ATTACHMENT 2

AIR QUALITY LOCALIZED SIGNIFICANCE THRESHOLD ANALYSIS

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project By Phase

EGGWC Alt 1

Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Site Preparation	0.0	1.6	6.8	5.9	12.0	1.7
Grading	0.0	1.3	5.7	0.6	8.1	0.5
Construction Phase 1	4.3	15.3	29.9	0.0	1.8	1.6
Construction Phase 2	3.0	10.0	12.3	0.0	1.0	0.9
Construction Phase 3	2.7	15.6	9.9	0.0	0.7	0.1
Construction Phase 4	3.8	13.1	32.2	0.0	1.6	1.5
Localized Significance Threshold*	**N/A**	**950**	**335**	**N/A**	**14**	**8**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Project	Construction Activity	
EGGWC Diversion Alternative 1	Site Preparation (Vegetation Removal)	3,000 Square Feet[a]
Site Preparation Schedule -	**5 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Rubber Tired Loaders	1	7.0	5

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction[d]	Area (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[g]	Mean Wind Speed[h]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]	Dirt Handled[j]
	mph		cy	cy	lb/day
0.35	11	7.9	30	30	15,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[j]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[j]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Total	**1.2**	**3.9**	**9.67**	**0.01**	**0.54**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[k]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[l]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.00
Total		**5.27**

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.6**	**6.8**	**12.0**	**0.0**	**5.9**
Localized Significance Threshold[m]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.5	0.5
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	5.3	1.1
Total		**5.9**	**1.7**
Localized Significance Threshold[m]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

h) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

i) Assuming 0,030 cubic yards of dirt handled [(0,030 cyd x 2,500 lb/cyd)/5 days = 15,000 lb/day]

j) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

k) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

l) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

m) App. C of the Methodology Paper for applicable LSTs.

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Demolition Phase

Project	Construction Activity	
EGGWC Diversion Alternative 1	Site Preparation (Channel Demolition)	600 Square Feet[a]
Site Preparation Schedule -	**2.5 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Air Compressors	1	7.0	5	
Other Construction Equipment	2	7.0		Breakers
Excavators	1	7.0		

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Air Compressors	0.1285	0.3872	0.8302	0.0007	0.0579
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776

Demolition Description[a]	Width of Wall	Length of Wall	Height of Building
	ft	ft	ft
Total Project	1	60	10

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[f]	Debris Handled[a]	Debris Handled[a]
	mph		ton/day	cy
0.35	11	2.0	11	35

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[g]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[g]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Air Compressors	0.08	0.43	0.54	0.00	0.04
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Excavators	0.90	2.71	5.81	0.00	0.41
Total	**0.9**	**2.7**	**5.81**	**0.00**	**0.41**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[h]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling	0	0.03
Total		**0.03**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Demolition Phase

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**1.3**	**5.7**	**8.1**	**0.0**	**0.6**
Localized Significance Threshold[i]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction**[j]	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	0.0	0.0
Total		**0.6**	**0.5**
Localized Significance Threshold[i]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

f) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

h) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

i) App. C of the Methodology Paper for applicable LSTs.

j) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 1

Project	**Construction Activity**	
EGGWC Diversion Alternative 1	Inlet, Pump Station, Controls & Rubber Dam	5,200 Square Feet[a]
Site Preparation Schedule -	**35 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	36
Pumps	1	7.0	
Cranes	1	7.0	
Air Compressor	1	7.0	
Other Construction Equipment	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056

Fugitive Dust Material Handling				
Aerodynamic Particle Size Multiplier[h]	**Mean Wind Speed**[i]	**Moisture Content**[d]	**Dirt Handled**[aj]	**Debris Handled**[aj]
	mph		cy	cy
0.35	11	2.0	520	256
			lb/day	lb/day
			37,143	18,286

Construction Vehicle (Mobile Source) Emission Factors					
	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length		
Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Air Compressor	0.76	2.27	4.36	0.00	0.31
Other Construction Equipment	0.08	0.43	0.54	0.00	0.04
Total	**3.7**	**11.7**	**25.5**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	**Control Efficiency** %	**PM10** lb/day
Material Handling (Dirt)	0	0.06
Material Handling (Debris)	0	0.03
Total		**0.09**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**4.3**	**15.3**	**29.9**	**0.0**	**1.8**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.1	0.0
Total		**1.8**	**1.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

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a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,520 cubic yards of dirt handled [(0,520 cyd x 2,500 lb/cyd)/35 days = 37,143 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 5,200 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	**Construction Activity**	
EGGWC Diversion Alternative 1	Air Compressor & Dam Controls	1,000 Square Feet[a]
Site Preparation Schedule -	**10 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Tractors/Loaders/Backhoes	1	7.0	6
Trenchers	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Trenchers	0.1942	0.5171	0.8578	0.0007	0.0714

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	6	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Tractors/Loaders/Backhoes	1.36	3.62	6.00	0.00	0.50
Trenchers	1.36	3.62	6.00	0.00	0.50
Total	**2.7**	**7.2**	**12.0**	**0.0**	**1.0**

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 2

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	0.28	2.77	0.29	0.00	0.02
Total	**0.28**	**2.77**	**0.29**	**0.00**	**0.02**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.0**	**10.0**	**12.3**	**0.0**	**1.0**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.0	0.9
Combustion (Onroad)	0.96	0.02	0.02
Total		**1.0**	**0.9**
Localized Significance Threshold[e]			**9**
Exceed Significance?			**NO**

Notes:

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a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 3

Project	**Construction Activity**	
EGGWC Diversion Alternative 1	Channel Wall Construction	600 Square Feet[a]
Site Preparation Schedule -	**15 days**[a]	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**1.5**	**4.5**	**8.7**	**0.0**	**0.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.7**	**15.6**	**9.9**	**0.0**	**0.7**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.6	0.6
Combustion (Onroad)	0.96	0.08	0.08
Total		**0.7**	**0.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.

Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 4

Project	Construction Activity	
EGGWC Diversion Alternative 1	Pipline Instatllation	550 Square Feet[a]
Site Preparation Schedule -	**5 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Tractors/Loaders/Backhoes	1	7.0	8
Cranes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]
	mph		cy	cy
0.35	11	7.9	0	8
			lb/day	lb/day
			0	4,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	1	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Tractors/Loaders/Backhoes	1.32	4.46	11.86	0.01	0.53
Cranes	1.32	4.46	11.86	0.01	0.53
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**3.6**	**12.0**	**30.1**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling (Debris)	0	0.00
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.05	0.46	0.05	0.00	0.00
Total	**0.21**	**1.10**	**2.12**	**0.00**	**0.10**

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 4

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**3.8**	**13.1**	**32.2**	**0.0**	**1.6**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.10	0.10
Fugitive	0.21	0.0	0.0
Total		**1.6**	**1.5**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbin

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,000 cubic yards of dirt handled [(0,000 cyd x 2,500 lb/cyd)/5 days = 0,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 0,550 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixer	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188

SCAB Fleet Average Emission Factors (Diesel)

Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927
	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipmen	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604
	Composite	0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders	25	0.038	0.071	0.005	0.000	0.014
	Composite	0.038	0.071	0.005	0.000	0.014
Excavators	25	0.068	0.135	0.009	0.000	0.021
	50	0.353	0.278	0.034	0.000	0.151
	120	0.550	1.031	0.096	0.001	0.179
	175	0.676	1.390	0.079	0.001	0.179
	250	0.464	1.856	0.064	0.002	0.173
	500	0.765	2.381	0.086	0.002	0.229
	750	1.265	4.076	0.144	0.004	0.384
	Composite	0.598	1.423	0.078	0.001	0.182
Forklifts	50	0.212	0.164	0.021	0.000	0.093
	120	0.234	0.436	0.043	0.000	0.079
	175	0.334	0.702	0.042	0.001	0.093
	250	0.192	0.893	0.027	0.001	0.076
	500	0.278	1.119	0.036	0.001	0.099
	Composite	0.250	0.643	0.035	0.001	0.086
Generator Sets	15	0.076	0.128	0.008	0.000	0.020
	25	0.114	0.180	0.012	0.000	0.035
	50	0.308	0.320	0.032	0.000	0.129
	120	0.519	1.034	0.079	0.001	0.164
	175	0.757	1.694	0.079	0.002	0.194
	250	0.597	2.384	0.074	0.002	0.198
	500	1.121	3.473	0.108	0.003	0.282
	750	1.810	5.739	0.177	0.005	0.470
	9999	4.408	13.258	0.415	0.011	1.195
	Composite	0.355	0.725	0.045	0.001	0.113
Graders	50	0.393	0.310	0.038	0.000	0.173
	120	0.566	1.102	0.100	0.001	0.190
	175	0.754	1.626	0.091	0.001	0.207
	250	0.581	2.148	0.080	0.002	0.209
	500	0.967	2.541	0.096	0.002	0.249
	750	2.037	5.515	0.205	0.005	0.532
	Composite	0.671	1.720	0.089	0.001	0.206

SCAB Fleet Average Emission Factors (Diesel)

Off-Highway Tractors		120	0.772	1.614	0.140	0.001	0.283
		175	0.884	2.021	0.113	0.001	0.264
		250	0.612	1.952	0.085	0.001	0.215
		750	4.355	7.822	0.327	0.006	0.834
		1000	6.736	12.573	0.455	0.008	1.277
	Composite		0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks		175	0.770	1.588	0.092	0.001	0.209
		250	0.510	1.999	0.071	0.002	0.193
		500	0.945	2.853	0.105	0.003	0.287
		750	1.528	4.773	0.173	0.004	0.469
		1000	2.606	8.328	0.257	0.006	0.753
	Composite		0.913	2.914	0.106	0.003	0.288
Other Construction Equip		15	0.062	0.077	0.006	0.000	0.012
		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial E		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211
Other Material Handling E		50	0.450	0.347	0.044	0.000	0.203
		120	0.463	0.909	0.085	0.001	0.162
		175	0.744	1.650	0.094	0.001	0.215
		250	0.465	1.840	0.065	0.002	0.173
		500	0.754	2.169	0.078	0.002	0.204
		9999	3.669	10.294	0.326	0.007	0.960
	Composite		0.630	1.836	0.082	0.002	0.204
Pavers		25	0.100	0.177	0.013	0.000	0.037
		50	0.413	0.323	0.040	0.000	0.188
		120	0.543	1.117	0.096	0.001	0.192
		175	0.821	1.856	0.102	0.001	0.236
		250	0.819	2.705	0.113	0.002	0.284
		500	1.494	2.940	0.119	0.002	0.303
	Composite		0.600	1.129	0.080	0.001	0.206
Paving Equipment		25	0.054	0.110	0.007	0.000	0.018
		50	0.350	0.276	0.034	0.000	0.159
		120	0.425	0.875	0.075	0.001	0.150
		175	0.641	1.454	0.079	0.001	0.184
		250	0.512	1.694	0.070	0.001	0.177
	Composite		0.469	1.033	0.071	0.001	0.156
Plate Compactors		15	0.026	0.035	0.002	0.000	0.005
	Composite		0.026	0.035	0.002	0.000	0.005

SCAB Fleet Average Emission Factors (Diesel)

