06	0.07	0.11	0.22	0.24	0.40	0.42	0.45	0.43	0.42	0.34	0.31	0.14	0.11
Vehicle Type	PM _{2.5} Emissions (lbs/month) ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Material Hauling Trucks	0.14	0.29	0.29	0.00	0.57	0.65	3.52	3.52	3.52	3.30	3.30	3.30	3.30	0.34	0.34
Waste Hauling Trucks	0.00	0.00	0.00	0.00	1.08	1.08	1.29	1.51	1.51	1.62	1.82	2.02	1.82	1.01	1.01
Construction Worker Commute	0.00	1.01	1.22	2.54	3.35	3.75	4.36	4.67	5.17	5.00	4.49	2.35	2.04	1.84	1.22
Offsite Total (lbs/month)	0.14	1.30	1.50	2.60	5.06	5.54	9.23	9.75	10.26	9.97	9.66	7.72	7.22	3.24	2.63
Offsite Total (tons/year)	0.04														

Notes:
^a PM_{2.5} Emissions include emissions from exhaust and paved roads.

Offsite Vehicle CO₂ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	CO ₂ Emissions (metric tons/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Material Hauling Trucks	0.02	0.03	0.03	0.00	0.07	0.07	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.04	0.04
Waste Hauling Trucks	0.00	0.00	0.00	0.00	0.12	0.12	0.15	0.17	0.17	0.20	0.22	0.25	0.22	0.12	0.12
Construction Worker Commute	0.00	0.07	0.08	0.17	0.23	0.26	0.30	0.32	0.35	0.34	0.31	0.16	0.14	0.13	0.08
Offsite Total (metric tons/day)	0.02	0.10	0.12	0.18	0.42	0.46	0.86	0.90	0.94	0.95	0.94	0.81	0.77	0.30	0.25
Vehicle Type	CO ₂ Emissions (metric tons/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.00	0.00	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Material Hauling Trucks	0.38	0.75	0.75	0.00	1.51	1.70	9.24	9.24	9.24	9.24	9.24	9.24	9.24	0.94	0.94
Waste Hauling Trucks	0.00	0.00	0.00	0.00	2.83	2.83	3.40	3.96	3.96	4.53	5.09	5.66	5.09	2.83	2.83
Construction Worker Commute	0.00	1.60	1.92	4.00	5.28	5.92	6.88	7.36	8.16	7.84	7.04	3.68	3.20	2.88	1.92
Offsite Total (metric tons/month)	0.38	2.35	2.67	4.15	9.77	10.59	19.67	20.71	21.51	21.76	21.52	18.73	17.69	6.80	5.84
Offsite Total (metric tons/year)	178.73														

Offsite Vehicle N₂O Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	N ₂ O Emissions (metric tons/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Material Hauling Trucks	0.000000	0.000001	0.000001	0.000000	0.000002	0.000002	0.000012	0.000012	0.000012	0.000012	0.000012	0.000012	0.000012	0.000001	0.000001
Waste Hauling Trucks	0.000000	0.000000	0.000000	0.000000	0.000004	0.000004	0.000004	0.000005	0.000005	0.000006	0.000006	0.000007	0.000006	0.000004	0.000004
Construction Worker Commute	0.000000	0.000008	0.000009	0.000019	0.000026	0.000029	0.000033	0.000036	0.000040	0.000038	0.000034	0.000018	0.000016	0.000014	0.000009
Offsite Total (metric tons/day)	0.000000	0.000009	0.000010	0.000020	0.000031	0.000035	0.000050	0.000053	0.000057	0.000056	0.000053	0.000037	0.000034	0.000019	0.000014
Vehicle Type	N ₂ O Emissions (metric tons/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Material Hauling Trucks	0.000001	0.000002	0.000002	0.000000	0.000004	0.000005	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000027	0.000003	0.000003
Waste Hauling Trucks	0.000000	0.000000	0.000000	0.000000	0.000008	0.000008	0.000010	0.000012	0.000012	0.000013	0.000015	0.000017	0.000015	0.000008	0.000008
Construction Worker Commute	0.000000	0.000018	0.000021	0.000045	0.000059	0.000066	0.000077	0.000082	0.000091	0.000088	0.000079	0.000041	0.000036	0.000032	0.000021
Offsite Total (metric tons/month)	0.000001	0.000020	0.000024	0.000045	0.000072	0.000080	0.000114	0.000121	0.000130	0.000128	0.000121	0.000085	0.000078	0.000044	0.000033
Offsite Total (metric tons/year)	0.001052														

Table 5.1A.4R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle CH₄ Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	CH ₄ Emissions (metric tons/day)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Material Hauling Trucks	0.000001	0.000001	0.000001	0.000000	0.000002	0.000002	0.000012	0.000012	0.000012	0.000012	0.000012	0.000012	0.000012	0.000001	0.000001
Waste Hauling Trucks	0.000000	0.000000	0.000000	0.000000	0.000004	0.000004	0.000005	0.000005	0.000005	0.000006	0.000007	0.000008	0.000007	0.000004	0.000004
Construction Worker Commute	0.000000	0.000037	0.000045	0.000093	0.000123	0.000138	0.000161	0.000172	0.000191	0.000183	0.000164	0.000086	0.000075	0.000067	0.000045
Offsite Total (metric tons/day)	0.000001	0.000038	0.000046	0.000094	0.000129	0.000145	0.000178	0.000190	0.000209	0.000202	0.000184	0.000106	0.000094	0.000073	0.000050
Vehicle Type	CH ₄ Emissions (metric tons/month)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Material Hauling Trucks	0.000001	0.000002	0.000002	0.000000	0.000005	0.000005	0.000029	0.000029	0.000029	0.000029	0.000029	0.000029	0.000029	0.000003	0.000003
Waste Hauling Trucks	0.000000	0.000000	0.000000	0.000000	0.000009	0.000009	0.000011	0.000012	0.000012	0.000014	0.000016	0.000018	0.000016	0.000009	0.000009
Construction Worker Commute	0.000000	0.000086	0.000103	0.000215	0.000284	0.000318	0.000370	0.000395	0.000438	0.000421	0.000378	0.000198	0.000172	0.000155	0.000103
Offsite Total (metric tons/month)	0.000001	0.000088	0.000105	0.000215	0.000298	0.000333	0.000409	0.000437	0.000480	0.000464	0.000423	0.000244	0.000217	0.000167	0.000115
Offsite Total (metric tons/year)	0.003802														

Offsite Construction Vehicle Activity for Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Roundtrip Miles/Day ^a	Working Days per Month ^b
Offsite Delivery Trucks	14.6	23
Material Hauling Trucks	40.0	23
Waste Hauling Trucks	60.0	23
Construction Worker Commute	21.6	23

Notes:

^a Roundtrip miles/day taken as the CalEEMod defaults for the South Coast Air Basin except for Waste Hauling Trucks, which were assumed to travel directly to the landfill for offsite waste disposal.

^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Table 5.1A.5R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Emission Source	Pollutant(s)	Equation	Variables
Construction Equipment Exhaust	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_m = EF * N * Hp * L * H / 453.6$	E_m = Emissions (lbs/month)
			EF = Emission factor (g/bhp-hr)
			N = Number of pieces of equipment
		$E_d = E_m / D$	Hp = Average horsepower
			L = Average load factor
			H = Hours per month
		$E_i = \sum E_m / 2,000$	453.6 = Conversion from g to lbs
			E_d = Emissions (lbs/day)
			D = Number of construction days per month
	CO ₂	$E_m = N * FC * EF * H * 0.001$	E_m = Emissions (lbs/month)
			$2,000$ = Conversion from lbs to tons
			E_m = Emissions (metric tons/month)
		$E_d = E_m / D$	N = Number of pieces of equipment
			FC = Fuel consumption (gallons/hour)
			EF = Emission factor (kg/gallon)
$E_i = \sum E_m$		H = Hours per month	
		0.001 = Conversion from kg to metric tons	
		E_d = Emissions (metric tons/day)	
CH ₄ and N ₂ O	$E_m = N * FC * EF * H / 1,000 * 0.001$	E_m = Emissions (metric tons/month)	
		N = Number of pieces of equipment	
		FC = Fuel consumption (gallons/hour)	
	$E_d = E_m / D$	EF = Emission factor (g/gallon)	
		H = Hours per month	
		$1,000$ = Conversion from g to kg	
	$E_i = \sum E_m$	0.001 = Conversion from kg to metric tons	
		E_d = Emissions (metric tons/day)	
		D = Number of construction days per month	
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	E_d = Emissions (lbs/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
	$E_m = E_d * D$	EF = EMFAC2007 emission factor (g/mile). Paved and unpaved road fugitive PM ₁₀ and PM _{2.5} emission factors calculated per Sections 13.2.1 and 13.2.2 of AP-42, respectively.	
		453.6 = Conversion from g to lbs	
		E_m = Emissions (lbs/month)	
	$E_i = \sum E_m / 2,000$	E_d = Emissions (lbs/day)	
		D = Number of construction days per month	
		E_i = Emissions (tons/year)	
	E_m = Emissions (lbs/month)		
	$2,000$ = Conversion from lbs to tons		

Table 5.1A.5R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Peaker and Tank Area and Stack 3 & 4 Demolition

Emission Source	Pollutant(s)	Equation	Variables	
Onsite and Offsite Vehicle Exhaust	CO ₂	$E_d = N * VMT / FE * EF * 0.001$	E_d = Emissions (metric tons/day)	
			N = Number of vehicles	
			VMT = Vehicle miles traveled per day (miles/day)	
				FE = Fuel economy (mpg)
				EF = Emission factor (kg/gallon)
				0.001 = Conversion from kg to metric tons
		$E_m = E_d * D$	E_m = Emissions (metric tons/month)	
			E_d = Emissions (metric tons/day)	
			D = Number of construction days per month	
	$E_t = \sum E_m$	E_t = Emissions (metric tons/year)		
		E_m = Emissions (metric tons/month)		
		E_d = Emissions (metric tons/day)		
Onsite and Offsite Vehicle Exhaust	CH ₄ and N ₂ O	$E_d = N * VMT * EF / 1,000 * 0.001$	E_d = Emissions (metric tons/day)	
			N = Number of vehicles	
			VMT = Vehicle miles traveled per day (miles/day)	
				EF = Emission factor (g/mile)
				1,000 = Conversion from g to kg
				0.001 = Conversion from kg to metric tons
		$E_m = E_d * D$	E_m = Emissions (metric tons/month)	
			E_d = Emissions (metric tons/day)	
			D = Number of construction days per month	
	$E_t = \sum E_m$	E_t = Emissions (metric tons/year)		
		E_m = Emissions (metric tons/month)		
		E_d = Emissions (metric tons/day)		
Onsite Fugitive PM ₁₀ and PM _{2.5} from Dismemberment and Debris Loading	PM ₁₀ and PM _{2.5}	$E_d = T * EF / D$	E_d = Emissions (lbs/day)	
			T = Tons of material dismembered or loaded	
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/ton), calculated per Section 13.2.4.3 of AP-42 for dismemberment and Section 4.4 of Appendix A of the CalEEMod User's Guide for debris loading.	
				D = Number of construction days per month
		$E_m = E_d * D$	E_m = Emissions (lbs/month)	
			E_d = Emissions (lbs/day)	
	D = Number of construction days per month			
	$E_t = \sum E_m / 2,000$	E_t = Emissions (tons/year)		
		E_m = Emissions (lbs/month)		
		2,000 = Conversion from lbs to tons		

Huntington Beach Energy Project
 Construction Emission Estimates - Peaker and Tank Area and Stack 3 and 4 Demolition
 April 2014

Table 5.1A.6R Number of Onsite Construction Equipment and Motor Vehicles

Number of Onsite Equipment for Peaker and Tank Area and Stack 3 & 4 Demolition

Onsite Equipment	Number per Month ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Excavator	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3
Grader	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1
Cranes ^b	0	0	2	3	3	3	3	3	3	2	2	2	2	2	2
Tractor/Loader/Backhoe ^c	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rubber Tired Loader ^d	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Crawler Tractor ^e	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Air Compressor	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
Forklift	0	0	1	1	2	2	2	2	2	2	2	1	1	1	1
Roller ^f	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1

Notes:

^a Equipment counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

^b Numbers presented for Cranes includes the equipment counts for the 50 Ton Hydraulic Crane and the 35 Ton Hydraulic Crane.

^c Numbers presented for Tractor/Loader/Backhoe includes the equipment counts for the Backhoe.

^d Numbers presented for Rubber Tired Loader includes the equipment counts for the Front End Loader.

^e Numbers presented for Crawler Tractor includes the equipment counts for the Dozer

^f Numbers presented for Roller includes the equipment counts for the Compactor.

Number of Onsite Motor Vehicles for Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Number per Month ^a														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Pick-up Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Onsite Stake Truck	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1
Onsite Dump Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Notes:

^a Vehicle counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

Table 5.1A.7R Construction Equipment Exhaust Criteria Pollutant Emission Factors

Construction Equipment Emission Factors for Peaker and Tank Area and Stack 3 & 4 Demolition

Equipment ^a	Percent Usage ^b	Hours per Month ^c	Horsepower ^d	Load Factor ^d	Emission Factors (g/bhp-hr) ^e									Fuel Consumption (gallons/hour) ^f
					CO	VOC	NO _x 2015	NO _x 2016	SO _x	PM ₁₀ 2015	PM ₁₀ 2016	PM _{2.5} 2015	PM _{2.5} 2016	
Water Truck ^g	50%	115	381	0.57	1.241	0.408	2.956	2.613	0.005	0.105	0.093	0.105	0.093	12.33
Excavator	85%	196	157	0.57	3.369	0.532	3.751	3.323	0.006	0.204	0.179	0.204	0.179	5.11
Grader	80%	184	162	0.61	3.356	0.595	4.372	3.955	0.006	0.241	0.218	0.241	0.218	5.65
Cranes	65%	150	208	0.43	1.374	0.468	4.197	3.818	0.006	0.145	0.131	0.145	0.131	5.08
Tractor/Loader/Backhoe	55%	127	75	0.55	3.823	0.633	4.252	3.874	0.006	0.322	0.278	0.322	0.278	2.36
Rubber Tired Loader	55%	127	87	0.54	3.945	0.805	5.041	4.657	0.006	0.415	0.373	0.415	0.373	2.69
Crawler Tractor	80%	184	82	0.64	4.122	0.987	5.885	5.508	0.006	0.500	0.460	0.500	0.460	3.02
Air Compressor	80%	184	78	0.48	3.840	0.821	5.190	4.790	0.006	0.446	0.397	0.446	0.397	2.15
Forklift	75%	173	149	0.30	3.357	0.487	3.456	3.062	0.006	0.188	0.166	0.188	0.166	2.55
Roller	70%	161	84	0.56	3.853	0.825	5.296	4.925	0.006	0.437	0.400	0.437	0.400	2.70

Notes:

^a Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the CalEEMod User's Guide.

^b Percent Usage assumed typical of power plant construction.

^c Hours per month calculated based on the following schedule, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Work hours per day: 10

Work days per month: 23

^d Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the CalEEMod User's Guide.

^e Construction equipment emission factors taken from Table 3.4 of Appendix D of the CalEEMod User's Guide. The emission factors for the year 2015 were used for the construction equipment exhaust emission calculations for CO, VOC, and SO_x. The emission factors for year 2015 and 2016 were used for NO_x, PM₁₀, and PM_{2.5}.

^f Fuel consumption based on consumption in the OFFROAD2007 model for the SCAB in the year 2015; value estimated by dividing the reported consumption (gallons/day) by the reported activity (hours/day).

^g Horsepower, load factor, and emission factors for Off-Highway Trucks were assumed representative of Water Trucks.

Table 5.1A.8R Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors

Vehicle Emission Factors for Peaker and Tank Area and Stack 3 & 4 Demolition

Vehicle Type	Vehicle Class ^a	Exhaust Emission Factors (g/mile) ^b									Paved Road Emission Factors (g/mile) ^c		Fuel Economy (mpg) ^b
		CO	VOC	SO _x	NO _x 2015	NO _x 2016	PM ₁₀ 2015	PM ₁₀ 2016	PM _{2.5} 2015	PM _{2.5} 2016	PM ₁₀	PM _{2.5}	
Onsite Pick-up Truck	Light-duty Truck	3.823	0.264	0.011	0.354	0.327	0.121	0.123	0.099	0.101	N/A	N/A	7.433
Onsite Stake Truck	Heavy-duty Diesel	11.918	7.032	0.037	21.152	18.687	1.207	1.007	1.073	0.889	N/A	N/A	2.621
Onsite Dump Truck	Heavy-duty Diesel	11.918	7.032	0.037	21.152	18.687	1.207	1.007	1.073	0.889	N/A	N/A	2.621
Offsite Delivery Trucks	Heavy-duty Diesel	2.483	0.498	0.017	7.565	6.621	0.328	0.297	0.264	0.235	0.300	0.075	5.749
Material Hauling Trucks	Heavy/Medium-duty Diesel	1.850	0.316	0.016	5.756	5.090	0.255	0.236	0.208	0.191	0.300	0.075	6.224
Waste Hauling Trucks	Heavy/Medium-duty Diesel	1.850	0.316	0.016	5.756	5.090	0.255	0.236	0.208	0.191	0.300	0.075	6.224
Construction Worker Commute	Light-duty Auto/Truck	1.547	0.033	0.004	0.149	0.136	0.033	0.033	0.018	0.018	0.300	0.075	27.278

Notes:

^a The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be an average of LDT1, All and LDT2, All values.

Heavy-duty Diesel: Assumed to be 100% HHD DSL values, as confirmed in Section 4.5 of Appendix A of the CalEEMod User's Guide.

Heavy/Medium-duty Diesel: 50% HHD DSL and 50% MHD DSL values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

Light-duty Auto/Truck: 50% LDA, All; 25% LDT1, All; and 25% LDT2, All values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

^b Exhaust emission factors and fuel economy from EMFAC2007 for the South Coast Air Basin, calendar year 2015 for CO, VOC, and SO_x. The emission factors for year 2015 and 2016 were used for NO_x, PM₁₀, and PM_{2.5}. A speed of 5 mph was assumed for onsite vehicles; a speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions.

^c Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile)^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [\text{sL (g/m}^2\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Huntington Beach Energy Project
 Construction Emission Estimates - Peaker and Tank Area and Stack 3 and 4 Demolition
 April 2014

Table 5.1A.9R Onsite and Offsite Greenhouse Gas Emission Factors

Greenhouse Gas Emission Factors for Peaker and Tank Area and Stack 3 & 4 Demolition

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO₂ Emission Factors			
Gasoline	8.78	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
Diesel	10.21	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
N₂O Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0036	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0066	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0048	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.26	g N ₂ O/gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.
CH₄ Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0173	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0163	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0051	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.58	g CH ₄ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.

Notes:

^a Model Year 2009 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Table 5.1A.10R Onsite Construction Equipment Exhaust Emissions

Construction Equipment CH₄ Emissions from Block 1 Construction

Onsite Equipment	CH ₄ Emissions (metric tons/month)																														
	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	41	42	43	44	45	
Water Truck	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	
Excavator	0.0012	0.0012	0.0012	0.0012	0.0012	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Grader	0.0012	0.0012	0.0012	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	
Cranes	0.0000	0.0000	0.0000	0.0009	0.0009	0.0009	0.0018	0.0018	0.0022	0.0022	0.0018	0.0018	0.0022	0.0022	0.0018	0.0018	0.0018	0.0018	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Tractor/Loader/Backhoe	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	
Rubber Tired Loader	0.0004	0.0004	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Crawler Tractor	0.0006	0.0006	0.0003	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Air Compressor	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	
Forklift	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	
Roller	0.0004	0.0004	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0002
Other General Industrial Equipment	0.0004	0.0004	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Onsite Total (metric tons/month)	0.0060	0.0060	0.0055	0.0063	0.0045	0.0036	0.0045	0.0045	0.0049	0.0049	0.0045	0.0045	0.0049	0.0044	0.0039	0.0039	0.0039	0.0039	0.0030	0.0030	0.0026	0.0024	0.0024	0.0024	0.0015	0.0015	0.0013	0.0013	0.0021	0.0021	
Onsite Total (metric tons/day) ^a	0.0003	0.0003	0.0002	0.0003	0.0002	0.0001																									
Onsite Total (metric tons/year)	0.06																														

Notes:
^a Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls', the days per month are as fo 23

Table 5.1A.12R Onsite Construction Fugitive Dust Emissions

Onsite Construction Vehicle Activity for Block 1 Construction

Vehicle Type	Miles/Day ^a	Working Days per Month ^b
Onsite Pick-up Truck	2	23
Onsite Stake Truck	2	23
Onsite Dump Truck	1	23

Notes:
^a Estimated based on the dimensions of the project site.
^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Fugitive Dust Emission Factors for Unpaved Roads

Vehicles on Unpaved Surfaces at Industrial Sites

Parameter	PM ₁₀	PM _{2.5}
Mean Vehicle Weight ^a	16.5	16.5
Silt Content ^b	8.5	8.5
k ^c	1.5	0.15
a ^d	0.9	0.9
b ^d	0.45	0.45
P ^e	31	31
Emission Factor (Uncontrolled, lbs/mile) ^f	2.17	0.22
Reduction from Applying Soil Stabilizers ^g	84%	84%
Emission Factor (Controlled, lbs/mile)	0.35	0.03

Notes:
^a Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.
^b Silt content taken from Table 13.2.2-1 of Section 13.2.2 of AP-42 for a Construction Site, Scraper Route; this value is consistent with the CalEEMod defaults for the South Coast Air Basin.
^c k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of AP-42 for industrial roads.
^d P taken as the CalEEMod default for the Huntington Beach climate region of the South Coast Air Basin.
^e Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of AP-42:
 Emission Factor (lbs/mile) = k (lbs/mile) x [Silt Content (%) / 12]² x [Mean Vehicle Weight (tons) / 3]³ x [(365 - P) / 365]
^f Control efficiency taken from Table XI-D of the SCAQMD CEQA Handbook for Travel Over Unpaved Roads.

Fugitive Dust Emission Factors for Grading

Grading Equipment Passes

Parameter	PM ₁₀	PM _{2.5}
S (mph) ^a	7.1	7.1
F ^b	0.6	0.031
Emission Factor (lbs/VMT) ^c	1.543	0.167
Reduction from Applying Soil Stabilizers ^d	84%	84%
Emission Factor (Controlled, lbs/VMT)	0.247	0.027

Notes:
^a The mean vehicle speed (S) and the particulate matter scaling factor (F) taken from Section 11.9 of AP-42 per Section 4.3 of Appendix A of the CalEEMod User's Guide.
^b Emission factor calculated using the following equation from Section 4.3 of Appendix A of the CalEEMod User's Guide:
 PM₁₀ Emission Factor (lbs/VMT) = 0.051 x (S)^{2.5} x F_{PM10}
 PM_{2.5} Emission Factor (lbs/VMT) = 0.04 x (S)^{2.5} x F_{PM2.5}
^c Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Post-demolition Stabilization.

Fugitive Dust Emission Factors for Bulldozing

Bulldozing Equipment Passes

Parameter	PM ₁₀	PM _{2.5}
C ^a	1.0	5.7
M (%) ^b	7.9	7.9
s (%) ^b	6.9	6.9
F ^c	0.75	0.105
Emission Factor (lbs/hr) ^d	0.753	0.414
Reduction from Applying Soil Stabilizers ^e	84%	84%
Emission Factor (Controlled, lbs/hr)	0.120	0.066

Notes:
^a The arbitrary coefficient (C), material moisture content (M), material silt content (s), and particulate matter scaling factor (F) taken from Section 11.9 of AP-42 per Section 4.3 of Appendix A of the CalEEMod User's Guide. These values are consistent with the CalEEMod defaults for the South Coast Air Basin.
^b Emission factor calculated using the following equation from Section 4.3 of Appendix A of the CalEEMod User's Guide:
 PM₁₀ Emission Factor (lbs/hr) = [(C x s^{1.5}) / M²] x F_{PM10}
 PM_{2.5} Emission Factor (lbs/hr) = [(C x s^{1.5}) / M²] x F_{PM2.5}
^c Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Post-demolition Stabilization.

Table 5.1A.14R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Block 1 Construction

Emission Source	Pollutant(s)	Equation	Variables
Construction Equipment Exhaust	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_m = EF * N * Hp * L * H / 453.6$	E_m = Emissions (lbs/month)
			EF = Emission factor (g/bhp-hr)
			N = Number of pieces of equipment
			Hp = Average horsepower
			L = Average load factor
			H = Hours per month
	$E_d = E_m / D$	E_d = Emissions (lbs/day)	
		E_m = Emissions (lbs/month)	
		D = Number of construction days per month	
	$E_t = \sum E_m / 2,000$	E_t = Emissions (tons/year)	
		E_m = Emissions (lbs/month)	
		2,000 = Conversion from lbs to tons	
CO ₂	$E_m = N * FC * EF * H * 0.001$	E_m = Emissions (metric tons/month)	
		N = Number of pieces of equipment	
		FC = Fuel consumption (gallons/hour)	
		EF = Emission factor (kg/gallon)	
		H = Hours per month	
		0.001 = Conversion from kg to metric tons	
$E_d = E_m / D$	E_d = Emissions (metric tons/day)		
	E_m = Emissions (metric tons/month)		
	D = Number of construction days per month		
$E_t = \sum E_m$	E_t = Emissions (metric tons/year)		
	E_m = Emissions (metric tons/month)		
CH ₄ and N ₂ O	$E_m = N * FC * EF * H / 1,000 * 0.001$	E_m = Emissions (metric tons/month)	
		N = Number of pieces of equipment	
		FC = Fuel consumption (gallons/hour)	
		EF = Emission factor (g/gallon)	
		H = Hours per month	
		1,000 = Conversion from g to kg 0.001 = Conversion from kg to metric tons	
$E_d = E_m / D$	E_d = Emissions (metric tons/day)		
	E_m = Emissions (metric tons/month)		
	D = Number of construction days per month		
$E_t = \sum E_m$	E_t = Emissions (metric tons/year)		
	E_m = Emissions (metric tons/month)		
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	E_d = Emissions (lbs/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			EF = EMFAC2007 emission factor (g/mile). Paved and unpaved road fugitive PM ₁₀ and PM _{2.5} emission factors calculated per Sections 13.2.1 and 13.2.2 of AP-42, respectively.
			453.6 = Conversion from g to lbs
			E_m = Emissions (lbs/month)
$E_m = E_d * D$	E_d = Emissions (lbs/day)		
	D = Number of construction days per month		
	E_t = Emissions (tons/year)		
$E_t = \sum E_m / 2,000$	E_m = Emissions (lbs/month)		
	2,000 = Conversion from lbs to tons		

Table 5.1A.14R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Block 1 Construction

Emission Source	Pollutant(s)	Equation	Variables
Onsite and Offsite Vehicle Exhaust	CO ₂	$E_d = N * VMT / FE * EF * 0.001$	E _d = Emissions (metric tons/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			FE = Fuel economy (mpg)
			EF = Emission factor (kg/gallon)
			0.001 = Conversion from kg to metric tons
	$E_m = E_d * D$	E _m = Emissions (metric tons/month)	
		E _d = Emissions (metric tons/day)	
		D = Number of construction days per month	
	$E_t = \sum E_m$	E _t = Emissions (metric tons/year)	
		E _m = Emissions (metric tons/month)	
		E _d = Emissions (metric tons/day)	
CH ₄ and N ₂ O	$E_d = N * VMT * EF / 1,000 * 0.001$	E _d = Emissions (metric tons/day)	
		N = Number of vehicles	
		VMT = Vehicle miles traveled per day (miles/day)	
		EF = Emission factor (g/mile)	
		1,000 = Conversion from g to kg	
		0.001 = Conversion from kg to metric tons	
	$E_m = E_d * D$	E _m = Emissions (metric tons/month)	
		E _d = Emissions (metric tons/day)	
		D = Number of construction days per month	
$E_t = \sum E_m$	E _t = Emissions (metric tons/year)		
	E _m = Emissions (metric tons/month)		
	E _d = Emissions (metric tons/day)		
Onsite and Offsite Fugitive PM ₁₀ and PM _{2.5} from Grading	PM ₁₀ and PM _{2.5}	$E_d = EF * A / W * 43,560 / 5,280 / D$	E _d = Emissions (lbs/day)
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/mile), calculated per Section 4.3 of Appendix A of the CalEEMod User's Guide.
			A = Site disturbed (acres/month)
			W = Grading equipment blade width (ft)
			43,560 = Conversion factor from square feet to acres
			5,280 = Conversion factor from feet to miles
	$E_m = E_d * D$	E _m = Emissions (lbs/month)	
		E _d = Emissions (lbs/day)	
		D = Number of construction days per month	
	$E_t = \sum E_m / 2,000$	E _t = Emissions (tons/year)	
		E _m = Emissions (lbs/month)	
		2,000 = Conversion from lbs to tons	
Onsite Fugitive PM ₁₀ and PM _{2.5} from Bulldozing	PM ₁₀ and PM _{2.5}	$E_d = EF * H / D$	E _d = Emissions (lbs/day)
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/mile), calculated per Section 4.3 of Appendix A of the CalEEMod User's Guide.
			H = Hours per month for all bulldozers
			D = Number of construction days per month
			E _m = Emissions (lbs/month)
			E _d = Emissions (lbs/day)
	$E_m = E_d * D$	E _m = Emissions (lbs/month)	
		E _d = Emissions (lbs/day)	
		D = Number of construction days per month	
$E_t = \sum E_m / 2,000$	E _t = Emissions (tons/year)		
	E _m = Emissions (lbs/month)		
	2,000 = Conversion from lbs to tons		

Table 5.1A.15R Number of Onsite Construction Equipment and Motor Vehicles

Number of Onsite Equipment for Block 1 Construction

Onsite Equipment	Number per Month ^a																													
	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	41	42	43	44	45
Water Truck	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
Excavator	2	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grader	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Cranes ^b	0	0	0	2	2	2	4	4	5	5	4	4	5	5	4	4	4	4	2	2	2	2	2	2	0	0	0	0	0	
Tractor/Loader/Backhoe ^c	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	0	0	0	
Rubber Tired Loader ^d	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	
Crawler Tractor ^e	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Air Compressor	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	
Forklift	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	
Roller ^f	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Other General Industrial Equipment ^g	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

- Notes:
- ^a Equipment counts taken from 'HBEP Equipment Usage 1.21.13.xls'.
 - ^b Numbers presented for Cranes includes the equipment counts for the 75 Ton Hydraulic Crane, the 35 Ton Hydraulic Crane, the Heavy Lift Lattice Boom Main Crane, the Heavy Lift Lattice Boom Tail Crane, and the Heavy Lift Gantry Crane.
 - ^c Numbers presented for Tractor/Loader/Backhoe includes the equipment counts for the Backhoe.
 - ^d Numbers presented for Rubber Tired Loader includes the equipment counts for the Front End Loader.
 - ^e Numbers presented for Crawler Tractor includes the equipment counts for the Dozer
 - ^f Numbers presented for Roller includes the equipment counts for the Compactor.
 - ^g Numbers presented for Other General Industrial Equipment includes the equipment counts for the Pile Driver.

Number of Onsite Motor Vehicles for Block 1 Construction

Vehicle Type	Number per Month ^a																												
	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	41	42	43	44
Onsite Pick-up Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Onsite Stake Truck	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Onsite Dump Truck	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0

- Notes:
- ^a Vehicle counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

Table 5.1A.16R Construction Equipment Exhaust Criteria Pollutant Emission Factors

Construction Equipment Emission Factors for Block 1 Construction

Equipment ^a	Percent Usage ^b	Hours per Month ^c	Horsepower ^d	Load Factor ^d	Emission Factors (g/bhp-hr) ^e											Fuel Consumption (gallons/hour) ^f	
					CO	VOC	NO _x 2016	NO _x 2017	NO _x 2018	SO _x	PM ₁₀ 2016	PM ₁₀ 2017	PM ₁₀ 2018	PM _{2.5} 2016	PM _{2.5} 2017		PM _{2.5} 2018
Water Truck ^g	50%	115	381	0.57	1.209	0.387	2.613	2.302	2.025	0.005	0.093	0.082	0.073	0.093	0.082	0.073	12.33
Excavator	85%	196	157	0.57	3.366	0.492	3.323	2.928	2.567	0.006	0.179	0.155	0.133	0.179	0.155	0.133	5.11
Grader	80%	184	162	0.61	3.352	0.557	3.955	3.568	3.211	0.006	0.218	0.196	0.176	0.218	0.196	0.176	5.65
Cranes	65%	150	208	0.43	1.334	0.443	3.818	3.462	3.125	0.006	0.131	0.118	0.107	0.131	0.118	0.107	5.08
Tractor/Loader/Backhoe	55%	127	75	0.55	3.800	0.576	3.874	3.533	3.226	0.006	0.278	0.237	0.201	0.278	0.237	0.201	2.36
Rubber Tired Loader	55%	127	87	0.54	3.919	0.745	4.657	4.302	3.975	0.006	0.373	0.333	0.296	0.373	0.333	0.296	2.69
Crawler Tractor	80%	184	82	0.64	4.092	0.926	5.508	5.156	4.826	0.006	0.460	0.422	0.386	0.460	0.422	0.386	3.01
Air Compressor	80%	184	78	0.48	3.804	0.744	4.790	4.412	4.050	0.006	0.397	0.350	0.304	0.397	0.350	0.304	2.15
Forklift	75%	173	149	0.30	3.362	0.456	3.062	2.696	2.338	0.006	0.166	0.145	0.124	0.166	0.145	0.124	2.55
Roller	60%	138	84	0.56	3.825	0.766	4.925	4.576	4.249	0.006	0.400	0.364	0.328	0.400	0.364	0.328	2.70
Other General Industrial Equipment	70%	161	150	0.51	3.355	0.580	4.126	3.686	3.277	0.006	0.231	0.204	0.178	0.231	0.204	0.178	4.37

Notes:

^a Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the CalEEMod User's Guide.

^b Percent Usage assumed typical of power plant construction.

^c Hours per month calculated based on the following schedule, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Work hours per day: 10

Work days per month: 23

^d Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the CalEEMod User's Guide.

^e Construction equipment emission factors taken from Table 3.4 of Appendix D of the CalEEMod User's Guide. The emission factors for the year 2016 were used for the construction equipment exhaust emission calculations for CO, VOC, and SO_x. The emission factors for year 2016, 2017 and 2018 were used for NO_x, PM₁₀, and PM_{2.5}.

^f Fuel consumption based on consumption in the OFFROAD2007 model for the SCAB in the year 2016; value estimated by dividing the reported consumption (gallons/day) by the reported activity (hours/day).

^g Horsepower, load factor, and emission factors for Off-Highway Trucks were assumed representative of Water Trucks.

Table 5.1A.17R Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors

Vehicle Emission Factors for Block 1 Construction

Vehicle Type	Vehicle Class ^a	Exhaust Emission Factors (g/mile) ^b												Paved Road Emission Factors (g/mile) ^c		Fuel Economy (mpg) ^b
		CO	VOC	SO _x	NO _x 2016	NO _x 2017	NO _x 2018	PM ₁₀ 2016	PM ₁₀ 2017	PM ₁₀ 2018	PM _{2.5} 2016	PM _{2.5} 2017	PM _{2.5} 2018	PM ₁₀	PM _{2.5}	
Onsite Pick-up Truck	Light-duty Truck	3.508	0.235	0.011	0.327	0.301	0.278	0.123	0.124	0.126	0.101	0.103	0.104	N/A	N/A	7.440
Onsite Stake Truck	Heavy-duty Diesel	10.786	6.276	0.037	18.687	16.645	14.934	1.007	0.843	0.709	0.889	0.738	0.614	N/A	N/A	2.621
Onsite Dump Truck	Heavy-duty Diesel	10.786	6.276	0.037	18.687	16.645	14.934	1.007	0.843	0.709	0.889	0.738	0.614	N/A	N/A	2.621
Offsite Delivery Trucks	Heavy-duty Diesel	2.249	0.453	0.017	6.621	5.842	5.193	0.297	0.270	0.248	0.235	0.211	0.190	0.300	0.075	5.749
Material Hauling Trucks	Heavy/Medium-duty Diesel	1.719	0.290	0.016	5.090	4.528	4.046	0.236	0.220	0.206	0.191	0.176	0.163	0.300	0.075	6.224
Construction Worker Commute	Light-duty Auto/Truck	1.435	0.029	0.004	0.136	0.125	0.114	0.033	0.033	0.033	0.018	0.018	0.018	0.300	0.075	27.325

Notes:

^a The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be an average of LDT1, All and LDT2, All values.