Pressure Washers	15	0.036	0.061	0.004	0.000	0.009
	25	0.046	0.073	0.005	0.000	0.014
	50	0.122	0.145	0.013	0.000	0.049
	120	0.153	0.306	0.022	0.000	0.046
	Composite	0.070	0.108	0.008	0.000	0.023
Pumps	15	0.055	0.095	0.007	0.000	0.017
	25	0.126	0.199	0.015	0.000	0.051
	50	0.362	0.362	0.037	0.000	0.154
	120	0.526	1.049	0.082	0.001	0.169
	175	0.758	1.696	0.082	0.002	0.198
	250	0.577	2.293	0.073	0.002	0.194
	500	1.202	3.599	0.115	0.003	0.298
	750	1.988	6.090	0.192	0.006	0.507
	9999	5.920	17.310	0.544	0.014	1.568
	Composite	0.324	0.622	0.044	0.001	0.109
Rollers	15	0.039	0.048	0.003	0.000	0.008
	25	0.058	0.117	0.007	0.000	0.018
	50	0.344	0.288	0.034	0.000	0.152
	120	0.433	0.865	0.073	0.001	0.145
	175	0.640	1.419	0.075	0.001	0.175
	250	0.539	1.919	0.073	0.002	0.187
	500	1.002	2.475	0.093	0.002	0.237
	Composite	0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts	50	0.463	0.375	0.045	0.000	0.202
	120	0.460	0.882	0.080	0.001	0.151
	175	0.739	1.570	0.087	0.001	0.198
	250	0.520	2.030	0.072	0.002	0.188
	500	0.900	2.692	0.097	0.003	0.252
	Composite	0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers	175	0.896	2.045	0.116	0.001	0.271
	250	0.884	2.800	0.124	0.002	0.314
	500	2.120	3.663	0.156	0.003	0.404
	750	3.171	5.593	0.236	0.004	0.609
	1000	5.061	9.296	0.342	0.006	0.954
	Composite	1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders	25	0.071	0.144	0.009	0.000	0.022
	50	0.440	0.349	0.043	0.000	0.194
	120	0.442	0.860	0.078	0.001	0.148
	175	0.643	1.385	0.077	0.001	0.176
	250	0.496	1.845	0.068	0.002	0.178
	500	0.971	2.604	0.098	0.002	0.253
	750	1.979	5.471	0.202	0.005	0.524
	1000	2.830	8.007	0.249	0.006	0.732
	Composite	0.555	1.382	0.077	0.001	0.173
Scrapers	120	0.745	1.513	0.134	0.001	0.264
	175	0.957	2.137	0.120	0.002	0.277
	250	0.861	2.901	0.119	0.002	0.305
	500	1.948	4.005	0.162	0.003	0.417
	750	3.347	7.044	0.282	0.006	0.724
	Composite	1.525	3.399	0.147	0.003	0.368

SCAB Fleet Average Emission Factors (Diesel)

Signal Boards	15	0.038	0.045	0.003	0.000	0.007
	50	0.406	0.384	0.041	0.000	0.174
	120	0.552	1.088	0.088	0.001	0.177
	175	0.854	1.879	0.094	0.002	0.223
	250	0.732	2.919	0.095	0.003	0.250
	Composite	0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders	25	0.081	0.136	0.010	0.000	0.032
	50	0.284	0.261	0.028	0.000	0.113
	120	0.292	0.526	0.046	0.001	0.084
	Composite	0.273	0.337	0.033	0.000	0.098
Surfacing Equipment	50	0.164	0.152	0.016	0.000	0.071
	120	0.450	0.902	0.072	0.001	0.145
	175	0.490	1.083	0.054	0.001	0.128
	250	0.456	1.628	0.059	0.002	0.152
	500	0.989	2.426	0.087	0.002	0.223
	750	1.544	3.888	0.138	0.003	0.356
	Composite	0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers	15	0.073	0.088	0.006	0.000	0.012
	25	0.082	0.167	0.011	0.000	0.025
	50	0.443	0.352	0.043	0.000	0.197
	120	0.554	1.060	0.100	0.001	0.189
	175	0.816	1.767	0.101	0.002	0.230
	250	0.434	1.913	0.061	0.002	0.166
	Composite	0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backho	25	0.074	0.144	0.009	0.000	0.025
	50	0.398	0.329	0.039	0.000	0.168
	120	0.375	0.698	0.063	0.001	0.118
	175	0.592	1.209	0.067	0.001	0.151
	250	0.472	1.931	0.064	0.002	0.171
	500	1.028	3.377	0.118	0.004	0.307
	750	1.537	5.237	0.179	0.006	0.469
	Composite	0.414	0.830	0.064	0.001	0.131
Trenchers	15	0.052	0.062	0.005	0.000	0.010
	25	0.138	0.280	0.018	0.000	0.043
	50	0.465	0.376	0.045	0.000	0.211
	120	0.503	1.043	0.087	0.001	0.177
	175	0.913	2.073	0.111	0.002	0.260
	250	0.947	3.094	0.129	0.003	0.325
	500	2.068	3.932	0.159	0.003	0.402
	750	3.874	7.525	0.301	0.006	0.764
	Composite	0.517	0.858	0.071	0.001	0.194
Welders	15	0.046	0.080	0.006	0.000	0.014
	25	0.073	0.115	0.009	0.000	0.029
	50	0.317	0.282	0.032	0.000	0.139
	120	0.280	0.556	0.047	0.000	0.093
	175	0.557	1.243	0.064	0.001	0.152
	250	0.360	1.418	0.048	0.001	0.126
	500	0.632	1.809	0.061	0.002	0.158
	Composite	0.234	0.319	0.030	0.000	0.092

Summary of the Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project By Phase

EGGWC Alt 2

Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Site Preparation	0.0	1.6	6.8	5.9	12.0	1.7
Grading	0.0	1.5	6.3	0.7	10.2	0.6
Construction Phase 1	4.3	15.3	29.9	0.0	1.8	1.6
Construction Phase 2	3.0	10.0	12.3	0.0	1.0	0.9
Construction Phase 3	2.7	15.6	9.9	0.0	0.7	0.1
Construction Phase 4	4.2	16.3	32.5	0.0	1.6	1.5
Localized Significance Threshold*	**N/A**	**950**	**335**	**N/A**	**14**	**8**
Exceed Significance?	**N/A**	**NO**	**NO**	**NO**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Project	Construction Activity	
EGGWC Diversion Alternative 2	Site Preparation (Vegetation Removal)	6,750 Square Feet[a]

Site Preparation Schedule - **5 days**[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Rubber Tired Loaders	1	7.0	5

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	NOx lb/hr	SOx lb/hr	PM10 lb/hr
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i] mph	Moisture Content[d]	Dirt Handled[j] cy	Debris Handled[k] cy	Dirt/Debris Disposed[a] cy
0.35	11	7.9	45	45	22,500
			lb/day	lb/day	
			22,500	22,500	

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Total	**1.2**	**3.9**	**9.67**	**0.01**	**0.54**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.01
Total		**5.28**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.6**	**6.8**	**12.0**	**0.0**	**5.9**
Localized Significance Threshold[o]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.5	0.5
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	5.3	1.1
Total		**5.9**	**1.7**
Localized Significance Threshold[p]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,045 cubic yards of dirt, as provided by Pace Engineering [(0,045 cyd x 2,500 lb/cyd)/5 days = 22,500 lb/day]

k) Assuming 0,045 cubic yards of debris handled, as provided by Pace Engineering [(0,045 cyd x 2,500 lb/cyd)/5 days = 22,500 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Project	**Construction Activity**	
EGGWC Diversion Alternative 2	Site Preparation (Channel Demolition)	1,000 Square Feet[a]
Site Preparation Schedule -	**2.5 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**	
Air Compressors	1	7.0	5	
Other Construction Equipment	2	7.0		Breakers
Excavators	1	7.0		

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Air Compressors	0.1285	0.3872	0.8302	0.0007	0.0579
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776

Demolition Description[a]	**Width of Wall** ft	**Length of Wall** ft	**Height of Wall** ft
Total Project	1	100	10

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	**Mean Wind Speed[e]** mph	**Moisture Content[f]**	**Debris Handled[g]** lb/day	**Debris Handled[a]** cy
0.35	11	2.0	60,000	60

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	**CO** lb/mile	**NOx** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Heavy-Duty Truck[h]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[h]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Air Compressors	0.08	0.43	0.54	0.00	0.04
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Excavators	0.90	2.71	5.81	0.00	0.41
Total	**0.9**	**2.7**	**5.81**	**0.00**	**0.41**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[i]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling[j]	0	0.09
Total		**0.09**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.5**	**6.3**	**10.2**	**0.0**	**0.7**
Localized Significance Threshold[k]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[l]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.1	0.0
Total		**0.7**	**0.6**
Localized Significance Threshold[m]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

f) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

g) Assuming 0,060 cubic yards of dirt, as provided by Pace Engineering [(0,060 cyd x 2,500 lb/cyd)/2.5 days = 60,000 lb/day]

h) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

i) Assuming Debris Handledg cubic yards of dirt, as provided by Pace Engineering [(Debris Handledg cyd x 2,500 lb/cyd)/ days = 60,000 lb/day]

j) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

k) App. C of the Methodology Paper for applicable LSTs.

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Project	**Construction Activity**	
EGGWC Diversion Alternative 2	Inlet, Pump Station, Controls & Rubber Dam	12,750 Square Feet[a]
Site Preparation Schedule -	**35 days**[a]	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	
Air Compressor	1	7.0	
Other Construction Equipment	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	**Mean Wind Speed**[e]	**Moisture Content**[f]	**Dirt Handled**[g]	**Debris Handled**[h]

	mph		cy	cy
0.35	11	2.0	550	550

	lb/day	lb/day
	39,286	39,286

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[i]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[i]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Air Compressor	0.76	2.27	4.36	0.00	0.31
Other Construction Equipment	0.08	0.43	0.54	0.00	0.04
Total	**3.7**	**11.7**	**25.5**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[j]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	**PM10**
Description	%	lb/day

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Material Handling (Dirt)	0	0.06
Material Handling (Debris)	0	0.06
Total		**0.12**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.3**	**15.3**	**29.9**	**0.0**	**1.8**
Localized Significance Threshold[k]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[l]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.1	0.0
Total		**1.8**	**1.6**
Localized Significance Threshold[m]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

f) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

g) Assuming 0,550 cubic yards of dirt, as provided by Pace Engineering [(0,550 cyd x 2,500 lb/cyd)/35 days = 39,286 lb/day]

h) Assuming 0,550 cubic yards of debris handled, as provided by Pace Engineering [(0,550 cyd x 2,500 lb/cyd)/35 days = 39,286 lb/day]

i) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

j) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

k) App. C of the Methodology Paper for applicable LSTs.

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	**Construction Activity**	
EGGWC Diversion Alternative 2	Air Compressor & Dam Controls	1,000 Square Feet[a]
Site Preparation Schedule -	**10 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Tractors/Loaders/Backhoes	1	7.0	6
Trenchers	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Trenchers	0.1942	0.5171	0.8578	0.0007	0.0714

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	**CO** lb/mile	**NOx** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	6	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	**VOC** lb/day	**CO** lb/day	**NOx** lb/day	**SOx** lb/day	**PM10** lb/day
Tractors/Loaders/Backhoes	1.36	3.62	6.00	0.00	0.50
Trenchers	1.36	3.62	6.00	0.00	0.50
Total	**2.7**	**7.2**	**12.0**	**0.0**	**1.0**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 2

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	0.28	2.77	0.29	0.00	0.02
Total	**0.28**	**2.77**	**0.29**	**0.00**	**0.02**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.0**	**10.0**	**12.3**	**0.0**	**1.0**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.0	0.9
Combustion (Onroad)	0.96	0.02	0.02
Total		**1.0**	**0.9**
Localized Significance Threshold[e]			**8**
Exceed Significance?			**NO**

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.

Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Project	**Construction Activity**	
EGGWC Diversion Alternative 2	Channel Wall Construction	500 Square Feet[a]
Site Preparation Schedule -	**25 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	**CO** lb/mile	**NOx** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	**VOC** lb/day	**CO** lb/day	**NOx** lb/day	**SOx** lb/day	**PM10** lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**1.5**	**4.5**	**8.7**	**0.0**	**0.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.7**	**15.6**	**9.9**	**0.0**	**0.7**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.6	0.6
Combustion (Onroad)	0.96	0.08	0.08
Total		**0.7**	**0.6**
Localized Significance Threshold[o]			**8**
Exceed Significance?			**NO**

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.

Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for theRonald Talbert Lake EGGWC Diversion Project - Construction Phase 4

Project	**Construction Activity**	
EGGWC Diversion Alternative 2	Pipline Instatllation	5,575 Square Feet[a]
Site Preparation Schedule -	**15 days**[a]	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Tractors/Loaders/Backhoes	1	7.0	8
Cranes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	**Mean Wind Speed**[e]	**Moisture Content**[f]	**Dirt Handled**[g]	**Debris Handled**[h]

	mph		cy	cy	
0.35	11	7.9	20	53	

			lb/day	lb/day	
			3,333	8,833	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[i]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[i]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Heavy Duty Truck	1	22
Employee Vehicles	8	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day

Equipment Type	**VOC** lb/day	**CO** lb/day	**NOx** lb/day	**SOx** lb/day	**PM10** lb/day
Tractors/Loaders/Backhoes	1.32	4.46	11.86	0.01	0.53
Cranes	1.32	4.46	11.86	0.01	0.53
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**3.6**	**12.0**	**30.1**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[j]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	**Control Efficiency** %	**PM10** lb/day
Material Handling (Debris)	0	0.00

Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.38	3.70	0.39	0.00	0.03
Total	**0.54**	**4.33**	**2.46**	**0.01**	**0.13**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.2**	**16.3**	**32.5**	**0.0**	**1.6**
Localized Significance Threshold[k]	***N/A***	***950***	***335***	***N/A***	***3***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[l]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.13	0.12
Fugitive	0.21	0.0	0.0
Total		**1.6**	**1.5**
Localized Significance Threshold[m]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

f) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

g) Assuming cy cubic yards of dirt, as provided by Pace Engineering [(cy cyd x 2,500 lb/cyd)/15 days = 3,333 lb/day]

h) Assuming 0,053 cubic yards of debris handled, as provided by Pace Engineering [(0,053 cyd x 2,500 lb/cyd)/15 days = 8,833 lb/day]

i) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

j) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

k) App. C of the Methodology Paper for applicable LSTs.

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy Heavy Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy heavy duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy heavy duty diesel trucks.

Scenario Year: **2007**

All model years in the range 1965 to 2007

HHDT-DSL (pounds/mile)	
CO	**0.01446237**
NOx	**0.04718166**
ROG	**0.00372949**
SOx	**0.00003962**
PM10	**0.00230900**
PM2.5	**0.00204018**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00216752**
PM2.5	**0.00199491**

Scenario Year: **2008**

All model years in the range 1965 to 2008

HHDT-DSL (pounds/mile)	
CO	**0.01361368**
NOx	**0.04458017**
ROG	**0.00351579**
SOx	**0.00004136**
PM10	**0.00215635**
PM2.5	**0.00189990**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00201296**
PM2.5	**0.00185303**

Scenario Year: **2009**

All model years in the range 1965 to 2009

HHDT-DSL (pounds/mile)	
CO	**0.01282236**
NOx	**0.04184591**
ROG	**0.00329320**
SOx	**0.00004013**
PM10	**0.00199572**
PM2.5	**0.00175227**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00185393**
PM2.5	**0.00170680**

Scenario Year: **2010**

All model years in the range 1966 to 2010

HHDT-DSL (pounds/mile)	
CO	**0.01195456**
NOx	**0.03822102**
ROG	**0.00304157**
SOx	**0.00004131**
PM10	**0.00183062**
PM2.5	**0.00160083**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00168861**
PM2.5	**0.00155435**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

HHDT-DSL (pounds/mile)	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	0.00003972
PM10	0.00166087
PM2.5	0.00144489

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00151936
PM2.5	0.00139772

Scenario Year: **2012**
All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	0.00004042
PM10	0.00149566
PM2.5	0.00129354

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00135537
PM2.5	0.00124837

Scenario Year: **2013**
All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	0.00931790
NOx	0.02742935
ROG	0.00226308
SOx	0.00004086
PM10	0.00133697
PM2.5	0.00114629

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00119623
PM2.5	0.00109863

Scenario Year: **2014**
All model years in the range 1970 to 2014

HHDT-DSL (pounds/mile)	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	0.00004092
PM10	0.00118458
PM2.5	0.00100582

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00104243
PM2.5	0.00096059

Scenario Year: **2015**
All model years in the range 1971 to 2015

HHDT-DSL (pounds/mile)	
CO	0.00766891
NOx	0.02122678
ROG	0.00178608
SOx	0.00004082
PM10	0.00104715
PM2.5	0.00087977

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00090631
PM2.5	0.00083282

Scenario Year: **2016**
All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	0.00704604
NOx	0.01887374
ROG	0.00161035
SOx	0.00003952
PM10	0.00094448
PM2.5	0.00078443

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00080419
PM2.5	0.00073898

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

HHDT-DSL (pounds/mile)	
CO	0.00650533
NOx	0.01690387
ROG	0.00145203
SOx	0.00004033
PM10	0.00084894
PM2.5	0.00069721

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00070873
PM2.5	0.00065111

Scenario Year: **2018**
All model years in the range 1974 to 2018

HHDT-DSL (pounds/mile)	
CO	0.00604721
NOx	0.01526414
ROG	0.00131697
SOx	0.00003934
PM10	0.00076808
PM2.5	0.00062383

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00062758
PM2.5	0.00057700

Scenario Year: **2019**
All model years in the range 1975 to 2019

HHDT-DSL (pounds/mile)	
CO	0.00565433
NOx	0.01389113
ROG	0.00120235
SOx	0.00004032
PM10	0.00070198
PM2.5	0.00056085

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00056085
PM2.5	0.00051320

Scenario Year: **2020**
All model years in the range 1976 to 2020

HHDT-DSL (pounds/mile)	
CO	0.00532242
NOx	0.01274755
ROG	0.00110621
SOx	0.00003957
PM10	0.00064574
PM2.5	0.00050904

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00050364
PM2.5	0.00046227

Scenario Year: **2021**
All model years in the range 1977 to 2021

HHDT-DSL (pounds/mile)	
CO	0.00503726
NOx	0.01179977
ROG	0.00103095
SOx	0.00004033
PM10	0.00059437
PM2.5	0.00046287

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00045411
PM2.5	0.00041729

Scenario Year: **2022**
All model years in the range 1978 to 2022

HHDT-DSL (pounds/mile)	
CO	0.00478830
NOx	0.01098794
ROG	0.00096142
SOx	0.00004106
PM10	0.00055427
PM2.5	0.00042597

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00041399
PM2.5	0.00037807

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2023**
All model years in the range 1979 to 2023

HHDT-DSL (pounds/mile)	
CO	**0.00457902**
NOx	**0.01031407**
ROG	**0.00090210**
SOx	**0.00004009**
PM10	**0.00052122**
PM2.5	**0.00039592**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00037922**
PM2.5	**0.00034915**

Scenario Year: **2024**
All model years in the range 1980 to 2024

HHDT-DSL (pounds/mile)	
CO	**0.00444444**
NOx	**0.00974372**
ROG	**0.00084009**
SOx	**0.00003930**
PM10	**0.00050766**
PM2.5	**0.00038320**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00036682**
PM2.5	**0.00033735**

Scenario Year: **2025**
All model years in the range 1981 to 2025

HHDT-DSL (pounds/mile)	
CO	**0.00431086**
NOx	**0.00932573**
ROG	**0.00080206**
SOx	**0.00004018**
PM10	**0.00048541**
PM2.5	**0.00036326**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00034397**
PM2.5	**0.00031664**

Scenario Year: **2026**
All model years in the range 1982 to 2026

HHDT-DSL (pounds/mile)	
CO	**0.00420297**
NOx	**0.00898990**
ROG	**0.00077178**
SOx	**0.00003946**
PM10	**0.00046717**
PM2.5	**0.00034564**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00032670**
PM2.5	**0.00029830**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2007**
All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.01155158**
NOx	**0.00121328**
ROG	**0.00118234**
SOx	**0.00001078**
PM10	**0.00008447**
PM2.5	**0.00005243**

Delivery Trucks (pounds/mile)	
CO	**0.02407553**
NOx	**0.02508445**
ROG	**0.00323145**
SOx	**0.00002626**
PM10	**0.00091020**
PM2.5	**0.00078884**

Scenario Year: **2008**
All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.01054844**
NOx	**0.00110288**
ROG	**0.00107919**
SOx	**0.00001075**
PM10	**0.00008505**
PM2.5	**0.00005293**

Delivery Trucks (pounds/mile)	
CO	**0.02194915**
NOx	**0.02371258**
ROG	**0.00299270**
SOx	**0.00002565**
PM10	**0.00085607**
PM2.5	**0.00073933**

Scenario Year: **2009**
All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**

Scenario Year: **2010**
All model years in the range 1966 to 2010

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

Passenger Vehicles (pounds/mile)	
CO	0.00826276
NOx	0.00084460
ROG	0.00085233
SOx	0.00001077
PM10	0.00008879
PM2.5	0.00005653

Delivery Trucks (pounds/mile)	
CO	0.01693242
NOx	0.01893366
ROG	0.00241868
SOx	0.00002728
PM10	0.00070097
PM2.5	0.00059682

Scenario Year: **2012**
All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)	
CO	0.00765475
NOx	0.00077583
ROG	0.00079628
SOx	0.00001073
PM10	0.00008979
PM2.5	0.00005750

Delivery Trucks (pounds/mile)	
CO	0.01545741
NOx	0.01732423
ROG	0.00223776
SOx	0.00002667
PM10	0.00064975
PM2.5	0.00054954

Scenario Year: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	0.00709228
NOx	0.00071158
ROG	0.00074567
SOx	0.00001072
PM10	0.00009067
PM2.5	0.00005834

Delivery Trucks (pounds/mile)	
CO	0.01407778
NOx	0.01577311
ROG	0.00206295
SOx	0.00002682
PM10	0.00059956
PM2.5	0.00050174

Scenario Year: **2014**
All model years in the range 1970 to 2014

Passenger Vehicles (pounds/mile)	
CO	0.00660353
NOx	0.00065484
ROG	0.00070227
SOx	0.00001069
PM10	0.00009185
PM2.5	0.00005939

Delivery Trucks (pounds/mile)	
CO	0.01284321
NOx	0.01425162
ROG	0.00189649
SOx	0.00002754
PM10	0.00054929
PM2.5	0.00045519

Scenario Year: **2015**
All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	0.00614108
NOx	0.00060188
ROG	0.00066355
SOx	0.00001070
PM10	0.00009259
PM2.5	0.00006015

Delivery Trucks (pounds/mile)	
CO	0.01169445
NOx	0.01285026
ROG	0.00173890
SOx	0.00002741
PM10	0.00050307
PM2.5	0.00041268

Scenario Year: **2016**
All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131

Delivery Trucks (pounds/mile)	
CO	0.01080542
NOx	0.01172881
ROG	0.00161521
SOx	0.00002767
PM10	0.00046606
PM2.5	0.00037868

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00537891	CO	0.00998101
NOx	0.00051297	NOx	0.01070034
ROG	0.00060109	ROG	0.00150242
SOx	0.00001079	SOx	0.00002723
PM10	0.00009446	PM10	0.00043131
PM2.5	0.00006192	PM2.5	0.00034605

Scenario Year: **2018**
All model years in the range 1974 to 2018

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00502881	CO	0.00923234
NOx	0.00047300	NOx	0.00979416
ROG	0.00057178	ROG	0.00139856
SOx	0.00001071	SOx	0.00002749
PM10	0.00009494	PM10	0.00040110
PM2.5	0.00006234	PM2.5	0.00031792

Scenario Year: **2019**
All model years in the range 1975 to 2019

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00471820	CO	0.00857192
NOx	0.00043716	NOx	0.00900205
ROG	0.00054654	ROG	0.00130563
SOx	0.00001072	SOx	0.00002706
PM10	0.00009523	PM10	0.00037393
PM2.5	0.00006259	PM2.5	0.00029276

Scenario Year: **2020**
All model years in the range 1976 to 2020

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00444247	CO	0.00799617
NOx	0.00040506	NOx	0.00831802
ROG	0.00052463	ROG	0.00122382
SOx	0.00001073	SOx	0.00002733
PM10	0.00009550	PM10	0.00035054
PM2.5	0.00006279	PM2.5	0.00027128

Scenario Year: **2021**
All model years in the range 1977 to 2021

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00421218	CO	0.00748303
NOx	0.00037757	NOx	0.00773500
ROG	0.00050573	ROG	0.00115568
SOx	0.00001073	SOx	0.00002755
PM10	0.00009640	PM10	0.00033125
PM2.5	0.00006364	PM2.5	0.00025331

Scenario Year: **2022**
All model years in the range 1978 to 2022

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00397866	CO	0.00699290
NOx	0.00035150	NOx	0.00722470
ROG	0.00048658	ROG	0.00108569
SOx	0.00001072	SOx	0.00002774
PM10	0.00009661	PM10	0.00031501
PM2.5	0.00006389	PM2.5	0.00023906