Heavy-duty Diesel: Assumed to be 100% HHD DSL values, as confirmed in Section 4.5 of Appendix A of the CalEEMod User's Guide.

Heavy/Medium-duty Diesel: 50% HHD DSL and 50% MHD DSL values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

Light-duty Auto/Truck: 50% LDA, All; 25% LDT1, All; and 25% LDT2, All values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

^b Exhaust emission factors and fuel economy from EMFAC2007 for the South Coast Air Basin, calendar year 2016 for CO, VOC, and SO_x. Calendar year 2016, 2017 and 2018 were used for NO_x, PM₁₀, and PM_{2.5}. A speed of 5 mph was assumed for onsite vehicles; a speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions.

^c Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile) ^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [\text{sL (g/m}^2\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Table 5.1A.18R Onsite and Offsite Greenhouse Gas Emission Factors

Greenhouse Gas Emission Factors for Block 1 Construction

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO₂ Emission Factors			
Gasoline	8.78	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
Diesel	10.21	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
N₂O Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0036	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0066	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0048	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.26	g N ₂ O/gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.
CH₄ Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0173	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0163	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0051	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.58	g CH ₄ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.

Notes:

^a Model Year 2009 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Table 5.1A.21R Onsite Construction Fugitive Dust Emissions

Offsite Grading Fugitive PM₁₀ Emissions from Block 2 Construction

Construction Activity	Fugitive PM ₁₀ Emissions (lbs/day) ^a																											
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Grading ^b	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
	Offsite Total (lbs/day)																											
	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Construction Activity	Fugitive PM ₁₀ Emissions (lbs/month) ^a																											
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Grading	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
	Offsite Total (lbs/month)																											
	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
	Offsite Total (tons/year)																											
	0.00																											

Notes:
^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23
^b Per Section 4.3 of Appendix A of the CalEEMod User's Guide, the following blade width was assumed for grading equipment: 12 ft

Offsite Grading Fugitive PM_{2.5} Emissions from Block 2 Construction

Construction Activity	Fugitive PM _{2.5} Emissions (lbs/day) ^a																											
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Grading	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Offsite Total (lbs/day)																											
	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Construction Activity	Fugitive PM _{2.5} Emissions (lbs/month) ^a																											
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Grading	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
	Offsite Total (lbs/month)																											
	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
	Offsite Total (tons/year)																											
	0.000																											

Notes:
^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23
^b Per Section 4.3 of Appendix A of the CalEEMod User's Guide, the following blade width was assumed for grading equipment: 12 ft

Onsite Construction Vehicle Activity for Block 2 Construction

Vehicle Type	Miles/Day ^a	Working Days per
Onsite Pick-up Truck	2	23
Onsite Stake Truck	2	23
Onsite Dump Truck	1	23

Notes:
^a Estimated based on the dimensions of the project site.
^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Fugitive Dust Emission Factors for Unpaved Roads

Parameter	PM ₁₀	PM _{2.5}
Mean Vehicle Weight ^a	16.5	16.5
Silt Content ^b	8.5	8.5
k ^c	1.5	0.15
a ^c	0.9	0.9
b ^c	0.45	0.45
p ^d	31	31
Emission Factor (Uncontrolled, lbs/mile) ^e	2.17	0.22
Reduction from Applying Soil Stabilizers ^f	84%	84%
Emission Factor (Controlled, lbs/mile)	0.35	0.03

Notes:
^a Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.
^b Silt content taken from Table 13.2.2-1 of Section 13.2.2 of AP-42 for a Construction Site, Scrapper Route; this value is consistent with the CalEEMod defaults for the South Coast Air Basin.
^c k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of AP-42 for industrial roads.
^d P taken as the CalEEMod default for the Huntington Beach climate region of the South Coast Air Basin.
^e Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of AP-42:
Emission Factor (lbs/mile) = (k [lbs/mile] x [Silt Content (%) / 12]³ x [Mean Vehicle Weight (tons) / 3]³) x [(365 - P) / 365]
^f Control efficiency taken from Table XI-D of the SCAQMD CEQA Handbook for Travel Over Unpaved Roads.

Fugitive Dust Emission Factors for Grading

Parameter	PM ₁₀	PM _{2.5}
S (mph) ^a	7.1	7.1
F ^b	0.6	0.031
Emission Factor (lbs/VMT) ^b	1.543	0.167
Reduction from Applying Soil Stabilizers ^c	84%	84%
Emission Factor (Controlled, lbs/VMT)	0.247	0.027

Notes:
^a The mean vehicle speed (S) and the particulate matter scaling factor (F) taken from Section 11.9 of AP-42 per Section 4.3 of Appendix A of the CalEEMod User's Guide.
^b Emission factor calculated using the following equation from Section 4.3 of Appendix A of the CalEEMod User's Guide:
PM₁₀ Emission Factor (lbs/VMT) = 0.051 x (S)^{2.0} x F_{PM10}
PM_{2.5} Emission Factor (lbs/VMT) = 0.04 x (S)^{2.5} x F_{PM2.5}
^c Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Post-demolition Stabilization.

Fugitive Dust Emission Factors for Bulldozing

Parameter	PM ₁₀	PM _{2.5}
C ^a	1.0	5.7
M (%) ^a	7.9	7.9
s (%) ^a	6.9	6.9
F ^b	0.75	0.105
Emission Factor (lbs/hr) ^b	0.753	0.414
Reduction from Applying Soil Stabilizers ^c	84%	84%
Emission Factor (Controlled, lbs/hr)	0.120	0.066

Notes:
^a The arbitrary coefficient (C), material moisture content (M), material silt content (s), and particulate matter scaling factor (F) taken from Section 11.9 of AP-42 per Section 4.3 of Appendix A of the CalEEMod User's Guide. These values are consistent with the CalEEMod defaults for the South Coast Air Basin.
^b Emission factor calculated using the following equation from Section 4.3 of Appendix A of the CalEEMod User's Guide:
PM₁₀ Emission Factor (lbs/hr) = [(C x s^{1.5}) / M^{1.4}] x F_{PM10}
PM_{2.5} Emission Factor (lbs/hr) = [(C x s²) / M^{1.7}] x F_{PM2.5}
^c Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Post-demolition Stabilization.

Table 5.1A.23R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Block 2 Construction

Emission Source	Pollutant(s)	Equation	Variables	
Construction Equipment Exhaust	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_m = EF * N * Hp * L * H / 453.6$	E_m = Emissions (lbs/month)	
			EF = Emission factor (g/bhp-hr)	
			N = Number of pieces of equipment	
			Hp = Average horsepower	
			L = Average load factor	
			H = Hours per month	
	CO ₂	$E_d = E_m / D$	E_d = Emissions (lbs/day)	
			E_m = Emissions (lbs/month)	
			D = Number of construction days per month	
			$E_i = \sum E_m / 2,000$	E_i = Emissions (tons/year)
				E_m = Emissions (lbs/month)
				2,000 = Conversion from lbs to tons
CH ₄ and N ₂ O	$E_m = N * FC * EF * H * 0.001$	E_m = Emissions (metric tons/month)		
		N = Number of pieces of equipment		
		FC = Fuel consumption (gallons/hour)		
		EF = Emission factor (kg/gallon)		
		H = Hours per month		
		0.001 = Conversion from kg to metric tons		
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	E_d = Emissions (lbs/day)	
			N = Number of vehicles	
			VMT = Vehicle miles traveled per day (miles/day)	
			EF = EMFAC2007 emission factor (g/mile). Paved and unpaved road fugitive PM ₁₀ and PM _{2.5} emission factors calculated per Sections 13.2.1 and 13.2.2 of AP-42, respectively.	
			453.6 = Conversion from g to lbs	
			$E_m = E_d * D$	
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_i = \sum E_m / 2,000$	E_m = Emissions (lbs/month)	
			E_d = Emissions (lbs/day)	
			D = Number of construction days per month	
			E_i = Emissions (tons/year)	
			E_m = Emissions (lbs/month)	
			2,000 = Conversion from lbs to tons	

Table 5.1A.23R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Block 2 Construction

Emission Source	Pollutant(s)	Equation	Variables
Onsite and Offsite Vehicle Exhaust	CO ₂	$E_d = N * VMT / FE * EF * 0.001$	E _d = Emissions (metric tons/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			FE = Fuel economy (mpg)
			EF = Emission factor (kg/gallon)
			0.001 = Conversion from kg to metric tons
		$E_m = E_d * D$	E _m = Emissions (metric tons/month)
			E _d = Emissions (metric tons/day)
			D = Number of construction days per month
		$E_i = \sum E_m$	E _i = Emissions (metric tons/year)
			E _m = Emissions (metric tons/month)
CH ₄ and N ₂ O	$E_d = N * VMT * EF / 1,000 * 0.001$	E _d = Emissions (metric tons/day)	
		N = Number of vehicles	
		VMT = Vehicle miles traveled per day (miles/day)	
		EF = Emission factor (g/mile)	
		1,000 = Conversion from g to kg	
		0.001 = Conversion from kg to metric tons	
	$E_m = E_d * D$	E _m = Emissions (metric tons/month)	
		E _d = Emissions (metric tons/day)	
		D = Number of construction days per month	
	$E_i = \sum E_m$	E _i = Emissions (metric tons/year)	
		E _m = Emissions (metric tons/month)	
Onsite and Offsite Fugitive PM ₁₀ and PM _{2.5} from Grading	PM ₁₀ and PM _{2.5}	$E_d = EF * A / W * 43,560 / 5,280 / D$	E _d = Emissions (lbs/day)
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/mile), calculated per Section 4.3 of Appendix A of the CalEEMod User's Guide.
			A = Site disturbed (acres/month)
			W = Grading equipment blade width (ft)
			43,560 = Conversion factor from square feet to acres
			5,280 = Conversion factor from feet to miles
	$E_m = E_d * D$	E _m = Emissions (lbs/month)	
		E _d = Emissions (lbs/day)	
		D = Number of construction days per month	
	$E_i = \sum E_m / 2,000$	E _i = Emissions (tons/year)	
		E _m = Emissions (lbs/month)	
		2,000 = Conversion from lbs to tons	
Onsite Fugitive PM ₁₀ and PM _{2.5} from Bulldozing	PM ₁₀ and PM _{2.5}	$E_d = EF * H / D$	E _d = Emissions (lbs/day)
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/mile), calculated per Section 4.3 of Appendix A of the CalEEMod User's Guide.
			H = Hours per month for all bulldozers
			D = Number of construction days per month
	$E_m = E_d * D$	E _m = Emissions (lbs/month)	
		E _d = Emissions (lbs/day)	
		D = Number of construction days per month	
	$E_i = \sum E_m / 2,000$	E _i = Emissions (tons/year)	
		E _m = Emissions (lbs/month)	
		2,000 = Conversion from lbs to tons	

Table 5.1A.24R Number of Onsite Construction Equipment and Motor Vehicles

Number of Onsite Equipment for Block 2 Construction

Onsite Equipment	Number per Month ^a																											
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Water Truck	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
Excavator	1	2	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grader	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Cranes ^b	0	0	0	0	2	2	4	4	4	5	4	4	6	5	4	4	4	4	2	2	2	2	2	2	2	0	0	0
Tractor/Loader/Backhoe ^c	0	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
Rubber Tired Loader ^d	0	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
Crawler Tractor ^e	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Compressor	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Forklift	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
Roller ^f	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Other General Industrial Equipment ^g	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- Notes:
- ^a Equipment counts taken from 'HBEP Equipment Usage 1.21.13.xls'.
 - ^b Numbers presented for Cranes includes the equipment counts for the 75 Ton Hydraulic Crane, the 35 Ton Hydraulic Crane, the Heavy Lift Lattice Boom Main Crane, the Heavy Lift Lattice Boom Tail Crane, and the Heavy Lift Gantry Crane.
 - ^c Numbers presented for Tractor/Loader/Backhoe includes the equipment counts for the Backhoe.
 - ^d Numbers presented for Rubber Tired Loader includes the equipment counts for the Front End Loader.
 - ^e Numbers presented for Crawler Tractor includes the equipment counts for the Dozer
 - ^f Numbers presented for Roller includes the equipment counts for the Compactor.
 - ^g Numbers presented for Other General Industrial Equipment includes the equipment counts for the Pile Driver.

Number of Onsite Motor Vehicles for Block 2 Construction

Vehicle Type	Number per Month ^a																											
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Onsite Pick-up Truck	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Onsite Stake Truck	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Onsite Dump Truck	1	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0

- Notes:
- ^a Vehicle counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

Table 5.1A.25R Construction Equipment Exhaust Criteria Pollutant Emission Factors

Construction Equipment Emission Factors for Block 2 Construction

Equipment ^a	Percent Usage ^b	Hours per Month ^c	Horsepower ^d	Load Factor ^d	Emission Factors (g/bhp-hr) ^e											Fuel Consumption (gallons/hour) ^f	
					CO	VOC	NO _x 2018	NO _x 2019	NO _x 2020	SO _x	PM ₁₀ 2018	PM ₁₀ 2019	PM ₁₀ 2020	PM _{2.5} 2018	PM _{2.5} 2019		PM _{2.5} 2020
Water Truck ^g	50%	115	381	0.57	1.164	0.345	2.025	1.779	1.561	0.005	0.073	0.064	0.057	0.073	0.064	0.057	12.32
Excavator	85%	196	157	0.57	3.362	0.417	2.567	2.242	1.958	0.006	0.133	0.114	0.098	0.133	0.114	0.098	5.11
Grader	80%	184	162	0.61	3.345	0.485	3.211	2.881	2.578	0.006	0.176	0.157	0.139	0.176	0.157	0.139	5.65
Cranes	65%	150	208	0.43	1.277	0.398	3.125	2.807	2.507	0.006	0.107	0.096	0.086	0.107	0.096	0.086	5.08
Tractor/Loader/Backhoe	55%	127	75	0.55	3.764	0.477	3.226	2.951	2.709	0.006	0.201	0.169	0.141	0.201	0.169	0.141	2.36
Rubber Tired Loader	55%	127	87	0.54	3.873	0.636	3.975	3.677	3.404	0.006	0.296	0.261	0.228	0.296	0.261	0.228	2.69
Crawler Tractor	80%	184	82	0.64	4.040	0.816	4.826	4.517	4.228	0.006	0.386	0.352	0.320	0.386	0.352	0.320	3.01
Air Compressor	80%	184	78	0.48	3.744	0.603	4.050	3.706	3.400	0.006	0.304	0.260	0.224	0.304	0.260	0.224	2.14
Forklift	75%	173	149	0.30	3.365	0.396	2.338	2.046	1.782	0.006	0.124	0.105	0.087	0.124	0.105	0.087	2.55
Roller	60%	138	84	0.56	3.775	0.655	4.249	3.944	3.66	0.006	0.328	0.293	0.260	0.328	0.293	0.260	2.69
Other General Industrial Equipment	70%	161	150	0.51	3.353	0.488	3.277	2.915	2.591	0.006	0.178	0.156	0.138	0.178	0.156	0.138	4.37

Notes:

^a Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the CalEEMod User's Guide.

^b Percent Usage assumed typical of power plant construction.

^c Hours per month calculated based on the following schedule, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Work hours per day: 10

Work days per month: 23

^d Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the CalEEMod User's Guide.

^e Construction equipment emission factors taken from Table 3.4 of Appendix D of the CalEEMod User's Guide. The emission factors for the year 2018 were used for the construction equipment exhaust emission calculations for CO, VOC, and SO_x. The emission factors for year 2018, 2019 and 2020 were used for NO_x, PM₁₀, and PM_{2.5}.

^f Fuel consumption based on consumption in the OFFROAD2007 model for the SCAB in the year 2018; value estimated by dividing the reported consumption (gallons/day) by the reported activity (hours/day).

^g Horsepower, load factor, and emission factors for Off-Highway Trucks were assumed representative of Water Trucks.

Table 5.1A.26R Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors

Vehicle Emission Factors for Block 2 Construction

Vehicle Type	Vehicle Class ^a	Exhaust Emission Factors (g/mile) ^b											Paved Road Emission Factors (g/mile) ^c		Fuel Economy (mpg) ^b	
		CO	VOC	SO _x	NO _x 2018	NO _x 2019	NO _x 2020	PM ₁₀ 2018	PM ₁₀ 2019	PM ₁₀ 2020	PM _{2.5} 2018	PM _{2.5} 2019	PM _{2.5} 2020	PM ₁₀		PM _{2.5}
Onsite Pick-up Truck	Light-duty Truck	2.934	0.182	0.011	0.278	0.258	0.239	0.126	0.126	0.127	0.104	0.105	0.105	N/A	N/A	7.455
Onsite Stake Truck	Heavy-duty Diesel	9.010	5.097	0.037	14.934	13.495	12.285	0.709	0.597	0.506	0.614	0.512	0.427	N/A	N/A	2.621
Onsite Dump Truck	Heavy-duty Diesel	9.010	5.097	0.037	14.934	13.495	12.285	0.709	0.597	0.506	0.614	0.512	0.427	N/A	N/A	2.621
Offsite Delivery Trucks	Heavy-duty Diesel	1.886	0.384	0.017	5.193	4.648	4.193	0.248	0.229	0.214	0.190	0.173	0.159	0.300	0.075	5.749
Material Hauling Trucks	Heavy/Medium-duty Diesel	1.513	0.251	0.016	4.046	3.632	3.278	0.206	0.194	0.184	0.163	0.142	0.143	0.300	0.075	6.224
Construction Worker Commute	Light-duty Auto/Truck	1.229	0.021	0.003	0.114	0.104	0.097	0.033	0.033	0.033	0.018	0.018	0.018	0.300	0.075	27.419

Notes:

^a The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be an average of LDT1, All and LDT2, All values.

Heavy-duty Diesel: Assumed to be 100% HHD DSL values, as confirmed in Section 4.5 of Appendix A of the CalEEMod User's Guide.

Heavy/Medium-duty Diesel: 50% HHD DSL and 50% MHD DSL values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

Light-duty Auto/Truck: 50% LDA, All; 25% LDT1, All; and 25% LDT2, All values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

^b Exhaust emission factors and fuel economy from EMFAC2007 for the South Coast Air Basin, calendar year 2018 for CO, VOC, and SO_x. Calendar year 2018, 2019 and 2020 were used for NO_x, PM₁₀, and PM_{2.5}. A speed of 5 mph was assumed for onsite vehicles; a speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions.

^c Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile)^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [\text{sL (g/m}^3\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Table 5.1A.27R Onsite and Offsite Greenhouse Gas Emission Factors

Greenhouse Gas Emission Factors for Block 2 Construction

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO₂ Emission Factors			
Gasoline	8.78	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
Diesel	10.21	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
N₂O Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0036	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0066	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0048	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.26	g N ₂ O/gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.
CH₄ Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0173	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0163	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0051	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.58	g CH ₄ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.

Notes:

^a Model Year 2009 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Table 5.1A.28R Onsite Construction Equipment Exhaust Emissions

Construction Equipment CH₄ Emissions from Units 1 & 2 Demolition

Onsite Equipment	CH ₄ Emissions (metric tons/month)																								
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Water Truck	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	
Cranes	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	
Rubber Tired Loader	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	
Air Compressor	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
Forklift	0.0003	0.0003	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	
Excavator	0.0012	0.0012	0.0017	0.0017	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	
Onsite Total (metric tons/month)	0.0042	0.0042	0.0050	0.0050	0.0056	0.0056	0.0052	0.0058																	
Onsite Total (metric tons/day)^a	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003								
Onsite Total (metric tons/year)	0.0673																								

Notes:

^a Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls', the days per month are as follows: 23

Table 5.1A.30R Onsite Demolition Fugitive Dust Emissions

Onsite Demolition Fugitive PM_{2.5} Emissions from Units 1 & 2 Demolition

Demolition Activity	Fugitive PM _{2.5} Emissions (lbs/day) ^{a, b}																							
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Dismemberment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading ^c	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Onsite Total (lbs/day)	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	
Demolition Activity	Fugitive PM _{2.5} Emissions (lbs/month) ^{a, b}																							
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Dismemberment	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Debris Loading ^c	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	
Onsite Total (lbs/month)	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02		
Onsite Total (tons/year)	0.01																							

Notes:
^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23
^b Emissions based on the highest (controlled) emission factor for PM_{2.5}.
^c Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Onsite Construction Vehicle Activity for Units 1 & 2 Demolition

Vehicle Type	Miles/Day ^a	Working Days per Month ^b
Onsite Pick-up Truck	2	23
Onsite Stake Truck	2	23
Onsite Dump Truck	1	23

Notes:
^a Estimated based on the dimensions of the project site.
^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Fugitive Dust Emission Factors for Unpaved Roads

Vehicles on Unpaved Surfaces at Industrial Sites

Parameter	PM ₁₀	PM _{2.5}
Mean Vehicle Weight ^a	16.5	16.5
Silt Content ^b	8.5	8.5
k ^c	1.5	0.15
a ^c	0.9	0.9
b ^c	0.45	0.45
P ^d	31	31
Emission Factor (Uncontrolled, lbs/mile)^e	2.17	0.22
Reduction from Applying Soil Stabilizers^f	84%	84%
Emission Factor (Controlled, lbs/mile)	0.35	0.03

Notes:
^a Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.
^b Silt content taken from Table 13.2.2-1 of Section 13.2.2 of AP-42 for a Construction Site, Scrapper Route; this value is consistent with the CalEEMod defaults for the South Coast Air Basin.
^c k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of AP-42 for industrial roads.
^d P taken as the CalEEMod default for the Huntington Beach climate region of the South Coast Air Basin.
^e Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of AP-42:
 Emission Factor (lbs/mile) = (k (lbs/mile) x [Silt Content (%) / 12]³ x [Mean Vehicle Weight (tons) / 3]³) x [(365 - P) / 365]
^f Control efficiency taken from Table XI-D of the SCAQMD CEQA Handbook for Travel Over Unpaved Roads.

Fugitive Dust Emission Factors for Dismemberment

Dismemberment and Collapse of Structures

Parameter	PM ₁₀	PM _{2.5}
k ^a	0.35	0.053
U (mph) ^b	4.9	4.9
M (%) ^c	2.0	2.0
Emission Factor (lbs/ton)^d	0.00110	0.00017
Reduction from Watering Every 4 Hours^e	36%	36%
Emission Factor (Controlled, lbs/ton)	0.00070	0.00011

Notes:
^a k, the particle size multiplier, taken from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide.
^b U, the mean wind speed, taken as the CalEEMod default for the South Coast Air Basin. Converted from meters/second (m/s) to miles per hour (mph).
^c M, the material moisture content, taken from Section 4.4 of Appendix A of the CalEEMod User's Guide.
^d Emission factor calculated using the following equation from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide:
 Emission Factor (lbs/ton) = k x 0.0032 x [U / 5]^{1.3} x [M / 2]^{1.4}
^e Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Active Demolition and Debris Removal.

Fugitive Dust Emission Factors for Debris Loading

Loading of Debris/Building Waste

Parameter	PM ₁₀	PM _{2.5}
k ^a	0.35	0.053
EF _{L-TSP} ^b	0.058	0.058
Emission Factor (lbs/ton)^c	0.020	0.003
Reduction from Watering Every 4 Hours^d	36%	36%
Emission Factor (Controlled, lbs/ton)	0.013	0.002

Notes:
^a k taken from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide.
^b EF_{L-TSP} taken from Section 4.4 of Appendix A of the CalEEMod User's Guide.
^c Emission factor calculated using the following equation from Section 4.4 of Appendix A of the CalEEMod User's Guide:
 Emission Factor (lbs/ton) = k x EF_{L-TSP} (lbs/ton)
^d Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Active Demolition and Debris Removal.

Table 5.1A.32R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Units 1 & 2 Demolition

Emission Source	Pollutant(s)	Equation	Variables
Construction Equipment Exhaust	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_m = EF * N * Hp * L * H / 453.6$	E_m = Emissions (lbs/month)
			EF = Emission factor (g/bhp-hr)
			N = Number of pieces of equipment
		$E_d = E_m / D$	Hp = Average horsepower
			L = Average load factor
			H = Hours per month
		$E_t = \sum E_m / 2,000$	453.6 = Conversion from g to lbs
			E_d = Emissions (lbs/day)
			D = Number of construction days per month
	CO ₂	$E_m = N * FC * EF * H * 0.001$	E_t = Emissions (tons/year)
			E_m = Emissions (lbs/month)
			$2,000$ = Conversion from lbs to tons
		$E_d = E_m / D$	E_m = Emissions (metric tons/month)
			N = Number of pieces of equipment
			FC = Fuel consumption (gallons/hour)
$E_t = \sum E_m$	EF = Emission factor (kg/gallon)		
	H = Hours per month		
	0.001 = Conversion from kg to metric tons		
CH ₄ and N ₂ O	$E_m = N * FC * EF * H / 1,000 * 0.001$	E_d = Emissions (metric tons/day)	
		E_m = Emissions (metric tons/month)	
		D = Number of construction days per month	
	$E_d = E_m / D$	E_t = Emissions (metric tons/year)	
		E_m = Emissions (metric tons/month)	
		$E_t = \sum E_m$	
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	E_m = Emissions (metric tons/month)
			N = Number of pieces of equipment
			FC = Fuel consumption (gallons/hour)
		$E_m = E_d * D$	EF = Emission factor (g/gallon)
			H = Hours per month
			$1,000$ = Conversion from g to kg
	$E_t = \sum E_m / 2,000$	0.001 = Conversion from kg to metric tons	
		E_d = Emissions (metric tons/day)	
		E_m = Emissions (metric tons/month)	
	D = Number of construction days per month		
	E_t = Emissions (metric tons/year)		
	E_m = Emissions (metric tons/month)		
	$E_d = N * VMT * EF / 453.6$	E_d = Emissions (lbs/day)	
		N = Number of vehicles	
		VMT = Vehicle miles traveled per day (miles/day)	
	$E_m = E_d * D$	EF = EMFAC2007 emission factor (g/mile). Paved and unpaved road fugitive PM ₁₀ and PM _{2.5} emission factors calculated per Sections 13.2.1 and 13.2.2 of AP-42, respectively.	
		453.6 = Conversion from g to lbs	
		E_m = Emissions (lbs/month)	
$E_t = \sum E_m / 2,000$	E_d = Emissions (lbs/day)		
	D = Number of construction days per month		
	E_t = Emissions (tons/year)		
		E_m = Emissions (lbs/month)	
		$2,000$ = Conversion from lbs to tons	

Table 5.1A.32R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Units 1 & 2 Demolition

Emission Source	Pollutant(s)	Equation	Variables
Onsite and Offsite Vehicle Exhaust	CO ₂	$E_d = N * VMT / FE * EF * 0.001$	E_d = Emissions (metric tons/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			FE = Fuel economy (mpg)
			EF = Emission factor (kg/gallon)
			0.001 = Conversion from kg to metric tons
		$E_m = E_d * D$	E_m = Emissions (metric tons/month)
			E_d = Emissions (metric tons/day)
			D = Number of construction days per month
		$E_i = \sum E_m$	E_i = Emissions (metric tons/year)
			E_m = Emissions (metric tons/month)
CH ₄ and N ₂ O	$E_d = N * VMT * EF / 1,000 * 0.001$	E_d = Emissions (metric tons/day)	
		N = Number of vehicles	
		VMT = Vehicle miles traveled per day (miles/day)	
		EF = Emission factor (g/mile)	
		1,000 = Conversion from g to kg	
		0.001 = Conversion from kg to metric tons	
	$E_m = E_d * D$	E_m = Emissions (metric tons/month)	
		E_d = Emissions (metric tons/day)	
		D = Number of construction days per month	
	$E_i = \sum E_m$	E_i = Emissions (metric tons/year)	
		E_m = Emissions (metric tons/month)	
Onsite Fugitive PM ₁₀ and PM _{2.5} from Dismemberment and Debris Loading	PM ₁₀ and PM _{2.5}	$E_d = T * EF / D$	E_d = Emissions (lbs/day)
			T = Tons of material dismembered or loaded
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/ton), calculated per Section 13.2.4.3 of AP-42 for dismemberment and Section 4.4 of Appendix A of the CalEEMod User's Guide for debris loading.
			D = Number of construction days per month
			E_m = Emissions (lbs/month)
			E_d = Emissions (lbs/day)
	$E_m = E_d * D$	D = Number of construction days per month	
		E_i = Emissions (tons/year)	
		E_m = Emissions (lbs/month)	
	$E_i = \sum E_m / 2,000$	E_m = Emissions (lbs/month)	
		2,000 = Conversion from lbs to tons	

Table 5.1A.33R Number of Onsite Construction Equipment and Motor Vehicles

Number of Onsite Equipment for Units 1 & 2 Demolition

Onsite Equipment	Number per Month ^a																							
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cranes ^b	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
Rubber Tired Loader ^c	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
Air Compressor	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Forklift	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Excavators	2	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Notes:

^a Equipment counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

^b Numbers presented for Cranes includes the equipment counts for the 75 Ton Hydraulic Crane and the 35 Ton Hydraulic Crane.

^c Numbers presented for Rubber Tired Loader includes the equipment counts for the Front End Loader.

Number of Onsite Motor Vehicles for Units 1 & 2 Demolition

Vehicle Type	Number per Month ^a																							
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Onsite Stake Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Onsite Dump Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Notes:

^a Vehicle counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

Table 5.1A.34R Construction Equipment Exhaust Criteria Pollutant Emission Factors

Construction Equipment Emission Factors for Units 1 & 2 Demolition

Equipment ^a	Percent Usage ^b	Hours per Month ^c	Horsepower ^d	Load Factor ^d	Emission Factors (g/bhp-hr) ^e											Fuel Consumption (gallons/hour) ^f	
					CO	VOC	NO _x 2020	NO _x 2021	NO _x 2022	SO _x	PM ₁₀ 2020	PM ₁₀ 2021	PM ₁₀ 2022	PM _{2.5} 2020	PM _{2.5} 2021		PM _{2.5} 2022
Water Truck ^g	50%	115	381	0.57	1.136	0.310	1.561	1.365	1.194	0.005	0.057	0.050	0.043	0.057	0.050	0.043	12.32
Cranes	65%	150	208	0.43	1.236	0.356	2.507	2.231	1.979	0.006	0.086	0.077	0.068	0.086	0.077	0.068	5.08
Rubber Tired Loader	55%	127	87	0.54	3.836	0.542	3.404	3.155	2.929	0.006	0.228	0.198	0.171	0.228	0.198	0.171	2.69
Air Compressor	80%	184	78	0.48	3.698	0.489	3.400	3.083	2.844	0.006	0.224	0.190	0.165	0.224	0.190	0.165	2.14
Forklift	75%	173	149	0.30	3.360	0.338	1.782	1.508	1.281	0.006	0.087	0.069	0.054	0.087	0.069	0.054	2.55
Excavator	85%	196	157	0.57	3.361	0.355	1.958	1.710	1.492	0.006	0.098	0.085	0.073	0.098	0.085	0.073	5.11

Notes:

^a Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the CalEEMod User's Guide.

^b Percent Usage assumed typical of power plant construction.

^c Hours per month calculated based on the following schedule, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls':

Work hours per day: 10

Work days per month: 23

^d Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the CalEEMod User's Guide.

^e Construction equipment emission factors taken from Table 3.4 of Appendix D of the CalEEMod User's Guide. The emission factors for the year 2020 were used for the construction equipment exhaust emission calculations for CO, VOC, and SO_x. The emission factors for year 2020, 2021 and 2022 were used for NO_x, PM₁₀, and PM_{2.5}.

^f Fuel consumption based on consumption in the OFFROAD2007 model for the SCAB in the year 2020; value estimated by dividing the reported consumption (gallons/day) by the reported activity (hours/day).

^g Horsepower, load factor, and emission factors for Off-Highway Trucks were assumed representative of Water Trucks.

Table 5.1A.35R Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors

Vehicle Emission Factors for Units 1 & 2 Demolition

Vehicle Type	Vehicle Class ^a	Exhaust Emission Factors (g/mile) ^b												Paved Road Emission Factors (g/mile) ^c		Fuel Economy (mpg) ^b
		CO	VOC	SO _x	NO _x 2020	NO _x 2021	NO _x 2022	PM ₁₀ 2020	PM ₁₀ 2021	PM ₁₀ 2022	PM _{2.5} 2020	PM _{2.5} 2021	PM _{2.5} 2022	PM ₁₀	PM _{2.5}	
Onsite Pick-up Truck	Light-duty Truck	2.560	0.153	0.011	0.239	0.223	0.207	0.127	0.128	0.129	0.105	0.106	0.107	N/A	N/A	7.467
Onsite Stake Truck	Heavy-duty Diesel	7.701	4.236	0.037	12.285	11.246	10.375	0.506	0.430	0.368	0.427	0.357	0.301	N/A	N/A	2.621
Onsite Dump Truck	Heavy-duty Diesel	7.701	4.236	0.037	12.285	11.246	10.375	0.506	0.430	0.368	0.427	0.357	0.301	N/A	N/A	2.621
Offsite Delivery Trucks	Heavy-duty Diesel	1.623	0.333	0.017	4.193	3.805	3.481	0.214	0.201	0.190	0.159	0.147	0.137	0.300	0.075	5.749
Material Hauling Trucks	Heavy/Medium-duty Diesel	1.359	0.221	0.016	3.278	2.973	2.714	0.184	0.175	0.168	0.143	0.135	0.128	0.300	0.075	6.224
Waste Hauling Trucks	Heavy/Medium-duty Diesel	1.359	0.221	0.016	3.278	2.973	2.714	0.184	0.175	0.168	0.143	0.135	0.128	0.300	0.075	6.224
Construction Worker Commute	Light-duty Auto/Truck	1.077	0.017	0.003	0.097	0.090	0.336	0.033	0.033	0.033	0.018	0.018	0.018	0.300	0.075	27.504

Notes:

^a The vehicle classes are represented as follows:
 Light-duty Truck: Assumed to be an average of LDT1, All and LDT2, All values.
 Heavy-duty Diesel: Assumed to be 100% HHD DSL values, as confirmed in Section 4.5 of Appendix A of the CalEEMod User's Guide.
 Heavy/Medium-duty Diesel: 50% HHD DSL and 50% MHD DSL values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.
 Light-duty Auto/Truck: 50% LDA, All; 25% LDT1, All; and 25% LDT2, All values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

^b Exhaust emission factors and fuel economy from EMFAC2007 for the South Coast Air Basin, calendar year 2020 for CO, VOC, and SO_x. Calendar year 2020, 2021 and 2022 were used for NO_x, PM₁₀, and PM_{2.5}. A speed of 5 mph was assumed for onsite vehicles; a speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions.

^c Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile) ^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [\text{sL (g/m}^2\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Huntington Beach Energy Project
 Construction Emission Estimates - Units 1 and 2 Demolition
 April 2014

Table 5.1A.36R Onsite and Offsite Greenhouse Gas Emission Factors

Greenhouse Gas Emission Factors for Units 1 & 2 Demolition

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO₂ Emission Factors			
Gasoline	8.78	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
Diesel	10.21	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
N₂O Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0036	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0066	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0048	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.26	g N ₂ O/gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.
CH₄ Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0173	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0163	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0051	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.58	g CH ₄ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.