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2023**

All model years in the range 1979 to 2023

Passenger Vehicles (pounds/mile)	
CO	0.00377527
NOx	0.00032851
ROG	0.00046900
SOx	0.00001070
PM10	0.00009676
PM2.5	0.00006405

Delivery Trucks (pounds/mile)	
CO	0.00658123
NOx	0.00679147
ROG	0.00102852
SOx	0.00002790
PM10	0.00030109
PM2.5	0.00022582

Scenario Year: **2024**

All model years in the range 1980 to 2024

Passenger Vehicles (pounds/mile)	
CO	0.00358611
NOx	0.00030721
ROG	0.00045136
SOx	0.00001080
PM10	0.00009676
PM2.5	0.00006410

Delivery Trucks (pounds/mile)	
CO	0.00625076
NOx	0.00647083
ROG	0.00096578
SOx	0.00002807
PM10	0.00029407
PM2.5	0.00021880

Scenario Year: **2025**

All model years in the range 1981 to 2025

Passenger Vehicles (pounds/mile)	
CO	0.00342738
NOx	0.00028846
ROG	0.00043545
SOx	0.00001070
PM10	0.00009679
PM2.5	0.00006418

Delivery Trucks (pounds/mile)	
CO	0.00595363
NOx	0.00615945
ROG	0.00092178
SOx	0.00002761
PM10	0.00028425
PM2.5	0.00020958

Scenario Year: **2026**

All model years in the range 1982 to 2026

Passenger Vehicles (pounds/mile)	
CO	0.00328779
NOx	0.00027141
ROG	0.00042052
SOx	0.00001076
PM10	0.00009687
PM2.5	0.00006415

Delivery Trucks (pounds/mile)	
CO	0.00569435
NOx	0.00589869
ROG	0.00088403
SOx	0.00002716
PM10	0.00027657
PM2.5	0.00020187

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixer	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188
Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927

SCAB Fleet Average Emission Factors (Diesel)

Crawler Tractors	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipmen	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604
	Composite	0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders	25	0.038	0.071	0.005	0.000	0.014
	Composite	0.038	0.071	0.005	0.000	0.014
Excavators	25	0.068	0.135	0.009	0.000	0.021
	50	0.353	0.278	0.034	0.000	0.151
	120	0.550	1.031	0.096	0.001	0.179
	175	0.676	1.390	0.079	0.001	0.179
	250	0.464	1.856	0.064	0.002	0.173
	500	0.765	2.381	0.086	0.002	0.229
	750	1.265	4.076	0.144	0.004	0.384
	Composite	0.598	1.423	0.078	0.001	0.182
Forklifts	50	0.212	0.164	0.021	0.000	0.093
	120	0.234	0.436	0.043	0.000	0.079
	175	0.334	0.702	0.042	0.001	0.093
	250	0.192	0.893	0.027	0.001	0.076
	500	0.278	1.119	0.036	0.001	0.099
	Composite	0.250	0.643	0.035	0.001	0.086
Generator Sets	15	0.076	0.128	0.008	0.000	0.020
	25	0.114	0.180	0.012	0.000	0.035
	50	0.308	0.320	0.032	0.000	0.129
	120	0.519	1.034	0.079	0.001	0.164
	175	0.757	1.694	0.079	0.002	0.194
	250	0.597	2.384	0.074	0.002	0.198
	500	1.121	3.473	0.108	0.003	0.282
	750	1.810	5.739	0.177	0.005	0.470
	9999	4.408	13.258	0.415	0.011	1.195
	Composite	0.355	0.725	0.045	0.001	0.113
Graders	50	0.393	0.310	0.038	0.000	0.173
	120	0.566	1.102	0.100	0.001	0.190
	175	0.754	1.626	0.091	0.001	0.207
	250	0.581	2.148	0.080	0.002	0.209
	500	0.967	2.541	0.096	0.002	0.249
	750	2.037	5.515	0.205	0.005	0.532
	Composite	0.671	1.720	0.089	0.001	0.206
Off-Highway Tractors	120	0.772	1.614	0.140	0.001	0.283
	175	0.884	2.021	0.113	0.001	0.264
	250	0.612	1.952	0.085	0.001	0.215
	750	4.355	7.822	0.327	0.006	0.834
	1000	6.736	12.573	0.455	0.008	1.277
	Composite	0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks	175	0.770	1.588	0.092	0.001	0.209
	250	0.510	1.999	0.071	0.002	0.193
	500	0.945	2.853	0.105	0.003	0.287
	750	1.528	4.773	0.173	0.004	0.469
	1000	2.606	8.328	0.257	0.006	0.753
	Composite	0.913	2.914	0.106	0.003	0.288
Other Construction Equip	15	0.062	0.077	0.006	0.000	0.012

SCAB Fleet Average Emission Factors (Diesel)

Other Construction Equip		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial E		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211
Other Material Handling E		50	0.450	0.347	0.044	0.000	0.203
		120	0.463	0.909	0.085	0.001	0.162
		175	0.744	1.650	0.094	0.001	0.215
		250	0.465	1.840	0.065	0.002	0.173
		500	0.754	2.169	0.078	0.002	0.204
		9999	3.669	10.294	0.326	0.007	0.960
	Composite		0.630	1.836	0.082	0.002	0.204
Pavers		25	0.100	0.177	0.013	0.000	0.037
		50	0.413	0.323	0.040	0.000	0.188
		120	0.543	1.117	0.096	0.001	0.192
		175	0.821	1.856	0.102	0.001	0.236
		250	0.819	2.705	0.113	0.002	0.284
		500	1.494	2.940	0.119	0.002	0.303
	Composite		0.600	1.129	0.080	0.001	0.206
Paving Equipment		25	0.054	0.110	0.007	0.000	0.018
		50	0.350	0.276	0.034	0.000	0.159
		120	0.425	0.875	0.075	0.001	0.150
		175	0.641	1.454	0.079	0.001	0.184
		250	0.512	1.694	0.070	0.001	0.177
	Composite		0.469	1.033	0.071	0.001	0.156
Plate Compactors		15	0.026	0.035	0.002	0.000	0.005
	Composite		0.026	0.035	0.002	0.000	0.005
Pressure Washers		15	0.036	0.061	0.004	0.000	0.009
		25	0.046	0.073	0.005	0.000	0.014
		50	0.122	0.145	0.013	0.000	0.049
		120	0.153	0.306	0.022	0.000	0.046
	Composite		0.070	0.108	0.008	0.000	0.023
Pumps		15	0.055	0.095	0.007	0.000	0.017
		25	0.126	0.199	0.015	0.000	0.051
		50	0.362	0.362	0.037	0.000	0.154
		120	0.526	1.049	0.082	0.001	0.169
		175	0.758	1.696	0.082	0.002	0.198
		250	0.577	2.293	0.073	0.002	0.194
		500	1.202	3.599	0.115	0.003	0.298
		750	1.988	6.090	0.192	0.006	0.507
		9999	5.920	17.310	0.544	0.014	1.568
	Composite		0.324	0.622	0.044	0.001	0.109
Rollers		15	0.039	0.048	0.003	0.000	0.008
		25	0.058	0.117	0.007	0.000	0.018

SCAB Fleet Average Emission Factors (Diesel)

Rollers		50	0.344	0.288	0.034	0.000	0.152
		120	0.433	0.865	0.073	0.001	0.145
		175	0.640	1.419	0.075	0.001	0.175
		250	0.539	1.919	0.073	0.002	0.187
		500	1.002	2.475	0.093	0.002	0.237
	Composite		0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts		50	0.463	0.375	0.045	0.000	0.202
		120	0.460	0.882	0.080	0.001	0.151
		175	0.739	1.570	0.087	0.001	0.198
		250	0.520	2.030	0.072	0.002	0.188
		500	0.900	2.692	0.097	0.003	0.252
	Composite		0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers		175	0.896	2.045	0.116	0.001	0.271
		250	0.884	2.800	0.124	0.002	0.314
		500	2.120	3.663	0.156	0.003	0.404
		750	3.171	5.593	0.236	0.004	0.609
		1000	5.061	9.296	0.342	0.006	0.954
	Composite		1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders		25	0.071	0.144	0.009	0.000	0.022
		50	0.440	0.349	0.043	0.000	0.194
		120	0.442	0.860	0.078	0.001	0.148
		175	0.643	1.385	0.077	0.001	0.176
		250	0.496	1.845	0.068	0.002	0.178
		500	0.971	2.604	0.098	0.002	0.253
		750	1.979	5.471	0.202	0.005	0.524
		1000	2.830	8.007	0.249	0.006	0.732
	Composite		0.555	1.382	0.077	0.001	0.173
Scrapers		120	0.745	1.513	0.134	0.001	0.264
		175	0.957	2.137	0.120	0.002	0.277
		250	0.861	2.901	0.119	0.002	0.305
		500	1.948	4.005	0.162	0.003	0.417
		750	3.347	7.044	0.282	0.006	0.724
	Composite		1.525	3.399	0.147	0.003	0.368
Signal Boards		15	0.038	0.045	0.003	0.000	0.007
		50	0.406	0.384	0.041	0.000	0.174
		120	0.552	1.088	0.088	0.001	0.177
		175	0.854	1.879	0.094	0.002	0.223
		250	0.732	2.919	0.095	0.003	0.250
	Composite		0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders		25	0.081	0.136	0.010	0.000	0.032
		50	0.284	0.261	0.028	0.000	0.113
		120	0.292	0.526	0.046	0.001	0.084
	Composite		0.273	0.337	0.033	0.000	0.098
Surfacing Equipment		50	0.164	0.152	0.016	0.000	0.071
		120	0.450	0.902	0.072	0.001	0.145
		175	0.490	1.083	0.054	0.001	0.128
		250	0.456	1.628	0.059	0.002	0.152
		500	0.989	2.426	0.087	0.002	0.223
		750	1.544	3.888	0.138	0.003	0.356
	Composite		0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers		15	0.073	0.088	0.006	0.000	0.012
		25	0.082	0.167	0.011	0.000	0.025
		50	0.443	0.352	0.043	0.000	0.197
		120	0.554	1.060	0.100	0.001	0.189
		175	0.816	1.767	0.101	0.002	0.230

SCAB Fleet Average Emission Factors (Diesel)

Sweepers/Scrubbers		250	0.434	1.913	0.061	0.002	0.166
	Composite		0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backho		25	0.074	0.144	0.009	0.000	0.025
		50	0.398	0.329	0.039	0.000	0.168
		120	0.375	0.698	0.063	0.001	0.118
		175	0.592	1.209	0.067	0.001	0.151
		250	0.472	1.931	0.064	0.002	0.171
		500	1.028	3.377	0.118	0.004	0.307
		750	1.537	5.237	0.179	0.006	0.469
	Composite		0.414	0.830	0.064	0.001	0.131
Trenchers		15	0.052	0.062	0.005	0.000	0.010
		25	0.138	0.280	0.018	0.000	0.043
		50	0.465	0.376	0.045	0.000	0.211
		120	0.503	1.043	0.087	0.001	0.177
		175	0.913	2.073	0.111	0.002	0.260
		250	0.947	3.094	0.129	0.003	0.325
		500	2.068	3.932	0.159	0.003	0.402
		750	3.874	7.525	0.301	0.006	0.764
	Composite		0.517	0.858	0.071	0.001	0.194
Welders		15	0.046	0.080	0.006	0.000	0.014
		25	0.073	0.115	0.009	0.000	0.029
		50	0.317	0.282	0.032	0.000	0.139
		120	0.280	0.556	0.047	0.000	0.093
		175	0.557	1.243	0.064	0.001	0.152
		250	0.360	1.418	0.048	0.001	0.126
		500	0.632	1.809	0.061	0.002	0.158
	Composite		0.234	0.319	0.030	0.000	0.092

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project By Phase

EGGWC Alt 3

Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Site Preparation	0.0	1.6	6.8	2.8	12.0	1.1
Grading	0.0	1.5	6.3	0.7	10.2	0.6
Construction Phase 1	5.2	24.1	30.8	0.0	1.9	1.7
Construction Phase 2	2.7	15.6	9.9	0.0	0.7	0.1
Construction Phase 3	4.2	16.3	32.5	0.0	1.6	1.5
Localized Significance Threshold*	**N/A**	**950**	**335**	**N/A**	**14**	**8**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Project	Construction Activity	
EGGWC Diversion Alternative 3	Site Preparation (Vegetation Removal)	4,800 Square Feet[a]

Site Preparation Schedule - **5 days**[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Rubber Tired Loaders	1	7.0	5

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	NOx lb/hr	SOx lb/hr	PM10 lb/hr
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[e]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i] mph	Moisture Content[e]	Dirt Handled[j] cy	Debris Handled[k] cy
0.35	11	7.9	30	30
			lb/day	lb/day
			15,000	15,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Total	**1.2**	**3.9**	**9.67**	**0.01**	**0.54**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	60	2.11
Storage Piles	0	0.00
Material Handling	0	0.00
Total		**2.11**

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.6**	**6.8**	**12.0**	**0.0**	**2.8**
Localized Significance Threshold[o]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.5	0.5
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	2.1	0.4
Total		**2.8**	**1.1**
Localized Significance Threshold[q]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,000 cubic yards of dirt, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/lb/hr days = lb/mile lb/day]

k) Assuming 0,030 cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/5 days = lb/mile lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the ERonald Talbert Lake EGGWC Diversion Project - Demolition Phase

Project	Construction Activity	
EGGWC Diversion Alternative 3	Site Preparation (Channel Demolition)	500 Square Feet[a]
Site Preparation Schedule -	**2.5 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Air Compressors	1	7.0	5	
Other Construction Equipment	2	7.0		Breakers
Excavators	1	7.0		

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	NOx lb/hr	SOx lb/hr	PM10 lb/hr
Air Compressors	0.1285	0.3872	0.8302	0.0007	0.0579
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776

Demolition Description[a]	Width of Wall ft	Length of Wall ft	Height of Wall ft
Total Project	1	100	10

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e] mph	Moisture Content[f]	Debris Handled[g] ton/day	Debris Handled[h] cy
0.35	11	2.0	9	60
			lb/day	lb/day
			9,200	60,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[i]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[j]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the ERonald Talbert Lake EGGWC Diversion Project - Demolition Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Air Compressors	0.08	0.43	0.54	0.00	0.04
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Excavators	0.90	2.71	5.81	0.00	0.41
Total	**0.9**	**2.7**	**5.81**	**0.00**	**0.41**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[j]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling	0	0.03
Total		**0.03**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Localized Significance Threshold (LST) Analysis for the ERonald Talbert Lake EGGWC Diversion Project - Demolition Phase

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.5**	**6.3**	**10.2**	**0.0**	**0.7**
Localized Significance Threshold[k]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[l]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.0	0.0
Total		**0.7**	**0.6**
Localized Significance Threshold[m]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

e) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

f) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

g) Assuming 0,009 cubic yards of dirt, as provided by Pace Engineering [(0,009 cyd x 2,500 lb/cyd)/2.5 days = 9,200 lb/day]

h) Assuming 0,060 cubic yards of debris handled, as provided by Pace Engineering [(0,060 cyd x 2,500 lb/cyd)/2.5 days = 60,000 lb/day]

i) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

j) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, ≤ 10 µm

k) App. C of the Methodology Paper for applicable LSTs.

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 1

Project	**Construction Activity**	
EGGWC Diversion Alternative 3	Inlet, Pump Station, Controls & Rubber Dam	9,200 Square Feet[a]
Site Preparation Schedule -	**35 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	
Air Compressor	1	7.0	
Other Construction Equipment	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**NOx** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplierd	**Mean Wind Speed[e]**	**Moisture Content[f]**	**Dirt Handled[g]**	**Debris Handled[h]**

	mph		cy	cy
0.35	11	2.0	600	360

lb/day	lb/day
42,857	25,714

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**NOx**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[i]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[i]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Heavy Duty Truck	2	22
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Air Compressor	0.76	2.27	4.36	0.00	0.31
Other Construction Equipment	0.08	0.43	0.54	0.00	0.04
Total	**3.7**	**11.7**	**25.5**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[j]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	**PM10**
Description	%	lb/day

Material Handling (Dirt)	0	0.07
Material Handling (Debris)	0	0.04
Total		**0.11**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.46**	**12.36**	**5.32**	**0.01**	**0.28**

Total Incremental Localized Emissions from Construction Activities

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**5.2**	**24.1**	**30.8**	**0.0**	**1.9**
Localized Significance Threshold[k]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[m]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.28	0.27
Fugitive	0.21	0.1	0.0
Total		**1.9**	**1.7**
Localized Significance Threshold[l]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

e) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

f) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

g) Assuming 42,857 cubic yards of dirt, as provided by Pace Engineering [(42,857 cyd x 2,500 lb/cyd)/No. of Equipment days = 0,000 lb/day]

h) Assuming 25,714 cubic yards of debris handled, as provided by Pace Engineering [(25,714 cyd x 2,500 lb/cyd)/No. of Equipment days = 0,000 lb/day]

i) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

j) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

k) App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project - Construction Phase 1

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.
m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	**Construction Activity**	
EGGWC Diversion Alternative 3	Channel Wall Construction	500 Square Feet[a]
Site Preparation Schedule -	**25 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**Nox** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	**CO** lb/mile	**Nox** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Heavy-Duty Truck[d]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**1.5**	**4.5**	**8.7**	**0.0**	**0.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.7**	**15.6**	**9.9**	**0.0**	**0.7**
Localized Significance Threshold[e]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.6	0.6
Combustion (Onroad)	0.96	0.08	0.08
Total		**0.7**	**0.6**
Localized Significance Threshold[g]			**8**
Exceed Significance?			**NO**

Notes:

Project specific data may be entered into shaded cells. Changing the values in the shaded cells will not affect the integrity of the worksheets. Verify that units of values entered match units for cell.

Adding lines or entering values with units different than those associated with the shaded cells may alter the integrity of the sheets or produce incorrect results.

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

g) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Project	**Construction Activity**	
EGGWC Diversion Alternative 3	Pipline Instatllation	5,575 Square Feet[a]
Site Preparation Schedule -	**15 days**[a]	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Tractors/Loaders/Backhoes	1	7.0	8
Cranes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**Nox** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	**Mean Wind Speed**[e]	**Moisture Content**[f]	**Dirt Handled**[g]	**Debris Handled**[h]

	mph		cy	cy	
0.35	11	7.9	20	53	
			lb/day	lb/day	
			3,333	8,833	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[i]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[i]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	8	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Tractors/Loaders/Backhoes	1.32	4.46	11.86	0.01	0.53
Cranes	1.32	4.46	11.86	0.01	0.53
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**3.6**	**12.0**	**30.1**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[j]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Debris)	0	0.00

Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.38	3.70	0.39	0.00	0.03
Total	**0.54**	**4.33**	**2.46**	**0.01**	**0.13**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.2**	**16.3**	**32.5**	**0.0**	**1.6**
Localized Significance Threshold[k]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[l]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.13	0.12
Fugitive	0.21	0.0	0.0
Total		**1.6**	**1.5**
Localized Significance Threshold[m]			**8**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

e) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

f) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

g) Assuming 0,020 cubic yards of dirt, as provided by Pace Engineering [(0,020 cyd x 2,500 lb/cyd)/15 days = 3,333 lb/day]

h) Assuming 0,053 cubic yards of debris handled, as provided by Pace Engineering [(0,053 cyd x 2,500 lb/cyd)/15 days = 8,833 lb/day]

i) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

j) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

k) App. C of the Methodology Paper for applicable LSTs.

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy Heavy Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy heavy duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy heavy duty diesel trucks.

Scenario Year: **2007**

All model years in the range 1965 to 2007

HHDT-DSL (pounds/mile)	
CO	**0.01446237**
NOx	**0.04718166**
ROG	**0.00372949**
SOx	**0.00003962**
PM10	**0.00230900**
PM2.5	**0.00204018**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00216752**
PM2.5	**0.00199491**

Scenario Year: **2008**

All model years in the range 1965 to 2008

HHDT-DSL (pounds/mile)	
CO	**0.01361368**
NOx	**0.04458017**
ROG	**0.00351579**
SOx	**0.00004136**
PM10	**0.00215635**
PM2.5	**0.00189990**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00201296**
PM2.5	**0.00185303**

Scenario Year: **2009**

All model years in the range 1965 to 2009

HHDT-DSL (pounds/mile)	
CO	**0.01282236**
NOx	**0.04184591**
ROG	**0.00329320**
SOx	**0.00004013**
PM10	**0.00199572**
PM2.5	**0.00175227**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00185393**
PM2.5	**0.00170680**

Scenario Year: **2010**

All model years in the range 1966 to 2010

HHDT-DSL (pounds/mile)	
CO	**0.01195456**
NOx	**0.03822102**
ROG	**0.00304157**
SOx	**0.00004131**
PM10	**0.00183062**
PM2.5	**0.00160083**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00168861**
PM2.5	**0.00155435**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

HHDT-DSL (pounds/mile)	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	0.00003972
PM10	0.00166087
PM2.5	0.00144489

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00151936
PM2.5	0.00139772

Scenario Year: **2012**
All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	0.00004042
PM10	0.00149566
PM2.5	0.00129354

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00135537
PM2.5	0.00124837

Scenario Year: **2013**
All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	0.00931790
NOx	0.02742935
ROG	0.00226308
SOx	0.00004086
PM10	0.00133697
PM2.5	0.00114629

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00119623
PM2.5	0.00109863

Scenario Year: **2014**
All model years in the range 1970 to 2014

HHDT-DSL (pounds/mile)	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	0.00004092
PM10	0.00118458
PM2.5	0.00100582

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00104243
PM2.5	0.00096059

Scenario Year: **2015**
All model years in the range 1971 to 2015

HHDT-DSL (pounds/mile)	
CO	0.00766891
NOx	0.02122678
ROG	0.00178608
SOx	0.00004082
PM10	0.00104715
PM2.5	0.00087977

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00090631
PM2.5	0.00083282

Scenario Year: **2016**
All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	0.00704604
NOx	0.01887374
ROG	0.00161035
SOx	0.00003952
PM10	0.00094448
PM2.5	0.00078443

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00080419
PM2.5	0.00073898

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

HHDT-DSL (pounds/mile)	
CO	0.00650533
NOx	0.01690387
ROG	0.00145203
SOx	0.00004033
PM10	0.00084894
PM2.5	0.00069721

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00070873
PM2.5	0.00065111

Scenario Year: **2018**
All model years in the range 1974 to 2018

HHDT-DSL (pounds/mile)	
CO	0.00604721
NOx	0.01526414
ROG	0.00131697
SOx	0.00003934
PM10	0.00076808
PM2.5	0.00062383

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00062758
PM2.5	0.00057700

Scenario Year: **2019**
All model years in the range 1975 to 2019

HHDT-DSL (pounds/mile)	
CO	0.00565433
NOx	0.01389113
ROG	0.00120235
SOx	0.00004032
PM10	0.00070198
PM2.5	0.00056085

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00056085
PM2.5	0.00051320

Scenario Year: **2020**
All model years in the range 1976 to 2020

HHDT-DSL (pounds/mile)	
CO	0.00532242
NOx	0.01274755
ROG	0.00110621
SOx	0.00003957
PM10	0.00064574
PM2.5	0.00050904

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00050364
PM2.5	0.00046227

Scenario Year: **2021**
All model years in the range 1977 to 2021

HHDT-DSL (pounds/mile)	
CO	0.00503726
NOx	0.01179977
ROG	0.00103095
SOx	0.00004033
PM10	0.00059437
PM2.5	0.00046287

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00045411
PM2.5	0.00041729

Scenario Year: **2022**
All model years in the range 1978 to 2022

HHDT-DSL (pounds/mile)	
CO	0.00478830
NOx	0.01098794
ROG	0.00096142
SOx	0.00004106
PM10	0.00055427
PM2.5	0.00042597

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00041399
PM2.5	0.00037807

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2023**
All model years in the range 1979 to 2023

HHDT-DSL (pounds/mile)	
CO	0.00457902
NOx	0.01031407
ROG	0.00090210
SOx	0.00004009
PM10	0.00052122
PM2.5	0.00039592