Notes:

^a Model Year 2009 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Table 5.1A.37R Onsite Construction Equipment Exhaust Emissions

Construction Equipment CO Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	CO Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	133.77	133.77	133.77	133.77	133.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	35.93	35.93	35.93	35.93	35.93	35.93	35.93	35.93	35.93	35.93	35.93
Tractor/Loader/Backhoe	0.00	42.89	42.89	42.89	42.89	42.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05	50.05
Crawler Tractor	0.00	84.66	84.66	84.66	84.66	84.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	55.74	55.74	55.74	55.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	53.12	53.12	53.12	53.12	53.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	105.79	420.22	420.22	456.16	400.42	400.42	85.98							
Onsite Total (lbs/day) ^a	4.60	18.27	18.27	19.83	17.41	17.41	3.74							
Onsite Total (tons/year)	1.36													

Construction Equipment VOC Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	VOC Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	15.67	15.67	15.67	15.67	15.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93	9.93
Tractor/Loader/Backhoe	0.00	4.29	4.29	4.29	4.29	4.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56	6.56
Crawler Tractor	0.00	14.33	14.33	14.33	14.33	14.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	6.71	6.71	6.71	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	7.28	7.28	7.28	7.28	7.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	13.28	54.85	54.85	64.79	58.07	58.07	16.50							
Onsite Total (lbs/day) ^a	0.58	2.38	2.38	2.82	2.52	2.52	0.72							
Onsite Total (tons/year)	0.20													

Construction Equipment NOx Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	NOx Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	92.20	92.20	92.20	92.20	82.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	65.77	65.77	58.34	58.34	58.34	58.34	58.34	58.34	58.34	58.34	58.34
Tractor/Loader/Backhoe	0.00	28.75	28.75	28.75	28.75	26.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	41.34	41.34	41.34	41.34	41.34	38.38	38.38	38.38	38.38	38.38	38.38	38.38	38.38	38.38
Crawler Tractor	0.00	84.28	84.28	84.28	84.28	78.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	46.82	46.82	46.82	46.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	48.59	48.59	48.59	48.59	45.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	88.16	341.97	341.97	407.74	360.91	329.49	96.71							
Onsite Total (lbs/day) ^a	3.83	14.87	14.87	17.73	15.69	14.33	4.20							
Onsite Total (tons/year)	1.23													

Table 5.1A.37R Onsite Construction Equipment Exhaust Emissions

Construction Equipment SOx Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	SOx Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	0.24	0.24	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Tractor/Loader/Backhoe	0.00	0.07	0.07	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Crawler Tractor	0.00	0.13	0.13	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	0.17	0.69	0.69	0.87	0.78	0.78	0.26							
Onsite Total (lbs/day) ^a	0.01	0.03	0.03	0.04	0.03	0.03	0.01							
Onsite Total (tons/year)	0.00													

Construction Equipment PM₁₀ Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	PM ₁₀ Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	4.89	4.89	4.89	4.89	4.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	2.27	2.27	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Tractor/Loader/Backhoe	0.00	1.36	1.36	1.36	1.36	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	2.59	2.59	2.59	2.59	2.59	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Crawler Tractor	0.00	6.17	6.17	6.17	6.17	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	2.89	2.89	2.89	2.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	3.26	3.26	3.26	3.26	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	5.48	21.16	21.16	23.43	20.55	18.10	4.24							
Onsite Total (lbs/day) ^a	0.24	0.92	0.92	1.02	0.89	0.79	0.18							
Onsite Total (tons/year)	0.07													

Construction Equipment PM_{2.5} Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	PM _{2.5} Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	4.89	4.89	4.89	4.89	4.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	2.27	2.27	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Tractor/Loader/Backhoe	0.00	1.36	1.36	1.36	1.36	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	2.59	2.59	2.59	2.59	2.59	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Crawler Tractor	0.00	6.17	6.17	6.17	6.17	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	2.89	2.89	2.89	2.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	3.26	3.26	3.26	3.26	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	5.48	21.16	21.16	23.43	20.55	18.10	4.24							
Onsite Total (lbs/day) ^a	0.24	0.92	0.92	1.02	0.89	0.79	0.18							
Onsite Total (tons/year)	0.07													

Table 5.1A.37R Onsite Construction Equipment Exhaust Emissions

Construction Equipment CO₂ Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	CO ₂ Emissions (metric tons/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00	10.60	10.60	10.60	10.60	10.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74
Tractor/Loader/Backhoe	0.00	3.05	3.05	3.05	3.05	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.47
Crawler Tractor	0.00	5.65	5.65	5.65	5.65	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressor	4.02	4.02	4.02	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Roller	0.00	3.79	3.79	3.79	3.79	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (metric tons/month)	7.49	30.58	30.58	38.32	34.30	34.30	11.21							
Onsite Total (metric tons/day)^a	0.33	1.33	1.33	1.67	1.49	1.49	0.49							
Onsite Total (metric tons/year)	246.6													

Construction Equipment N₂O Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	N ₂ O Emissions (metric tons/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00000	0.00027	0.00027	0.00027	0.00027	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Cranes	0.00000	0.00000	0.00000	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020
Tractor/Loader/Backhoe	0.00000	0.00008	0.00008	0.00008	0.00008	0.00008	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Rubber Tired Loader	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009
Crawler Tractor	0.00000	0.00014	0.00014	0.00014	0.00014	0.00014	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Air Compressor	0.00010	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Roller	0.00000	0.00010	0.00010	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Onsite Total (metric tons/month)	0.00019	0.00078	0.00078	0.00098	0.00087	0.00087	0.00029							
Onsite Total (metric tons/day)^a	0.00001	0.00003	0.00003	0.00004	0.00004	0.00004	0.00001							
Onsite Total (metric tons/year)	0.0063													

Construction Equipment CH₄ Emissions from Bldgs. 33 & 34 Construction

Onsite Equipment	CH ₄ Emissions (metric tons/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0.00000	0.00060	0.00060	0.00060	0.00060	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Cranes	0.00000	0.00000	0.00000	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044
Tractor/Loader/Backhoe	0.00000	0.00017	0.00017	0.00017	0.00017	0.00017	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Rubber Tired Loader	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020
Crawler Tractor	0.00000	0.00032	0.00032	0.00032	0.00032	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Air Compressor	0.00023	0.00023	0.00023	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Roller	0.00000	0.00022	0.00022	0.00022	0.00022	0.00022	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Onsite Total (metric tons/month)	0.00043	0.00174	0.00174	0.00218	0.00195	0.00195	0.00064							
Onsite Total (metric tons/day)^a	0.00002	0.00008	0.00008	0.00009	0.00008	0.00008	0.00003							
Onsite Total (metric tons/year)	0.0140													

Notes:

^a Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls', the days per month are as follows

Table 5.1A.38R Onsite Motor Vehicle Exhaust Emissions

Onsite Construction Vehicle CO Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	CO Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	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
Onsite Stake Truck	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
Onsite Dump Truck	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	0.04	0.06	0.06	0.06	0.04									
Vehicle Type	CO Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Onsite Stake Truck	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
Onsite Dump Truck	0.00	0.36	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	0.97	1.33	1.33	1.33	0.97									
Onsite Total (tons/year)	0.01													

Onsite Construction Vehicle VOC Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	VOC Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Stake Truck	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Onsite Dump Truck	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	0.018	0.026	0.026	0.026	0.018									
Vehicle Type	VOC Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	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
Onsite Stake Truck	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Onsite Dump Truck	0.00	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	0.41	0.61	0.61	0.61	0.41									
Onsite Total (tons/year)	0.00													

Onsite Construction Vehicle SOx Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	SOx Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Onsite Stake Truck	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016	0.00016
Onsite Dump Truck	0.00000	0.00008	0.00008	0.00008	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Onsite Total (lbs/day)	0.00021	0.00029	0.00029	0.00029	0.00021									
Vehicle Type	SOx Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Onsite Stake Truck	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Onsite Dump Truck	0.0000	0.0019	0.0019	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Onsite Total (lbs/month)	0.0049	0.0067	0.0067	0.0067	0.0049									
Onsite Total (tons/year)	0.00003													

Onsite Construction Vehicle NOx Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	NOx Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Onsite Stake Truck	0.0496	0.0496	0.0496	0.0496	0.0496	0.0457	0.0457	0.0457	0.0457	0.0457	0.0457	0.0457	0.0457	0.0457
Onsite Dump Truck	0.0000	0.0248	0.0248	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Onsite Total (lbs/day)	0.0506	0.0754	0.0754	0.0754	0.0506	0.0467								
Vehicle Type	NOx Emissions (lbs/month) ^a													
	81	82	83	84	85	86	87	88	89	90	91	92	93	94
Onsite Pick-up Truck	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Onsite Stake Truck	1.14	1.14	1.14	1.14	1.14	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Onsite Dump Truck	0.00	0.57	0.57	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	1.16	1.73	1.73	1.73	1.16	1.07								
Onsite Total (tons/year)	0.01													

Table 5.1A.38R Onsite Motor Vehicle Exhaust Emissions

Onsite Construction Vehicle CH₄ Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	CH ₄ Emissions (metric tons/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033	0.00000033
Onsite Stake Truck	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010	0.00000010
Onsite Dump Truck	0.00000000	0.00000005	0.00000005	0.00000005	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Onsite Total (metric tons/day)	0.00000043	0.00000048	0.00000048	0.00000048	0.00000043									
Vehicle Type	CH ₄ Emissions (metric tons/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075	0.00000075
Onsite Stake Truck	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023	0.00000023
Onsite Dump Truck	0.00000000	0.00000012	0.00000012	0.00000012	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Onsite Total (metric tons/month)	0.00000098	0.00000110	0.00000110	0.00000110	0.00000098									
Onsite Total (metric tons/year)	0.000012													

Notes:

^a The days per month are per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls', as presented on the 'Onsite Fugitive Dust' tab.

Table 5.1A.39R Onsite Construction Fugitive Dust Emissions

Grading and Bulldozing Activity Levels for Bldgs. 33 & 34 Construction

Source	Monthly Activity Levels													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Site Disturbance (acres) ^a	0.00	0.48	0.48	0.48	0.48	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulldozer Operation (hours) ^b	0.00	230.00	230.00	230.00	230.00	230.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes:
^a Estimated a total of 2.4 acres is disturbed during Bldgs. 33 & 34 Construction based on data provided by H. Larios/PEC on 3/23/12; assumed this disturbance was equally distributed amongst the months in which graders are utilized.
^b Bulldozer Operation calculated based on the number of equipment and the hours of operation per month, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls':
 Hours per Day: 10
 Days per Month: 23

Onsite Construction Vehicle Fugitive PM₁₀ Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	Fugitive PM ₁₀ Emissions (lbs/day) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Onsite Stake Truck	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Onsite Dump Truck	0.00	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	1.39	1.73	1.73	1.73	1.39									
Vehicle Type	Fugitive PM ₁₀ Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95
Onsite Stake Truck	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95
Onsite Dump Truck	0.00	7.98	7.98	7.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	31.90	39.88	39.88	39.88	31.90									
Onsite Total (tons/year)	0.20													

Notes:
^a Emissions based on highest (controlled) unpaved road emission factor for PM₁₀.

Onsite Construction Vehicle Fugitive PM_{2.5} Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	Fugitive PM _{2.5} Emissions (lbs/day) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Stake Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Dump Truck	0.00	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	0.14	0.17	0.17	0.17	0.14									
Vehicle Type	Fugitive PM _{2.5} Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Onsite Stake Truck	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Onsite Dump Truck	0.00	0.80	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	3.19	3.99	3.99	3.99	3.19									
Onsite Total (tons/year)	0.02													

Notes:
^a Emissions based on the highest (controlled) unpaved road emission factor for PM_{2.5}.

Onsite Grading and Bulldozing Fugitive PM₁₀ Emissions from Bldgs. 33 & 34 Construction

Construction Activity	Fugitive PM ₁₀ Emissions (lbs/day) ^{a, b}													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grading ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulldozing	0.00	1.20	1.20	1.20	1.20	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	0.00	1.21	1.21	1.21	1.21	1.21	0.00							
Construction Activity	Fugitive PM ₁₀ Emissions (lbs/month) ^{a, b}													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grading	0.00	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulldozing	0.00	27.70	27.70	27.70	27.70	27.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	0.00	27.78	27.78	27.78	27.78	27.78	0.00							
Onsite Total (tons/year)	0.07													

Notes:
^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23
^b Emissions based on the highest (controlled) emission factor for PM₁₀.
^c Per Section 4.3 of Appendix A of the CalEEMod User's Guide, the following blade width was assumed for grading equipment: 12 ft

Table 5.1A.39R Onsite Construction Fugitive Dust Emissions

Onsite Grading and Bulldozing Fugitive PM_{2.5} Emissions from Bldgs. 33 & 34 Construction

Construction Activity	Fugitive PM _{2.5} Emissions (lbs/day) ^{a, b}													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grading ^c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulldozing	0.00	0.66	0.66	0.66	0.66	0.66	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	0.00	0.66	0.66	0.66	0.66	0.66	0.66	0.00						
Construction Activity	Fugitive PM _{2.5} Emissions (lbs/month) ^{a, b}													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grading	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bulldozing	0.00	15.23	15.23	15.23	15.23	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	0.00	15.24	15.24	15.24	15.24	15.24	0.00							
Onsite Total (tons/year)	0.04													

Notes:

^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls':

23

^b Emissions based on the highest (controlled) emission factor for PM_{2.5}.

^c Per Section 4.3 of Appendix A of the CalEEMod User's Guide, the following blade width was assumed for grading equipment: 12 ft

Onsite Construction Vehicle Activity for Bldgs. 33 & 34 Construction

Vehicle Type	Miles/Day ^a	Working Days per
Onsite Pick-up Truck	2	23
Onsite Stake Truck	2	23
Onsite Dump Truck	1	23

Notes:

^a Estimated based on the dimensions of the project site.

^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Fugitive Dust Emission Factors for Unpaved Roads

Parameter	PM ₁₀	PM _{2.5}
Mean Vehicle Weight ^a	16.5	16.5
Silt Content ^b	8.5	8.5
k ^c	1.5	0.15
a ^c	0.9	0.9
b ^c	0.45	0.45
P ^d	31	31
Emission Factor (Uncontrolled, lbs/mile)^e	2.17	0.22
Reduction from Applying Soil Stabilizers^f	84%	84%
Emission Factor (Controlled, lbs/mile)	0.35	0.03

Notes:

^a Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.

^b Silt content taken from Table 13.2.2-1 of Section 13.2.2 of AP-42 for a Construction Site, Scraper Route; this value is consistent with the CalEEMod defaults for the South Coast Air Basin.

^c k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of AP-42 for industrial roads.

^d P taken as the CalEEMod default for the Huntington Beach climate region of the South Coast Air Basin.

^e Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of AP-42:

$$\text{Emission Factor (lbs/mile)} = (k \text{ (lbs/mile)} \times [\text{Silt Content (\%)} / 12]^a \times [\text{Mean Vehicle Weight (tons)} / 3]^b) \times [(365 - P) / 365]$$

^f Control efficiency taken from Table XI-D of the SCAQMD CEQA Handbook for Travel Over Unpaved Roads.

Fugitive Dust Emission Factors for Grading

Parameter	PM ₁₀	PM _{2.5}
S (mph) ^a	7.1	7.1
F ^a	0.6	0.031
Emission Factor (lbs/VMT)^b	1.543	0.167
Reduction from Applying Soil Stabilizers^c	84%	84%
Emission Factor (Controlled, lbs/VMT)	0.247	0.027

Notes:

^a The mean vehicle speed (S) and the particulate matter scaling factor (F) taken from Section 11.9 of AP-42 per Section 4.3 of Appendix A of the CalEEMod User's Guide.

^b Emission factor calculated using the following equation from Section 4.3 of Appendix A of the CalEEMod User's Guide:

$$\text{PM}_{10} \text{ Emission Factor (lbs/VMT)} = 0.051 \times (S)^{2.0} \times F_{\text{PM}_{10}}$$

$$\text{PM}_{2.5} \text{ Emission Factor (lbs/VMT)} = 0.04 \times (S)^{2.5} \times F_{\text{PM}_{2.5}}$$

^c Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Post-demolition Stabilization.

Table 5.1A.39R Onsite Construction Fugitive Dust Emissions

Fugitive Dust Emission Factors for Bulldozing

Bulldozing Equipment Passes

Parameter	PM ₁₀	PM _{2.5}
C ^a	1.0	5.7
M (%) ^a	7.9	7.9
s (%) ^a	6.9	6.9
F ^a	0.75	0.105
Emission Factor (lbs/hr)^b	0.753	0.414
Reduction from Applying Soil Stabilizers^c	84%	84%
Emission Factor (Controlled, lbs/hr)	0.120	0.066

Notes:

^a The arbitrary coefficient (C), material moisture content (M), material silt content (s), and particulate matter scaling factor (F) taken from Section 11.9 of AP-42 per Section 4.3 of Appendix A of the CalEEMod User's Guide. These values are consistent with the CalEEMod defaults for the South Coast Air Basin.

^b Emission factor calculated using the following equation from Section 4.3 of Appendix A of the CalEEMod User's Guide:

$$\text{PM}_{10} \text{ Emission Factor (lbs/hr)} = [(C \times s^{1.5}) / M^{1.4}] \times F_{\text{PM}_{10}}$$

$$\text{PM}_{2.5} \text{ Emission Factor (lbs/hr)} = [(C \times s^{1.2}) / M^{1.3}] \times F_{\text{PM}_{2.5}}$$

^c Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Post-demolition Stabilization.

Table 5.1A.40R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle Usage During Bldgs. 33 & 34 Construction

Vehicle Type	Number per Day													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks ^a	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Material Hauling Trucks ^b	0.10	2.30	2.10	3.10	4.30	1.30	0.30	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Construction Worker Commute ^c	36.00	49.00	51.00	51.00	49.00	52.00	61.00	62.00	68.00	75.00	63.00	79.00	76.00	0.00

Notes:
^a Offsite Delivery Trucks include trucks transporting "Consumables & Supplies", as provided in 'Huntington Beach Truck Deliveries 032112.xls'. Due to the revised, shortened construction duration and in the absence of updated engineering data, the last month of delivery data provided in 'Huntington Beach Truck Deliveries 032112.xls' was not utilized.
^b Material Hauling Trucks include trucks transporting "Fill Material", "Mechanical Equipment", "Electrical Equip. & Mtrls", "Concrete / Rebar / Rubble", "Steel/Architectural", "Contractor Mobilization", "Contractor Demobilization", and "Construction Equipment", as provided in 'Huntington Beach Truck Deliveries 032112.xls'. Due to the revised, shortened construction duration and in the absence of updated engineering data, the last month of hauling data provided in 'Huntington Beach Truck Deliveries 032112.xls' was not utilized.
^c Assumed 1 commute per 1 worker; number of workers taken from 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'. Due to the revised, shortened construction duration and in the absence of updated engineering data, the first two months of manhour data provided in 'Manpower_Schedule_Huntington_Beach 03.13.12.xls' were not utilized.

Offsite Vehicle CO Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	CO Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.01	0.26	0.24	0.35	0.49	0.15	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Construction Worker Commute	1.74	2.37	2.46	2.46	2.37	2.51	2.95	3.00	3.29	3.62	3.04	3.82	3.67	0.00
Offsite Total (lbs/day)	1.76	2.63	2.71	2.82	2.86	2.67	2.99	3.01	3.30	3.64	3.06	3.83	3.69	0.02
Vehicle Type	CO Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Material Hauling Trucks	0.26	6.04	5.52	8.15	11.30	3.42	0.79	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Construction Worker Commute	40.00	54.44	56.67	56.67	54.44	57.78	67.78	68.89	75.56	83.33	70.00	87.78	84.45	0.00
Offsite Total (lbs/month)	40.38	60.60	62.30	64.92	65.86	61.31	68.68	69.26	75.93	83.71	70.38	88.15	84.82	0.37
Offsite Total (tons/year)	0.43													

Offsite Vehicle VOC Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	VOC Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
Material Hauling Trucks	0.0018	0.0425	0.0388	0.0573	0.0794	0.0240	0.0055	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Construction Worker Commute	0.0270	0.0368	0.0383	0.0383	0.0368	0.0390	0.0458	0.0465	0.0510	0.0563	0.0473	0.0593	0.0570	0.0000
Offsite Total (lbs/day)	0.0299	0.0802	0.0781	0.0965	0.1172	0.0640	0.0523	0.0494	0.0539	0.0591	0.0501	0.0621	0.0599	0.0029
Vehicle Type	VOC Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Material Hauling Trucks	0.042	0.977	0.892	1.317	1.827	0.552	0.127	0.042	0.042	0.042	0.042	0.042	0.042	0.042
Construction Worker Commute	0.621	0.845	0.880	0.880	0.845	0.897	1.052	1.070	1.173	1.294	1.087	1.363	1.311	0.000
Offsite Total (lbs/month)	0.687	1.846	1.795	2.220	2.696	1.473	1.203	1.135	1.239	1.359	1.152	1.428	1.377	0.066
Offsite Total (tons/year)	0.01													

Offsite Vehicle SOx Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	SOx Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Material Hauling Trucks	0.00014	0.00314	0.00287	0.00424	0.00588	0.00178	0.00041	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014
Construction Worker Commute	0.00557	0.00758	0.00789	0.00789	0.00758	0.00805	0.00944	0.00960	0.01052	0.01161	0.00975	0.01223	0.01176	0.00000
Offsite Total (lbs/day)	0.00576	0.01078	0.01082	0.01218	0.01352	0.00988	0.00991	0.00979	0.01072	0.01180	0.00994	0.01242	0.01195	0.00019
Vehicle Type	SOx Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Material Hauling Trucks	0.0031	0.0723	0.0660	0.0975	0.1352	0.0409	0.0094	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
Construction Worker Commute	0.1281	0.1744	0.1815	0.1815	0.1744	0.1851	0.2171	0.2207	0.2420	0.2670	0.2243	0.2812	0.2705	0.0000
Offsite Total (lbs/month)	0.1325	0.2480	0.2488	0.2803	0.3109	0.2272	0.2278	0.2251	0.2464	0.2714	0.2287	0.2856	0.2749	0.0044
Offsite Total (tons/year)	0.0015													

Table 5.1A.40R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle NOx Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	NOx Emissions (lbs/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Material Hauling Trucks	0.026	0.603	0.550	0.813	1.127	0.297	0.068	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Construction Worker Commute	0.154	0.209	0.218	0.218	0.209	0.831	0.975	0.991	1.086	1.198	1.007	1.262	1.214	0.000
Offsite Total (lbs/day)	0.192	0.825	0.781	1.043	1.349	1.139	1.054	1.025	1.120	1.232	1.041	1.296	1.248	0.034
Vehicle Type	NOx Emissions (lbs/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.282	0.282	0.282	0.282	0.282	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258	0.258
Material Hauling Trucks	0.603	13.866	12.661	18.690	25.924	6.821	1.574	0.525	0.525	0.525	0.525	0.525	0.525	0.525
Construction Worker Commute	3.539	4.817	5.013	5.013	4.817	19.108	22.415	22.782	24.987	27.559	23.150	29.029	27.926	0.000
Offsite Total (lbs/month)	4.423	18.965	17.956	23.984	31.022	26.186	24.246	23.564	25.769	28.341	23.932	29.811	28.709	0.782
Offsite Total (tons/year)	0.151													

Offsite Vehicle PM₁₀ Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	PM ₁₀ Emissions (lbs/day) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Material Hauling Trucks	0.004	0.096	0.088	0.130	0.180	0.054	0.012	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Construction Worker Commute	0.571	0.778	0.809	0.809	0.778	0.826	0.969	0.985	1.080	1.191	1.000	1.255	1.207	0.000
Offsite Total (lbs/day)	0.577	0.876	0.899	0.941	0.959	0.881	0.983	0.990	1.086	1.197	1.006	1.260	1.213	0.006
Vehicle Type	PM ₁₀ Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.037	0.037	0.037	0.037	0.037	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036
Material Hauling Trucks	0.096	2.218	2.025	2.990	4.147	1.234	0.285	0.095	0.095	0.095	0.095	0.095	0.095	0.095
Construction Worker Commute	13.139	17.883	18.613	18.613	17.883	18.992	22.280	22.645	24.836	27.393	23.010	28.854	27.758	0.000
Offsite Total (lbs/month)	13.272	20.139	20.676	21.640	22.067	20.263	22.601	22.776	24.968	27.524	23.141	28.985	27.889	0.131
Offsite Total (tons/year)	0.141													

Notes:
^a PM₁₀ Emissions include emissions from exhaust and paved roads.

Offsite Vehicle PM_{2.5} Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	PM _{2.5} Emissions (lbs/day) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Material Hauling Trucks	0.0018	0.0425	0.0388	0.0573	0.0795	0.0233	0.0054	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Construction Worker Commute	0.1601	0.2179	0.2268	0.2268	0.2179	0.2312	0.2712	0.2757	0.3023	0.3335	0.2801	0.3512	0.3379	0.0000
Offsite Total (lbs/day)	0.1626	0.2611	0.2663	0.2848	0.2981	0.2552	0.2773	0.2781	0.3048	0.3359	0.2826	0.3537	0.3404	0.0025
Vehicle Type	PM _{2.5} Emissions (lbs/month) ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Material Hauling Trucks	0.043	0.978	0.893	1.318	1.828	0.536	0.124	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Construction Worker Commute	3.681	5.011	5.215	5.215	5.011	5.318	6.238	6.340	6.954	7.670	6.443	8.079	7.772	0.000
Offsite Total (lbs/month)	3.740	6.005	6.125	6.550	6.855	5.869	6.377	6.397	7.011	7.727	6.499	8.136	7.829	0.057
Offsite Total (tons/year)	0.041													

Notes:
^a PM_{2.5} Emissions include emissions from exhaust and paved roads.

Table 5.1A.40R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle CO₂ Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	CO ₂ Emissions (metric tons/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Material Hauling Trucks	0.007	0.151	0.138	0.203	0.282	0.085	0.020	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Construction Worker Commute	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Offsite Total (metric tons/day)	0.009	0.154	0.140	0.206	0.285	0.088	0.022	0.009						
Vehicle Type	CO ₂ Emissions (metric tons/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Material Hauling Trucks	0.15	3.47	3.17	4.68	6.49	1.96	0.45	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Construction Worker Commute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (metric tons/month)	0.21	3.53	3.23	4.74	6.55	2.02	0.51	0.21						
Offsite Total (metric tons/year)	21.8													

Offsite Vehicle N₂O Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	N ₂ O Emissions (metric tons/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007
Material Hauling Trucks	0.000000019	0.000000442	0.000000403	0.000000595	0.000000826	0.000000250	0.000000058	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019	0.000000019
Construction Worker Commute	0.00000028	0.0000038	0.0000040	0.0000038	0.0000038	0.0000040	0.0000047	0.0000048	0.0000053	0.0000058	0.0000049	0.0000061	0.0000059	0.00000000
Offsite Total (metric tons/day)	0.00000283	0.00000426	0.00000438	0.00000457	0.00000464	0.00000430	0.00000481	0.00000485	0.00000531	0.00000586	0.00000493	0.00000617	0.00000594	0.00000003
Vehicle Type	N ₂ O Emissions (metric tons/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002	0.00000002
Material Hauling Trucks	0.00000004	0.0000102	0.0000093	0.0000137	0.0000190	0.0000057	0.0000013	0.0000004	0.0000004	0.0000004	0.0000004	0.0000004	0.0000004	0.0000004
Construction Worker Commute	0.0000644	0.0000876	0.0000912	0.0000912	0.0000876	0.0000930	0.0001091	0.0001109	0.0001216	0.0001341	0.0001127	0.0001413	0.0001359	0.00000000
Offsite Total (metric tons/month)	0.000065	0.000098	0.000101	0.000105	0.000107	0.000099	0.000111	0.000111	0.000122	0.000135	0.000113	0.000142	0.000137	0.000001
Offsite Total (metric tons/year)	0.0014													

Offsite Vehicle CH₄ Emissions from Bldgs. 33 & 34 Construction

Vehicle Type	CH ₄ Emissions (metric tons/day)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007	0.000000007
Material Hauling Trucks	0.000000020	0.000000469	0.000000428	0.000000632	0.000000877	0.000000265	0.000000061	0.000000020	0.000000020	0.000000020	0.000000020	0.000000020	0.000000020	0.000000020
Construction Worker Commute	0.0000135	0.0000183	0.0000191	0.0000191	0.0000183	0.0000194	0.0000228	0.0000232	0.0000254	0.0000280	0.0000235	0.0000295	0.0000284	0.00000000
Offsite Total (metric tons/day)	0.00001348	0.00001879	0.00001949	0.00001970	0.00001919	0.00001970	0.00002286	0.00002320	0.00002544	0.00002805	0.00002357	0.00002955	0.00002843	0.00000003
Vehicle Type	CH ₄ Emissions (metric tons/month)													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Offsite Delivery Trucks	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017	0.00000017
Material Hauling Trucks	0.00000047	0.00001079	0.00000985	0.00001455	0.00002018	0.00000610	0.00000141	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047	0.00000047
Construction Worker Commute	0.0003094	0.0004211	0.0004383	0.0004383	0.0004211	0.0004469	0.0005243	0.0005329	0.0005844	0.0006446	0.0005415	0.0006790	0.0006532	0.00000000
Offsite Total (metric tons/month)	0.0003100	0.0004321	0.0004484	0.0004530	0.0004415	0.0004532	0.0005259	0.0005335	0.0005851	0.0006452	0.0005421	0.0006796	0.0006538	0.00000006
Offsite Total (metric tons/year)	0.0064													

Offsite Construction Vehicle Activity for Bldgs. 33 & 34 Construction

Vehicle Type	Roundtrip Miles/Day ^a	Working Days per Month ^b
Offsite Delivery Trucks	14.6	23
Material Hauling Trucks	40.0	23
Construction Worker Commute	21.6	23

Notes:

^a Roundtrip miles/day taken as the CalEEMod defaults for the South Coast Air Basin.

^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Table 5.1A.41R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Bldgs. 33 & 34 Construction

Emission Source	Pollutant(s)	Equation	Variables	
Construction Equipment Exhaust	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_m = EF * N * Hp * L * H / 453.6$	E_m = Emissions (lbs/month) EF = Emission factor (g/bhp-hr) N = Number of pieces of equipment Hp = Average horsepower L = Average load factor H = Hours per month 453.6 = Conversion from g to lbs	
		$E_d = E_m / D$	E_d = Emissions (lbs/day) E_m = Emissions (lbs/month) D = Number of construction days per month	
		$E_t = \Sigma E_m / 2,000$	E_t = Emissions (tons/year) E_m = Emissions (lbs/month) 2,000 = Conversion from lbs to tons	
	CO ₂	$E_m = N * FC * EF * H * 0.001$	E_m = Emissions (metric tons/month) N = Number of pieces of equipment FC = Fuel consumption (gallons/hour) EF = Emission factor (kg/gallon) H = Hours per month 0.001 = Conversion from kg to metric tons	
		$E_d = E_m / D$	E_d = Emissions (metric tons/day) E_m = Emissions (metric tons/month) D = Number of construction days per month	
		$E_t = \Sigma E_m$	E_t = Emissions (metric tons/year) E_m = Emissions (metric tons/month)	
	CH ₄ and N ₂ O	$E_m = N * FC * EF * H / 1,000 * 0.001$	E_m = Emissions (metric tons/month) N = Number of pieces of equipment FC = Fuel consumption (gallons/hour) EF = Emission factor (g/gallon) H = Hours per month 1,000 = Conversion from g to kg 0.001 = Conversion from kg to metric tons	
		$E_d = E_m / D$	E_d = Emissions (metric tons/day) E_m = Emissions (metric tons/month) D = Number of construction days per month	
		$E_t = \Sigma E_m$	E_t = Emissions (metric tons/year) E_m = Emissions (metric tons/month)	
	Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	E_d = Emissions (lbs/day) N = Number of vehicles VMT = Vehicle miles traveled per day (miles/day) EF = EMFAC2007 emission factor (g/mile). Paved and unpaved road fugitive PM ₁₀ and PM _{2.5} emission factors calculated per Sections 13.2.1 and 13.2.2 of AP-42, respectively. 453.6 = Conversion from g to lbs
			$E_m = E_d * D$	E_m = Emissions (lbs/month) E_d = Emissions (lbs/day) D = Number of construction days per month
			$E_t = \Sigma E_m / 2,000$	E_t = Emissions (tons/year) E_m = Emissions (lbs/month) 2,000 = Conversion from lbs to tons

Table 5.1A.41R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Bldgs. 33 & 34 Construction

Emission Source	Pollutant(s)	Equation	Variables	
Onsite and Offsite Vehicle Exhaust	CO ₂	$E_d = N \cdot \text{VMT} / \text{FE} \cdot \text{EF} \cdot 0.001$	E_d = Emissions (metric tons/day)	
			N = Number of vehicles	
			VMT = Vehicle miles traveled per day (miles/day)	
			FE = Fuel economy (mpg)	
			EF = Emission factor (kg/gallon)	
			0.001 = Conversion from kg to metric tons	
			$E_m = E_d \cdot D$	E_m = Emissions (metric tons/month)
				E_d = Emissions (metric tons/day)
				D = Number of construction days per month
			$E_t = \sum E_m$	E_t = Emissions (metric tons/year)
				E_m = Emissions (metric tons/month)
CH ₄ and N ₂ O	$E_d = N \cdot \text{VMT} \cdot \text{EF} / 1,000 \cdot 0.001$	E_d = Emissions (metric tons/day)		
		N = Number of vehicles		
		VMT = Vehicle miles traveled per day (miles/day)		
		EF = Emission factor (g/mile)		
		1,000 = Conversion from g to kg		
		0.001 = Conversion from kg to metric tons		
			$E_m = E_d \cdot D$	E_m = Emissions (metric tons/month)
				E_d = Emissions (metric tons/day)
				D = Number of construction days per month
		$E_t = \sum E_m$	E_t = Emissions (metric tons/year)	
			E_m = Emissions (metric tons/month)	
Onsite Fugitive PM ₁₀ and PM _{2.5} from Grading	PM ₁₀ and PM _{2.5}	$E_d = \text{EF} \times A / W \times 43,560 / 5,280 / D$	E_d = Emissions (lbs/day)	
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/mile), calculated per Section 4.3 of Appendix A of the CalEEMod User's Guide.	
			A = Site disturbed (acres/month)	
			W = Grading equipment blade width (ft)	
			43,560 = Conversion factor from square feet to acres	
			5,280 = Conversion factor from feet to miles	
			$E_m = E_d \cdot D$	D = Number of construction days per month
				E_m = Emissions (lbs/month)
				E_d = Emissions (lbs/day)
		$E_t = \sum E_m / 2,000$	D = Number of construction days per month	
			E_t = Emissions (tons/year)	
			E_m = Emissions (lbs/month)	
Onsite Fugitive PM ₁₀ and PM _{2.5} from Bulldozing	PM ₁₀ and PM _{2.5}	$E_d = \text{EF} \times H / D$	E_d = Emissions (lbs/day)	
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/mile), calculated per Section 4.3 of Appendix A of the CalEEMod User's Guide.	
			H = Hours per month for all bulldozers	
			D = Number of construction days per month	
			E_m = Emissions (lbs/month)	
			E_d = Emissions (lbs/day)	
			$E_m = E_d \cdot D$	D = Number of construction days per month
				E_t = Emissions (tons/year)
				E_m = Emissions (lbs/month)
		$E_t = \sum E_m / 2,000$	2,000 = Conversion from lbs to tons	

Table 5.1A.42R Number of Onsite Construction Equipment and Motor Vehicles

Number of Onsite Equipment for Bldgs. 33 & 34 Construction

Onsite Equipment	Number per Month ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Grader	0	1	1	1	1	1	0	0	0	0	0	0	0	0
Cranes	0	0	0	1	1	1	1	1	1	1	1	1	1	1
Tractor/Loader/Backhoe ^b	0	1	1	1	1	1	0	0	0	0	0	0	0	0
Rubber Tired Loader ^c	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Crawler Tractor ^d	0	1	1	1	1	1	0	0	0	0	0	0	0	0
Air Compressor	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Roller ^e	0	1	1	1	1	1	0	0	0	0	0	0	0	0

Notes:

^a Equipment counts taken from 'HBEP Equipment Usage 01.21.13.xls'.

^b Numbers presented for Tractor/Loader/Backhoe includes the equipment counts for the Backhoe.

^c Numbers presented for Rubber Tired Loader includes the equipment counts for the Front End Loader.

^d Numbers presented for Crawler Tractor includes the equipment counts for the Dozer

^e Numbers presented for Roller includes the equipment counts for the Compactor.

Number of Onsite Motor Vehicles for Bldgs. 33 & 34 Construction

Vehicle Type	Number per Month ^a													
	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite Pick-up Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Onsite Stake Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Onsite Dump Truck	0	1	1	1	0	0	0	0	0	0	0	0	0	0

Notes:

^a Vehicle counts taken from 'HBEP Equipment Usage 01.21.13.xls'.