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00037922
PM2.5	0.00034915

Scenario Year: **2024**
All model years in the range 1980 to 2024

HHDT-DSL (pounds/mile)	
CO	0.00444444
NOx	0.00974372
ROG	0.00084009
SOx	0.00003930
PM10	0.00050766
PM2.5	0.00038320

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00036682
PM2.5	0.00033735

Scenario Year: **2025**
All model years in the range 1981 to 2025

HHDT-DSL (pounds/mile)	
CO	0.00431086
NOx	0.00932573
ROG	0.00080206
SOx	0.00004018
PM10	0.00048541
PM2.5	0.00036326

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00034397
PM2.5	0.00031664

Scenario Year: **2026**
All model years in the range 1982 to 2026

HHDT-DSL (pounds/mile)	
CO	0.00420297
NOx	0.00898990
ROG	0.00077178
SOx	0.00003946
PM10	0.00046717
PM2.5	0.00034564

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00032670
PM2.5	0.00029830

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2007**
All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.01155158**
NOx	**0.00121328**
ROG	**0.00118234**
SOx	**0.00001078**
PM10	**0.00008447**
PM2.5	**0.00005243**

Delivery Trucks (pounds/mile)	
CO	**0.02407553**
NOx	**0.02508445**
ROG	**0.00323145**
SOx	**0.00002626**
PM10	**0.00091020**
PM2.5	**0.00078884**

Scenario Year: **2008**
All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.01054844**
NOx	**0.00110288**
ROG	**0.00107919**
SOx	**0.00001075**
PM10	**0.00008505**
PM2.5	**0.00005293**

Delivery Trucks (pounds/mile)	
CO	**0.02194915**
NOx	**0.02371258**
ROG	**0.00299270**
SOx	**0.00002565**
PM10	**0.00085607**
PM2.5	**0.00073933**

Scenario Year: **2009**
All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**

Scenario Year: **2010**
All model years in the range 1966 to 2010

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

Passenger Vehicles (pounds/mile)	
CO	0.00826276
NOx	0.00084460
ROG	0.00085233
SOx	0.00001077
PM10	0.00008879
PM2.5	0.00005653

Delivery Trucks (pounds/mile)	
CO	0.01693242
NOx	0.01893366
ROG	0.00241868
SOx	0.00002728
PM10	0.00070097
PM2.5	0.00059682

Scenario Year: **2012**
All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)	
CO	0.00765475
NOx	0.00077583
ROG	0.00079628
SOx	0.00001073
PM10	0.00008979
PM2.5	0.00005750

Delivery Trucks (pounds/mile)	
CO	0.01545741
NOx	0.01732423
ROG	0.00223776
SOx	0.00002667
PM10	0.00064975
PM2.5	0.00054954

Scenario Year: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	0.00709228
NOx	0.00071158
ROG	0.00074567
SOx	0.00001072
PM10	0.00009067
PM2.5	0.00005834

Delivery Trucks (pounds/mile)	
CO	0.01407778
NOx	0.01577311
ROG	0.00206295
SOx	0.00002682
PM10	0.00059956
PM2.5	0.00050174

Scenario Year: **2014**
All model years in the range 1970 to 2014

Passenger Vehicles (pounds/mile)	
CO	0.00660353
NOx	0.00065484
ROG	0.00070227
SOx	0.00001069
PM10	0.00009185
PM2.5	0.00005939

Delivery Trucks (pounds/mile)	
CO	0.01284321
NOx	0.01425162
ROG	0.00189649
SOx	0.00002754
PM10	0.00054929
PM2.5	0.00045519

Scenario Year: **2015**
All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	0.00614108
NOx	0.00060188
ROG	0.00066355
SOx	0.00001070
PM10	0.00009259
PM2.5	0.00006015

Delivery Trucks (pounds/mile)	
CO	0.01169445
NOx	0.01285026
ROG	0.00173890
SOx	0.00002741
PM10	0.00050307
PM2.5	0.00041268

Scenario Year: **2016**
All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131

Delivery Trucks (pounds/mile)	
CO	0.01080542
NOx	0.01172881
ROG	0.00161521
SOx	0.00002767
PM10	0.00046606
PM2.5	0.00037868

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00537891	CO	0.00998101
NOx	0.00051297	NOx	0.01070034
ROG	0.00060109	ROG	0.00150242
SOx	0.00001079	SOx	0.00002723
PM10	0.00009446	PM10	0.00043131
PM2.5	0.00006192	PM2.5	0.00034605

Scenario Year: **2018**
All model years in the range 1974 to 2018

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00502881	CO	0.00923234
NOx	0.00047300	NOx	0.00979416
ROG	0.00057178	ROG	0.00139856
SOx	0.00001071	SOx	0.00002749
PM10	0.00009494	PM10	0.00040110
PM2.5	0.00006234	PM2.5	0.00031792

Scenario Year: **2019**
All model years in the range 1975 to 2019

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00471820	CO	0.00857192
NOx	0.00043716	NOx	0.00900205
ROG	0.00054654	ROG	0.00130563
SOx	0.00001072	SOx	0.00002706
PM10	0.00009523	PM10	0.00037393
PM2.5	0.00006259	PM2.5	0.00029276

Scenario Year: **2020**
All model years in the range 1976 to 2020

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00444247	CO	0.00799617
NOx	0.00040506	NOx	0.00831802
ROG	0.00052463	ROG	0.00122382
SOx	0.00001073	SOx	0.00002733
PM10	0.00009550	PM10	0.00035054
PM2.5	0.00006279	PM2.5	0.00027128

Scenario Year: **2021**
All model years in the range 1977 to 2021

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00421218	CO	0.00748303
NOx	0.00037757	NOx	0.00773500
ROG	0.00050573	ROG	0.00115568
SOx	0.00001073	SOx	0.00002755
PM10	0.00009640	PM10	0.00033125
PM2.5	0.00006364	PM2.5	0.00025331

Scenario Year: **2022**
All model years in the range 1978 to 2022

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00397866	CO	0.00699290
NOx	0.00035150	NOx	0.00722470
ROG	0.00048658	ROG	0.00108569
SOx	0.00001072	SOx	0.00002774
PM10	0.00009661	PM10	0.00031501
PM2.5	0.00006389	PM2.5	0.00023906

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2023**

All model years in the range 1979 to 2023

Passenger Vehicles (pounds/mile)	
CO	0.00377527
NOx	0.00032851
ROG	0.00046900
SOx	0.00001070
PM10	0.00009676
PM2.5	0.00006405

Delivery Trucks (pounds/mile)	
CO	0.00658123
NOx	0.00679147
ROG	0.00102852
SOx	0.00002790
PM10	0.00030109
PM2.5	0.00022582

Scenario Year: **2024**

All model years in the range 1980 to 2024

Passenger Vehicles (pounds/mile)	
CO	0.00358611
NOx	0.00030721
ROG	0.00045136
SOx	0.00001080
PM10	0.00009676
PM2.5	0.00006410

Delivery Trucks (pounds/mile)	
CO	0.00625076
NOx	0.00647083
ROG	0.00096578
SOx	0.00002807
PM10	0.00029407
PM2.5	0.00021880

Scenario Year: **2025**

All model years in the range 1981 to 2025

Passenger Vehicles (pounds/mile)	
CO	0.00342738
NOx	0.00028846
ROG	0.00043545
SOx	0.00001070
PM10	0.00009679
PM2.5	0.00006418

Delivery Trucks (pounds/mile)	
CO	0.00595363
NOx	0.00615945
ROG	0.00092178
SOx	0.00002761
PM10	0.00028425
PM2.5	0.00020958

Scenario Year: **2026**

All model years in the range 1982 to 2026

Passenger Vehicles (pounds/mile)	
CO	0.00328779
NOx	0.00027141
ROG	0.00042052
SOx	0.00001076
PM10	0.00009687
PM2.5	0.00006415

Delivery Trucks (pounds/mile)	
CO	0.00569435
NOx	0.00589869
ROG	0.00088403
SOx	0.00002716
PM10	0.00027657
PM2.5	0.00020187

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixer	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188
Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927

SCAB Fleet Average Emission Factors (Diesel)

Crawler Tractors	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipmen	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604
	Composite	0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders	25	0.038	0.071	0.005	0.000	0.014
	Composite	0.038	0.071	0.005	0.000	0.014
Excavators	25	0.068	0.135	0.009	0.000	0.021
	50	0.353	0.278	0.034	0.000	0.151
	120	0.550	1.031	0.096	0.001	0.179
	175	0.676	1.390	0.079	0.001	0.179
	250	0.464	1.856	0.064	0.002	0.173
	500	0.765	2.381	0.086	0.002	0.229
	750	1.265	4.076	0.144	0.004	0.384
	Composite	0.598	1.423	0.078	0.001	0.182
Forklifts	50	0.212	0.164	0.021	0.000	0.093
	120	0.234	0.436	0.043	0.000	0.079
	175	0.334	0.702	0.042	0.001	0.093
	250	0.192	0.893	0.027	0.001	0.076
	500	0.278	1.119	0.036	0.001	0.099
	Composite	0.250	0.643	0.035	0.001	0.086
Generator Sets	15	0.076	0.128	0.008	0.000	0.020
	25	0.114	0.180	0.012	0.000	0.035
	50	0.308	0.320	0.032	0.000	0.129
	120	0.519	1.034	0.079	0.001	0.164
	175	0.757	1.694	0.079	0.002	0.194
	250	0.597	2.384	0.074	0.002	0.198
	500	1.121	3.473	0.108	0.003	0.282
	750	1.810	5.739	0.177	0.005	0.470
	9999	4.408	13.258	0.415	0.011	1.195
	Composite	0.355	0.725	0.045	0.001	0.113
Graders	50	0.393	0.310	0.038	0.000	0.173
	120	0.566	1.102	0.100	0.001	0.190
	175	0.754	1.626	0.091	0.001	0.207
	250	0.581	2.148	0.080	0.002	0.209
	500	0.967	2.541	0.096	0.002	0.249
	750	2.037	5.515	0.205	0.005	0.532
	Composite	0.671	1.720	0.089	0.001	0.206
Off-Highway Tractors	120	0.772	1.614	0.140	0.001	0.283
	175	0.884	2.021	0.113	0.001	0.264
	250	0.612	1.952	0.085	0.001	0.215
	750	4.355	7.822	0.327	0.006	0.834
	1000	6.736	12.573	0.455	0.008	1.277
	Composite	0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks	175	0.770	1.588	0.092	0.001	0.209
	250	0.510	1.999	0.071	0.002	0.193
	500	0.945	2.853	0.105	0.003	0.287
	750	1.528	4.773	0.173	0.004	0.469
	1000	2.606	8.328	0.257	0.006	0.753
	Composite	0.913	2.914	0.106	0.003	0.288
Other Construction Equip	15	0.062	0.077	0.006	0.000	0.012

SCAB Fleet Average Emission Factors (Diesel)

Other Construction Equip		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial E		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211
Other Material Handling E		50	0.450	0.347	0.044	0.000	0.203
		120	0.463	0.909	0.085	0.001	0.162
		175	0.744	1.650	0.094	0.001	0.215
		250	0.465	1.840	0.065	0.002	0.173
		500	0.754	2.169	0.078	0.002	0.204
		9999	3.669	10.294	0.326	0.007	0.960
	Composite		0.630	1.836	0.082	0.002	0.204
Pavers		25	0.100	0.177	0.013	0.000	0.037
		50	0.413	0.323	0.040	0.000	0.188
		120	0.543	1.117	0.096	0.001	0.192
		175	0.821	1.856	0.102	0.001	0.236
		250	0.819	2.705	0.113	0.002	0.284
		500	1.494	2.940	0.119	0.002	0.303
	Composite		0.600	1.129	0.080	0.001	0.206
Paving Equipment		25	0.054	0.110	0.007	0.000	0.018
		50	0.350	0.276	0.034	0.000	0.159
		120	0.425	0.875	0.075	0.001	0.150
		175	0.641	1.454	0.079	0.001	0.184
		250	0.512	1.694	0.070	0.001	0.177
	Composite		0.469	1.033	0.071	0.001	0.156
Plate Compactors		15	0.026	0.035	0.002	0.000	0.005
	Composite		0.026	0.035	0.002	0.000	0.005
Pressure Washers		15	0.036	0.061	0.004	0.000	0.009
		25	0.046	0.073	0.005	0.000	0.014
		50	0.122	0.145	0.013	0.000	0.049
		120	0.153	0.306	0.022	0.000	0.046
	Composite		0.070	0.108	0.008	0.000	0.023
Pumps		15	0.055	0.095	0.007	0.000	0.017
		25	0.126	0.199	0.015	0.000	0.051
		50	0.362	0.362	0.037	0.000	0.154
		120	0.526	1.049	0.082	0.001	0.169
		175	0.758	1.696	0.082	0.002	0.198
		250	0.577	2.293	0.073	0.002	0.194
		500	1.202	3.599	0.115	0.003	0.298
		750	1.988	6.090	0.192	0.006	0.507
		9999	5.920	17.310	0.544	0.014	1.568
	Composite		0.324	0.622	0.044	0.001	0.109
Rollers		15	0.039	0.048	0.003	0.000	0.008
		25	0.058	0.117	0.007	0.000	0.018