Table 5.1A.43R Construction Equipment Exhaust Criteria Pollutant Emission Factors

Construction Equipment Emission Factors for Bldgs. 33 & 34 Construction

Equipment ^a	Percent Usage ^b	Hours per Month ^c	Horsepower ^d	Load Factor ^d	Emission Factors (g/bhp-hr) ^e								Fuel Consumption (gallons/hour) ^f	
					CO	VOC	NO _x 2021	NO _x 2022	SO _x	PM ₁₀ 2021	PM ₁₀ 2022	PM _{2.5} 2021		PM _{2.5} 2022
Grader	80%	184	162	0.61	3.337	0.391	2.300	2.046	0.006	0.122	0.107	0.122	0.107	5.64
Cranes	65%	150	208	0.43	1.219	0.337	2.231	1.979	0.006	0.077	0.068	0.077	0.068	5.07
Tractor/Loader/Backhoe	55%	127	75	0.55	3.728	0.373	2.499	2.321	0.006	0.118	0.099	0.118	0.099	2.36
Rubber Tired Loader	55%	127	87	0.54	3.820	0.501	3.155	2.929	0.006	0.198	0.171	0.198	0.171	2.69
Crawler Tractor	80%	184	82	0.64	3.977	0.673	3.959	3.710	0.006	0.290	0.262	0.290	0.262	3.01
Air Compressor	80%	184	78	0.48	3.670	0.442	3.083	2.844	0.006	0.190	0.165	0.190	0.165	2.14
Roller	60%	138	84	0.56	3.712	0.509	3.395	3.150	0.006	0.228	0.199	0.228	0.199	2.69

Notes:

^a Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the CalEEMod User's Guide.

^b Percent Usage assumed typical of power plant construction.

^c Hours per month calculated based on the following schedule, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls':

Work hours per day: 10

Work days per month: 23

^d Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the CalEEMod User's Guide.

^e Construction equipment emission factors taken from Table 3.4 of Appendix D of the CalEEMod User's Guide. The emission factors for the year 2021 were used for the construction equipment exhaust emission calculations for CO, VOC, and SO_x. The emission factors for years 2021 and 2022 were used for NO_x, PM₁₀, and PM_{2.5}.

^f Fuel consumption based on consumption in the OFFROAD2007 model for the SCAB in the year 2021; value estimated by dividing the reported consumption (gallons/day) by the reported activity (hours/day).

Table 5.1A.44R Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors

Vehicle Emission Factors for Bldgs. 33 & 34 Construction

Vehicle Type	Vehicle Class ^a	Exhaust Emission Factors (g/mile) ^b									Paved Road Emission Factors (g/mile) ^c		Fuel Economy (mpg) ^b
		CO	VOC	SO _x	NO _x 2021	NO _x 2022	PM ₁₀ 2021	PM ₁₀ 2022	PM _{2.5} 2021	PM _{2.5} 2022	PM ₁₀	PM _{2.5}	
Onsite Pick-up Truck	Light-duty Truck	2.402	0.143	0.011	0.223	0.207	0.128	0.129	0.106	0.107	N/A	N/A	7.473
Onsite Stake Truck	Heavy-duty Diesel	7.170	3.891	0.037	11.246	10.375	0.430	0.368	0.357	0.301	N/A	N/A	2.621
Onsite Dump Truck	Heavy-duty Diesel	7.170	3.891	0.037	11.246	10.375	0.430	0.368	0.357	0.301	N/A	N/A	2.621
Offsite Delivery Trucks	Heavy-duty Diesel	1.516	0.313	0.017	3.805	3.481	0.201	0.190	0.147	0.137	0.300	0.075	5.749
Material Hauling Trucks	Heavy/Medium-duty Diesel	1.296	0.210	0.016	2.973	2.587	0.175	0.168	0.135	0.128	0.300	0.075	6.224
Construction Worker Commute	Light-duty Auto/Truck	1.015	0.016	0.003	0.090	0.336	0.033	0.033	0.018	0.018	0.300	0.075	27.539

Notes:

^a The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be an average of LDT1, All and LDT2, All values.

Heavy-duty Diesel: Assumed to be 100% HHD DSL values, as confirmed in Section 4.5 of Appendix A of the CalEEMod User's Guide.

Heavy/Medium-duty Diesel: 50% HHD DSL and 50% MHD DSL values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

Light-duty Auto/Truck: 50% LDA, All; 25% LDT1, All; and 25% LDT2, All values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

^b Exhaust emission factors and fuel economy from EMFAC2007 for the South Coast Air Basin, calendar year 2021 for CO, VOC, and SO_x. Calendar years 2021 and 2022 were used for NO_x, PM₁₀, and PM_{2.5}. A speed of 5 mph was assumed for onsite vehicles; a speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions.

^c Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile) ^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [\text{sL (g/m}^2\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Huntington Beach Energy Project
 Construction Emission Estimates - Buildings 33 and 34 Construction
 April 2014

Table 5.1A.45R Onsite and Offsite Greenhouse Gas Emission Factors

Greenhouse Gas Emission Factors for Bldgs. 33 & 34 Construction

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO₂ Emission Factors			
Gasoline	8.78	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
Diesel	10.21	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
N₂O Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0036	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0066	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0048	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.26	g N ₂ O/gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.
CH₄ Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0173	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0163	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0051	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.58	g CH ₄ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.

Notes:

^a Model Year 2009 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Table 5.1A.47R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Offsite CO Emissions											
Peaker and Tank Area and Stack 3&4 Demolition											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition											
Total (lbs/month)	112.95	112.95	112.95	112.95	112.95	112.95	94.05	91.49	60.81	53.14	41.12
Total (lbs/day)	4.91	4.91	4.91	4.91	4.91	4.91	4.09	3.98	2.64	2.31	1.79
Bldgs. 33 & 34 Construction											
Total (lbs/month)	64.92	65.86	61.31	68.68	69.26	75.93	83.71	70.38	88.15	84.82	0.37
Total (lbs/day)	2.82	2.96	2.67	2.99	3.01	3.30	3.64	3.06	3.83	3.69	0.02
Total Offsite CO Emissions (Construction Vehicles)											
Pounds per Month	177.87	178.80	174.25	181.63	182.21	188.88	177.76	161.87	148.97	137.96	41.50
Pounds per Day	7.73	7.77	7.58	7.90	7.92	8.21	7.73	7.04	6.48	6.00	1.80
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Offsite VOC Emissions											
Peaker and Tank Area and Stack 3&4 Demolition											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition											
Total (lbs/month)	10.10	10.10	10.10	10.10	10.10	10.10	7.38	7.14	5.44	4.71	4.09
Total (lbs/day)	0.44	0.44	0.44	0.44	0.44	0.44	0.32	0.31	0.24	0.20	0.18
Bldgs. 33 & 34 Construction											
Total (lbs/month)	2.22	2.70	1.47	1.20	1.14	1.24	1.36	1.15	1.43	1.38	0.07
Total (lbs/day)	0.10	0.12	0.06	0.05	0.05	0.05	0.06	0.05	0.06	0.06	0.00
Total Offsite VOC Emissions (Construction Vehicles)											
Pounds per Month	12.33	12.80	11.58	11.31	11.24	11.34	8.74	8.29	6.87	6.09	4.15
Pounds per Day	0.54	0.56	0.50	0.49	0.49	0.49	0.38	0.36	0.30	0.26	0.18
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Offsite NOx Emissions											
Peaker and Tank Area and Stack 3&4 Demolition											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition											
Total (lbs/month)	128.11	128.11	130.29	130.29	130.29	130.29	96.53	93.41	69.92	60.56	52.29
Total (lbs/day)	5.57	5.57	5.66	5.66	5.66	5.66	4.20	4.06	3.04	2.63	2.27
Bldgs. 33 & 34 Construction											
Total (lbs/month)	23.98	31.02	26.19	24.26	23.56	25.77	28.34	23.83	29.81	28.71	0.78
Total (lbs/day)	1.04	1.35	1.14	1.05	1.02	1.12	1.23	1.04	1.30	1.25	0.03
Total Offsite NOx Emissions (Construction Vehicles)											
Pounds per Month	152.10	159.14	156.47	154.53	153.85	156.06	124.87	117.34	99.73	88.27	53.07
Pounds per Day	6.61	6.92	6.80	6.72	6.69	6.79	5.43	5.10	4.34	3.88	2.31
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Table 5.1A.47R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Offsite SOx Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition											
Total (lbs/month)	0.812	0.812	0.812	0.812	0.812	0.812	0.616	0.597	0.435	0.377	0.321
Total (lbs/day)	0.035	0.035	0.035	0.035	0.035	0.035	0.027	0.026	0.019	0.016	0.014
Bldgs. 33 & 34 Construction											
Total (lbs/month)	0.280	0.311	0.227	0.228	0.225	0.246	0.271	0.229	0.286	0.275	0.004
Total (lbs/day)	0.012	0.014	0.010	0.010	0.010	0.011	0.012	0.010	0.012	0.012	0.000
Total Offsite SOx Emissions (Construction Vehicles)											
Pounds per Month	1.092	1.123	1.039	1.040	1.037	1.059	0.888	0.826	0.721	0.652	0.325
Pounds per Day	0.047	0.049	0.045	0.045	0.045	0.046	0.039	0.036	0.031	0.028	0.014
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Offsite Exhaust PM₁₀ Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition											
Total (lbs/month)	37.18	37.18	36.88	36.88	36.88	36.88	30.45	29.61	19.83	17.31	13.56
Total (lbs/day)	1.62	1.62	1.60	1.60	1.60	1.60	1.32	1.29	0.86	0.75	0.59
Bldgs. 33 & 34 Construction											
Total (lbs/month)	21.64	22.07	20.26	22.60	22.78	24.97	27.52	23.14	26.99	27.89	0.13
Total (lbs/day)	0.94	0.96	0.88	0.98	0.99	1.09	1.20	1.01	1.26	1.21	0.01
Total Offsite Exhaust PM₁₀ Emissions (Construction Vehicles)											
Pounds per Month	58.82	59.24	57.14	59.48	59.65	61.85	57.98	52.75	48.81	45.20	13.68
Pounds per Day	2.56	2.58	2.48	2.59	2.59	2.69	2.52	2.29	2.12	1.97	0.59
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Offsite Fugitive PM₁₀ Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition^c											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition^c											
Total (lbs/month)											
Total (lbs/day)											
Bldgs. 33 & 34 Construction^c											
Total (lbs/month)											
Total (lbs/day)											
Total Offsite Fugitive PM₁₀ Emissions (Grading)											
Pounds per Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per Day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Table 5.1A.47R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Total Offsite PM₁₀ Emissions (Exhaust
 and Fugitive)

Parameter	80	81	82	83	84	85	86	87	88	89	90
Pounds per Month	58.82	59.24	57.14	59.48	59.65	61.85	57.98	52.75	48.81	45.20	13.68
Pounds per Day	2.56	2.58	2.48	2.59	2.59	2.69	2.52	2.29	2.12	1.97	0.59
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year ^b											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Offsite Exhaust PM_{2.5} Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition											
Total (lbs/month)	13.58	13.58	13.31	13.31	13.31	13.31	10.63	10.32	7.14	6.22	5.04
Total (lbs/day)	0.59	0.59	0.58	0.58	0.58	0.58	0.46	0.45	0.31	0.27	0.22
Bldgs. 33 & 34 Construction											
Total (lbs/month)	6.55	6.86	5.87	6.38	6.40	7.01	7.73	6.50	8.14	7.83	0.06
Total (lbs/day)	0.28	0.30	0.26	0.28	0.28	0.30	0.34	0.28	0.35	0.34	0.00
Total Offsite Exhaust PM _{2.5} Emissions (Construction Vehicles)											
Pounds per Month	20.13	20.43	19.17	19.68	19.70	20.32	18.36	16.82	15.28	14.05	5.09
Pounds per Day	0.88	0.89	0.83	0.86	0.86	0.88	0.80	0.73	0.66	0.61	0.22
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year ^b											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Offsite Fugitive PM_{2.5} Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition ^c											
Total (lbs/month)											
Total (lbs/day)											
Block 1 Construction											
Total (lbs/month)											
Total (lbs/day)											
Block 2 Construction											
Total (lbs/month)											
Total (lbs/day)											
Units 1 & 2 Demolition ^c											
Total (lbs/month)											
Total (lbs/day)											
Bldgs. 33 & 34 Construction ^c											
Total (lbs/month)											
Total (lbs/day)											
Total Offsite Fugitive PM _{2.5} Emissions (Grading)											
Pounds per Month	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pounds per Day	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year ^b											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Table 5.1A.47R Offsite Construction
Exhaust and Fugitive Emissions
Summary

Total Offsite PM_{2.5} Emissions (Exhaust
and Fugitive)

Parameter	80	81	82	83	84	85	86	87	88	89	90
Pounds per Month	20.13	20.43	19.17	19.68	19.70	20.32	18.36	16.82	15.28	14.05	5.09
Pounds per Day	0.88	0.89	0.83	0.86	0.86	0.88	0.80	0.73	0.66	0.61	0.22
Yearly Maximums											
Maximum Pounds per Day											
Maximum Pounds per Hour ^a											
Maximum Pounds per Month											
Month with Maximum											
Maximum Pounds per Year											
Maximum Average Pounds per Hour ^b											
Year with Maximum											
Tons per Year											

Offsite CO₂ Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition											
Total (metric tons/month)											
Total (metric tons/day)											
Block 1 Construction											
Total (metric tons/month)											
Total (metric tons/day)											
Block 2 Construction											
Total (metric tons/month)											
Total (metric tons/day)											
Units 1 & 2 Demolition											
Total (metric tons/month)	38.40	38.40	38.40	38.40	38.40	38.40	29.02	28.11	20.57	17.83	15.21
Total (metric tons/day)	1.67	1.67	1.67	1.67	1.67	1.67	1.26	1.22	0.89	0.78	0.66
Bldgs. 33 & 34 Construction											
Total (metric tons/month)	4.74	6.55	2.02	0.51	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Total (metric tons/day)	0.21	0.28	0.09	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total Offsite CO ₂ Emissions (Construction Vehicles)											
Metric Tons per Month	43.13	44.94	40.42	38.91	38.61	38.61	29.23	28.32	20.78	18.04	15.42
Metric Tons per Day	1.88	1.95	1.76	1.69	1.68	1.68	1.27	1.23	0.90	0.78	0.67
Yearly Maximums											
Maximum Metric Tons per Day											
Maximum Metric Tons per Hour ^a											
Maximum Metric Tons per Month											
Month with Maximum											
Maximum Metric Tons per Year											
Maximum Average Metric Tons per Hour ^b											
Year with Maximum											

Offsite N₂O Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition											
Total (metric tons/month)											
Total (metric tons/day)											
Block 1 Construction											
Total (metric tons/month)											
Total (metric tons/day)											
Block 2 Construction											
Total (metric tons/month)											
Total (metric tons/day)											
Units 1 & 2 Demolition											
Total (metric tons/month)	0.0001758	0.0001758	0.0001758	0.0001758	0.0001758	0.0001758	0.0001457	0.0001417	0.0000945	0.0000825	0.0000644
Total (metric tons/day)	0.0000076	0.0000076	0.0000076	0.0000076	0.0000076	0.0000076	0.0000063	0.0000062	0.0000041	0.0000036	0.0000028
Bldgs. 33 & 34 Construction											
Total (metric tons/month)	0.0001051	0.0001068	0.0000989	0.0001106	0.0001115	0.0001222	0.0001347	0.0001133	0.0001419	0.0001365	0.0000006
Total (metric tons/day)	0.0000046	0.0000046	0.0000043	0.0000048	0.0000048	0.0000053	0.0000059	0.0000049	0.0000062	0.0000059	0.0000000
Total Offsite N ₂ O Emissions (Construction Vehicles)											
Metric Tons per Month	0.00028	0.00028	0.00027	0.00029	0.00029	0.00030	0.00028	0.00025	0.00024	0.00022	0.00006
Metric Tons per Day	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000
Yearly Maximums											
Maximum Metric Tons per Day											
Maximum Metric Tons per Hour ^a											
Maximum Metric Tons per Month											
Month with Maximum											
Maximum Metric Tons per Year											
Maximum Average Metric Tons per Hour ^b											
Year with Maximum											

Offsite CH₄ Emissions

Construction Step	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition											
Total (metric tons/month)											
Total (metric tons/day)											
Block 1 Construction											
Total (metric tons/month)											
Total (metric tons/day)											
Block 2 Construction											
Total (metric tons/month)											
Total (metric tons/day)											
Units 1 & 2 Demolition											
Total (metric tons/month)	0.0005081	0.0005081	0.0005081	0.0005081	0.0005081	0.0005081	0.0004628	0.0004516	0.0002744	0.0002416	0.0001688
Total (metric tons/day)	0.0000221	0.0000221	0.0000221	0.0000221	0.0000221	0.0000221	0.0000201	0.0000196	0.0000119	0.0000105	0.0000073
Bldgs. 33 & 34 Construction											
Total (metric tons/month)	0.0004530	0.0004415	0.0004332	0.0005299	0.0005335	0.0005851	0.0006452	0.0005421	0.0006796	0.0006538	0.0000006
Total (metric tons/day)	0.0000197	0.0000192	0.0000197	0.0000229	0.0000232	0.0000254	0.0000281	0.0000236	0.0000295	0.0000284	0.0000000
Total Offsite CH ₄ Emissions (Construction Vehicles)											
Metric Tons per Month	0.00096	0.00095	0.00096	0.00103	0.00104	0.00109	0.00111	0.00099	0.00095	0.00090	0.00017
Metric Tons per Day	0.00004	0.00004	0.00004	0.00004	0.00005	0.00005	0.00005	0.00004	0.00004	0.00004	0.00001
Yearly Maximums											
Maximum Metric Tons per Day											
Maximum Metric Tons per Hour ^a											
Maximum Metric Tons per Month											
Month with Maximum											
Maximum Metric Tons per Year											
Maximum Average Metric Tons per Hour ^b											
Year with Maximum											

Notes:

- ^a The hours per day are per Manpower Schedule Huntington
- ^b The hours per year are assumed to allow operation 24 hours p
- ^c There are no offsite activities generating fugitive dust during P

Table 5.1A.48R Onsite and Offsite
 Construction Exhaust and Fugitive
 Emissions Summary

Onsite and Offsite SO_x Emissions

Construction Step	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	31	32	33	
Peaker and Tank Area and Stack 3&4 Demolition																																		
Total (lbs/month)	1.2315	1.2777	1.4953	1.9408	2.1639	2.1831	2.3751	2.3984	2.6490	2.4762	2.4688	2.3946	2.6118	2.3841	2.3611																			
Total (lbs/day)	0.0535	0.0556	0.0650	0.0844	0.0941	0.0949	0.1033	0.1043	0.1152	0.1077	0.1073	0.1041	0.1136	0.1037	0.1027																			
Block 1 Construction																																		
Total (lbs/month)																	2.3693	2.5171	2.3550	2.7489	2.1512	1.8074	2.1910	2.2565	2.5269	2.5729	2.5261	2.5687	2.8866	2.6891	2.5309	2.5396	2.6092	2.5919
Total (lbs/day)																	0.1030	0.1094	0.1024	0.1195	0.0935	0.0786	0.0953	0.0981	0.1099	0.1119	0.1098	0.1117	0.1255	0.1169	0.1100	0.1104	0.1134	0.1127
Block 2 Construction																																		
Total (lbs/month)																																		
Total (lbs/day)																																		
Units 1 & 2 Demolition																																		
Total (lbs/month)																																		
Total (lbs/day)																																		
Bldgs. 33 & 34 Construction																																		
Total (lbs/month)																																		
Total (lbs/day)																																		
Total Onsite and Offsite SO_x Emissions (Construction Equipment and Vehicles)																																		
Pounds per Month	1.2315	1.2777	1.4953	1.9408	2.1639	2.1831	2.3751	2.3984	2.6490	2.4762	2.4688	2.3946	2.6118	2.3841	2.3611	2.3693	2.5171	2.3550	2.7489	2.1512	1.8074	2.1910	2.2565	2.5269	2.5729	2.5261	2.5687	2.8866	2.6891	2.5309	2.5396	2.6092	2.5919	
Pounds per Day	0.0535	0.0556	0.0650	0.0844	0.0941	0.0949	0.1033	0.1043	0.1152	0.1077	0.1073	0.1041	0.1136	0.1037	0.1027	0.1030	0.1094	0.1024	0.1195	0.0935	0.0786	0.0953	0.0981	0.1099	0.1119	0.1098	0.1117	0.1255	0.1169	0.1100	0.1104	0.1134	0.1127	
Yearly Maximums	25	26	28	28	29	29	29	30	29	29	28	28	28	28	28	29	29	29	29	29	30	30	31	31	31	33	35	37	38	39	41	42	44	
Maximum Pounds per Day	0.20																																	
Maximum Pounds per Hour ²	0.02																																	
Maximum Pounds per Month	4.56																																	
Month with Maximum	37																																	
Maximum Pounds per Year	47																																	
Maximum Average Pounds per Hour ³	0.01																																	
Year with Maximum	Months 37 - 48																																	
Tons per Year	0.02																																	

Onsite and Offsite Exhaust PM₁₀ Emissions

Construction Step	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	31	32	33	
Peaker and Tank Area and Stack 3&4 Demolition																																		
Total (lbs/month)	57.72	61.64	64.06	80.49	89.85	91.45	99.69	101.21	110.90	97.38	95.96	92.46	99.70	91.36	89.17																			
Total (lbs/day)	2.51	2.68	2.79	3.50	3.91	3.98	4.33	4.40	4.82	4.23	4.17	4.02	4.33	3.97	3.88																			
Block 1 Construction																																		
Total (lbs/month)																	100.02	113.49	101.04	112.01	90.95	75.71	79.02	81.22	90.91	95.29	100.23	100.24	111.76	107.39	105.96	107.20	115.44	118.64
Total (lbs/day)																	4.32	4.89	4.30	4.77	3.75	3.09	3.21	3.21	3.57	3.76	3.88	3.78	4.16	3.93	3.87	3.93	4.33	4.59
Block 2 Construction																																		
Total (lbs/month)																																		
Total (lbs/day)																																		
Units 1 & 2 Demolition																																		
Total (lbs/month)																																		
Total (lbs/day)																																		
Bldgs. 33 & 34 Construction																																		
Total (lbs/month)																																		
Total (lbs/day)																																		
Total Onsite and Offsite Exhaust PM₁₀ Emissions (Construction Equipment and Vehicles)																																		
Pounds per Month	57.72	61.64	64.06	80.49	89.85	91.45	99.69	101.21	110.90	97.38	95.96	92.46	99.70	91.36	89.17	100.02	113.49	101.04	112.01	90.95	75.71	79.02	81.22	90.91	95.29	100.23	100.24	111.76	107.39	105.96	107.20	115.44	118.64	
Pounds per Day	2.51	2.68	2.79	3.50	3.91	3.98	4.33	4.40	4.82	4.23	4.17	4.02	4.33	3.97	3.88	4.32	4.89	4.30	4.77	3.75	3.09	3.21	3.21	3.57	3.76	3.88	3.78	4.16	3.93	3.87	3.93	4.33	4.59	
Yearly Maximums	1,043	1,085	1,114	1,140	1,159	1,183	1,192	1,205	1,194	1,159	1,141	1,126	1,125	1,120	1,129	1,140	1,152	1,146	1,151	1,146	1,170	1,213	1,241	1,273	1,331	1,439	1,543	1,636	1,726	1,816	1,899	1,985	2,066	
Maximum Pounds per Day	8.97																																	
Maximum Pounds per Hour ²	0.89																																	
Maximum Pounds per Month	204.76																																	
Month with Maximum	45																																	
Maximum Pounds per Year	2,158																																	
Maximum Average Pounds per Hour ³	0.25																																	
Year with Maximum	Months 36 - 47																																	
Tons per Year	1.08																																	

Onsite and Offsite Fugitive PM₁₀ Emissions

Construction Step	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	31	32	33		
Peaker and Tank Area and Stack 3&4 Demolition																																			
Total (lbs/month)	68.21	68.21	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16																				
Total (lbs/day)	2.97	2.97	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66																				
Block 1 Construction																																			
Total (lbs/month)																	135.74	135.74	108.04	108.04	107.81	80.11	72.13	72.13	72.13	72.13	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	
Total (lbs/day)																	5.90	5.90	4.70	4.70	4.69	3.48	3.14	3.14	3.14	3.14	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44
Block 2 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Units 1 & 2 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Bldgs. 33 & 34 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Total Onsite and Offsite Fugitive PM₁₀ Emissions (Disassembly, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																																			
Pounds per Month	68.21	68.21	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	68.21	68.21	68.21	68.21	68.21	68.21	80.11	72.13	72.13	72.13	72.13	56.18	56.18	56.18	56.18	56.18	56.18	56.18		
Pounds per Day	2.97	2.97	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	2.97	2.97	2.97	2.97	2.97	2.97	3.48	3.14	3.14	3.14	3.14	2.44	2.44	2.44	2.44	2.44	2.44	2.44		
Yearly Maximums	962	962	962	946	998	1,049	1,073	1,097	1,121	1,117	1,105	1,093	1,097	1,100	1,088	1,076	997	917	865	814	762	738	722	706	758	878	1,013	1,121	1,221	1,321	1,393	1,458	1,522		
Maximum Pounds per Day	8.34																																		
Maximum Pounds per Hour ²	0.83																																		
Maximum Pounds per Month	191.81																																		
Month with Maximum	37 or 38																																		
Maximum Pounds per Year	1,602																																		
Maximum Average Pounds per Hour ³	0.18																																		
Year with Maximum	Months 35- 46 or 36 - 47																																		
Tons per Year	0.80																																		

Table 5.1A.48R Onsite and Offsite Construction Exhaust and Fugitive Emissions Summary

Onsite and Offsite SOx Emissions

Construction Step	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Peaker and Tank Area and Stack 3&4 Demolition																									
Total (lbs/month)																									
Total (lbs/day)																									
Block 1 Construction																									
Total (lbs/month)																									
Total (lbs/day)																									
Block 2 Construction																									
Total (lbs/month)																									
Total (lbs/day)																									
Units 1 & 2 Demolition																									
Total (lbs/month)	1.8701	1.9173	2.3041	2.3939	2.6239	2.6452	2.5084	2.5084	2.6027	2.6027	2.7442	2.7442	2.7913	2.8385	2.8385	2.8385	3.0940	3.0940	3.0940	2.8982	2.8789	2.7170	2.6592	2.6024	
Total (lbs/day)	0.0813	0.0834	0.1002	0.1041	0.1141	0.1150	0.1091	0.1091	0.1132	0.1132	0.1193	0.1193	0.1214	0.1234	0.1234	0.1234	0.1345	0.1345	0.1345	0.1260	0.1252	0.1181	0.1156	0.1131	
Bldgs. 33 & 34 Construction																									
Total (lbs/month)												0.3071	0.9476	0.9484	1.1567	1.0943	1.0107	0.4882	0.4854	0.5068	0.5317	0.4890	0.5480	0.5353	0.2647
Total (lbs/day)												0.0134	0.0412	0.0412	0.0503	0.0476	0.0439	0.0212	0.0211	0.0220	0.0231	0.0213	0.0237	0.0233	0.0115
Total Onsite and Offsite SOx Emissions (Construction Equipment and Vehicles)																									
Pounds per Month	1.8701	1.9173	2.3041	2.3939	2.6239	2.6452	2.5084	2.5084	2.6027	2.6027	3.0513	3.6918	3.7398	3.9952	3.9328	3.8492	3.5821	3.5794	3.6008	3.4299	3.3679	3.2630	3.1944	2.9671	
Pounds per Day	0.0813	0.0834	0.1002	0.1041	0.1141	0.1150	0.1091	0.1091	0.1132	0.1132	0.1327	0.1605	0.1626	0.1737	0.1710	0.1674	0.1557	0.1556	0.1566	0.1491	0.1464	0.1419	0.1389	0.1247	
Yearly Maximums	31	33	35	36	38	39	40	41	42	42	43	43	42												
Maximum Pounds per Day																									
Maximum Pounds per Hour																									
Maximum Pounds per Month																									
Month with Maximum																									
Maximum Pounds per Year																									
Maximum Average Pounds per Hour																									
Year with Maximum																									
Tons per Year																									

Onsite and Offsite Exhaust PM₁₀ Emissions

Construction Step	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Peaker and Tank Area and Stack 3&4 Demolition																									
Total (lbs/month)																									
Total (lbs/day)																									
Block 1 Construction																									
Total (lbs/month)																									
Total (lbs/day)																									
Block 2 Construction																									
Total (lbs/month)																									
Total (lbs/day)																									
Units 1 & 2 Demolition																									
Total (lbs/month)	40.19	41.66	52.39	53.35	57.61	59.80	58.25	58.25	61.14	61.14	65.48	65.48	66.93	68.37	68.37	63.67	67.92	67.92	67.92	61.49	60.65	50.87	48.35	44.59	
Total (lbs/day)	1.75	1.81	2.28	2.32	2.50	2.60	2.53	2.53	2.66	2.66	2.85	2.85	2.91	2.97	2.97	2.77	2.95	2.95	2.95	2.67	2.64	2.21	2.10	1.94	
Bldgs. 33 & 34 Construction																									
Total (lbs/month)												18.81	41.38	41.92	45.15	42.67	38.41	26.90	27.07	29.26	31.82	27.44	33.28	32.18	4.43
Total (lbs/day)												0.82	1.80	1.82	1.96	1.86	1.67	1.17	1.18	1.27	1.38	1.19	1.45	1.40	0.19
Total Onsite and Offsite Exhaust PM₁₀ Emissions (Construction Equipment and Vehicles)																									
Pounds per Month	40.19	41.66	52.39	53.35	57.61	59.80	58.25	58.25	61.14	61.14	84.29	106.86	108.84	113.53	111.05	102.09	94.81	94.99	97.18	93.31	88.09	84.15	80.53	49.01	
Pounds per Day	1.75	1.81	2.28	2.32	2.50	2.60	2.53	2.53	2.66	2.66	3.66	4.65	4.73	4.94	4.83	4.44	4.12	4.13	4.23	4.06	3.83	3.66	3.50	2.13	
Yearly Maximums	735	804	875	934	983	1,020	1,055	1,094	1,129	1,156	1,179	1,175	1,118												
Maximum Pounds per Day																									
Maximum Pounds per Hour																									
Maximum Pounds per Month																									
Month with Maximum																									
Maximum Pounds per Year																									
Maximum Average Pounds per Hour																									
Year with Maximum																									
Tons per Year																									

Onsite and Offsite Fugitive PM₁₀ Emissions

Construction Step	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition																								
Total (lbs/month)																								
Total (lbs/day)																								
Block 1 Construction																								
Total (lbs/month)																								
Total (lbs/day)																								
Block 2 Construction																								
Total (lbs/month)																								
Total (lbs/day)																								
Units 1 & 2 Demolition																								
Total (lbs/month)	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20
Total (lbs/day)	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31
Bldgs. 33 & 34 Construction																								
Total (lbs/month)												31.90	67.66	67.66	67.66	59.69	59.69	31.90	31.90	31.90	31.90	31.90	31.90	31.90
Total (lbs/day)												1.39	2.94	2.94	2.94	2.60	2.60	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Total Onsite and Offsite Fugitive PM₁₀ Emissions (Dismemberment, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																								
Pounds per Month	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	85.10	120.86	120.86	120.86	112.89	112.89	85.10	85.10	85.10	85.10	85.10	85.10	85.10	85.10
Pounds per Day	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	3.70	5.25	5.25	5.25	4.91	4.91	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
Yearly Maximums	738	806	873	933	993	1,025	1,056	1,088	1,120	1,152	1,184	1,184	1,148											
Maximum Pounds per Day																								
Maximum Pounds per Hour																								
Maximum Pounds per Month																								
Month with Maximum																								
Maximum Pounds per Year																								
Maximum Average Pounds per Hour																								
Year with Maximum																								
Tons per Year																								

Table 5.1A.51R Onsite Demolition Fugitive Dust Emissions

Demolition Activity Levels for Units 3 & 4 Demolition

Source	Monthly Activity Levels																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Debris Generated from Mechanical Dismemberment (tons)	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74	812.74

^a Debris generated from Table 5.14-3, Wastes Generated during Demolition of HBGS Units 1 & 2 or HBGS Units 3 & 4. Only materials generated from demolition that may generate fugitive dust were included. The monthly quantities were determined as follows:

Scrap Materials	16,000	lbs/week	which equals	32.00	tons/month
Scrap Metals	20,000	tons	which equals	740.74	tons/month
Concrete	0	tons	which equals	0.00	tons/month
Asphalt	80	tons	which equals	2.96	tons/month
Asbestos Waste	1,000	tons	which equals	37.04	tons/month

The above calculations are based on the following assumptions:

Demolition will last	27	months
The construction schedule allows for	4	weeks/month

Onsite Construction Vehicle Fugitive PM₁₀ Emissions from Units 3 & 4 Demolition

Vehicle Type	Fugitive PM ₁₀ Emissions (lbs/day) ^a																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Onsite Pick-up Truck	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Onsite Stake Truck	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Onsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Onsite Total (lbs/day)	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
Vehicle Type	Fugitive PM ₁₀ Emissions (lbs/month) ^a																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Onsite Pick-up Truck	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95
Onsite Stake Truck	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95	15.95
Onsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98
Onsite Total (lbs/month)	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88	39.88
Onsite Total (tons/year)	0.24																										

Notes:

^a Emissions based on highest (controlled) unpaved road emission factor for PM₁₀.

Onsite Construction Vehicle Fugitive PM_{2.5} Emissions from Units 3 & 4 Demolition

Vehicle Type	Fugitive PM _{2.5} Emissions (lbs/day) ^a																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Onsite Pick-up Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Stake Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.03	0.03	0.03	0.03	0.03
Onsite Total (lbs/day)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Vehicle Type	Fugitive PM _{2.5} Emissions (lbs/month) ^a																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Onsite Pick-up Truck	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Onsite Stake Truck	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Onsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Onsite Total (lbs/month)	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99
Onsite Total (tons/year)	0.02																										

Notes:

^a Emissions based on the highest (controlled) unpaved road emission factor for PM_{2.5}.

Onsite Demolition Fugitive PM₁₀ Emissions from Units 3 & 4 Demolition

Demolition Activity	Fugitive PM ₁₀ Emissions (lbs/day) ^{a, b}																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Dismemberment	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Debris Loading ^c	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Onsite Total (lbs/day)	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
Demolition Activity	Fugitive PM ₁₀ Emissions (lbs/month) ^{a, b}																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Dismemberment	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Debris Loading ^c	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56	10.56
Onsite Total (lbs/month)	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13	11.13
Onsite Total (tons/year)	0.07																										

Notes:

^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23

^b Emissions based on the highest (controlled) emission factor for PM₁₀.

^c Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Table 5.1A.51R Onsite Demolition Fugitive Dust Emissions

Onsite Demolition Fugitive PM_{2.5} Emissions from Units 3 & 4 Demolition

Demolition Activity	Fugitive PM _{2.5} Emissions (lbs/day) ^{a, b}																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Dismemberment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading ^c	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Onsite Total (lbs/day)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Demolition Activity	Fugitive PM _{2.5} Emissions (lbs/month) ^{a, b}																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Dismemberment	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Debris Loading ^c	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Onsite Total (lbs/month)	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
Onsite Total (tons/year)	0.01																										

Notes:
^a Work days per month are as follows, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls': 23
^b Emissions based on the highest (controlled) emission factor for PM_{2.5}.
^c Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Onsite Construction Vehicle Activity for Units 3 & 4 Demolition

Vehicle Type	Miles/Day ^a	Working Days per Month ^b
Onsite Pick-up Truck	2	23
Onsite Stake Truck	2	23
Onsite Dump Truck	1	23

Notes:
^a Estimated based on the dimensions of the project site.
^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Fugitive Dust Emission Factors for Unpaved Roads

Parameter	PM ₁₀	PM _{2.5}
Mean Vehicle Weight ^a	16.5	16.5
Silt Content ^b	8.5	8.5
k ^c	1.5	0.15
a ^c	0.9	0.9
b ^c	0.45	0.45
P ^d	31	31
Emission Factor (Uncontrolled, lbs/mile)^e	2.17	0.22
Reduction from Applying Soil Stabilizers^f	84%	84%
Emission Factor (Controlled, lbs/mile)	0.35	0.03

Notes:
^a Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.
^b Silt content taken from Table 13.2.2-1 of Section 13.2.2 of AP-42 for a Construction Site, Scraper Route; this value is consistent with the CalEEMod defaults for the South Coast Air Basin.
^c k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of AP-42 for industrial roads.
^d P taken as the CalEEMod default for the Huntington Beach climate region of the South Coast Air Basin.
^e Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of AP-42:
 Emission Factor (lbs/mile) = (k (lbs/mile) x [Silt Content (%) / 12]² x [Mean Vehicle Weight (tons) / 3]³) x [(365 - P) / 365]
^f Control efficiency taken from Table XI-D of the SCAQMD CEQA Handbook for Travel Over Unpaved Roads.