SCAB Fleet Average Emission Factors (Diesel)

Rollers		50	0.344	0.288	0.034	0.000	0.152
		120	0.433	0.865	0.073	0.001	0.145
		175	0.640	1.419	0.075	0.001	0.175
		250	0.539	1.919	0.073	0.002	0.187
		500	1.002	2.475	0.093	0.002	0.237
	Composite		0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts		50	0.463	0.375	0.045	0.000	0.202
		120	0.460	0.882	0.080	0.001	0.151
		175	0.739	1.570	0.087	0.001	0.198
		250	0.520	2.030	0.072	0.002	0.188
		500	0.900	2.692	0.097	0.003	0.252
	Composite		0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers		175	0.896	2.045	0.116	0.001	0.271
		250	0.884	2.800	0.124	0.002	0.314
		500	2.120	3.663	0.156	0.003	0.404
		750	3.171	5.593	0.236	0.004	0.609
		1000	5.061	9.296	0.342	0.006	0.954
	Composite		1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders		25	0.071	0.144	0.009	0.000	0.022
		50	0.440	0.349	0.043	0.000	0.194
		120	0.442	0.860	0.078	0.001	0.148
		175	0.643	1.385	0.077	0.001	0.176
		250	0.496	1.845	0.068	0.002	0.178
		500	0.971	2.604	0.098	0.002	0.253
		750	1.979	5.471	0.202	0.005	0.524
		1000	2.830	8.007	0.249	0.006	0.732
	Composite		0.555	1.382	0.077	0.001	0.173
Scrapers		120	0.745	1.513	0.134	0.001	0.264
		175	0.957	2.137	0.120	0.002	0.277
		250	0.861	2.901	0.119	0.002	0.305
		500	1.948	4.005	0.162	0.003	0.417
		750	3.347	7.044	0.282	0.006	0.724
	Composite		1.525	3.399	0.147	0.003	0.368
Signal Boards		15	0.038	0.045	0.003	0.000	0.007
		50	0.406	0.384	0.041	0.000	0.174
		120	0.552	1.088	0.088	0.001	0.177
		175	0.854	1.879	0.094	0.002	0.223
		250	0.732	2.919	0.095	0.003	0.250
	Composite		0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders		25	0.081	0.136	0.010	0.000	0.032
		50	0.284	0.261	0.028	0.000	0.113
		120	0.292	0.526	0.046	0.001	0.084
	Composite		0.273	0.337	0.033	0.000	0.098
Surfacing Equipment		50	0.164	0.152	0.016	0.000	0.071
		120	0.450	0.902	0.072	0.001	0.145
		175	0.490	1.083	0.054	0.001	0.128
		250	0.456	1.628	0.059	0.002	0.152
		500	0.989	2.426	0.087	0.002	0.223
		750	1.544	3.888	0.138	0.003	0.356
	Composite		0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers		15	0.073	0.088	0.006	0.000	0.012
		25	0.082	0.167	0.011	0.000	0.025
		50	0.443	0.352	0.043	0.000	0.197
		120	0.554	1.060	0.100	0.001	0.189
		175	0.816	1.767	0.101	0.002	0.230

SCAB Fleet Average Emission Factors (Diesel)

Sweepers/Scrubbers		250	0.434	1.913	0.061	0.002	0.166
	Composite		0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backho		25	0.074	0.144	0.009	0.000	0.025
		50	0.398	0.329	0.039	0.000	0.168
		120	0.375	0.698	0.063	0.001	0.118
		175	0.592	1.209	0.067	0.001	0.151
		250	0.472	1.931	0.064	0.002	0.171
		500	1.028	3.377	0.118	0.004	0.307
		750	1.537	5.237	0.179	0.006	0.469
	Composite		0.414	0.830	0.064	0.001	0.131
Trenchers		15	0.052	0.062	0.005	0.000	0.010
		25	0.138	0.280	0.018	0.000	0.043
		50	0.465	0.376	0.045	0.000	0.211
		120	0.503	1.043	0.087	0.001	0.177
		175	0.913	2.073	0.111	0.002	0.260
		250	0.947	3.094	0.129	0.003	0.325
		500	2.068	3.932	0.159	0.003	0.402
		750	3.874	7.525	0.301	0.006	0.764
	Composite		0.517	0.858	0.071	0.001	0.194
Welders		15	0.046	0.080	0.006	0.000	0.014
		25	0.073	0.115	0.009	0.000	0.029
		50	0.317	0.282	0.032	0.000	0.139
		120	0.280	0.556	0.047	0.000	0.093
		175	0.557	1.243	0.064	0.001	0.152
		250	0.360	1.418	0.048	0.001	0.126
		500	0.632	1.809	0.061	0.002	0.158
	Composite		0.234	0.319	0.030	0.000	0.092

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project By Phase

EGGWC Diversion Alternative 4
Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Vegetation & Debris Removal	1.6	6.8	12.0	0.0	5.9	1.7
RC Channel Wall Demolition	1.3	5.7	8.1	0.0	0.6	0.5
EGGWC Inlet, Pump, & Rubber Dam	4.3	15.3	29.9	0.0	1.8	1.6
Central Park Pump Station, Inlet & Controls	3.4	12.6	25.0	0.0	1.5	1.3
Air Compressor & Dam Controls	3.0	10.0	12.3	0.0	1.0	0.9
RC Channel Wall Construction	2.7	15.6	9.9	0.0	0.7	0.6
Pipeline to Gothard St. Storm Drain	6.3	24.6	59.5	0.1	3.0	2.8
Localized Significance Threshold*	**N/A**	**950**	**335**	**N/A**	**14**	**8**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook

Calculations prepared by Sam Stewart, BonTerra Consulting (3/10/2008).

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Project	Construction Activity	
EGGWC Diversion Alternative 4	Site Preparation (Vegetation Removal)	3,000 Square Feet[a]

Site Preparation Schedule -	5 days[a]		
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Rubber Tired Loaders	1	7.0	5

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]	Dirt Handled[j]
	mph		cy	cy	lb/day
0.35	11	7.9	30	30	15,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Total	**1.2**	**3.9**	**9.67**	**0.01**	**0.54**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[l]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.00
Total		**5.27**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.6**	**6.8**	**12.0**	**0.0**	**5.9**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.5	0.5
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	5.3	1.1
Total		**5.9**	**1.7**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,030 cubic yards of dirt handled [(0,030 cyd x 2,500 lb/cyd)/5 days = 15,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) App. C of the Methodology Paper for applicable LSTs.

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Project	Construction Activity	
EGGWC Diversion Alternative 4	Site Preparation (Channel Demolition)	600 Square Feet[a]

Site Preparation Schedule -	2.5 days[a]			
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**	
Air Compressors	1	7.0	5	
Other Construction Equipment	2	7.0		Breakers
Excavators	1	7.0		

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Air Compressors	0.1285	0.3872	0.8302	0.0007	0.0579
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776

Demolition Description[a]	Width of Wall	Length of Wall	Height of Building
	ft	ft	ft
Total Project	1	60	10

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[f]	Debris Handled[g]	Debris Handled[a]	
	mph		ton/day	cy	lbs/day
0.35	11	2.0	11	35	11,040

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Air Compressors	0.08	0.43	0.54	0.00	0.04
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Excavators	0.90	2.71	5.81	0.00	0.41
Total	**0.9**	**2.7**	**5.81**	**0.00**	**0.41**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling[1]	0	0.03
Total		**0.03**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**1.3**	**5.7**	**8.1**	**0.0**	**0.6**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	0.0	0.0
Total		**0.6**	**0.5**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,035 cubic yards of dirt handled [(0,035 cyd x 2,500 lb/cyd)/2.5 days = 11,040 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, $\leq$ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 0,600 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading $\leq$ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Project	Construction Activity	
EGGWC Diversion Alternative 4	Inlet, Pump Station, Controls & Rubber Dam	5,200 Square Feet[a]

Site Preparation Schedule - 35 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	36
Pumps	1	7.0	
Cranes	1	7.0	
Air Compressor	1	7.0	
Other Construction Equipment	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC	CO	Nox	SOx	PM10
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[aj]	Debris Handled[aj]
	mph		cy	cy
0.35	11	2.0	520	256
			lb/day	lb/day
			37,143	18,286

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Air Compressor	0.76	2.27	4.36	0.00	0.31
Other Construction Equipment	0.08	0.43	0.54	0.00	0.04
Total	**3.7**	**11.7**	**25.5**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Dirt)	0	0.06
Material Handling (Debris)	0	0.03
Total		**0.09**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.3**	**15.3**	**29.9**	**0.0**	**1.8**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.1	0.0
Total		**1.8**	**1.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,520 cubic yards of dirt handled [(0,520 cyd x 2,500 lb/cyd)/35 days = 37,143 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 5,200 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	Construction Activity	
EGGWC Diversion Alternative 4	Central Park Inlet & Pump Station	2,200 Square Feet[a]

Site Preparation Schedule - 20 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC	CO	Nox	SOx	PM10
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[aj]	Debris Handled[aj]
	mph		cy	cy
0.35	11	2.0	520	256
			lb/day	lb/day
			65,000	32,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Total	**2.8**	**9.0**	**20.6**	**0.0**	**1.1**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Dirt)	0	0.10
Material Handling (Debris)	0	0.05
Total		**0.15**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.4**	**12.6**	**25.0**	**0.0**	**1.5**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.1	1.1

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.2	0.0
Total		**1.5**	**1.3**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,520 cubic yards of dirt handled [(0,520 cyd x 2,500 lb/cyd)/20 days = 65,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 2,200 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	Construction Activity	
EGGWC Diversion Alternative 4	Air Compressor & Dam Controls	1,000 Square Feet[a]

Site Preparation Schedule - 10 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Tractors/Loaders/Backhoes	1	7.0	6
Trenchers	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Trenchers	0.1942	0.5171	0.8578	0.0007	0.0714

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	Nox lb/mile	SOx lb/mile	PM10 lb/mile
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Employee Vehicles	6	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Tractors/Loaders/Backhoes	1.36	3.62	6.00	0.00	0.50
Trenchers	1.36	3.62	6.00	0.00	0.50
Total	**2.7**	**7.2**	**12.0**	**0.0**	**1.0**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	0.28	2.77	0.29	0.00	0.02
Total	**0.28**	**2.77**	**0.29**	**0.00**	**0.02**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.0**	**10.0**	**12.3**	**0.0**	**1.0**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.0	0.9
Combustion (Onroad)	0.96	0.02	0.02
Total		**1.0**	**0.9**
Localized Significance Threshold[e]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Project	**Construction Activity**	
EGGWC Diversion Alternative 4	Channel Wall Construction	600 Square Feet[a]

Site Preparation Schedule -	**15 days[a]**		
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**1.5**	**4.5**	**8.7**	**0.0**	**0.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.7**	**15.6**	**9.9**	**0.0**	**0.7**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.6	0.6
Combustion (Onroad)	0.96	0.08	0.08
Total		**0.7**	**0.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for theRonald Talbert Lake EGGWC Diversion Project - Construction Phase 4

Project	Construction Activity	
EGGWC Diversion Alternative 4	Pipline Instatllation	15,000 Square Feet[a]

Site Preparation Schedule - 15 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Tractors/Loaders/Backhoes	1	7.0	8
Cranes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]

	mph		cy	cy	
0.35	11	7.9	2,000	2,000	
			lb/day	lb/day	
			333,333	333,333	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Heavy Duty Truck	14	22
Employee Vehicles	8	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Tractors/Loaders/Backhoes	1.32	4.46	11.86	0.01	0.53
Cranes	1.32	4.46	11.86	0.01	0.53
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**3.6**	**12.0**	**30.1**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	**PM10**
Description	%	lb/day
Material Handling (Debris)	0	0.08

Material Handling	0	0.08
Total		**0.08**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	2.30	8.91	29.06	0.02	1.42
Employee Vehicles	0.38	3.70	0.39	0.00	0.03
Total	**2.68**	**12.61**	**29.45**	**0.03**	**1.45**

Total Incremental Localized Emissions from Construction Activities

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**6.3**	**24.6**	**59.5**	**0.1**	**3.0**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	1.45	1.39
Fugitive	0.21	0.1	0.0
Total		**3.0**	**2.8**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbin

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 2,000 cubic yards of dirt handled [(2,000 cyd x 2,500 lb/cyd)/15 days = 333,333 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 15,000 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy Heavy Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy heavy duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy heavy duty diesel trucks.