Fugitive Dust Emission Factors for Dismemberment

Parameter	PM ₁₀	PM _{2.5}
k ^a	0.35	0.053
U (mph) ^b	4.9	4.9
M (%) ^c	2.0	2.0
Emission Factor (lbs/ton)^d	0.00110	0.00017
Reduction from Watering Every 4 Hours^e	36%	36%
Emission Factor (Controlled, lbs/ton)	0.00070	0.00011

Notes:
^a k, the particle size multiplier, taken from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide.
^b U, the mean wind speed, taken as the CalEEMod default for the South Coast Air Basin. Converted from meters/second (m/s) to miles per hour (mph).
^c M, the material moisture content, taken from Section 4.4 of Appendix A of the CalEEMod User's Guide.
^d Emission factor calculated using the following equation from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide:
 Emission Factor (lbs/ton) = k x 0.0032 x [U / 5]^{1.3} x [M / 2]^{1.4}
^e Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Active Demolition and Debris Removal.

Fugitive Dust Emission Factors for Debris Loading

Parameter	PM ₁₀	PM _{2.5}
k ^a	0.35	0.053
EF _{L-TSP} ^b	0.058	0.058
Emission Factor (lbs/ton)^c	0.020	0.003
Reduction from Watering Every 4 Hours^d	36%	36%
Emission Factor (Controlled, lbs/ton)	0.013	0.002

Notes:
^a k taken from Section 13.2.4.3 of AP-42 per Section 4.4 of Appendix A of the CalEEMod User's Guide.
^b EF_{L-TSP} taken from Section 4.4 of Appendix A of the CalEEMod User's Guide.
^c Emission factor calculated using the following equation from Section 4.4 of Appendix A of the CalEEMod User's Guide:
 Emission Factor (lbs/ton) = k x EF_{L-TSP} (lbs/ton)
^d Control efficiency taken from Table XI-A of the SCAQMD CEQA Handbook for Active Demolition and Debris Removal.

Table 5.1A.52R Offsite Motor Vehicle Exhaust and Fugitive Dust Emissions

Offsite Vehicle N₂O Emissions from Units 3 & 4 Demolition

Vehicle Type	N ₂ O Emissions (metric tons/day)																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Offsite Delivery Trucks	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007
Material Hauling Trucks	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019	0.0000019
Waste Hauling Trucks	0.0000086	0.0000115	0.0000115	0.0000144	0.0000144	0.0000144	0.0000173	0.0000173	0.0000230	0.0000230	0.0000317	0.0000317	0.0000346	0.0000374	0.0000374	0.0000374	0.0000374	0.0000374	0.0000374	0.0000374	0.0000259	0.0000230	0.0000173	0.0000144	0.0000144	0.0000374	0.0000374
Construction Worker Commute	0.0000101	0.0000101	0.0000218	0.0000311	0.0000342	0.0000389	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000373	0.0000358	0.0000350	0.0000202	0.0000179	0.0000117	0.0000373	0.0000373
Offsite Total (metric tons/day)	0.0000214	0.0000242	0.0000359	0.0000481	0.0000503	0.0000549	0.0000563	0.0000563	0.0000620	0.0000620	0.0000707	0.0000707	0.0000735	0.0000764	0.0000764	0.0000764	0.0000764	0.0000764	0.0000764	0.0000691	0.0000674	0.0000468	0.0000416	0.0000280	0.0000764	0.0000764	
Vehicle Type	N ₂ O Emissions (metric tons/month)																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Offsite Delivery Trucks	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000016	0.0000000	0.0000016	0.0000016	0.0000016
Material Hauling Trucks	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044	0.0000044
Waste Hauling Trucks	0.0000199	0.0000265	0.0000265	0.0000331	0.0000331	0.0000331	0.0000397	0.0000397	0.0000530	0.0000530	0.0000729	0.0000729	0.0000795	0.0000861	0.0000861	0.0000861	0.0000861	0.0000861	0.0000861	0.0000861	0.0000596	0.0000530	0.0000397	0.0000331	0.0000331	0.0000861	0.0000861
Construction Worker Commute	0.0000233	0.0000233	0.0000501	0.0000715	0.0000787	0.0000894	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000858	0.0000823	0.0000805	0.0000465	0.0000411	0.0000268	0.0000858	0.0000858
Offsite Total (metric tons/month)	0.0000492	0.0000558	0.0000826	0.0001107	0.0001156	0.0001264	0.0001294	0.0001294	0.0001427	0.0001427	0.0001625	0.0001625	0.0001692	0.0001758	0.0001590	0.0001550	0.0001077	0.0000957	0.0000644	0.0001758	0.0001758						
Offsite Total (metric tons/year)	0.00201																										

Offsite Vehicle CH₄ Emissions from Units 3 & 4 Demolition

Vehicle Type	CH ₄ Emissions (metric tons/day)																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Offsite Delivery Trucks	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007	0.0000007
Material Hauling Trucks	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020
Waste Hauling Trucks	0.0000092	0.0000122	0.0000122	0.0000153	0.0000153	0.0000153	0.0000184	0.0000184	0.0000245	0.0000245	0.0000337	0.0000337	0.0000367	0.0000398	0.0000398	0.0000398	0.0000398	0.0000398	0.0000398	0.0000398	0.0000275	0.0000245	0.0000184	0.0000153	0.0000153	0.0000398	0.0000398
Construction Worker Commute	0.0000486	0.0000486	0.0001046	0.0001495	0.0001644	0.0001868	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001794	0.0001719	0.0001682	0.0000972	0.0000859	0.0000561	0.00001794	0.00001794
Offsite Total (metric tons/day)	0.0000605	0.0000636	0.0001197	0.0001676	0.0001815	0.0002039	0.0001995	0.0001995	0.0002056	0.0002056	0.0002148	0.0002148	0.0002179	0.0002209													
Vehicle Type	CH ₄ Emissions (metric tons/month)																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Offsite Delivery Trucks	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000017	0.0000000	0.0000017	0.0000017	0.0000017
Material Hauling Trucks	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047	0.0000047
Waste Hauling Trucks	0.0000211	0.0000282	0.0000282	0.0000352	0.0000352	0.0000352	0.0000422	0.0000422	0.0000563	0.0000563	0.0000774	0.0000774	0.0000845	0.0000915	0.0000915	0.0000915	0.0000915	0.0000915	0.0000915	0.0000915	0.0000633	0.0000563	0.0000422	0.0000352	0.0000352	0.0000915	0.0000915
Construction Worker Commute	0.0001117	0.0001117	0.0002406	0.0003438	0.0003782	0.0004297	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0004125	0.0003954	0.0003868	0.0002235	0.0001977	0.0001289	0.0004125	0.0004125
Offsite Total (metric tons/month)	0.0001392	0.0001463	0.0002752	0.0003854	0.0004174	0.0004690	0.0004588	0.0004588	0.0004729	0.0004729	0.0004940	0.0004940	0.0005011	0.0005081													
Offsite Total (metric tons/year)	0.00596																										

Offsite Construction Vehicle Activity for Units 3 & 4 Demolition

Vehicle Type	Roundtrip Miles/Day ^a	Working Days per Month ^b
Offsite Delivery Trucks	14.6	23
Material Hauling Trucks	40.0	23
Waste Hauling Trucks	60.0	23
Construction Worker Commute	21.6	23

Notes:
^a Roundtrip miles/day taken as the CalEEMod defaults for the South Coast Air Basin except for Waste Hauling Trucks, which were assumed to travel directly to the the landfill for offsite waste disposal.

^b Per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls'.

Table 5.1A.53R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Units 3 & 4 Demolition

Emission Source	Pollutant(s)	Equation	Variables
Construction Equipment Exhaust	CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_m = EF * N * Hp * L * H / 453.6$	E_m = Emissions (lbs/month)
			EF = Emission factor (g/bhp-hr)
			N = Number of pieces of equipment
		$E_d = E_m / D$	Hp = Average horsepower
			L = Average load factor
			H = Hours per month
		$E_t = \sum E_m / 2,000$	453.6 = Conversion from g to lbs
			E_d = Emissions (lbs/day)
			E_m = Emissions (lbs/month)
	CO ₂	$E_m = N * FC * EF * H * 0.001$	D = Number of construction days per month
			E_t = Emissions (tons/year)
			E_m = Emissions (lbs/month)
		$E_d = E_m / D$	$2,000$ = Conversion from lbs to tons
			E_m = Emissions (metric tons/month)
			N = Number of pieces of equipment
CH ₄ and N ₂ O	$E_m = N * FC * EF * H / 1,000 * 0.001$	FC = Fuel consumption (gallons/hour)	
		EF = Emission factor (kg/gallon)	
		H = Hours per month	
	$E_d = E_m / D$	0.001 = Conversion from kg to metric tons	
		E_d = Emissions (metric tons/day)	
		E_m = Emissions (metric tons/month)	
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	D = Number of construction days per month	
		E_t = Emissions (metric tons/year)	
		E_m = Emissions (metric tons/month)	
	$E_m = E_d * D$	E_m = Emissions (metric tons/month)	
		N = Number of pieces of equipment	
		FC = Fuel consumption (gallons/hour)	
CO, VOC, NOx, SOx, PM ₁₀ , and PM _{2.5}	$E_t = \sum E_m / 2,000$	EF = Emission factor (g/gallon)	
		H = Hours per month	
		$1,000$ = Conversion from g to kg	
	$E_d = E_m / D$	0.001 = Conversion from kg to metric tons	
		E_d = Emissions (metric tons/day)	
		E_m = Emissions (metric tons/month)	
$E_t = \sum E_m / 2,000$	D = Number of construction days per month		
	E_t = Emissions (metric tons/year)		
	E_m = Emissions (metric tons/month)		
Onsite and Offsite Vehicle Exhaust and Paved and Unpaved Road Fugitive PM ₁₀ and PM _{2.5}	$E_d = N * VMT * EF / 453.6$	EF = EMFAC2007 emission factor (g/mile). Paved and unpaved road fugitive PM ₁₀ and PM _{2.5} emission factors calculated per Sections 13.2.1 and 13.2.2 of AP-42, respectively.	
		453.6 = Conversion from g to lbs	
		E_m = Emissions (lbs/month)	
	$E_m = E_d * D$	E_d = Emissions (lbs/day)	
		D = Number of construction days per month	
		E_t = Emissions (tons/year)	
	$E_t = \sum E_m / 2,000$	E_m = Emissions (lbs/month)	
		$2,000$ = Conversion from lbs to tons	

Table 5.1A.53R Equations Used to Calculate Criteria Pollutant and GHG Emissions

Equations Used to Calculate Emissions from Units 3 & 4 Demolition

Emission Source	Pollutant(s)	Equation	Variables
Onsite and Offsite Vehicle Exhaust	CO ₂	$E_d = N * VMT / FE * EF * 0.001$	E_d = Emissions (metric tons/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			FE = Fuel economy (mpg)
			EF = Emission factor (kg/gallon)
			0.001 = Conversion from kg to metric tons
		$E_m = E_d * D$	E_m = Emissions (metric tons/month)
			E_d = Emissions (metric tons/day)
			D = Number of construction days per month
		$E_i = \sum E_m$	E_i = Emissions (metric tons/year)
			E_m = Emissions (metric tons/month)
CH ₄ and N ₂ O	$E_d = N * VMT * EF / 1,000 * 0.001$	E_d = Emissions (metric tons/day)	
		N = Number of vehicles	
		VMT = Vehicle miles traveled per day (miles/day)	
		EF = Emission factor (g/mile)	
		1,000 = Conversion from g to kg	
		0.001 = Conversion from kg to metric tons	
	$E_m = E_d * D$	E_m = Emissions (metric tons/month)	
		E_d = Emissions (metric tons/day)	
		D = Number of construction days per month	
	$E_i = \sum E_m$	E_i = Emissions (metric tons/year)	
		E_m = Emissions (metric tons/month)	
Onsite Fugitive PM ₁₀ and PM _{2.5} from Dismemberment and Debris Loading	PM ₁₀ and PM _{2.5}	$E_d = T * EF / D$	E_d = Emissions (lbs/day)
			T = Tons of material dismembered or loaded
			EF = Fugitive PM ₁₀ and PM _{2.5} emission factors (lbs/ton), calculated per Section 13.2.4.3 of AP-42 for dismemberment and Section 4.4 of Appendix A of the CalEEMod User's Guide for debris loading.
			D = Number of construction days per month
			E_m = Emissions (lbs/month)
			E_d = Emissions (lbs/day)
	$E_m = E_d * D$	D = Number of construction days per month	
		E_i = Emissions (tons/year)	
		E_m = Emissions (lbs/month)	
	$E_i = \sum E_m / 2,000$	E_m = Emissions (lbs/month)	
		2,000 = Conversion from lbs to tons	

Table 5.1A.54R Number of Onsite Construction Equipment and Motor Vehicles

Number of Onsite Equipment for Units 3 & 4 Demolition

Onsite Equipment	Number per Month ^a																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Water Truck	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
Cranes ^b	1	1	1	1	1	1	1	1	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3
Rubber Tired Loader	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	
Air Compressor	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Forklift	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Excavator	0	0	0	0	0	0	0	0	2	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Notes:

^a Equipment counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

^b Numbers presented for Cranes includes the equipment counts for the 75 Ton Hydraulic Crane and the 35 Ton Hydraulic Crane.

Number of Onsite Motor Vehicles for Units 3 & 4 Demolition

Vehicle Type	Number per Month ^a																										
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Onsite Pick-up Truck	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
Onsite Stake Truck	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
Onsite Dump Truck	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Notes:

^a Vehicle counts taken from 'HBEP Equipment Usage 1.21.13.xls'.

Table 5.1A.55R Construction Equipment Exhaust Criteria Pollutant Emission Factors

Construction Equipment Emission Factors for Units 3 & 4 Demolition

Equipment ^a	Percent Usage ^b	Hours per Month ^c	Horsepower ^d	Load Factor ^d	Emission Factors (g/bhp-hr) ^e											Fuel Consumption (gallons/hour) ^f	
					CO	VOC	NO _x 2016	NO _x 2017	NO _x 2018	SO _x	PM ₁₀ 2016	PM ₁₀ 2017	PM ₁₀ 2018	PM _{2.5} 2016	PM _{2.5} 2017		PM _{2.5} 2018
Water Truck ^g	50%	115	381	0.57	1.209	0.387	2.613	2.302	2.025	0.005	0.093	0.082	0.073	0.093	0.082	0.073	12.33
Cranes	65%	150	208	0.43	1.334	0.443	3.818	3.462	3.125	0.006	0.131	0.118	0.107	0.131	0.118	0.107	5.08
Rubber Tired Loader	55%	127	87	0.54	3.919	0.745	4.657	4.302	3.975	0.006	0.373	0.333	0.296	0.373	0.333	0.296	2.69
Air Compressor	80%	184	78	0.48	3.804	0.744	4.790	4.412	4.050	0.006	0.397	0.350	0.304	0.397	0.350	0.304	2.15
Forklift	75%	173	149	0.30	3.362	0.456	3.062	2.696	2.338	0.006	0.166	0.145	0.124	0.166	0.145	0.124	2.55
Excavator	85%	196	157	0.57	3.366	0.492	3.323	2.928	2.567	0.006	0.179	0.155	0.133	0.179	0.155	0.133	5.11

Notes:
^a Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the CalEEMod User's Guide.
^b Percent Usage assumed typical of power plant construction.
^c Hours per month calculated based on the following schedule, per 'Manpower_Schedule_Huntington_Beach 03.13.12.xls':
 Work hours per day: 10
 Work days per month: 23
^d Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the CalEEMod User's Guide.
^e Construction equipment emission factors taken from Table 3.4 of Appendix D of the CalEEMod User's Guide. The emission factors for the year 2016 were used for the construction equipment exhaust emission calculations for CO, VOC, and SO_x. The emission factors for year 2016, 2017 and 2018 were used for NO_x, PM₁₀, and PM_{2.5}.
^f Fuel consumption based on consumption in the OFFROAD2007 model for the SCAB in the year 2016; value estimated by dividing the reported consumption (gallons/day) by the reported activity (hours/day).
^g Horsepower, load factor, and emission factors for Off-Highway Trucks were assumed representative of Water Trucks.

Table 5.1A.56R Onsite and Offsite Motor Vehicle Criteria Pollutant Emission Factors

Vehicle Emission Factors for Units 3 & 4 Demolition

Vehicle Type	Vehicle Class ^a	Exhaust Emission Factors (g/mile) ^b											Paved Road Emission Factors (g/mile) ^c		Fuel Economy (mpg) ^b	
		CO	VOC	SO _x	NO _x 2016	NO _x 2017	NO _x 2018	PM ₁₀ 2016	PM ₁₀ 2017	PM ₁₀ 2018	PM _{2.5} 2016	PM _{2.5} 2017	PM _{2.5} 2018	PM ₁₀		PM _{2.5}
Onsite Pick-up Truck	Light-duty Truck	3.508	0.235	0.011	0.327	0.301	0.278	0.123	0.124	0.126	0.101	0.103	0.104	N/A	N/A	7.440
Onsite Stake Truck	Heavy-duty Diesel	10.786	6.276	0.037	18.687	16.645	14.934	1.007	0.843	0.709	0.889	0.738	0.614	N/A	N/A	2.621
Onsite Dump Truck	Heavy-duty Diesel	10.786	6.276	0.037	18.687	16.645	14.934	1.007	0.843	0.709	0.889	0.738	0.614	N/A	N/A	2.621
Offsite Delivery Trucks	Heavy-duty Diesel	2.249	0.453	0.017	6.621	5.842	5.193	0.297	0.270	0.248	0.235	0.211	0.190	0.300	0.075	5.749
Material Hauling Trucks	Heavy/Medium-duty Diesel	1.719	0.290	0.016	5.090	4.528	4.046	0.236	0.220	0.206	0.191	0.176	0.163	0.300	0.075	6.224
Waste Hauling Trucks	Heavy/Medium-duty Diesel	1.719	0.290	0.016	5.090	4.528	4.046	0.236	0.220	0.206	0.191	0.176	0.163	0.300	0.075	6.224
Construction Worker Commute	Light-duty Auto/Truck	1.435	0.029	0.004	0.136	0.125	0.114	0.033	0.033	0.033	0.018	0.018	0.018	0.300	0.075	27.325

Notes:

^a The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be an average of LDT1, All and LDT2, All values.

Heavy-duty Diesel: Assumed to be 100% HHD DSL values, as confirmed in Section 4.5 of Appendix A of the CalEEMod User's Guide.

Heavy/Medium-duty Diesel: 50% HHD DSL and 50% MHD DSL values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

Light-duty Auto/Truck: 50% LDA, All; 25% LDT1, All; and 25% LDT2, All values, per Section 4.5 of Appendix A of the CalEEMod User's Guide.

^b Exhaust emission factors and fuel economy from EMFAC2007 for the South Coast Air Basin, calendar year 2016 for CO, VOC, and SO_x. Calendar year 2016, 2017 and 2018 were used for NO_x, PM₁₀, and PM_{2.5}. A speed of 5 mph was assumed for onsite vehicles; a speed of 40 mph was assumed for offsite vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 68°F and humidity of 55% were used per Table B-1 of CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions.

^c Paved road emission factors calculated using CalEEMod methodology, as described below.

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile) ^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [\text{sL (g/m}^2\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Huntington Beach Energy Project
 Construction Emission Estimates - Units 3 and 4 Demolition
 April 2014

Table 5.1A.57R Onsite and Offsite Greenhouse Gas Emission Factors

Greenhouse Gas Emission Factors for Units 3 & 4 Demolition

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO₂ Emission Factors			
Gasoline	8.78	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
Diesel	10.21	kg CO ₂ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.1, May 2008 as updated through January 2012.
N₂O Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0036	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0066	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0048	g N ₂ O/mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.26	g N ₂ O/gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.
CH₄ Emission Factors			
Gasoline Passenger Car Model Year 2009 ^a	0.0173	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Gasoline Light-duty Truck Model Year 2009 ^a	0.0163	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Heavy-duty Truck Model Year 1960 - 2009 ^a	0.0051	g CH ₄ /mile	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.5, May 2008 as updated through January 2012.
Diesel Off-road Vehicle	0.58	g CH ₄ /gallon	The Climate Registry General Reporting Protocol, Version 1.1, Table 13.7, May 2008 as updated through January 2012.

Notes:

^a Model Year 2009 was the most recent year of emission factors available. As a result, it was assumed representative of vehicles used for this project.

Table 5.1A.58R Onsite Construction Exhaust and Fugitive Emissions Summary

Onsite SOx Emissions

Construction Step	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	31	32	33	34	35							
Peaker and Tank Area and Stack 3&4 Demolition																																										
Total (lbs/month)	1.22	1.22	1.43	1.84	1.84	1.94	1.84	1.94	2.18	2.00	2.00	1.99	2.23	2.23	2.23																											
Total (lbs/day)	0.05	0.05	0.06	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10																											
Units 3 & 4 Demolition																																										
Total (lbs/month)																																										
Total (lbs/day)											0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.46	1.46	1.97	1.97	2.20	2.20	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.28	2.28						
Block 1 Construction																																										
Total (lbs/month)																																										
Total (lbs/day)											0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.06	0.09	0.09	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10
Block 2 Construction																																										
Total (lbs/month)																																										
Total (lbs/day)																																										
Units 1 & 2 Demolition																																										
Total (lbs/month)																																										
Total (lbs/day)																																										
Bldgs. 33 & 34 Construction																																										
Total (lbs/month)																																										
Total (lbs/day)																																										
Total Onsite SOx Emissions (Construction Equipment and Vehicles)																																										
Pounds per Month	1.22	1.22	1.43	1.84	1.84	1.94	1.84	1.94	2.18	2.00	2.00	1.99	2.23	2.23	2.23	2.99	2.99	3.60	3.95	3.74	3.38	3.96	3.96	3.96	3.96	3.78	3.78	3.96	3.73	3.55	3.55	3.55	3.55	3.45	3.45							
Pounds per Day	0.05	0.05	0.06	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.13	0.13	0.16	0.17	0.16	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.15	0.15	0.15	0.15	0.15	0.15	0.15							
Yearly Maximums	24	25	27	28	30	31	32	34	36	37	39	40	41	42	43	44	45	46	46	45	45	45	45	44	45	44	43	42	41	40	38	37	36	35	33							
Maximum Pounds per Day	0.18																																									
Maximum Pounds per Hour *	0.02																																									
Maximum Pounds per Month	4.23																																									
Month with Maximum	36																																									
Maximum Pounds per Year *	46																																									
Maximum Average Pounds per Hour *	0.01																																									
Year with Maximum	Months 18 - 29																																									
Tons per Year	0.02																																									

Onsite Exhaust PM₁₀ Emissions

Construction Step	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	31	32	33	34	35						
Peaker and Tank Area and Stack 3&4 Demolition																																									
Total (lbs/month)	57.43	57.43	59.12	71.26	74.46	74.46	74.46	74.46	82.32	69.47	69.47	73.22	81.96	81.96	81.96																										
Total (lbs/day)	2.50	2.50	2.57	3.10	3.24	3.24	3.24	3.24	3.58	3.02	3.02	3.18	3.56	3.56	3.56																										
Units 3 & 4 Demolition																																									
Total (lbs/month)																																									
Total (lbs/day)											17.95	17.95	17.95	17.95	17.95	17.95	17.95	17.95	46.58	46.58	60.17	60.17	58.93	58.93	55.45	55.45	55.45	55.45	55.45	55.45	55.45	55.45	55.45	55.45	55.45	55.33	55.33				
Block 1 Construction																																									
Total (lbs/month)																																									
Total (lbs/day)											0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	2.03	2.03	2.62	2.62	2.56	2.56	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41
Block 2 Construction																																									
Total (lbs/month)																																									
Total (lbs/day)																																									
Units 1 & 2 Demolition																																									
Total (lbs/month)																																									
Total (lbs/day)																																									
Bldgs. 33 & 34 Construction																																									
Total (lbs/month)																																									
Total (lbs/day)																																									
Total Onsite Exhaust PM₁₀ Emissions (Construction Equipment and Vehicles)																																									
Pounds per Month	57.43	57.43	59.12	71.26	74.46	74.46	74.46	74.46	82.32	87.41	87.41	91.17	99.91	99.91	99.91	116.64	116.64	130.59	138.32	122.74	106.04	106.22	106.22	106.22	106.22	102.66	102.66	106.14	100.16	96.68	96.68	96.68	96.68	85.43	85.43						
Pounds per Day	2.50	2.50	2.57	3.10	3.24	3.24	3.24	3.24	3.58	3.69	3.69	3.96	4.34	4.34	4.34	5.07	5.07	5.68	6.01	5.34	4.61	4.62	4.62	4.62	4.62	4.46	4.46	4.61	4.35	4.20	4.20	4.20	4.20	3.71	3.71						
Yearly Maximums	891	934	976	1,017	1,083	1,105	1,161	1,225	1,273	1,297	1,315	1,334	1,349	1,356	1,358	1,361	1,351	1,334	1,300	1,259	1,233	1,223	1,202	1,182	1,183	1,175	1,170	1,141	1,109	1,070	1,026	982	949	926	871						
Maximum Pounds per Day	6.01																																								
Maximum Pounds per Hour *	0.60																																								
Maximum Pounds per Month	138.32																																								
Month with Maximum	19																																								
Maximum Pounds per Year *	1,361																																								
Maximum Average Pounds per Hour *	0.16																																								
Year with Maximum	Months 18 - 27																																								
Tons per Year	0.66																																								

Onsite Fugitive PM₁₀ Emissions

Construction Step	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	31	32	33	34	35						
Peaker and Tank Area and Stack 3&4 Demolition																																									
Total (lbs/month)	68.21	68.21	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	84.16	68.21	68.21	68.21	68.21																										
Total (lbs/day)	2.97	2.97	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	2.97	2.97	2.97	2.97																										
Units 3 & 4 Demolition																																									
Total (lbs/month)																																									
Total (lbs/day)											43.03	43.03	43.03	43.03	43.03	43.03	43.03	43.03	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01	51.01				
Block 1 Construction																																									
Total (lbs/month)																																									
Total (lbs/day)											1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22
Block 2 Construction																																									
Total (lbs/month)																																									
Total (lbs/day)																																									
Units 1 & 2 Demolition																																									
Total (lbs/month)																																									
Total (lbs/day)																																									
Bldgs. 33 & 34 Construction																																									
Total (lbs/month)																																									
Total (lbs/day)																																									
Total Onsite Fugitive PM₁₀ Emissions (Dismemberment, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																																									
Pounds per Month	68.21	68.21	84.16	84.16	84.16	84.16	84.16	84.16	84.16	127.19	127.19	111.24	111.24	111.24	111.24	178.42	178.42	158.69	158.69	158.47	138.77	122.79	122.79	122.79	122.79	106.84	106.84	106.84	106.84	106.84	106.84	106.84	106.84	106.84	106.84	106.84					
Pounds per Day	2.97	2.97	3.66	3.66	3.66	3.66	3.66	3.66	3.66	5.33	5.33	4.64	4.64	4.64	4.64	7.76	7.76	6.90	6.90	6.89	5.89	5.34	5.34	5.34	5.34	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65						
Yearly Maximums	1,091	1,134	1,177	1,204	1,299	1,393	1,467	1,542	1,616	1,663	1,658	1,654	1,666	1,677	1,673	1,668	1,597	1,525	1,473	1,421	1,370	1,346	1,330	1,314	1,366	1,434	1,518	1,575	1,623	1,672	1,693	1,705	1,718	1,732	1,696						
Maximum Pounds per Day	8.31																																								
Maximum Pounds per Hour *	0.83																																								
Maximum Pounds per Month	194.19																																								
Month with Maximum	37 or 38																																								
Maximum Pounds per Year *	1,732																																								
Maximum Average Pounds per Hour *	0.20																																								
Year with Maximum	Months 34-45																																								
Tons per Year	0.87																																								

Table 5.1A.58R Onsite Construction Exhaust and Fugitive Emissions Summary

Construction Step	CO Emissions by Month																																					
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70			
Peaker and Tank Area and Stack 3&4 Demolition	Total (lbs/month)																																					
Units 3 & 4 Demolition	Total (lbs/day)																																					
Block 1 Construction	Total (lbs/month)																																					
Block 2 Construction	Total (lbs/month)																																					
Units 1 & 2 Demolition	Total (lbs/month)																																					
Bldgs. 33 & 34 Construction	Total (lbs/month)																																					
Total Onsite CO Emissions (Construction Equipment and Vehicles)																																						
Pounds per Month	1,865.47	1,588.30	1,588.30	1,253.44	1,259.53	1,037.24	853.13	852.88	1,041.78	1,079.43	669.38	668.47	743.76	706.11	538.80	538.80	538.80	538.80	463.61	349.45	298.70	298.70	298.70	298.70	298.70	298.70	222.96	411.07	411.07	0.00	0.00	0.00	652.25	652.25	839.00	839.00		
Pounds per Day	81.11	69.06	69.06	54.93	54.76	45.10	37.09	37.07	45.29	46.93	29.10	29.06	32.34	30.70	23.43	23.43	23.43	23.43	20.15	15.19	12.99	12.99	12.99	12.99	12.99	12.99	9.69	17.87	17.87	0.00	0.00	0.00	28.36	28.36	36.48	36.48		
Yearly Maximums	13,767	12,645	11,763	10,714	9,989	9,268	8,770	8,380	7,877	7,134	6,353	5,983	5,613	5,168	4,685	4,557	4,429	3,890	3,352	2,888	3,191	3,544	4,085	4,625	5,295	5,965	6,674	7,195	7,716	8,648	9,688	11,041	11,743	12,480	12,975			
Maximum Pounds per Day																																						
Maximum Pounds per Hour																																						
Maximum Pounds per Month																																						
Month with Maximum																																						
Maximum Pounds per Year																																						
Maximum Average Pounds per Hour																																						
Year with Maximum																																						
Tons per Year																																						

Construction Step	VOC Emissions by Month																																						
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70				
Peaker and Tank Area and Stack 3&4 Demolition	Total (lbs/month)																																						
Units 3 & 4 Demolition	Total (lbs/day)																																						
Block 1 Construction	Total (lbs/month)																																						
Block 2 Construction	Total (lbs/month)																																						
Units 1 & 2 Demolition	Total (lbs/month)																																						
Bldgs. 33 & 34 Construction	Total (lbs/month)																																						
Total Onsite VOC Emissions (Construction Equipment and Vehicles)																																							
Pounds per Month	366.92	277.25	277.25	222.73	219.76	186.85	179.24	169.98	203.27	215.00	128.94	128.42	161.88	149.15	112.34	112.34	112.34	112.34	88.87	72.98	64.65	64.65	64.65	64.65	64.65	64.65	40.93	69.74	69.74	0.00	0.00	0.00	104.30	104.30	123.73	123.73			
Pounds per Day	15.69	12.05	12.05	9.69	9.55	8.12	7.40	7.39	8.84	9.35	5.61	5.58	6.69	6.09	4.88	4.88	4.88	4.88	3.86	3.17	2.81	2.81	2.81	2.81	2.81	2.81	1.78	3.03	3.03	0.00	0.00	0.00	4.53	4.53	5.38	5.38			
Yearly Maximums	2,561	2,352	2,214	2,050	1,939	1,832	1,757	1,676	1,579	1,440	1,290	1,226	1,162	1,075	975	933	890	778	666	577	608	648	707	766	839	911	997	1,055	1,112	1,239	1,379	1,562	1,640	1,728	1,789				
Maximum Pounds per Day																																							
Maximum Pounds per Hour																																							
Maximum Pounds per Month																																							
Month with Maximum																																							
Maximum Pounds per Year																																							
Maximum Average Pounds per Hour																																							
Year with Maximum																																							
Tons per Year																																							

Construction Step	NOx Emissions by Month																																						
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70				
Peaker and Tank Area and Stack 3&4 Demolition	Total (lbs/month)																																						
Units 3 & 4 Demolition	Total (lbs/day)																																						
Block 1 Construction	Total (lbs/month)																																						
Block 2 Construction	Total (lbs/month)																																						
Units 1 & 2 Demolition	Total (lbs/month)																																						
Bldgs. 33 & 34 Construction	Total (lbs/month)																																						
Total Onsite NOx Emissions (Construction Equipment and Vehicles)																																							
Pounds per Month	2,086.42	1,706.30	1,706.30	1,361.96	1,361.20	1,144.21	1,089.59	1,088.83	1,278.36	1,370.48	783.13	781.76	947.25	864.50	695.29	695.29	695.29	695.29	529.80	438.73	390.56	390.56	348.76	348.76	348.76	200.33	356.05	356.05	0.00	0.00	0.00	638.75	638.75	744.56	658.30				
Pounds per Day	90.71	74.19	74.19	59.22	59.18	49.75	47.37	47.34	55.58	59.59	34.05	33.99	41.18	37.59	30.23	30.23	30.23	30.23	23.03	19.08	16.98	16.98	15.16	15.16	15.16	8.71	15.48	15.48	0.00	0.00	0.00	27.77	27.77	32.37	28.62				
Yearly Maximums	15,759	14,619	13,778	12,767	12,100	11,434	10,985	10,425	9,775	8,887	7,907	7,473	7,040	6,442	5,777	5,438	5,099	4,404	3,708	3,179	3,379	3,627	3,981	4,290	4,666	5,041	5,499	5,802	6,104	6,763	7,511	8,513	8,876	9,305	9,581				
Maximum Pounds per Day																																							
Maximum Pounds per Hour																																							
Maximum Pounds per Month																																							
Month with Maximum																																							
Maximum Pounds per Year																																							
Maximum Average Pounds per Hour																																							
Year with Maximum																																							
Tons per Year																																							

Table 5.1A.58R Onsite Construction
 Exhaust and Fugitive Emissions Summary

Construction Step	SOx Emissions by Month																																		
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Peaker and Tank Area and Stack 3&4 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Units 3 & 4 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Block 1 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Block 2 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Units 1 & 2 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Bldgs. 33 & 34 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Total Onsite SOx Emissions (Construction Equipment and Vehicles)																																			
Pounds per Month	4.23	3.24	3.24	2.71	2.71	2.31	2.24	2.23	2.56	2.74	1.76	1.76	2.11	1.93	1.52	1.52	1.52	1.52	1.17	0.98	0.90	0.90	0.90	0.90	0.90	0.54	0.87	0.87	0.00	0.00	0.00	1.64	1.64	1.97	1.97
Pounds per Day	0.19	0.14	0.14	0.12	0.12	0.10	0.10	0.10	0.11	0.12	0.08	0.08	0.09	0.08	0.07	0.07	0.07	0.07	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.04	0.04	0.00	0.00	0.00	0.07	0.07	0.09	0.09
Yearly Maximums	32	30	28	27	25	24	23	22	21	19	18	17	16	15	13	13	12	10	9	8	8	9	10	11	13	14	15	17	18	20	22	25	26	27	28
Maximum Pounds per Day																																			
Maximum Pounds per Hour																																			
Maximum Pounds per Month																																			
Month with Maximum																																			
Maximum Pounds per Year																																			
Maximum Average Pounds per Hour																																			
Year with Maximum																																			
Tons per Year																																			

Construction Step	Exhaust PM ₁₀ Emissions by Month																																		
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Peaker and Tank Area and Stack 3&4 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Units 3 & 4 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Block 1 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Block 2 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Units 1 & 2 Demolition																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Bldgs. 33 & 34 Construction																																			
Total (lbs/month)																																			
Total (lbs/day)																																			
Total Onsite Exhaust PM ₁₀ Emissions (Construction Equipment and Vehicles)																																			
Pounds per Month	107.94	97.69	97.69	73.84	73.80	61.84	52.49	52.45	64.20	67.36	36.25	36.19	41.85	39.02	31.79	31.79	31.79	31.79	26.13	20.40	16.98	16.98	14.81	14.81	14.81	9.72	19.01	19.01	0.00	0.00	0.00	29.66	29.66	34.92	30.19
Pounds per Day	4.69	4.25	4.25	3.21	3.21	2.69	2.28	2.28	2.79	2.93	1.58	1.57	1.82	1.70	1.38	1.38	1.38	1.38	1.14	0.89	0.74	0.74	0.64	0.64	0.64	0.42	0.83	0.83	0.00	0.00	0.00	1.29	1.29	1.52	1.31
Yearly Maximums	822	756	697	631	589	547	517	491	459	411	361	340	318	291	262	249	236	204	173	147	156	168	186	202	220	239	261	273	285	316	353	405	428	453	470
Maximum Pounds per Day																																			
Maximum Pounds per Hour																																			
Maximum Pounds per Month																																			
Month with Maximum																																			
Maximum Pounds per Year																																			
Maximum Average Pounds per Hour																																			
Year with Maximum																																			
Tons per Year																																			

Construction Step	Fugitive PM ₁₀ Emissions by Month																																			
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	
Peaker and Tank Area and Stack 3&4 Demolition																																				
Total (lbs/month)																																				
Total (lbs/day)																																				
Units 3 & 4 Demolition																																				
Total (lbs/month)																																				
Total (lbs/day)																																				
Block 1 Construction																																				
Total (lbs/month)																																				
Total (lbs/day)																																				
Block 2 Construction																																				
Total (lbs/month)																																				
Total (lbs/day)																																				
Units 1 & 2 Demolition																																				
Total (lbs/month)																																				
Total (lbs/day)																																				
Bldgs. 33 & 34 Construction																																				
Total (lbs/month)																																				
Total (lbs/day)																																				
Total Onsite Fugitive PM ₁₀ Emissions (Dismemberment, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																																				
Pounds per Month	174.53	191.10	191.10	163.40	155.42	155.31	127.61	119.64	118.86	119.86	71.78	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83	55.83
Pounds per Day	7.59	8.31	8.31	7.10	6.76	6.75	5.55	5.20	5.21	5.21	3.12	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.43	
Yearly Maximums	1,645	1,527	1,391	1,256	1,149	1,049	950	878	814	750	686	670	670	662	654	646	590	535	479	476	474	471	468	466	463	468	474	479	532	617	738	806	873	833		
Maximum Pounds per Day																																				
Maximum Pounds per Hour																																				
Maximum Pounds per Month																																				
Month with Maximum																																				
Maximum Pounds per Year																																				
Maximum Average Pounds per Hour																																				
Year with Maximum																																				
Tons per Year																																				

Table 5.1A.58R Onsite Construction Exhaust and Fugitive Emissions Summary

Total Onsite PM₁₀ Emissions (Exhaust and Fugitive)

Parameter	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Pounds per Month	86.67	86.67	84.40	84.40	84.40	84.40	121.84	173.30	173.30	175.57	164.69	157.83	120.44	120.44	120.44	120.44	120.44	120.44	120.44	120.44
Pounds per Day	3.77	3.77	3.67	3.67	3.67	3.67	5.30	7.53	7.53	7.63	7.16	6.66	5.24	5.24	5.24	5.24	5.24	5.24	5.24	5.24
Yearly Maximums	1,477	1,511	1,545	1,581	1,617	1,653	1,689	1,688	1,635											
Maximum Pounds per Day																				
Maximum Pounds per Hour*																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour*																				
Year with Maximum																				
Tons per Year																				

Onsite Exhaust PM_{2.5} Emissions

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	33.45	33.45	31.18	31.18	31.18	31.18	31.18	31.18	31.18	31.18	31.18	26.78	31.03	31.03	31.03	31.03	31.03	31.03	31.03	31.03
Total (lbs/day)	1.45	1.45	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.16	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							5.53	21.23	21.23	23.50	20.60	18.14	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29
Total (lbs/day)							0.24	0.92	0.92	1.02	0.90	0.79	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19

Total Onsite Exhaust PM_{2.5} Emissions (Construction Equipment and Vehicles)

Parameter	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Pounds per Month	33.45	33.45	31.18	31.18	31.18	31.18	36.71	52.41	52.41	54.68	51.78	44.92	35.31	35.31	35.31	35.31	35.31	35.31	35.31	35.31
Pounds per Day	1.45	1.45	1.36	1.36	1.36	1.36	1.60	2.29	2.29	2.38	2.25	1.95	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
Yearly Maximums	485	486	488	492	497	501	505	503	486											
Maximum Pounds per Day																				
Maximum Pounds per Hour*																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour*																				
Year with Maximum																				
Tons per Year																				

Onsite Fugitive PM_{2.5} Emissions

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01
Total (lbs/day)	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							3.19	19.22	19.22	19.22	18.43	18.43	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
Total (lbs/day)							0.14	0.84	0.84	0.84	0.80	0.80	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14

Total Onsite Fugitive PM_{2.5} Emissions (Dismemberment, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)

Parameter	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Pounds per Month	6.01	6.01	6.01	6.01	6.01	6.01	9.20	25.23	25.23	25.23	24.43	24.43	9.20	9.20	9.20	9.20	9.20	9.20	9.20	9.20
Pounds per Day	0.26	0.26	0.26	0.26	0.26	0.26	0.40	1.10	1.10	1.10	1.06	1.06	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Yearly Maximums	170	173	176	179	183	186	189	189	173											
Maximum Pounds per Day																				
Maximum Pounds per Hour*																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour*																				
Year with Maximum																				
Tons per Year																				

Table 5.1A.59R Offsite Construction
Exhaust and Fugitive Emissions
Summary

Total Offsite PM_{2.5} Emissions (Exhaust
and Fugitive)

Table with 85 columns representing months (42-85) and rows for PM2.5 emissions. Rows include: Parameter, Pounds per Month, Pounds per Day, Yearly Maximums, Maximum Pounds per Day, Maximum Pounds per Hour, Maximum Pounds per Month, Month with Maximum, Maximum Pounds per Year, Maximum Average Pounds per Hour, Year with Maximum, and Tons per Year.

Offsite CO₂ Emissions

Table with 85 columns representing months (42-85) and rows for CO2 emissions. Rows include: Construction Step, Total (metric tons/month), Total (metric tons/day), Units 3 & 4 Demolition, Block 1 Construction, Block 2 Construction, Units 1 & 2 Demolition, Bldgs. 33 & 34 Construction, Total Offsite CO2 Emissions (Construction Vehicles), Metric Tons per Month, Metric Tons per Day, Yearly Maximums, Maximum Metric Tons per Day, Maximum Metric Tons per Hour, Maximum Metric Tons per Month, Month with Maximum, Maximum Metric Tons per Year, Maximum Average Metric Tons per Hour, and Year with Maximum.

Offsite N₂O Emissions

Table with 85 columns representing months (42-85) and rows for N2O emissions. Rows include: Construction Step, Total (metric tons/month), Total (metric tons/day), Units 3 & 4 Demolition, Block 1 Construction, Block 2 Construction, Units 1 & 2 Demolition, Bldgs. 33 & 34 Construction, Total Offsite N2O Emissions (Construction Vehicles), Metric Tons per Month, Metric Tons per Day, Yearly Maximums, Maximum Metric Tons per Day, Maximum Metric Tons per Hour, Maximum Metric Tons per Month, Month with Maximum, Maximum Metric Tons per Year, Maximum Average Metric Tons per Hour, and Year with Maximum.

Offsite CH₄ Emissions

Table with 85 columns representing months (42-85) and rows for CH4 emissions. Rows include: Construction Step, Total (metric tons/month), Total (metric tons/day), Units 3 & 4 Demolition, Block 1 Construction, Block 2 Construction, Units 1 & 2 Demolition, Bldgs. 33 & 34 Construction, Total Offsite CH4 Emissions (Construction Vehicles), Metric Tons per Month, Metric Tons per Day, Yearly Maximums, Maximum Metric Tons per Day, Maximum Metric Tons per Hour, Maximum Metric Tons per Month, Month with Maximum, Maximum Metric Tons per Year, Maximum Average Metric Tons per Hour, and Year with Maximum.

Notes:

- * The hours per day are per Manpower Schedule Huntington
- ** The hours per year are assumed to allow operation 24 hours
- ** There are no offsite activities generating fugitive dust during P

Table 5.1A.59R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition					
Total (lbs/month)	94.05	91.49	60.81	53.14	41.12
Total (lbs/day)	4.09	3.98	2.54	2.31	1.79
Bldgs. 33 & 34 Construction					
Total (lbs/month)	83.71	70.38	88.15	84.82	0.37
Total (lbs/day)	3.64	3.06	3.83	3.69	0.02
Total Offsite CO Emissions (Construction Vehicles)					
Pounds per Month	177.76	161.87	148.97	137.98	41.50
Pounds per Day	7.73	7.04	6.48	6.00	1.80
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour ^a					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour ^b					
Year with Maximum					
Tons per Year					

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition					
Total (lbs/month)	7.38	7.14	5.44	4.71	4.09
Total (lbs/day)	0.32	0.31	0.24	0.20	0.18
Bldgs. 33 & 34 Construction					
Total (lbs/month)	1.36	1.15	1.43	1.38	0.07
Total (lbs/day)	0.06	0.05	0.06	0.06	0.00
Total Offsite VOC Emissions (Construction Vehicles)					
Pounds per Month	8.74	8.29	6.87	6.09	4.15
Pounds per Day	0.38	0.36	0.30	0.26	0.18
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour ^a					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour ^b					
Year with Maximum					
Tons per Year					

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition					
Total (lbs/month)	98.53	93.41	69.92	60.56	52.29
Total (lbs/day)	4.20	4.06	3.04	2.63	2.27
Bldgs. 33 & 34 Construction					
Total (lbs/month)	28.24	23.63	29.81	28.71	0.78
Total (lbs/day)	1.23	1.04	1.30	1.25	0.03
Total Offsite NOx Emissions (Construction Vehicles)					
Pounds per Month	124.87	117.34	99.73	89.27	53.07
Pounds per Day	5.43	5.10	4.34	3.88	2.31
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour ^a					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour ^b					
Year with Maximum					
Tons per Year					

Table 5.1A.59R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Offsite SOx Emissions					
Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition					
Total (lbs/month)	0.616	0.597	0.435	0.377	0.321
Total (lbs/day)	0.027	0.026	0.019	0.016	0.014
Bldgs. 33 & 34 Construction					
Total (lbs/month)	0.271	0.229	0.286	0.276	0.004
Total (lbs/day)	0.012	0.010	0.012	0.012	0.000
Total Offsite SOx Emissions (Construction Vehicles)					
Pounds per Month	0.888	0.826	0.721	0.652	0.325
Pounds per Day	0.039	0.036	0.031	0.028	0.014
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour *					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour *					
Year with Maximum					
Tons per Year					

Offsite Exhaust PM ₁₀ Emissions					
Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition					
Total (lbs/month)	30.45	29.61	19.83	17.31	13.55
Total (lbs/day)	1.32	1.29	0.86	0.75	0.59
Bldgs. 33 & 34 Construction					
Total (lbs/month)	27.52	23.14	28.99	27.89	0.13
Total (lbs/day)	1.20	1.01	1.26	1.21	0.01
Total Offsite Exhaust PM₁₀ Emissions (Construction Vehicles)					
Pounds per Month	57.98	52.75	48.81	45.20	13.68
Pounds per Day	2.52	2.29	2.12	1.97	0.59
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour *					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour *					
Year with Maximum					
Tons per Year					

Offsite Fugitive PM ₁₀ Emissions					
Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition *					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition *					
Total (lbs/month)					
Total (lbs/day)					
Bldgs. 33 & 34 Construction *					
Total (lbs/month)					
Total (lbs/day)					
Total Offsite Fugitive PM₁₀ Emissions (Grading)					
Pounds per Month	0.00	0.00	0.00	0.00	0.00
Pounds per Day	0.00	0.00	0.00	0.00	0.00
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour *					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour *					
Year with Maximum					
Tons per Year					

Table 5.1A.59R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Total Offsite PM₁₀ Emissions (Exhaust and Fugitive)

Parameter	86	87	88	89	90
Pounds per Month	57.98	52.75	48.81	45.20	13.68
Pounds per Day	2.52	2.29	2.12	1.97	0.59
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour *					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour *					
Year with Maximum					
Tons per Year					

Offsite Exhaust PM_{2.5} Emissions

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition					
Total (lbs/month)	10.63	10.32	7.14	6.22	5.04
Total (lbs/day)	0.46	0.45	0.31	0.27	0.22
Bldgs. 33 & 34 Construction					
Total (lbs/month)	7.73	6.50	8.14	7.83	0.06
Total (lbs/day)	0.34	0.28	0.35	0.34	0.00
Total Offsite Exhaust PM_{2.5} Emissions (Construction Vehicles)					
Pounds per Month	18.36	16.62	15.28	14.05	5.09
Pounds per Day	0.89	0.73	0.66	0.61	0.22
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour *					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour *					
Year with Maximum					
Tons per Year					

Offsite Fugitive PM_{2.5} Emissions

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition *					
Total (lbs/month)					
Total (lbs/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (lbs/month)					
Total (lbs/day)					
Block 2 Construction					
Total (lbs/month)					
Total (lbs/day)					
Units 1 & 2 Demolition *					
Total (lbs/month)					
Total (lbs/day)					
Bldgs. 33 & 34 Construction *					
Total (lbs/month)					
Total (lbs/day)					
Total Offsite Fugitive PM_{2.5} Emissions (Grading)					
Pounds per Month	0.000	0.000	0.000	0.000	0.000
Pounds per Day	0.000	0.000	0.000	0.000	0.000
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour *					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour *					
Year with Maximum					
Tons per Year					

Table 5.1A.59R Offsite Construction
 Exhaust and Fugitive Emissions
 Summary

Total Offsite PM_{2.5} Emissions (Exhaust
 and Fugitive)

Parameter	86	87	88	89	90
Pounds per Month	18.38	16.82	15.28	14.05	5.09
Pounds per Day	0.80	0.73	0.66	0.61	0.22
Yearly Maximums					
Maximum Pounds per Day					
Maximum Pounds per Hour ^a					
Maximum Pounds per Month					
Month with Maximum					
Maximum Pounds per Year					
Maximum Average Pounds per Hour ^b					
Year with Maximum					
Tons per Year					

Offsite CO₂ Emissions

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (metric tons/month)					
Total (metric tons/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (metric tons/month)					
Total (metric tons/day)					
Block 2 Construction					
Total (metric tons/month)					
Total (metric tons/day)					
Units 1 & 2 Demolition					
Total (metric tons/month)	29.02	28.11	20.57	17.83	15.21
Total (metric tons/day)	1.26	1.22	0.89	0.78	0.66
Bldgs. 33 & 34 Construction					
Total (metric tons/month)	0.21	0.21	0.21	0.21	0.21
Total (metric tons/day)	0.01	0.01	0.01	0.01	0.01
Total Offsite CO₂ Emissions (Construction Vehicles)					
Metric Tons per Month	29.23	28.32	20.78	18.04	15.42
Metric Tons per Day	1.27	1.23	0.90	0.78	0.67
Yearly Maximums					
Maximum Metric Tons per Day					
Maximum Metric Tons per Hour ^a					
Maximum Metric Tons per Month					
Month with Maximum					
Maximum Metric Tons per Year					
Maximum Average Metric Tons per Hour ^b					
Year with Maximum					

Offsite N₂O Emissions

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (metric tons/month)					
Total (metric tons/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (metric tons/month)					
Total (metric tons/day)					
Block 2 Construction					
Total (metric tons/month)					
Total (metric tons/day)					
Units 1 & 2 Demolition					
Total (metric tons/month)	0.001457	0.001417	0.000945	0.000826	0.000644
Total (metric tons/day)	0.000063	0.000062	0.000041	0.000036	0.000028
Bldgs. 33 & 34 Construction					
Total (metric tons/month)	0.0001347	0.0001133	0.0001419	0.0001365	0.0000036
Total (metric tons/day)	0.000059	0.000049	0.000062	0.000059	0.0000030
Total Offsite N₂O Emissions (Construction Vehicles)					
Metric Tons per Month	0.0028	0.0025	0.0024	0.0022	0.00098
Metric Tons per Day	0.0001	0.0001	0.0001	0.0001	0.00004
Yearly Maximums					
Maximum Metric Tons per Day					
Maximum Metric Tons per Hour ^a					
Maximum Metric Tons per Month					
Month with Maximum					
Maximum Metric Tons per Year					
Maximum Average Metric Tons per Hour ^b					
Year with Maximum					

Offsite CH₄ Emissions

Construction Step	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition					
Total (metric tons/month)					
Total (metric tons/day)					
Units 3 & 4 Demolition					
Total (lbs/month)					
Total (lbs/day)					
Block 1 Construction					
Total (metric tons/month)					
Total (metric tons/day)					
Block 2 Construction					
Total (metric tons/month)					
Total (metric tons/day)					
Units 1 & 2 Demolition					
Total (metric tons/month)	0.0004628	0.0004518	0.0002744	0.0002416	0.0001688
Total (metric tons/day)	0.0000201	0.0000196	0.0000119	0.0000105	0.0000073
Bldgs. 33 & 34 Construction					
Total (metric tons/month)	0.0006452	0.0005421	0.0006796	0.0006538	0.0000036
Total (metric tons/day)	0.0000281	0.0000236	0.0000295	0.0000284	0.0000000
Total Offsite CH₄ Emissions (Construction Vehicles)					
Metric Tons per Month	0.0011	0.00099	0.00095	0.00090	0.00017
Metric Tons per Day	0.00005	0.00004	0.00004	0.00004	0.00001
Yearly Maximums					
Maximum Metric Tons per Day					
Maximum Metric Tons per Hour ^a					
Maximum Metric Tons per Month					
Month with Maximum					
Maximum Metric Tons per Year					
Maximum Average Metric Tons per Hour ^b					
Year with Maximum					

Notes:
^a The hours per day are per Manpower Schedule Huntington
^b The hours per year are assumed to allow operation 24 hours
^c There are no offsite activities generating fugitive dust during P

Table 5.1A.60R Onsite and Offsite
 Construction Exhaust and Fugitive
 Emissions Summary

Construction Step	SOx Emissions by Month																																																					
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70																			
Peaker and Tank Area and Stack 3&4 Demolition																																																						
Total (lbs/month)																																																						
Total (lbs/day)																																																						
Units 3 & 4 Demolition																																																						
Total (lbs/month)	3.11																																																					
Total (lbs/day)	0.14																																																					
Block 1 Construction																																																						
Total (lbs/month)	2,060	2,024	1,846	1,854	1,491	1,521	1,451	1,381	1,524	1,573																																												
Total (lbs/day)	0.086	0.081	0.064	0.064	0.062	0.063	0.060	0.057	0.063	0.065																																												
Block 2 Construction																																																						
Total (lbs/month)	1,117	2,534	2,615	2,311	2,750	2,446	2,457	2,465	2,541	2,858	2,836	2,904	3,457	3,294	2,853	2,816	2,757	2,716	2,406	2,061	2,140	1,932	1,895	1,692	1,531	0.994	1,350	1,306																										
Total (lbs/day)	0.046	0.102	0.109	0.096	0.115	0.102	0.103	0.103	0.106	0.119	0.118	0.121	0.144	0.137	0.118	0.115	0.115	0.113	0.082	0.086	0.089	0.077	0.076	0.068	0.064	0.042	0.054	0.055																										
Units 1 & 2 Demolition																																																						
Total (lbs/month)																												1,870	1,973	2,304	2,399																							
Total (lbs/day)																												0.078	0.082	0.096	0.100	0.100																						
Bldgs. 33 & 34 Construction																																																						
Total (lbs/month)																												1,870	1,973	2,304	2,399																							
Total (lbs/day)																												0.078	0.082	0.096	0.100	0.100																						

Total Onsite and Offsite SOx Emissions (Construction Equipment and Vehicles)																																				
Pounds per Month	6,282	4,562	4,462	4,168	4,250	3,968	3,910	3,827	4,135	4,431	2,835	2,904	3,457	3,294	2,853	2,816	2,757	2,716	2,406	2,061	2,140	1,932	1,895	1,692	1,531	0.994	1,350	1,306	0.000	0.000	0.000	1,870	1,973	2,304	2,399	
Pounds per Day	0.273	0.194	0.194	0.181	0.184	0.172	0.170	0.164	0.179	0.192	0.124	0.126	0.150	0.143	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124
Yearly Maximums	50	47	46	44	43	41	40	38	37	35	32	31	30	28	26	24	23	20	17	15	15	15	15	15	16	17	19	20	21	24	27	31	33	35	36	
Maximum Pounds per Day																																				
Maximum Pounds per Hour ^a																																				
Maximum Pounds per Month																																				
Month with Maximum																																				
Maximum Pounds per Year																																				
Maximum Average Pounds per Hour ^b																																				
Year with Maximum																																				
Tons per Year																																				

Construction Step	Exhaust PM ₁₀ Emissions by Month																																																				
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70																		
Peaker and Tank Area and Stack 3&4 Demolition																																																					
Total (lbs/month)																																																					
Total (lbs/day)																																																					
Units 3 & 4 Demolition																																																					
Total (lbs/month)	93.78																																																				
Total (lbs/day)	4.08																																																				
Block 1 Construction																																																					
Total (lbs/month)	105.95	106.45	100.14	103.46	97.11	99.30	96.99	95.80	96.40	94.57																																											
Total (lbs/day)	4.14	4.16	4.13	4.34	4.06	4.16	4.06	4.12	4.16	4.08																																											
Block 2 Construction																																																					
Total (lbs/month)	43.27	96.61	104.21	90.43	104.40	98.42	91.73	96.87	100.45	110.19	107.82	117.18	142.68	140.41	132.14	130.75	130.07	129.04	124.77	113.03	113.79	108.22	104.55	84.11	70.34	46.63	55.83	54.46																									
Total (lbs/day)	1.88	4.20	4.53	3.93	4.54	4.28	3.99	4.21	4.37	4.79	4.69	5.09	6.20	6.10	5.75	5.68	5.66	5.61	5.42	4.91	4.95	4.71	4.55	3.66	3.06	2.03	2.43	2.37																									
Units 1 & 2 Demolition																																																					
Total (lbs/month)																												40.19	41.66	52.39	53.35																						
Total (lbs/day)																												1.75	1.81	2.28	2.32																						
Bldgs. 33 & 34 Construction																																																					
Total (lbs/month)																												40.19	41.66	52.39	53.35																						
Total (lbs/day)																												1.75	1.81	2.28	2.32																						

Total Onsite and Offsite Exhaust PM ₁₀ Emissions (Construction Equipment and Vehicles)																																			
Pounds per Month	243.00	203.06	204.35	193.89	201.51	197.72	188.72	192.47	196.85	204.76	167.82	177.18	142.68	140.41	132.14	130.75	130.07	129.04	124.77	113.03	113.79	108.22	104.55	84.11	70.34	46.63	55.83	54.46	0.00	0.00	0.00	40.19	41.66	52.39	53.35
Pounds per Day	10.13	8.39	8.66	8.27	8.66	8.44	8.05	8.33	8.52	8.67	7.19	6.39	6.10	6.10	5.75	5.68	5.66	5.61	5.42	4.91	4.95	4.71	4.55	3.66	3.06	2.03	2.43	2.37	0.00	0.00	0.00	1.75	1.81	2.28	2.32
Yearly Maximums	2,251	2,151	2,088	2,016	1,953	1,882	1,813	1,749	1,670	1,586	1,490	1,487	1,454	1,381	1,287	1,211	1,135	1,005	876	751	678	606	550	499	472	462	474	476	483	544	628	735	804	875	934
Maximum Pounds per Day																																			
Maximum Pounds per Hour ^a																																			
Maximum Pounds per Month																																			
Month with Maximum																																			
Maximum Pounds per Year																																			
Maximum Average Pounds per Hour ^b																																			
Year with Maximum																																			
Tons per Year																																			

Construction Step	Fugitive PM ₁₀ Emissions by Month																																																				
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70																		
Peaker and Tank Area and Stack 3&4 Demolition																																																					
Total (lbs/month)																																																					
Total (lbs/day)																																																					
Units 3 & 4 Demolition																																																					
Total (lbs/month)	51.01																																																				
Total (lbs/day)	2.22																																																				
Block 1 Construction																																																					
Total (lbs/month)	56.18	56.18	56.18	56.18	48.21	48.21	48.21	48.21	48.43	48.43																																											
Total (lbs/day)	2.44	2.44	2.44	2.44	2.10	2.10	2.10	2.10	2.11	2.11																																											
Block 2 Construction																																																					
Total (lbs/month)	68.05	135.63	135.63	107.92	107.92	107.81	80.11	72.13	72.13	72.13	72.13	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18																		
Total (lbs/day)	2.96	5.90	5.90	4.69	4.69	4.69	3.48	3.14	3.14	3.14	3.14	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44																		
Units 1 & 2 Demolition																																																					
Total (lbs/month)																												53.20	53.20	53.20	53.20																						
Total (lbs/day)																												2.31	2.31	2.31	2.31																						
Bldgs. 33 & 34 Construction																																																					
Total (lbs/month)																												53.20	53.20	53.20	53.20																						
Total (lbs/day)																												2.31	2.31	2.31	2.31																						

Total Onsite and Offsite Fugitive PM ₁₀ Emissions (Disassembly, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																																			
Pounds per Month	175.24	191.81	191.81	164.11	156.13	156.02	128.52	128.52	128.57	128.57	72.13	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18	56.18
Pounds per Day	7.62	8.34	8.34	7.14	6.79	6.78	5.58	5.24	5.24	5.24	3.14	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	2.44	
Yearly Maximums	1,653	1,534	1,399	1,263	1,155	1,055	955	883	819	755	674	674	674	674	666	658	650	594	538	482	479	476	473	470	467	464	469	474	479	532	617	738	806	873	933
Maximum Pounds per Day																																			
Maximum Pounds per Hour ^a																																			
Maximum Pounds per Month																																			
Month with Maximum																																			
Maximum Pounds per Year																																			
Maximum Average Pounds per Hour ^b																																			
Year with Maximum																																			
Tons per Year																																			

Table 5.1A.60R Onsite and Offsite
 Construction Exhaust and Fugitive
 Emissions Summary

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite and Offsite CO Emissions																				
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	1,043.79	1,050.86	1,016.20	1,016.20	1,024.47	1,024.47	1,036.88	1,036.88	1,041.01	1,045.15	1,045.15	1,045.15	1,131.84	1,131.84	1,131.84	1,112.94	1,110.38	1,079.70	1,072.03	1,060.01
Total (lbs/day)	45.38	45.89	44.18	44.18	44.54	44.54	45.08	45.08	45.26	45.44	45.44	45.44	49.21	49.21	49.21	48.39	48.28	46.34	46.81	46.09
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							147.13	482.16	483.86	522.42	487.25	482.70	155.63	156.22	162.88	170.66	157.33	175.11	171.77	87.33
Total (lbs/day)							6.40	20.96	21.04	22.71	20.32	20.12	6.77	6.79	7.08	7.42	6.84	7.61	7.47	3.80
Total Onsite and Offsite CO Emissions (Construction Equipment and Vehicles)																				
Pounds per Month	1,043.79	1,050.86	1,016.20	1,016.20	1,024.47	1,024.47	1,184.01	1,519.04	1,524.87	1,567.56	1,512.39	1,507.84	1,287.47	1,288.06	1,294.72	1,283.60	1,267.71	1,254.81	1,243.80	1,147.34
Pounds per Day	45.38	45.89	44.18	44.18	44.54	44.54	51.48	66.05	66.30	68.15	65.76	65.56	55.98	56.00	56.29	55.81	55.12	54.56	54.08	49.88
Yearly Maximums	14,992	15,235	15,473	15,751	16,019	16,262	18,492	16,552	16,180											
Maximum Pounds per Day																				
Maximum Pounds per Hour ^a																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour ^b																				
Year with Maximum																				
Tons per Year																				

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite and Offsite VOC Emissions																				
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	142.08	142.19	132.33	132.33	133.67	133.67	135.69	135.69	136.36	137.04	137.04	137.04	154.63	154.63	154.63	151.91	151.66	149.96	149.24	148.62
Total (lbs/day)	6.18	6.18	5.75	5.75	5.81	5.81	5.90	5.90	5.93	5.96	5.96	5.96	6.72	6.72	6.72	6.60	6.59	6.52	6.49	6.46
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							14.37	57.30	57.25	67.61	61.18	59.96	18.11	18.04	18.15	18.27	18.06	18.34	18.28	16.97
Total (lbs/day)							0.62	2.49	2.49	2.94	2.66	2.61	0.79	0.78	0.79	0.79	0.79	0.80	0.79	0.74
Total Onsite and Offsite VOC Emissions (Construction Equipment and Vehicles)																				
Pounds per Month	142.08	142.19	132.33	132.33	133.67	133.67	150.06	193.00	193.62	204.65	198.21	196.99	172.74	172.67	172.78	170.17	168.72	168.30	167.52	165.59
Pounds per Day	6.18	6.18	5.75	5.75	5.81	5.81	6.52	8.39	8.42	8.90	8.62	8.56	7.51	7.51	7.51	7.40	7.38	7.32	7.28	7.20
Yearly Maximums	1,953	1,983	2,014	2,054	2,092	2,128	2,163	2,180	2,153											
Maximum Pounds per Day																				
Maximum Pounds per Hour ^a																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour ^b																				
Year with Maximum																				
Tons per Year																				

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Onsite and Offsite NOx Emissions																				
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	779.63	780.22	723.30	723.30	741.38	741.38	788.51	788.51	777.56	786.60	786.60	712.80	809.51	809.51	809.51	775.75	772.63	749.14	739.78	731.51
Total (lbs/day)	33.90	33.92	31.45	31.45	32.23	32.23	33.41	33.41	33.81	34.20	34.20	30.99	36.20	36.20	36.20	33.73	33.59	32.57	32.16	31.80
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							93.74	362.67	361.66	433.45	393.10	366.75	122.03	121.35	123.55	126.13	121.72	127.60	126.49	98.57
Total (lbs/day)							4.08	15.77	15.72	18.65	17.09	15.51	5.31	5.28	5.37	5.48	5.20	5.55	5.50	4.29
Total Onsite and Offsite NOx Emissions (Construction Equipment and Vehicles)																				
Pounds per Month	779.63	780.22	723.30	723.30	741.38	741.38	882.26	1,151.18	1,139.22	1,220.05	1,179.70	1,069.54	931.54	930.86	933.06	901.88	894.35	876.74	866.28	830.08
Pounds per Day	33.90	33.92	31.45	31.45	32.23	32.23	37.49	49.18	49.53	53.05	51.29	46.50	40.50	40.47	40.57	39.21	38.88	38.12	37.66	36.09
Yearly Maximums	11,091	11,243	11,394	11,603	11,782	11,935	12,070	12,074	11,773											
Maximum Pounds per Day																				
Maximum Pounds per Hour ^a																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour ^b																				
Year with Maximum																				
Tons per Year																				

Table 5.1A.60R Onsite and Offsite
 Construction Exhaust and Fugitive
 Emissions Summary

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Onsite and Offsite SOx Emissions																					
Peaker and Tank Area and Stack 3&4 Demolition																					
Total (lbs/month)																					
Total (lbs/day)																					
Units 3 & 4 Demolition																					
Total (lbs/month)																					
Total (lbs/day)																					
Block 1 Construction																					
Total (lbs/month)																					
Total (lbs/day)																					
Block 2 Construction																					
Total (lbs/month)																					
Total (lbs/day)																					
Units 1 & 2 Demolition																					
Total (lbs/month)	2,6239	2,6452	2,5084	2,5084	2,6027	2,6027	2,7442	2,7442	2,7913	2,8385	2,8385	2,8385	3,0940	3,0940	3,0940	2,8982	2,8789	2,7170	2,6502	2,6024	
Total (lbs/day)	0.1141	0.1150	0.1091	0.1091	0.1132	0.1132	0.1193	0.1193	0.1214	0.1234	0.1234	0.1234	0.1345	0.1345	0.1345	0.1260	0.1252	0.1181	0.1156	0.1131	
Bldgs. 33 & 34 Construction																					
Total (lbs/month)							0.3071	0.9476	0.9484	1.1567	1.0943	1.0107	0.4882	0.4854	0.5068	0.5317	0.4890	0.5460	0.5353	0.2647	
Total (lbs/day)							0.0134	0.0412	0.0412	0.0503	0.0476	0.0439	0.0212	0.0211	0.0220	0.0231	0.0213	0.0237	0.0233	0.0115	
Total Onsite and Offsite SOx Emissions (Construction Equipment and Vehicles)																					
Pounds per Month	2,6239	2,6452	2,5084	2,5084	2,6027	2,6027	3,0513	3,6918	3,7398	3,9952	3,9328	3,8492	3,5821	3,5794	3,6008	3,4299	3,3679	3,2630	3,1944	2,8671	
Pounds per Day	0.1141	0.1150	0.1091	0.1091	0.1132	0.1132	0.1327	0.1605	0.1626	0.1737	0.1710	0.1674	0.1557	0.1556	0.1566	0.1491	0.1464	0.1419	0.1389	0.1247	
Yearly Maximums	38	39	40	41	42	42	43	43	42												
Maximum Pounds per Day																					
Maximum Pounds per Hour ^a																					
Maximum Pounds per Month																					
Month with Maximum																					
Maximum Pounds per Year																					
Maximum Average Pounds per Hour ^b																					
Year with Maximum																					
Tons per Year																					

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Onsite and Offsite Exhaust PM₁₀ Emissions																					
Peaker and Tank Area and Stack 3&4 Demolition																					
Total (lbs/month)																					
Total (lbs/day)																					
Units 3 & 4 Demolition																					
Total (lbs/month)																					
Total (lbs/day)																					
Block 1 Construction																					
Total (lbs/month)																					
Total (lbs/day)																					
Block 2 Construction																					
Total (lbs/month)																					
Total (lbs/day)																					
Units 1 & 2 Demolition																					
Total (lbs/month)	57.61	59.80	58.25	58.25	61.14	61.14	65.48	65.48	66.93	69.37	68.37	63.67	67.92	67.92	67.92	61.49	60.65	59.87	48.35	44.59	
Total (lbs/day)	2.50	2.60	2.53	2.53	2.66	2.66	2.85	2.85	2.91	2.97	2.97	2.77	2.95	2.95	2.95	2.67	2.64	2.21	2.10	1.94	
Bldgs. 33 & 34 Construction																					
Total (lbs/month)							18.81	41.38	41.92	45.15	42.67	38.41	26.90	27.07	29.26	31.82	27.44	33.28	32.18	4.43	
Total (lbs/day)							0.82	1.80	1.82	1.96	1.86	1.67	1.17	1.18	1.27	1.38	1.19	1.45	1.40	0.19	
Total Onsite and Offsite Exhaust PM₁₀ Emissions (Construction Equipment and Vehicles)																					
Pounds per Month	57.61	59.80	58.25	58.25	61.14	61.14	84.29	106.86	108.84	113.53	111.05	102.09	94.81	94.99	97.18	88.31	86.09	84.15	60.53	49.01	
Pounds per Day	2.50	2.60	2.53	2.53	2.66	2.66	3.66	4.65	4.73	4.94	4.83	4.44	4.12	4.13	4.23	4.06	3.83	3.66	3.50	2.13	
Yearly Maximums	983	1,020	1,055	1,094	1,129	1,156	1,179	1,175	1,118												
Maximum Pounds per Day																					
Maximum Pounds per Hour ^a																					
Maximum Pounds per Month																					
Month with Maximum																					
Maximum Pounds per Year																					
Maximum Average Pounds per Hour ^b																					
Year with Maximum																					
Tons per Year																					

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
Onsite and Offsite Fugitive PM₁₀ Emissions																					
Peaker and Tank Area and Stack 3&4 Demolition																					
Total (lbs/month)																					
Total (lbs/day)																					
Units 3 & 4 Demolition																					
Total (lbs/month)																					
Total (lbs/day)																					
Block 1 Construction																					
Total (lbs/month)																					
Total (lbs/day)																					
Block 2 Construction																					
Total (lbs/month)																					
Total (lbs/day)																					
Units 1 & 2 Demolition																					
Total (lbs/month)	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	53.20	
Total (lbs/day)	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	
Bldgs. 33 & 34 Construction																					
Total (lbs/month)							31.90	67.66	67.66	67.66	59.69	59.69	31.90	31.90	31.90	31.90	31.90	31.90	31.90	31.90	
Total (lbs/day)							1.39	2.94	2.94	2.94	2.60	2.60	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	
Total Onsite and Offsite Fugitive PM₁₀ Emissions (Disassembly, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																					
Pounds per Month	53.20	53.20	53.20	53.20	53.20	53.20	85.10	128.86	128.86	128.86	112.89	112.89	85.10	85.10	85.10	85.10	85.10	85.10	85.10	85.10	
Pounds per Day	2.31	2.31	2.31	2.31	2.31	2.31	3.70	5.25	5.25	5.25	4.91	4.91	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	
Yearly Maximums	993	1,025	1,056	1,088	1,120	1,152	1,184	1,184	1,148												
Maximum Pounds per Day																					
Maximum Pounds per Hour ^a																					
Maximum Pounds per Month																					
Month with Maximum																					
Maximum Pounds per Year																					
Maximum Average Pounds per Hour ^b																					
Year with Maximum																					
Tons per Year																					

Table 5.1A.60R Onsite and Offsite
 Construction Exhaust and Fugitive
 Emissions Summary

Total Onsite and Offsite PM₁₀ Emissions (Ex)

Parameter	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Pounds per Month	110.81	113.06	111.45	111.45	114.34	114.34	169.39	222.72	228.21	234.39	223.93	214.97	179.92	180.09	182.29	178.42	173.19	189.25	165.64	134.12
Pounds per Day	4.82	4.91	4.85	4.85	4.97	4.97	7.36	9.90	9.99	10.19	9.74	9.35	7.82	7.83	7.93	7.76	7.53	7.96	7.20	5.83
Yearly Maximums	1,976	2,045	2,112	2,183	2,250	2,308	2,363	2,360	2,266											
Maximum Pounds per Day																				
Maximum Pounds per Hour ^a																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour ^b																				
Year with Maximum																				
Tons per Year																				

Onsite and Offsite Exhaust PM_{2.5} Emissions

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	41.52	42.13	40.29	40.29	41.57	41.57	43.48	43.48	44.12	44.76	44.76	40.09	44.33	44.33	44.33	41.66	41.35	38.17	37.25	36.06
Total (lbs/day)	1.81	1.83	1.75	1.75	1.81	1.81	1.89	1.89	1.92	1.95	1.95	1.74	1.93	1.93	1.93	1.81	1.80	1.66	1.62	1.57
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							0.27	27.23	27.36	30.05	27.45	24.01	10.66	10.68	11.30	12.01	10.79	12.42	12.12	4.34
Total (lbs/day)							0.40	1.18	1.19	1.31	1.19	1.04	0.46	0.46	0.49	0.52	0.47	0.54	0.53	0.19
Total Onsite and Offsite Exhaust PM_{2.5} Emissions (Construction Equipment and Vehicles)																				
Pounds per Month	41.52	42.13	40.29	40.29	41.57	41.57	52.75	70.72	71.47	74.81	72.21	64.10	55.00	55.02	55.63	53.67	52.13	50.59	49.36	40.41
Pounds per Day	1.81	1.83	1.75	1.75	1.81	1.81	2.29	3.07	3.11	3.25	3.14	2.79	2.39	2.39	2.42	2.33	2.27	2.20	2.15	1.76
Yearly Maximums	653	667	680	695	709	719	728	725	694											
Maximum Pounds per Day																				
Maximum Pounds per Hour ^a																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour ^b																				
Year with Maximum																				
Tons per Year																				

Onsite and Offsite Fugitive PM_{2.5} Emissions

Construction Step	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Peaker and Tank Area and Stack 3&4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 3 & 4 Demolition																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 1 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Block 2 Construction																				
Total (lbs/month)																				
Total (lbs/day)																				
Units 1 & 2 Demolition																				
Total (lbs/month)	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005	6.005
Total (lbs/day)	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261	0.261
Bldgs. 33 & 34 Construction																				
Total (lbs/month)							3.190	19.224	19.224	19.224	18.426	18.426	3.190	3.190	3.190	3.190	3.190	3.190	3.190	3.190
Total (lbs/day)							0.139	0.836	0.836	0.836	0.801	0.801	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139
Total Onsite and Offsite Fugitive PM_{2.5} Emissions (Disassembly, Debris Loading, Grading, Bulldozing, and Onsite Construction Vehicles)																				
Pounds per Month	6.01	6.01	6.01	6.01	6.01	6.01	9.20	25.23	25.23	25.23	24.43	24.43	9.20	9.20	9.20	9.20	9.20	9.20	9.20	9.20
Pounds per Day	0.26	0.26	0.26	0.26	0.26	0.26	0.40	1.10	1.10	1.10	1.06	1.06	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Yearly Maximums	170	173	176	179	183	186	189	189	173											
Maximum Pounds per Day																				
Maximum Pounds per Hour ^a																				
Maximum Pounds per Month																				
Month with Maximum																				
Maximum Pounds per Year																				
Maximum Average Pounds per Hour ^b																				
Year with Maximum																				
Tons per Year																				

Table 5.1A.60R Onsite and Offsite
Construction Exhaust and Fugitive
Emissions Summary

Total Onsite and Offsite PM_{2.5} Emissions
(Exhaust and Fugitive)

Table with 20 columns (71-90) and rows for PM2.5 emissions including Parameter, Pounds per Month, Pounds per Day, Yearly Maximums, Maximum Pounds per Day, Maximum Pounds per Hour, Maximum Pounds per Month, Month with Maximum, Maximum Pounds per Year, Maximum Average Pounds per Hour, Year with Maximum, and Tons per Year.

Onsite and Offsite CO₂ Emissions

Table with 20 columns (71-90) and rows for CO2 emissions including Construction Step, Total (metric tons/month), Total (metric tons/day), Units 3 & 4 Demolition, Block 1 Construction, Block 2 Construction, Units 1 & 2 Demolition, Bldgs. 33 & 34 Construction, Total Onsite and Offsite CO2 Emissions (Construction Equipment and Vehicles), Metric Tons per Month, Metric Tons per Day, Yearly Maximums, Maximum Metric Tons per Day, Maximum Metric Tons per Hour, Maximum Metric Tons per Month, Month with Maximum, Maximum Metric Tons per Year, Maximum Average Metric Tons per Hour, and Year with Maximum.

Onsite and Offsite N₂O Emissions

Table with 20 columns (71-90) and rows for N2O emissions including Construction Step, Total (metric tons/month), Total (metric tons/day), Units 3 & 4 Demolition, Block 1 Construction, Block 2 Construction, Units 1 & 2 Demolition, Bldgs. 33 & 34 Construction, Total Onsite and Offsite N2O Emissions (Construction Equipment and Vehicles), Metric Tons per Month, Metric Tons per Day, Yearly Maximums, Maximum Metric Tons per Day, Maximum Metric Tons per Hour, Maximum Metric Tons per Month, Month with Maximum, Maximum Metric Tons per Year, Maximum Average Metric Tons per Hour, and Year with Maximum.

Onsite and Offsite CH₄ Emissions

Table with 20 columns (71-90) and rows for CH4 emissions including Construction Step, Total (metric tons/month), Total (metric tons/day), Units 3 & 4 Demolition, Block 1 Construction, Block 2 Construction, Units 1 & 2 Demolition, Bldgs. 33 & 34 Construction, Total Onsite and Offsite CH4 Emissions (Construction Equipment and Vehicles), Metric Tons per Month, Metric Tons per Day, Yearly Maximums, Maximum Metric Tons per Day, Maximum Metric Tons per Hour, Maximum Metric Tons per Month, Month with Maximum, Maximum Metric Tons per Year, Maximum Average Metric Tons per Hour, and Year with Maximum.

Notes:
* The hours per day are per Marrower Schedule Huntington Bt
† The hours per year are assumed to allow operation 24 hours per

**Attachment DR104-6
Supporting Documentation for Analysis of PM
Impacts from Construction**

Huntington Beach Energy Project
 Attachment DR104-6 Table 1
 Construction Source Parameters for AERMOD Input
 April 2014

Area Poly Sources

Source ID	Base Elevation (m)	Release Height (m)	Number of Vertices	Vertical Dimension (m)	Easting (X1) (m)	Northing (Y1) (m)	Easting (X2) (m)	Northing (Y2) (m)	Easting (X3) (m)	Northing (Y3) (m)	Easting (X4) (m)	Northing (Y4) (m)	Easting (X5) (m)	Northing (Y5) (m)	Easting (X6) (m)	Northing (Y6) (m)	Easting (X7) (m)	Northing (Y7) (m)	Easting (X8) (m)	Northing (Y8) (m)	Easting (X9) (m)	Northing (Y9) (m)
FUGE	3.66	0.00	9	1.00	409452	3723309	409563	3723310	409565	3723115	409537	3723136	409449	3723089	409315	3723180	409358	3723245	409372	3723242	409453	3723187

Area Sources

Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North	Vertical Dimension (m)
FUGW	409066	3723183	3.66	0.00	165	215	35.0	1.00

Point Sources^a

Source ID	Stack Release Type (Beta)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
E(1-70)	Horizontal	3.66	4.60	533	18.0	0.127
W(1-72)	Horizontal	3.66	4.60	533	18.0	0.127

^a A complete list of exhaust point source locations and parameters can be found in Attachment DR104-6 Table 2.

Huntington Beach Energy Project
Attachment DR104-6 Table 2
Detailed Exhaust Stack Parameters
April 2014

Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
E01	Horizontal	409329	3723184	3.66	4.60	533	18.0	0.127
E02	Horizontal	409345	3723173	3.66	4.60	533	18.0	0.127
E03	Horizontal	409362	3723161	3.66	4.60	533	18.0	0.127
E04	Horizontal	409378	3723150	3.66	4.60	533	18.0	0.127
E05	Horizontal	409341	3723203	3.66	4.60	533	18.0	0.127
E06	Horizontal	409358	3723191	3.66	4.60	533	18.0	0.127
E07	Horizontal	409374	3723180	3.66	4.60	533	18.0	0.127
E08	Horizontal	409391	3723168	3.66	4.60	533	18.0	0.127
E09	Horizontal	409354	3723222	3.66	4.60	533	18.0	0.127
E10	Horizontal	409371	3723210	3.66	4.60	533	18.0	0.127
E11	Horizontal	409387	3723199	3.66	4.60	533	18.0	0.127
E12	Horizontal	409404	3723187	3.66	4.60	533	18.0	0.127
E13	Horizontal	409395	3723138	3.66	4.60	533	18.0	0.127
E14	Horizontal	409412	3723126	3.66	4.60	533	18.0	0.127
E15	Horizontal	409428	3723115	3.66	4.60	533	18.0	0.127
E16	Horizontal	409445	3723103	3.66	4.60	533	18.0	0.127
E17	Horizontal	409408	3723157	3.66	4.60	533	18.0	0.127
E18	Horizontal	409424	3723145	3.66	4.60	533	18.0	0.127
E19	Horizontal	409441	3723133	3.66	4.60	533	18.0	0.127
E20	Horizontal	409457	3723122	3.66	4.60	533	18.0	0.127
E21	Horizontal	409420	3723175	3.66	4.60	533	18.0	0.127
E22	Horizontal	409437	3723164	3.66	4.60	533	18.0	0.127
E23	Horizontal	409454	3723152	3.66	4.60	533	18.0	0.127
E24	Horizontal	409470	3723141	3.66	4.60	533	18.0	0.127
E25	Horizontal	409487	3723129	3.66	4.60	533	18.0	0.127
E26	Horizontal	409469	3723294	3.66	4.60	533	18.0	0.127
E27	Horizontal	409469	3723276	3.66	4.60	533	18.0	0.127
E28	Horizontal	409469	3723257	3.66	4.60	533	18.0	0.127
E29	Horizontal	409469	3723239	3.66	4.60	533	18.0	0.127
E30	Horizontal	409469	3723221	3.66	4.60	533	18.0	0.127
E31	Horizontal	409469	3723202	3.66	4.60	533	18.0	0.127
E32	Horizontal	409469	3723184	3.66	4.60	533	18.0	0.127
E33	Horizontal	409469	3723166	3.66	4.60	533	18.0	0.127
E34	Horizontal	409488	3723294	3.66	4.60	533	18.0	0.127
E35	Horizontal	409488	3723276	3.66	4.60	533	18.0	0.127
E36	Horizontal	409488	3723257	3.66	4.60	533	18.0	0.127
E37	Horizontal	409488	3723239	3.66	4.60	533	18.0	0.127
E38	Horizontal	409489	3723221	3.66	4.60	533	18.0	0.127
E39	Horizontal	409489	3723203	3.66	4.60	533	18.0	0.127
E40	Horizontal	409489	3723184	3.66	4.60	533	18.0	0.127
E41	Horizontal	409489	3723166	3.66	4.60	533	18.0	0.127
E42	Horizontal	409489	3723148	3.66	4.60	533	18.0	0.127
E43	Horizontal	409508	3723294	3.66	4.60	533	18.0	0.127
E44	Horizontal	409508	3723276	3.66	4.60	533	18.0	0.127
E45	Horizontal	409508	3723258	3.66	4.60	533	18.0	0.127
E46	Horizontal	409508	3723239	3.66	4.60	533	18.0	0.127
E47	Horizontal	409508	3723221	3.66	4.60	533	18.0	0.127
E48	Horizontal	409508	3723203	3.66	4.60	533	18.0	0.127
E49	Horizontal	409508	3723184	3.66	4.60	533	18.0	0.127
E50	Horizontal	409508	3723166	3.66	4.60	533	18.0	0.127
E51	Horizontal	409508	3723148	3.66	4.60	533	18.0	0.127
E52	Horizontal	409527	3723294	3.66	4.60	533	18.0	0.127
E53	Horizontal	409527	3723276	3.66	4.60	533	18.0	0.127
E54	Horizontal	409527	3723258	3.66	4.60	533	18.0	0.127
E55	Horizontal	409527	3723239	3.66	4.60	533	18.0	0.127
E56	Horizontal	409528	3723221	3.66	4.60	533	18.0	0.127
E57	Horizontal	409528	3723203	3.66	4.60	533	18.0	0.127
E58	Horizontal	409528	3723185	3.66	4.60	533	18.0	0.127
E59	Horizontal	409528	3723166	3.66	4.60	533	18.0	0.127
E60	Horizontal	409528	3723148	3.66	4.60	533	18.0	0.127
E61	Horizontal	409547	3723295	3.66	4.60	533	18.0	0.127

Huntington Beach Energy Project
Attachment DR104-6 Table 2
Detailed Exhaust Stack Parameters
April 2014

Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
E62	Horizontal	409547	3723276	3.66	4.60	533	18.0	0.127
E63	Horizontal	409547	3723258	3.66	4.60	533	18.0	0.127
E64	Horizontal	409547	3723240	3.66	4.60	533	18.0	0.127
E65	Horizontal	409547	3723221	3.66	4.60	533	18.0	0.127
E66	Horizontal	409547	3723203	3.66	4.60	533	18.0	0.127
E67	Horizontal	409547	3723185	3.66	4.60	533	18.0	0.127
E68	Horizontal	409547	3723166	3.66	4.60	533	18.0	0.127
E69	Horizontal	409547	3723148	3.66	4.60	533	18.0	0.127
E70	Horizontal	409509	3723130	3.66	4.60	533	18.0	0.127
W01	Horizontal	409086	3723188	3.66	4.60	533	18.0	0.127
W02	Horizontal	409103	3723177	3.66	4.60	533	18.0	0.127
W03	Horizontal	409120	3723165	3.66	4.60	533	18.0	0.127
W04	Horizontal	409136	3723153	3.66	4.60	533	18.0	0.127
W05	Horizontal	409153	3723142	3.66	4.60	533	18.0	0.127
W06	Horizontal	409169	3723130	3.66	4.60	533	18.0	0.127
W07	Horizontal	409186	3723119	3.66	4.60	533	18.0	0.127
W08	Horizontal	409203	3723107	3.66	4.60	533	18.0	0.127
W09	Horizontal	409099	3723207	3.66	4.60	533	18.0	0.127
W10	Horizontal	409116	3723195	3.66	4.60	533	18.0	0.127
W11	Horizontal	409132	3723184	3.66	4.60	533	18.0	0.127
W12	Horizontal	409149	3723172	3.66	4.60	533	18.0	0.127
W13	Horizontal	409165	3723160	3.66	4.60	533	18.0	0.127
W14	Horizontal	409182	3723149	3.66	4.60	533	18.0	0.127
W15	Horizontal	409199	3723137	3.66	4.60	533	18.0	0.127
W16	Horizontal	409215	3723126	3.66	4.60	533	18.0	0.127
W17	Horizontal	409112	3723226	3.66	4.60	533	18.0	0.127
W18	Horizontal	409128	3723214	3.66	4.60	533	18.0	0.127
W19	Horizontal	409145	3723202	3.66	4.60	533	18.0	0.127
W20	Horizontal	409162	3723191	3.66	4.60	533	18.0	0.127
W21	Horizontal	409178	3723179	3.66	4.60	533	18.0	0.127
W22	Horizontal	409195	3723168	3.66	4.60	533	18.0	0.127
W23	Horizontal	409211	3723156	3.66	4.60	533	18.0	0.127
W24	Horizontal	409228	3723144	3.66	4.60	533	18.0	0.127
W25	Horizontal	409124	3723244	3.66	4.60	533	18.0	0.127
W26	Horizontal	409141	3723233	3.66	4.60	533	18.0	0.127
W27	Horizontal	409158	3723221	3.66	4.60	533	18.0	0.127
W28	Horizontal	409174	3723209	3.66	4.60	533	18.0	0.127
W29	Horizontal	409191	3723198	3.66	4.60	533	18.0	0.127
W30	Horizontal	409207	3723186	3.66	4.60	533	18.0	0.127
W31	Horizontal	409224	3723175	3.66	4.60	533	18.0	0.127
W32	Horizontal	409241	3723163	3.66	4.60	533	18.0	0.127
W33	Horizontal	409137	3723263	3.66	4.60	533	18.0	0.127
W34	Horizontal	409154	3723251	3.66	4.60	533	18.0	0.127
W35	Horizontal	409170	3723240	3.66	4.60	533	18.0	0.127
W36	Horizontal	409187	3723228	3.66	4.60	533	18.0	0.127
W37	Horizontal	409204	3723217	3.66	4.60	533	18.0	0.127
W38	Horizontal	409220	3723205	3.66	4.60	533	18.0	0.127
W39	Horizontal	409237	3723193	3.66	4.60	533	18.0	0.127
W40	Horizontal	409253	3723182	3.66	4.60	533	18.0	0.127
W41	Horizontal	409150	3723282	3.66	4.60	533	18.0	0.127
W42	Horizontal	409166	3723270	3.66	4.60	533	18.0	0.127
W43	Horizontal	409183	3723258	3.66	4.60	533	18.0	0.127
W44	Horizontal	409200	3723247	3.66	4.60	533	18.0	0.127
W45	Horizontal	409216	3723235	3.66	4.60	533	18.0	0.127
W46	Horizontal	409233	3723224	3.66	4.60	533	18.0	0.127
W47	Horizontal	409249	3723212	3.66	4.60	533	18.0	0.127
W48	Horizontal	409266	3723200	3.66	4.60	533	18.0	0.127
W49	Horizontal	409163	3723300	3.66	4.60	533	18.0	0.127
W50	Horizontal	409179	3723289	3.66	4.60	533	18.0	0.127
W51	Horizontal	409196	3723277	3.66	4.60	533	18.0	0.127

Huntington Beach Energy Project
Attachment DR104-6 Table 2
Detailed Exhaust Stack Parameters
April 2014

Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
W52	Horizontal	409212	3723266	3.66	4.60	533	18.0	0.127
W53	Horizontal	409229	3723254	3.66	4.60	533	18.0	0.127
W54	Horizontal	409246	3723242	3.66	4.60	533	18.0	0.127
W55	Horizontal	409262	3723231	3.66	4.60	533	18.0	0.127
W56	Horizontal	409279	3723219	3.66	4.60	533	18.0	0.127
W57	Horizontal	409175	3723319	3.66	4.60	533	18.0	0.127
W58	Horizontal	409192	3723307	3.66	4.60	533	18.0	0.127
W59	Horizontal	409208	3723296	3.66	4.60	533	18.0	0.127
W60	Horizontal	409225	3723284	3.66	4.60	533	18.0	0.127
W61	Horizontal	409242	3723273	3.66	4.60	533	18.0	0.127
W62	Horizontal	409258	3723261	3.66	4.60	533	18.0	0.127
W63	Horizontal	409275	3723249	3.66	4.60	533	18.0	0.127
W64	Horizontal	409291	3723238	3.66	4.60	533	18.0	0.127
W65	Horizontal	409188	3723338	3.66	4.60	533	18.0	0.127
W66	Horizontal	409205	3723326	3.66	4.60	533	18.0	0.127
W67	Horizontal	409221	3723315	3.66	4.60	533	18.0	0.127
W68	Horizontal	409238	3723303	3.66	4.60	533	18.0	0.127
W69	Horizontal	409254	3723291	3.66	4.60	533	18.0	0.127
W70	Horizontal	409271	3723280	3.66	4.60	533	18.0	0.127
W71	Horizontal	409288	3723268	3.66	4.60	533	18.0	0.127
W72	Horizontal	409304	3723257	3.66	4.60	533	18.0	0.127

Huntington Beach Energy Project
 Attachment DR104-6 Table 3
 Construction Modeling Parameters - Emission Rates
 April 2014

Emission Rates for 24-hour Modeling ^a

Source ID	24-hour PM ₁₀		24-hour PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
FUGE	0.013	0.10	0.0013	0.010
FUGW	0.031	0.25	0.0088	0.070
E(1-70)	0.0045	0.035	0.0044	0.035
W(1-72)	0.018	0.14	0.018	0.14
Maximum Month	37		37	

Emission Rates for Annual Modeling ^a

Source ID	Annual PM ₁₀		Annual PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
FUGE	0.007	0.06	0.0029	0.023
FUGW	0.016	0.12	-	-
E(1-70)	0.0025	0.020	0.014	0.11
W(1-72)	0.009	0.068	-	-
Maximum Months	36-47		9-20	

^a Emission rates for exhaust point sources (E and W source groups) are presented as the sum total for all sources in the respective group.

^b Construction emissions were obtained from Table 5.1A.58R from Appendix 5.1AR, which is included with this submission as Attachment DR104-5R2.

Huntington Beach Energy Project
Attachment DR104-6 Table 4
Construction Modeling Results
April 2014

Source	Year	PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)	
		24-hour	Annual	24-hour	Annual
ALL		11.7	2.31	3.80	1.31
FUG		11.0	2.12	3.12	0.75
EXH	2008	1.05	0.21	1.05	0.58
EAST		6.95	2.00	0.94	1.31
WEST		11.6	1.96	3.78	-
ALL		12.5	2.23	4.04	1.28
FUG		11.7	2.06	3.27	0.74
EXH	2009	1.21	0.21	1.21	0.56
EAST		6.74	1.98	0.89	1.28
WEST		12.1	1.90	3.94	-
ALL		12.5	2.23	4.07	1.27
FUG		11.8	2.04	3.35	0.73
EXH	2010	1.26	0.21	1.26	0.56
EAST		6.69	1.95	0.93	1.27
WEST		12.5	1.97	4.06	-
ALL		13.9	2.23	4.58	1.28
FUG		13.1	2.04	3.71	0.73
EXH	2011	1.20	0.21	1.20	0.56
EAST		6.51	1.96	0.90	1.28
WEST		13.9	1.91	4.56	-
ALL		14.6	2.31	4.71	1.32
FUG		13.8	2.13	3.89	0.76
EXH	2012	1.15	0.21	1.15	0.58
EAST		7.12	2.04	0.92	1.32
WEST		14.4	1.92	4.66	-

Modeling Scenario	Pollutant	Emissions Reduction Needed (lb/day) ^a	Daily Vehicle Volume ^b	Fugitive Dust Emission Factor (g/mile) ^c	Reduction from Street Sweeping Once per Month ^d	Reduction from Street Sweeping Every 14 Days ^d	Daily Miles for Sweeping Once per Month ^e	Daily Miles for Sweeping Every 14 Days ^e
HBEP Construction	PM ₁₀	8.26	41,442	0.300	9%	26%	3.34	1.16
	PM _{2.5}	0.79	41,442	0.075	9%	26%	1.28	0.44
HBEP Block 1 Operation, HBEP Block 2 Construction	PM ₁₀	1.61	41,442	0.300	9%	26%	0.65	0.23
HBEP Operation, Demolition of Units 1 and 2	PM ₁₀	5.26	41,442	0.300	9%	26%	2.13	0.74
HBEP Construction, Demolition of Units 3 and 4	PM ₁₀	8.60	41,442	0.300	9%	26%	3.48	1.21
	PM _{2.5}	0.95	41,442	0.075	9%	26%	1.54	0.53

Notes:

^a Emissions Reduction Needed for PM₁₀ was based on the estimated maximum daily emission rate resulting in a 24-hour modeled impact that, when combined with a background concentration of 45 µg/m³, would be less than the CAAQS and NAAQS. Emissions Reduction Needed for PM_{2.5} was based on the estimated annual emission rate resulting in an annual modeled impact that, when combined with a background concentration of 11.0 µg/m³, would be less than the CAAQS.

^b Daily Vehicle Volume was obtained from Table 5.12-4 of the HBEP AFC and includes the additional daily vehicle traffic resulting from HBEP construction activities, as provided in Table 5.12-7 of the HBEP AFC. Note that only Pacific Coast Highway volumes were considered since this is the roadway that would be most affected by the HBEP construction activities.

Street Name	Annual Average Daily Volume	Annual Average Daily Construction Volume
Newland Street	12,000	734
Pacific Coast Highway	41,000	442
Magnolia Street	22,000	220
Brookhurst Street	36,000	257
Beach Boulevard	29,000	294
Hamilton Avenue	17,000	220
Atlanta Avenue	18,000	147
Adams Avenue	34,000	74

^c Fugitive Dust Emission Factors were calculated using CalEEMod methodology for paved roads, as described below.

^d Control efficiency was taken from Table XI-C of the SCAQMD CEQA Handbook for Street Sweeping Local, Arterial, and Collector Streets.

^e Daily Miles for Sweeping were calculated using the following equation:

$$\text{Daily Miles for Sweeping (miles/day)} = \text{Emissions Reduction Needed (lb/day)} \times 453.6 \text{ (g/lb)} / [\text{Fugitive Dust Emission Factor (g/mile)} \times \text{Reduction from Street Sweeping} \times \text{Daily Vehicle Volume}]$$

Derivation of Paved Road Emission Factors

Vehicles on Paved Roads

Parameter	PM ₁₀	PM _{2.5}
Average Weight ^a	2.4	2.4
k ^b	1.0	0.25
sL ^a	0.1	0.1
Emission Factor (g/mile) ^c	0.300	0.075

Notes:

^a Average Weight and sL taken as the default value from CalEEMod.

^b k taken from Table 13.2.1-1 of Section 13.2.1 of AP-42.

^c Emission factor calculated using Equation 1 from Section 13.2.1 of AP-42:

$$\text{Emission Factor (g/mile)} = k \text{ (g/mile)} \times [sL \text{ (g/m}^3\text{)}]^{0.91} \times [\text{Average Weight (tons)}]^{1.02}$$

Attachment DR104-7
Supporting Documentation for Analysis of PM
Impacts from Block 1 Operation with Construction
of Block 2

Huntington Beach Energy Project
Attachment DR104-7 Table 1
Block 1 Operation and Block 2 Construction Source Parameters for AERMOD Input
April 2014

Point Sources

Pollutant	Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
24-hour PM ₁₀ , 24-hour PM _{2.5}	Stack 4	Default	409522	3723157	3.66	36.6	455	21.8	5.49
	Stack 5	Default	409522	3723194	3.66	36.6	455	21.8	5.49
	Stack 6	Default	409522	3723230	3.66	36.6	455	21.8	5.49
Annual PM ₁₀ , Annual PM _{2.5}	Stack 4	Default	409522	3723157	3.66	36.6	460	16.7	5.49
	Stack 5	Default	409522	3723194	3.66	36.6	460	16.7	5.49
	Stack 6	Default	409522	3723230	3.66	36.6	460	16.7	5.49
All	W01	Horizontal	409086	3723188	3.66	4.60	533	18.0	0.127
All	W02	Horizontal	409103	3723177	3.66	4.60	533	18.0	0.127
All	W03	Horizontal	409120	3723165	3.66	4.60	533	18.0	0.127
All	W04	Horizontal	409136	3723153	3.66	4.60	533	18.0	0.127
All	W05	Horizontal	409153	3723142	3.66	4.60	533	18.0	0.127
All	W06	Horizontal	409169	3723130	3.66	4.60	533	18.0	0.127
All	W07	Horizontal	409186	3723119	3.66	4.60	533	18.0	0.127
All	W08	Horizontal	409203	3723107	3.66	4.60	533	18.0	0.127
All	W09	Horizontal	409099	3723207	3.66	4.60	533	18.0	0.127
All	W10	Horizontal	409116	3723195	3.66	4.60	533	18.0	0.127
All	W11	Horizontal	409132	3723184	3.66	4.60	533	18.0	0.127
All	W12	Horizontal	409149	3723172	3.66	4.60	533	18.0	0.127
All	W13	Horizontal	409165	3723160	3.66	4.60	533	18.0	0.127
All	W14	Horizontal	409182	3723149	3.66	4.60	533	18.0	0.127
All	W15	Horizontal	409199	3723137	3.66	4.60	533	18.0	0.127
All	W16	Horizontal	409215	3723126	3.66	4.60	533	18.0	0.127
All	W17	Horizontal	409112	3723226	3.66	4.60	533	18.0	0.127
All	W18	Horizontal	409128	3723214	3.66	4.60	533	18.0	0.127
All	W19	Horizontal	409145	3723202	3.66	4.60	533	18.0	0.127
All	W20	Horizontal	409162	3723191	3.66	4.60	533	18.0	0.127
All	W21	Horizontal	409178	3723179	3.66	4.60	533	18.0	0.127
All	W22	Horizontal	409195	3723168	3.66	4.60	533	18.0	0.127
All	W23	Horizontal	409211	3723156	3.66	4.60	533	18.0	0.127
All	W24	Horizontal	409228	3723144	3.66	4.60	533	18.0	0.127
All	W25	Horizontal	409124	3723244	3.66	4.60	533	18.0	0.127
All	W26	Horizontal	409141	3723233	3.66	4.60	533	18.0	0.127
All	W27	Horizontal	409158	3723221	3.66	4.60	533	18.0	0.127
All	W28	Horizontal	409174	3723209	3.66	4.60	533	18.0	0.127
All	W29	Horizontal	409191	3723198	3.66	4.60	533	18.0	0.127
All	W30	Horizontal	409207	3723186	3.66	4.60	533	18.0	0.127
All	W31	Horizontal	409224	3723175	3.66	4.60	533	18.0	0.127
All	W32	Horizontal	409241	3723163	3.66	4.60	533	18.0	0.127
All	W33	Horizontal	409137	3723263	3.66	4.60	533	18.0	0.127
All	W34	Horizontal	409154	3723251	3.66	4.60	533	18.0	0.127
All	W35	Horizontal	409170	3723240	3.66	4.60	533	18.0	0.127
All	W36	Horizontal	409187	3723228	3.66	4.60	533	18.0	0.127
All	W37	Horizontal	409204	3723217	3.66	4.60	533	18.0	0.127
All	W38	Horizontal	409220	3723205	3.66	4.60	533	18.0	0.127
All	W39	Horizontal	409237	3723193	3.66	4.60	533	18.0	0.127
All	W40	Horizontal	409253	3723182	3.66	4.60	533	18.0	0.127
All	W41	Horizontal	409150	3723282	3.66	4.60	533	18.0	0.127
All	W42	Horizontal	409166	3723270	3.66	4.60	533	18.0	0.127
All	W43	Horizontal	409183	3723258	3.66	4.60	533	18.0	0.127
All	W44	Horizontal	409200	3723247	3.66	4.60	533	18.0	0.127
All	W45	Horizontal	409216	3723235	3.66	4.60	533	18.0	0.127
All	W46	Horizontal	409233	3723224	3.66	4.60	533	18.0	0.127
All	W47	Horizontal	409249	3723212	3.66	4.60	533	18.0	0.127
All	W48	Horizontal	409266	3723200	3.66	4.60	533	18.0	0.127
All	W49	Horizontal	409163	3723300	3.66	4.60	533	18.0	0.127
All	W50	Horizontal	409179	3723289	3.66	4.60	533	18.0	0.127
All	W51	Horizontal	409196	3723277	3.66	4.60	533	18.0	0.127
All	W52	Horizontal	409212	3723266	3.66	4.60	533	18.0	0.127
All	W53	Horizontal	409229	3723254	3.66	4.60	533	18.0	0.127
All	W54	Horizontal	409246	3723242	3.66	4.60	533	18.0	0.127
All	W55	Horizontal	409262	3723231	3.66	4.60	533	18.0	0.127
All	W56	Horizontal	409279	3723219	3.66	4.60	533	18.0	0.127
All	W57	Horizontal	409175	3723319	3.66	4.60	533	18.0	0.127
All	W58	Horizontal	409192	3723307	3.66	4.60	533	18.0	0.127
All	W59	Horizontal	409208	3723296	3.66	4.60	533	18.0	0.127

Huntington Beach Energy Project
 Attachment DR104-7 Table 1
 Block 1 Operation and Block 2 Construction Source Parameters for AERMOD Input
 April 2014

Point Sources

Pollutant	Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
All	W60	Horizontal	409225	3723284	3.66	4.60	533	18.0	0.127
All	W61	Horizontal	409242	3723273	3.66	4.60	533	18.0	0.127
All	W62	Horizontal	409258	3723261	3.66	4.60	533	18.0	0.127
All	W63	Horizontal	409275	3723249	3.66	4.60	533	18.0	0.127
All	W64	Horizontal	409291	3723238	3.66	4.60	533	18.0	0.127
All	W65	Horizontal	409188	3723338	3.66	4.60	533	18.0	0.127
All	W66	Horizontal	409205	3723326	3.66	4.60	533	18.0	0.127
All	W67	Horizontal	409221	3723315	3.66	4.60	533	18.0	0.127
All	W68	Horizontal	409238	3723303	3.66	4.60	533	18.0	0.127
All	W69	Horizontal	409254	3723291	3.66	4.60	533	18.0	0.127
All	W70	Horizontal	409271	3723280	3.66	4.60	533	18.0	0.127
All	W71	Horizontal	409288	3723268	3.66	4.60	533	18.0	0.127
All	W72	Horizontal	409304	3723257	3.66	4.60	533	18.0	0.127

Area Sources

Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North	Vertical Dimension (m)
FUGW	409066	3723183	3.66	0.00	165	215	35.0	1.00

Huntington Beach Energy Project
 Attachment DR104-7 Table 2
 Block 1 Operation and Block 2 Construction Modeling Parameters - Emission Rates
 April 2014

Emission Rates for 24-hour Modeling^{a, b}

Source ID	24-hour PM ₁₀		24-hour PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
Stack 4	1.20	9.50	1.20	9.50
Stack 5	1.20	9.50	1.20	9.50
Stack 6	1.20	9.50	1.20	9.50
W(1-72)	0.008	0.066	0.010	0.076
FUGW	0.016	0.130	0.0013	0.010
Maximum Month	46		48	

Emission Rates for Annual Modeling^{a, b}

Source ID	Annual PM ₁₀		Annual PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
Stack 4	0.48	3.78	0.48	3.78
Stack 5	0.48	3.78	0.48	3.78
Stack 6	0.48	3.78	0.48	3.78
W(1-72)	0.005	0.041	0.005	0.041
FUGW	0.010	0.078	0.001	0.0078
Maximum Months	46 - 57		46 - 57	

^a Emission rates for construction exhaust point sources, W(1-72) source group, are presented as the sum total for all sources in the group.

^b Block 1 operation emissions were obtained from AFC Table 5.1-24, submitted June 2012. Block 2 construction emissions were obtained from Table 5.1A.46R from Appendix 5.1AR, which is included with this submission as Attachment DR104-5R2.

Huntington Beach Energy Project

Attachment DR104-7 Table 3

Block 1 Operation and Block 2 Construction Building Parameters for AERMOD Input

April 2014

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 1 East (X) (m)	Corner 1 North (Y) (m)	Corner 2 East (X) (m)	Corner 2 North (Y) (m)
ACC1	1	1	3.66	31.7	4	409474	3723311	409536	3723311
STG1	1	1	3.66	12.2	4	409538	3723247	409556	3723247
CTG4	1	1	3.66	28.0	4	409500	3723162	409517	3723162
CTG5	1	1	3.66	28.0	4	409500	3723198	409517	3723198
CTG6	1	1	3.66	28.0	4	409499	3723236	409517	3723236
AIRIN6	1	1	3.66	11.6	6	409470	3723211	409470	3723215
AIRIN5	1	1	3.66	11.6	6	409471	3723174	409471	3723178
AIRIN4	1	1	3.66	11.6	6	409471	3723136	409471	3723141
B1	2	1	3.66	23.2	4	409293	3723102	409312	3723128
B1	*	2	*	37.6	4	409301	3723114	409312	3723128
B2	2	1	3.66	23.2	4	409252	3723127	409272	3723153
B2	*	2	*	37.6	4	409261	3723139	409272	3723153

Tank Name	Base Elevation (m)	Center East (X) (m)	Center North (Y) (m)	Tank Height (m)	Tank Diameter (m)
Stack12	3.66	409274	3723095	61.0	6.27

Huntington Beach Energy Project

Attachment DR104-7 Table 3

Block 1 Operation and Block 2 Construction Building Parameters for AERMOD Input

April 2014

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Corner 3 East (X) (m)	Corner 3 North (Y) (m)	Corner 4 East (X) (m)	Corner 4 North (Y) (m)	Corner 5 East (X) (m)	Corner 5 North (Y) (m)	Corner 6 East (X) (m)	Corner 6 North (Y) (m)
ACC1	1	1	3.66	31.7	409537	3723274	409474	3723274				
STG1	1	1	3.66	12.2	409556	3723231	409538	3723231				
CTG4	1	1	3.66	28.0	409517	3723149	409500	3723150				
CTG5	1	1	3.66	28.0	409517	3723186	409500	3723186				
CTG6	1	1	3.66	28.0	409517	3723223	409499	3723224				
AIRIN6	1	1	3.66	11.6	409475	3723225	409477	3723225	409482	3723215	409482	3723210
AIRIN5	1	1	3.66	11.6	409476	3723188	409478	3723188	409483	3723178	409483	3723174
AIRIN4	1	1	3.66	11.6	409476	3723151	409478	3723151	409483	3723140	409483	3723136
B1	2	1	3.66	23.2	409335	3723112	409317	3723086				
B1	*	2	*	37.6	409335	3723112	409326	3723098				
B2	2	1	3.66	23.2	409295	3723137	409277	3723111				
B2	*	2	*	37.6	409295	3723137	409285	3723123				

Tank Name	Base Elevation (m)	Center East (X) (m)	Center North (Y) (m)	Tank Height (m)
Stack12	3.66	409274	3723095	61.0

Huntington Beach Energy Project
 Attachment DR104-7 Table 4
 Block 1 Operation and Block 2 Construction Modeling Results
 April 2014

Source	Year	PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)	
		24-hour	Annual	24-hour	Annual
ALL		6.17	1.25	0.99	0.24
CONSTRUCTION	2008	6.13	1.24	0.84	0.23
OPERATION		0.91	0.16	0.91	0.16
ALL		6.40	1.21	1.16	0.23
CONSTRUCTION	2009	6.38	1.20	0.88	0.22
OPERATION		1.15	0.15	1.15	0.15
ALL		6.61	1.25	1.04	0.23
CONSTRUCTION	2010	6.58	1.25	0.94	0.22
OPERATION		0.90	0.12	0.90	0.12
ALL		7.34	1.21	1.17	0.23
CONSTRUCTION	2011	7.33	1.20	0.99	0.22
OPERATION		1.12	0.15	1.12	0.15
ALL		7.60	1.22	1.41	0.23
CONSTRUCTION	2012	7.59	1.21	0.98	0.22
OPERATION		1.40	0.15	1.40	0.15

Attachment DR104-8
Supporting Documentation for Analysis of PM
Impacts from HBEP Operation with Demolition of
Units 1 and 2

Huntington Beach Energy Project
 Attachment DR104-8 Table 1
 Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Source Parameters for AERMOD Input
 April 2014

Point Sources

Pollutant	Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
24-hour PM ₁₀	Stack 1	Default	409185	3723252	3.66	36.6	455	21.8	5.49
	Stack 2	Default	409216	3723231	3.66	36.6	455	21.8	5.49
	Stack 3	Default	409245	3723210	3.66	36.6	455	21.8	5.49
	Stack 4	Default	409522	3723157	3.66	36.6	455	21.8	5.49
	Stack 5	Default	409522	3723194	3.66	36.6	455	21.8	5.49
	Stack 6	Default	409522	3723230	3.66	36.6	455	21.8	5.49
24-hour PM _{2.5}	Stack 1	Default	409185	3723252	3.66	36.6	460	16.7	5.49
	Stack 2	Default	409216	3723231	3.66	36.6	460	16.7	5.49
	Stack 3	Default	409245	3723210	3.66	36.6	460	16.7	5.49
	Stack 4	Default	409522	3723157	3.66	36.6	460	16.7	5.49
	Stack 5	Default	409522	3723194	3.66	36.6	460	16.7	5.49
	Stack 6	Default	409522	3723230	3.66	36.6	460	16.7	5.49
All	S01	Horizontal	409219	3723095	3.66	4.60	533	18.0	0.127
	S02	Horizontal	409236	3723084	3.66	4.60	533	18.0	0.127
	S03	Horizontal	409252	3723072	3.66	4.60	533	18.0	0.127
	S04	Horizontal	409269	3723061	3.66	4.60	533	18.0	0.127
	S05	Horizontal	409286	3723049	3.66	4.60	533	18.0	0.127
	S06	Horizontal	409302	3723037	3.66	4.60	533	18.0	0.127
	S07	Horizontal	409232	3723114	3.66	4.60	533	18.0	0.127
	S08	Horizontal	409248	3723102	3.66	4.60	533	18.0	0.127
	S09	Horizontal	409265	3723091	3.66	4.60	533	18.0	0.127
	S10	Horizontal	409282	3723079	3.66	4.60	533	18.0	0.127
	S11	Horizontal	409298	3723068	3.66	4.60	533	18.0	0.127
	S12	Horizontal	409315	3723056	3.66	4.60	533	18.0	0.127
	S13	Horizontal	409245	3723133	3.66	4.60	533	18.0	0.127
	S14	Horizontal	409261	3723121	3.66	4.60	533	18.0	0.127
	S15	Horizontal	409278	3723110	3.66	4.60	533	18.0	0.127
	S16	Horizontal	409294	3723098	3.66	4.60	533	18.0	0.127
	S17	Horizontal	409311	3723086	3.66	4.60	533	18.0	0.127
	S18	Horizontal	409328	3723075	3.66	4.60	533	18.0	0.127
	S19	Horizontal	409257	3723151	3.66	4.60	533	18.0	0.127
	S20	Horizontal	409274	3723140	3.66	4.60	533	18.0	0.127
	S21	Horizontal	409290	3723128	3.66	4.60	533	18.0	0.127
	S22	Horizontal	409307	3723117	3.66	4.60	533	18.0	0.127
	S23	Horizontal	409324	3723105	3.66	4.60	533	18.0	0.127
	S24	Horizontal	409340	3723093	3.66	4.60	533	18.0	0.127
	S25	Horizontal	409270	3723170	3.66	4.60	533	18.0	0.127
	S26	Horizontal	409287	3723159	3.66	4.60	533	18.0	0.127
	S27	Horizontal	409303	3723147	3.66	4.60	533	18.0	0.127
	S28	Horizontal	409320	3723135	3.66	4.60	533	18.0	0.127
	S29	Horizontal	409336	3723124	3.66	4.60	533	18.0	0.127
	S30	Horizontal	409353	3723112	3.66	4.60	533	18.0	0.127
	S31	Horizontal	409283	3723189	3.66	4.60	533	18.0	0.127
	S32	Horizontal	409299	3723177	3.66	4.60	533	18.0	0.127
	S33	Horizontal	409316	3723166	3.66	4.60	533	18.0	0.127
	S34	Horizontal	409332	3723154	3.66	4.60	533	18.0	0.127
	S35	Horizontal	409349	3723142	3.66	4.60	533	18.0	0.127
	S36	Horizontal	409366	3723131	3.66	4.60	533	18.0	0.127
	S37	Horizontal	409331	3723044	3.66	4.60	533	18.0	0.127
	S38	Horizontal	409344	3723063	3.66	4.60	533	18.0	0.127
	S39	Horizontal	409357	3723082	3.66	4.60	533	18.0	0.127
	S40	Horizontal	409373	3723070	3.66	4.60	533	18.0	0.127
	S41	Horizontal	409370	3723101	3.66	4.60	533	18.0	0.127
	S42	Horizontal	409386	3723089	3.66	4.60	533	18.0	0.127
	S43	Horizontal	409403	3723077	3.66	4.60	533	18.0	0.127
	S44	Horizontal	409382	3723119	3.66	4.60	533	18.0	0.127
	S45	Horizontal	409399	3723108	3.66	4.60	533	18.0	0.127
	S46	Horizontal	409415	3723096	3.66	4.60	533	18.0	0.127

Area Poly Sources

Source ID	Base Elevation (m)	Release Height (m)	Number of Vertices	Vertical Dimension (m)	Easting (X1) (m)	Northing (Y1) (m)	Easting (X2) (m)	Northing (Y2) (m)	Easting (X3) (m)	Northing (Y3) (m)	Easting (X4) (m)	Northing (Y4) (m)
FUGS	3.66	0.00	4.00	1.00	409199	3723086	409281	3723203	409449	3723089	409304	3723012

Huntington Beach Energy Project
 Attachment DR104-8 Table 2
 Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Modeling Parameters - Emission Rates
 April 2014

Emission Rates for 24-hour Modeling^{a, b}

Source ID	24-hour PM ₁₀		24-hour PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
Stack 1	1.20	9.50	1.20	9.50
Stack 2	1.20	9.50	1.20	9.50
Stack 3	1.20	9.50	1.20	9.50
Stack 4	1.20	9.50	1.20	9.50
Stack 5	1.20	9.50	1.20	9.50
Stack 6	1.20	9.50	1.20	9.50
S(1-46)	0.012	0.099	0.012	0.099
FUGS	0.028	0.22	0.0058	0.046
Maximum Month	80		80	

Emission Rates for Annual Modeling^{a, b}

Source ID	Annual PM ₁₀		Annual PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
Stack 1	0.48	3.78	0.48	3.78
Stack 2	0.48	3.78	0.48	3.78
Stack 3	0.48	3.78	0.48	3.78
Stack 4	0.48	3.78	0.48	3.78
Stack 5	0.48	3.78	0.48	3.78
Stack 6	0.48	3.78	0.48	3.78
S(1-46)	0.0073	0.058	0.0073	0.058
FUGS	0.017	0.14	0.0027	0.022
Maximum Months	77-88		77-88	

^a Emission rates for construction exhaust point sources, S(1-46) source group, are presented as the sum total for all sources in the group.

^b Block 1 and 2 operation emissions were obtained from AFC Table 5.1-24, submitted in June 2012, and Units 1 and 2 demolition emissions were obtained from Table 5.1A.46R from Appendix 5.1AR, which is included with this submission as Attachment DR104-5R2.

Huntington Beach Energy Project

Attachment DR104-8 Table 3

Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Building Parameters for AERMOD Input

April 2014

Building Name	Number of		Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 1 East	Corner 1	Corner 2	Corner 2	Corner 3	Corner 3
	Tiers	Tier Number				(X)	North (Y)	East (X)	North (Y)	East (X)	North (Y)
						(m)	(m)	(m)	(m)	(m)	(m)
ACC1	1	1	3.66	31.7	4	409474	3723311	409536	3723311	409537	3723274
STG1	1	1	3.66	12.2	4	409538	3723247	409556	3723247	409556	3723231
CTG4	1	1	3.66	28.0	4	409500	3723162	409517	3723162	409517	3723149
CTG5	1	1	3.66	28.0	4	409500	3723198	409517	3723198	409517	3723186
CTG6	1	1	3.66	28.0	4	409499	3723236	409517	3723236	409517	3723223
AIRIN6	1	1	3.66	11.6	6	409470	3723211	409470	3723215	409475	3723225
AIRIN5	1	1	3.66	11.6	6	409471	3723174	409471	3723178	409476	3723188
AIRIN4	1	1	3.66	11.6	6	409471	3723136	409471	3723141	409476	3723151
CTG1	1	1	3.66	28.0	4	409166	3723235	409176	3723252	409188	3723244
CTG2	1	1	3.66	28.0	4	409197	3723216	409207	3723232	409219	3723224
CTG3	1	1	3.66	28.0	4	409226	3723194	409236	3723210	409247	3723203
AIRIN1	1	1	3.66	11.6	6	409172	3723196	409169	3723199	409163	3723209
AIRIN2	1	1	3.66	11.6	6	409202	3723175	409199	3723178	409194	3723188
AIRIN3	1	1	3.66	11.6	6	409232	3723154	409229	3723157	409224	3723167
STG2	1	1	3.66	12.2	4	409165	3723276	409180	3723266	409170	3723252
ACC2	1	1	3.66	31.7	4	409212	3723305	409263	3723269	409241	3723237
Admin	2	1	3.66	3.35	16	409290	3723286	409355	3723240	409351	3723235
Admin	*	2	*	5.18	14	409287	3723281	409348	3723237	409338	3723223

Huntington Beach Energy Project

Attachment DR104-8 Table 3

Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Building Parameters for AERMOD Input

April 2014

Building Name	Number of		Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 1 East	Corner 4	Corner 4	Corner 5	Corner 5	Corner 6	Corner 6	Corner 7	Corner 7	Corner 8	Corner 8
	Tiers	Tier Number				(X)	East (X)	North (Y)								
ACC1	1	1	3.66	31.7	4	409474	409474	3723274								
STG1	1	1	3.66	12.2	4	409538	409538	3723231								
CTG4	1	1	3.66	28.0	4	409500	409500	3723150								
CTG5	1	1	3.66	28.0	4	409500	409500	3723186								
CTG6	1	1	3.66	28.0	4	409499	409499	3723224								
AIRIN6	1	1	3.66	11.6	6	409470	409477	3723225	409482	3723215	409482	3723210				
AIRIN5	1	1	3.66	11.6	6	409471	409478	3723188	409483	3723178	409483	3723174				
AIRIN4	1	1	3.66	11.6	6	409471	409478	3723151	409483	3723140	409483	3723136				
CTG1	1	1	3.66	28.0	4	409166	409178	3723228								
CTG2	1	1	3.66	28.0	4	409197	409209	3723208								
CTG3	1	1	3.66	28.0	4	409226	409237	3723187								
AIRIN1	1	1	3.66	11.6	6	409172	409164	3723211	409176	3723208	409179	3723206				
AIRIN2	1	1	3.66	11.6	6	409202	409195	3723190	409206	3723187	409209	3723185				
AIRIN3	1	1	3.66	11.6	6	409232	409225	3723169	409236	3723166	409239	3723164				
STG2	1	1	3.66	12.2	4	409165	409156	3723262								
ACC2	1	1	3.66	31.7	4	409212	409189	3723274								
Admin	2	1	3.66	3.35	16	409290	409348	3723237	409338	3723223	409343	3723219	409333	3723205	409321	3723213
Admin	*	2	*	5.18	14	409287	409343	3723219	409333	3723205	409321	3723213	409323	3723216	409296	3723237

Huntington Beach Energy Project

Attachment DR104-8 Table 3

Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Building Parameters for AERMOD Input

April 2014

Building Name	Number of		Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 1 East	Corner 9	Corner 9	Corner 10	Corner 10	Corner 11	Corner 11	Corner 12	Corner 12	Corner 13	Corner 13
	Tiers	Tier Number				(X)	East (X)	North (Y)	East (X)	North (Y)	East (X)	North (Y)	East (X)	North (Y)	East (X)	North (Y)
ACC1	1	1	3.66	31.7	4	409474										
STG1	1	1	3.66	12.2	4	409538										
CTG4	1	1	3.66	28.0	4	409500										
CTG5	1	1	3.66	28.0	4	409500										
CTG6	1	1	3.66	28.0	4	409499										
AIRIN6	1	1	3.66	11.6	6	409470										
AIRIN5	1	1	3.66	11.6	6	409471										
AIRIN4	1	1	3.66	11.6	6	409471										
CTG1	1	1	3.66	28.0	4	409166										
CTG2	1	1	3.66	28.0	4	409197										
CTG3	1	1	3.66	28.0	4	409226										
AIRIN1	1	1	3.66	11.6	6	409172										
AIRIN2	1	1	3.66	11.6	6	409202										
AIRIN3	1	1	3.66	11.6	6	409232										
STG2	1	1	3.66	12.2	4	409165										
ACC2	1	1	3.66	31.7	4	409212										
Admin	2	1	3.66	3.35	16	409290	409323	3723216	409296	3723237	409296	3723237	409292	3723241	409293	3723243
Admin	*	2	*	5.18	14	409287	409296	3723237	409292	3723241	409293	3723243	409279	3723252	409292	3723270

Huntington Beach Energy Project

Attachment DR104-8 Table 3

Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Building Parameters for AERMOD Input

April 2014

Building Name	Number of Tiers	Tier Number	Base Elevation (m)	Tier Height (m)	Number of Corners	Corner 1 East (X) (m)	Corner 14 East (X) (m)	Corner 14 North (Y) (m)	Corner 15 East (X) (m)	Corner 15 North (Y) (m)	Corner 16 East (X) (m)	Corner 16 North (Y) (m)
ACC1	1	1	3.66	31.7	4	409474						
STG1	1	1	3.66	12.2	4	409538						
CTG4	1	1	3.66	28.0	4	409500						
CTG5	1	1	3.66	28.0	4	409500						
CTG6	1	1	3.66	28.0	4	409499						
AIRIN6	1	1	3.66	11.6	6	409470						
AIRIN5	1	1	3.66	11.6	6	409471						
AIRIN4	1	1	3.66	11.6	6	409471						
CTG1	1	1	3.66	28.0	4	409166						
CTG2	1	1	3.66	28.0	4	409197						
CTG3	1	1	3.66	28.0	4	409226						
AIRIN1	1	1	3.66	11.6	6	409172						
AIRIN2	1	1	3.66	11.6	6	409202						
AIRIN3	1	1	3.66	11.6	6	409232						
STG2	1	1	3.66	12.2	4	409165						
ACC2	1	1	3.66	31.7	4	409212						
Admin	2	1	3.66	3.35	16	409290	409279	3723252	409292	3723270	409283	3723276
Admin	*	2	*	5.18	14	409287	409283	3723276				

Huntington Beach Energy Project
 Attachment DR104-8 Table 4
 Operation of Blocks 1 and 2 and Demolition of Units 1 and 2 Modeling Results
 April 2014

Source	Year	PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)	
		24-hour	Annual	24-hour	Annual
ALL		15.4	2.54	3.63	0.51
CONSTRUCTION	2008	15.4	2.52	3.57	0.489
OPERATION		3.32	0.27	3.32	0.27
ALL		14.5	2.81	3.44	0.56
CONSTRUCTION	2009	14.4	2.79	3.33	0.54
OPERATION		1.62	0.26	1.62	0.26
ALL		15.4	2.73	3.66	0.54
CONSTRUCTION	2010	15.3	2.71	3.52	0.52
OPERATION		2.82	0.22	2.82	0.22
ALL		16.1	2.79	3.70	0.55
CONSTRUCTION	2011	16.0	2.77	3.59	0.53
OPERATION		3.19	0.25	3.19	0.25
ALL		15.3	2.78	3.67	0.56
CONSTRUCTION	2012	15.2	2.76	3.53	0.54
OPERATION		1.65	0.26	1.65	0.26

Attachment DR104-9
Supporting Documentation for Analysis of PM
Impacts from HBEP Construction and Demolition
of Units 3 and 4

Huntington Beach Energy Project
Attachment DR104-9 Table 1
HBEP Construction and Demolition of Units 3 and 4 Source Parameters for AERMOD Input
April 2014

Point Sources

Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
E01	Horizontal	409329	3723184	3.66	4.60	533	18.0	0.127
E02	Horizontal	409345	3723173	3.66	4.60	533	18.0	0.127
E03	Horizontal	409362	3723161	3.66	4.60	533	18.0	0.127
E04	Horizontal	409378	3723150	3.66	4.60	533	18.0	0.127
E05	Horizontal	409341	3723203	3.66	4.60	533	18.0	0.127
E06	Horizontal	409358	3723191	3.66	4.60	533	18.0	0.127
E07	Horizontal	409374	3723180	3.66	4.60	533	18.0	0.127
E08	Horizontal	409391	3723168	3.66	4.60	533	18.0	0.127
E09	Horizontal	409354	3723222	3.66	4.60	533	18.0	0.127
E10	Horizontal	409371	3723210	3.66	4.60	533	18.0	0.127
E11	Horizontal	409387	3723199	3.66	4.60	533	18.0	0.127
E12	Horizontal	409404	3723187	3.66	4.60	533	18.0	0.127
E13	Horizontal	409395	3723138	3.66	4.60	533	18.0	0.127
E14	Horizontal	409412	3723126	3.66	4.60	533	18.0	0.127
E15	Horizontal	409428	3723115	3.66	4.60	533	18.0	0.127
E16	Horizontal	409445	3723103	3.66	4.60	533	18.0	0.127
E17	Horizontal	409408	3723157	3.66	4.60	533	18.0	0.127
E18	Horizontal	409424	3723145	3.66	4.60	533	18.0	0.127
E19	Horizontal	409441	3723133	3.66	4.60	533	18.0	0.127
E20	Horizontal	409457	3723122	3.66	4.60	533	18.0	0.127
E21	Horizontal	409420	3723175	3.66	4.60	533	18.0	0.127
E22	Horizontal	409437	3723164	3.66	4.60	533	18.0	0.127
E23	Horizontal	409454	3723152	3.66	4.60	533	18.0	0.127
E24	Horizontal	409470	3723141	3.66	4.60	533	18.0	0.127
E25	Horizontal	409487	3723129	3.66	4.60	533	18.0	0.127
E26	Horizontal	409469	3723294	3.66	4.60	533	18.0	0.127
E27	Horizontal	409469	3723276	3.66	4.60	533	18.0	0.127
E28	Horizontal	409469	3723257	3.66	4.60	533	18.0	0.127
E29	Horizontal	409469	3723239	3.66	4.60	533	18.0	0.127
E30	Horizontal	409469	3723221	3.66	4.60	533	18.0	0.127
E31	Horizontal	409469	3723202	3.66	4.60	533	18.0	0.127
E32	Horizontal	409469	3723184	3.66	4.60	533	18.0	0.127
E33	Horizontal	409469	3723166	3.66	4.60	533	18.0	0.127
E34	Horizontal	409488	3723294	3.66	4.60	533	18.0	0.127
E35	Horizontal	409488	3723276	3.66	4.60	533	18.0	0.127
E36	Horizontal	409488	3723257	3.66	4.60	533	18.0	0.127
E37	Horizontal	409488	3723239	3.66	4.60	533	18.0	0.127
E38	Horizontal	409489	3723221	3.66	4.60	533	18.0	0.127
E39	Horizontal	409489	3723203	3.66	4.60	533	18.0	0.127
E40	Horizontal	409489	3723184	3.66	4.60	533	18.0	0.127
E41	Horizontal	409489	3723166	3.66	4.60	533	18.0	0.127
E42	Horizontal	409489	3723148	3.66	4.60	533	18.0	0.127
E43	Horizontal	409508	3723294	3.66	4.60	533	18.0	0.127
E44	Horizontal	409508	3723276	3.66	4.60	533	18.0	0.127
E45	Horizontal	409508	3723258	3.66	4.60	533	18.0	0.127
E46	Horizontal	409508	3723239	3.66	4.60	533	18.0	0.127
E47	Horizontal	409508	3723221	3.66	4.60	533	18.0	0.127
E48	Horizontal	409508	3723203	3.66	4.60	533	18.0	0.127
E49	Horizontal	409508	3723184	3.66	4.60	533	18.0	0.127
E50	Horizontal	409508	3723166	3.66	4.60	533	18.0	0.127
E51	Horizontal	409508	3723148	3.66	4.60	533	18.0	0.127
E52	Horizontal	409527	3723294	3.66	4.60	533	18.0	0.127
E53	Horizontal	409527	3723276	3.66	4.60	533	18.0	0.127
E54	Horizontal	409527	3723258	3.66	4.60	533	18.0	0.127
E55	Horizontal	409527	3723239	3.66	4.60	533	18.0	0.127
E56	Horizontal	409528	3723221	3.66	4.60	533	18.0	0.127
E57	Horizontal	409528	3723203	3.66	4.60	533	18.0	0.127
E58	Horizontal	409528	3723185	3.66	4.60	533	18.0	0.127
E59	Horizontal	409528	3723166	3.66	4.60	533	18.0	0.127
E60	Horizontal	409528	3723148	3.66	4.60	533	18.0	0.127
E61	Horizontal	409547	3723295	3.66	4.60	533	18.0	0.127
E62	Horizontal	409547	3723276	3.66	4.60	533	18.0	0.127
E63	Horizontal	409547	3723258	3.66	4.60	533	18.0	0.127
E64	Horizontal	409547	3723240	3.66	4.60	533	18.0	0.127
E65	Horizontal	409547	3723221	3.66	4.60	533	18.0	0.127
E66	Horizontal	409547	3723203	3.66	4.60	533	18.0	0.127
E67	Horizontal	409547	3723185	3.66	4.60	533	18.0	0.127
E68	Horizontal	409547	3723166	3.66	4.60	533	18.0	0.127
E69	Horizontal	409547	3723148	3.66	4.60	533	18.0	0.127
E70	Horizontal	409509	3723130	3.66	4.60	533	18.0	0.127
W01	Horizontal	409086	3723188	3.66	4.60	533	18.0	0.127
W02	Horizontal	409103	3723177	3.66	4.60	533	18.0	0.127
W03	Horizontal	409120	3723165	3.66	4.60	533	18.0	0.127
W04	Horizontal	409136	3723153	3.66	4.60	533	18.0	0.127
W05	Horizontal	409153	3723142	3.66	4.60	533	18.0	0.127
W06	Horizontal	409169	3723130	3.66	4.60	533	18.0	0.127
W07	Horizontal	409186	3723119	3.66	4.60	533	18.0	0.127
W08	Horizontal	409203	3723107	3.66	4.60	533	18.0	0.127
W09	Horizontal	409099	3723207	3.66	4.60	533	18.0	0.127
W10	Horizontal	409116	3723195	3.66	4.60	533	18.0	0.127
W11	Horizontal	409132	3723184	3.66	4.60	533	18.0	0.127
W12	Horizontal	409149	3723172	3.66	4.60	533	18.0	0.127
W13	Horizontal	409165	3723160	3.66	4.60	533	18.0	0.127
W14	Horizontal	409182	3723149	3.66	4.60	533	18.0	0.127
W15	Horizontal	409199	3723137	3.66	4.60	533	18.0	0.127
W16	Horizontal	409215	3723126	3.66	4.60	533	18.0	0.127
W17	Horizontal	409112	3723226	3.66	4.60	533	18.0	0.127
W18	Horizontal	409128	3723214	3.66	4.60	533	18.0	0.127
W19	Horizontal	409145	3723202	3.66	4.60	533	18.0	0.127
W20	Horizontal	409162	3723191	3.66	4.60	533	18.0	0.127
W21	Horizontal	409178	3723179	3.66	4.60	533	18.0	0.127
W22	Horizontal	409195	3723168	3.66	4.60	533	18.0	0.127

Point Sources

Source ID	Stack Release Type (Beta)	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
W23	Horizontal	409211	3723156	3.66	4.60	533	18.0	0.127
W24	Horizontal	409228	3723144	3.66	4.60	533	18.0	0.127
W25	Horizontal	409124	3723244	3.66	4.60	533	18.0	0.127
W26	Horizontal	409141	3723233	3.66	4.60	533	18.0	0.127
W27	Horizontal	409158	3723221	3.66	4.60	533	18.0	0.127
W28	Horizontal	409174	3723209	3.66	4.60	533	18.0	0.127
W29	Horizontal	409191	3723198	3.66	4.60	533	18.0	0.127
W30	Horizontal	409207	3723186	3.66	4.60	533	18.0	0.127
W31	Horizontal	409224	3723175	3.66	4.60	533	18.0	0.127
W32	Horizontal	409241	3723163	3.66	4.60	533	18.0	0.127
W33	Horizontal	409137	3723263	3.66	4.60	533	18.0	0.127
W34	Horizontal	409154	3723251	3.66	4.60	533	18.0	0.127
W35	Horizontal	409170	3723240	3.66	4.60	533	18.0	0.127
W36	Horizontal	409187	3723228	3.66	4.60	533	18.0	0.127
W37	Horizontal	409204	3723217	3.66	4.60	533	18.0	0.127
W38	Horizontal	409220	3723205	3.66	4.60	533	18.0	0.127
W39	Horizontal	409237	3723193	3.66	4.60	533	18.0	0.127
W40	Horizontal	409253	3723182	3.66	4.60	533	18.0	0.127
W41	Horizontal	409150	3723282	3.66	4.60	533	18.0	0.127
W42	Horizontal	409166	3723270	3.66	4.60	533	18.0	0.127
W43	Horizontal	409183	3723258	3.66	4.60	533	18.0	0.127
W44	Horizontal	409200	3723247	3.66	4.60	533	18.0	0.127
W45	Horizontal	409216	3723235	3.66	4.60	533	18.0	0.127
W46	Horizontal	409233	3723224	3.66	4.60	533	18.0	0.127
W47	Horizontal	409249	3723212	3.66	4.60	533	18.0	0.127
W48	Horizontal	409266	3723200	3.66	4.60	533	18.0	0.127
W49	Horizontal	409163	3723300	3.66	4.60	533	18.0	0.127
W50	Horizontal	409179	3723289	3.66	4.60	533	18.0	0.127
W51	Horizontal	409196	3723277	3.66	4.60	533	18.0	0.127
W52	Horizontal	409212	3723266	3.66	4.60	533	18.0	0.127
W53	Horizontal	409229	3723254	3.66	4.60	533	18.0	0.127
W54	Horizontal	409246	3723242	3.66	4.60	533	18.0	0.127
W55	Horizontal	409262	3723231	3.66	4.60	533	18.0	0.127
W56	Horizontal	409279	3723219	3.66	4.60	533	18.0	0.127
W57	Horizontal	409175	3723319	3.66	4.60	533	18.0	0.127
W58	Horizontal	409192	3723307	3.66	4.60	533	18.0	0.127
W59	Horizontal	409208	3723296	3.66	4.60	533	18.0	0.127
W60	Horizontal	409225	3723284	3.66	4.60	533	18.0	0.127
W61	Horizontal	409242	3723273	3.66	4.60	533	18.0	0.127
W62	Horizontal	409258	3723261	3.66	4.60	533	18.0	0.127
W63	Horizontal	409275	3723249	3.66	4.60	533	18.0	0.127
W64	Horizontal	409291	3723238	3.66	4.60	533	18.0	0.127
W65	Horizontal	409188	3723338	3.66	4.60	533	18.0	0.127
W66	Horizontal	409205	3723326	3.66	4.60	533	18.0	0.127
W67	Horizontal	409221	3723315	3.66	4.60	533	18.0	0.127
W68	Horizontal	409238	3723303	3.66	4.60	533	18.0	0.127
W69	Horizontal	409254	3723291	3.66	4.60	533	18.0	0.127
W70	Horizontal	409271	3723280	3.66	4.60	533	18.0	0.127
W71	Horizontal	409288	3723268	3.66	4.60	533	18.0	0.127
W72	Horizontal	409304	3723257	3.66	4.60	533	18.0	0.127

Area Sources

Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North	Vertical Dimension (m)
FUGW	409066	3723183	3.66	0.00	165	215	35.0	1.00

Area Poly Sources

Source ID	Base Elevation (m)	Release Height (m)	Number of Vertices	Vertical Dimension (m)	Easting (X1) (m)	Northing (Y1) (m)	Easting (X2) (m)	Northing (Y2) (m)	Easting (X3) (m)	Northing (Y3) (m)	Easting (X4) (m)	Northing (Y4) (m)
	3.66	0.00	9.00	1.00	409452	3723309	409563	3723310	409565	3723115	409537	3723136
Source ID	Easting (X5) (m)	Northing (Y5) (m)	Easting (X6) (m)	Northing (Y6) (m)	Easting (X7) (m)	Northing (Y7) (m)	Easting (X8) (m)	Northing (Y8) (m)	Easting (X9) (m)	Northing (Y9) (m)		
FUGE	409449	3723089	409315	3723180	409358	3723245	409372	3723242	409453	3723187		

Huntington Beach Energy Project
 Attachment DR104-9 Table 2
 HBEP Construction and Demolition of Units 3 and 4 Modeling Parameters - Emission Rates
 April 2014

Emission Rates for 24-hour Modeling^{a, b}

Source ID	24-hour PM ₁₀		24-hour PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
E(1-70)	0.021	0.17	0.021	0.17
FUGE	0.025	0.20	0.0053	0.042
W(1-72)	0.0106	0.084	0.0106	0.084
FUGW	0.012	0.092	0.0013	0.0103
Maximum Month(s)	19		19	

Emission Rates for Annual Modeling^{a, b}

Source ID	Annual PM ₁₀		Annual PM _{2.5}	
	(g/s)	(lb/hr)	(g/s)	(lb/hr)
E(1-70)	0.012	0.10	0.011	0.088
FUGE	0.016	0.13	0.0028	0.022
W(1-72)	0.0074	0.059	0.0085	0.067
FUGW	0.0083	0.066	0.0010	0.0076
Maximum Months	14-25		16-27	

^a Emission rates for construction exhaust point sources, W(1-72) and E(1-70) source groups, are presented as the sum total for all sources in each respective group.

^b Units 3 and 4 demolition emissions, as well as construction emissions that overlap in time with the demolition of Units 3 and 4, were obtained from Table 5.1A.58R from Appendix 5.1AR, which is included with this submission as Attachment DR104-5R2.

Huntington Beach Energy Project
 Attachment DR104-9 Table 3
 HBEP Construction and Demolition of Units 3 and 4 Modeling Results
 April 2014

Source	Year	PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)	
		24-hour	Annual	24-hour	Annual
ALL		14.4	4.71	4.29	1.25
CONSTRUCTION	2008	14.1	4.54	4.09	1.16
DEMOLITION		4.53	1.11	0.91	0.30
ALL		13.9	4.66	4.08	1.23
CONSTRUCTION	2009	13.7	4.50	3.85	1.14
DEMOLITION		4.72	1.08	0.95	0.29
ALL		14.0	4.60	4.15	1.23
CONSTRUCTION	2010	13.7	4.44	4.02	1.14
DEMOLITION		4.87	1.12	1.02	0.29
ALL		13.6	4.62	4.10	1.23
CONSTRUCTION	2011	13.1	4.46	3.90	1.14
DEMOLITION		5.43	1.08	1.06	0.28
ALL		15.0	4.80	4.24	1.27
CONSTRUCTION	2012	14.3	4.63	3.97	1.18
DEMOLITION		5.61	1.09	1.04	0.29