Scenario Year: **2007**

All model years in the range 1965 to 2007

HHDT-DSL (pounds/mile)	
CO	**0.01446237**
NOx	**0.04718166**
ROG	**0.00372949**
SOx	**0.00003962**
PM10	**0.00230900**
PM2.5	**0.00204018**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00216752**
PM2.5	**0.00199491**

Scenario Year: **2008**

All model years in the range 1965 to 2008

HHDT-DSL (pounds/mile)	
CO	**0.01361368**
NOx	**0.04458017**
ROG	**0.00351579**
SOx	**0.00004136**
PM10	**0.00215635**
PM2.5	**0.00189990**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00201296**
PM2.5	**0.00185303**

Scenario Year: **2009**

All model years in the range 1965 to 2009

HHDT-DSL (pounds/mile)	
CO	**0.01282236**
NOx	**0.04184591**
ROG	**0.00329320**
SOx	**0.00004013**
PM10	**0.00199572**
PM2.5	**0.00175227**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00185393**
PM2.5	**0.00170680**

Scenario Year: **2010**

All model years in the range 1966 to 2010

HHDT-DSL (pounds/mile)	
CO	**0.01195456**
NOx	**0.03822102**
ROG	**0.00304157**
SOx	**0.00004131**
PM10	**0.00183062**
PM2.5	**0.00160083**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00168861**
PM2.5	**0.00155435**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2011**

All model years in the range 1967 to 2011

HHDT-DSL (pounds/mile)	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	0.00003972
PM10	0.00166087
PM2.5	0.00144489

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00151936
PM2.5	0.00139772

Scenario Year: **2012**

All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	0.00004042
PM10	0.00149566
PM2.5	0.00129354

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00135537
PM2.5	0.00124837

Scenario Year: **2013**

All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	0.00931790
NOx	0.02742935
ROG	0.00226308
SOx	0.00004086
PM10	0.00133697
PM2.5	0.00114629

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00119623
PM2.5	0.00109863

Scenario Year: **2014**

All model years in the range 1970 to 2014

HHDT-DSL (pounds/mile)	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	0.00004092
PM10	0.00118458
PM2.5	0.00100582

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00104243
PM2.5	0.00096059

Scenario Year: **2015**

All model years in the range 1971 to 2015

HHDT-DSL (pounds/mile)	
CO	0.00766891
NOx	0.02122678
ROG	0.00178608
SOx	0.00004082
PM10	0.00104715
PM2.5	0.00087977

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00090631
PM2.5	0.00083282

Scenario Year: **2016**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	0.00704604
NOx	0.01887374
ROG	0.00161035
SOx	0.00003952
PM10	0.00094448
PM2.5	0.00078443

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00080419
PM2.5	0.00073898

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

HHDT-DSL (pounds/mile)	
CO	0.00650533
NOx	0.01690387
ROG	0.00145203
SOx	0.00004033
PM10	0.00084894
PM2.5	0.00069721

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00070873
PM2.5	0.00065111

Scenario Year: **2018**
All model years in the range 1974 to 2018

HHDT-DSL (pounds/mile)	
CO	0.00604721
NOx	0.01526414
ROG	0.00131697
SOx	0.00003934
PM10	0.00076808
PM2.5	0.00062383

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00062758
PM2.5	0.00057700

Scenario Year: **2019**
All model years in the range 1975 to 2019

HHDT-DSL (pounds/mile)	
CO	0.00565433
NOx	0.01389113
ROG	0.00120235
SOx	0.00004032
PM10	0.00070198
PM2.5	0.00056085

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00056085
PM2.5	0.00051320

Scenario Year: **2020**
All model years in the range 1976 to 2020

HHDT-DSL (pounds/mile)	
CO	0.00532242
NOx	0.01274755
ROG	0.00110621
SOx	0.00003957
PM10	0.00064574
PM2.5	0.00050904

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00050364
PM2.5	0.00046227

Scenario Year: **2021**
All model years in the range 1977 to 2021

HHDT-DSL (pounds/mile)	
CO	0.00503726
NOx	0.01179977
ROG	0.00103095
SOx	0.00004033
PM10	0.00059437
PM2.5	0.00046287

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00045411
PM2.5	0.00041729

Scenario Year: **2022**
All model years in the range 1978 to 2022

HHDT-DSL (pounds/mile)	
CO	0.00478830
NOx	0.01098794
ROG	0.00096142
SOx	0.00004106
PM10	0.00055427
PM2.5	0.00042597

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00041399
PM2.5	0.00037807

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2023**
All model years in the range 1979 to 2023

HHDT-DSL (pounds/mile)	
CO	**0.00457902**
NOx	**0.01031407**
ROG	**0.00090210**
SOx	**0.00004009**
PM10	**0.00052122**
PM2.5	**0.00039592**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00037922**
PM2.5	**0.00034915**

Scenario Year: **2024**
All model years in the range 1980 to 2024

HHDT-DSL (pounds/mile)	
CO	**0.00444444**
NOx	**0.00974372**
ROG	**0.00084009**
SOx	**0.00003930**
PM10	**0.00050766**
PM2.5	**0.00038320**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00036682**
PM2.5	**0.00033735**

Scenario Year: **2025**
All model years in the range 1981 to 2025

HHDT-DSL (pounds/mile)	
CO	**0.00431086**
NOx	**0.00932573**
ROG	**0.00080206**
SOx	**0.00004018**
PM10	**0.00048541**
PM2.5	**0.00036326**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00034397**
PM2.5	**0.00031664**

Scenario Year: **2026**
All model years in the range 1982 to 2026

HHDT-DSL (pounds/mile)	
CO	**0.00420297**
NOx	**0.00898990**
ROG	**0.00077178**
SOx	**0.00003946**
PM10	**0.00046717**
PM2.5	**0.00034564**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00032670**
PM2.5	**0.00029830**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2007**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.01155158**
NOx	**0.00121328**
ROG	**0.00118234**
SOx	**0.00001078**
PM10	**0.00008447**
PM2.5	**0.00005243**

Delivery Trucks (pounds/mile)	
CO	**0.02407553**
NOx	**0.02508445**
ROG	**0.00323145**
SOx	**0.00002626**
PM10	**0.00091020**
PM2.5	**0.00078884**

Scenario Year: **2008**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.01054844**
NOx	**0.00110288**
ROG	**0.00107919**
SOx	**0.00001075**
PM10	**0.00008505**
PM2.5	**0.00005293**

Delivery Trucks (pounds/mile)	
CO	**0.02194915**
NOx	**0.02371258**
ROG	**0.00299270**
SOx	**0.00002565**
PM10	**0.00085607**
PM2.5	**0.00073933**

Scenario Year: **2009**

All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**

Scenario Year: **2010**

All model years in the range 1966 to 2010

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

Passenger Vehicles (pounds/mile)	
CO	0.00826276
NOx	0.00084460
ROG	0.00085233
SOx	0.00001077
PM10	0.00008879
PM2.5	0.00005653

Delivery Trucks (pounds/mile)	
CO	0.01693242
NOx	0.01893366
ROG	0.00241868
SOx	0.00002728
PM10	0.00070097
PM2.5	0.00059682

Scenario Year: **2012**
All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)	
CO	0.00765475
NOx	0.00077583
ROG	0.00079628
SOx	0.00001073
PM10	0.00008979
PM2.5	0.00005750

Delivery Trucks (pounds/mile)	
CO	0.01545741
NOx	0.01732423
ROG	0.00223776
SOx	0.00002667
PM10	0.00064975
PM2.5	0.00054954

Scenario Year: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	0.00709228
NOx	0.00071158
ROG	0.00074567
SOx	0.00001072
PM10	0.00009067
PM2.5	0.00005834

Delivery Trucks (pounds/mile)	
CO	0.01407778
NOx	0.01577311
ROG	0.00206295
SOx	0.00002682
PM10	0.00059956
PM2.5	0.00050174

Scenario Year: **2014**
All model years in the range 1970 to 2014

Passenger Vehicles (pounds/mile)	
CO	0.00660353
NOx	0.00065484
ROG	0.00070227
SOx	0.00001069
PM10	0.00009185
PM2.5	0.00005939

Delivery Trucks (pounds/mile)	
CO	0.01284321
NOx	0.01425162
ROG	0.00189649
SOx	0.00002754
PM10	0.00054929
PM2.5	0.00045519

Scenario Year: **2015**
All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	0.00614108
NOx	0.00060188
ROG	0.00066355
SOx	0.00001070
PM10	0.00009259
PM2.5	0.00006015

Delivery Trucks (pounds/mile)	
CO	0.01169445
NOx	0.01285026
ROG	0.00173890
SOx	0.00002741
PM10	0.00050307
PM2.5	0.00041268

Scenario Year: **2016**
All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131

Delivery Trucks (pounds/mile)	
CO	0.01080542
NOx	0.01172881
ROG	0.00161521
SOx	0.00002767
PM10	0.00046606
PM2.5	0.00037868

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00537891	CO	0.00998101
NOx	0.00051297	NOx	0.01070034
ROG	0.00060109	ROG	0.00150242
SOx	0.00001079	SOx	0.00002723
PM10	0.00009446	PM10	0.00043131
PM2.5	0.00006192	PM2.5	0.00034605

Scenario Year: **2018**
All model years in the range 1974 to 2018

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00502881	CO	0.00923234
NOx	0.00047300	NOx	0.00979416
ROG	0.00057178	ROG	0.00139856
SOx	0.00001071	SOx	0.00002749
PM10	0.00009494	PM10	0.00040110
PM2.5	0.00006234	PM2.5	0.00031792

Scenario Year: **2019**
All model years in the range 1975 to 2019

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00471820	CO	0.00857192
NOx	0.00043716	NOx	0.00900205
ROG	0.00054654	ROG	0.00130563
SOx	0.00001072	SOx	0.00002706
PM10	0.00009523	PM10	0.00037393
PM2.5	0.00006259	PM2.5	0.00029276

Scenario Year: **2020**
All model years in the range 1976 to 2020

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00444247	CO	0.00799617
NOx	0.00040506	NOx	0.00831802
ROG	0.00052463	ROG	0.00122382
SOx	0.00001073	SOx	0.00002733
PM10	0.00009550	PM10	0.00035054
PM2.5	0.00006279	PM2.5	0.00027128

Scenario Year: **2021**
All model years in the range 1977 to 2021

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00421218	CO	0.00748303
NOx	0.00037757	NOx	0.00773500
ROG	0.00050573	ROG	0.00115568
SOx	0.00001073	SOx	0.00002755
PM10	0.00009640	PM10	0.00033125
PM2.5	0.00006364	PM2.5	0.00025331

Scenario Year: **2022**
All model years in the range 1978 to 2022

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00397866	CO	0.00699290
NOx	0.00035150	NOx	0.00722470
ROG	0.00048658	ROG	0.00108569
SOx	0.00001072	SOx	0.00002774
PM10	0.00009661	PM10	0.00031501
PM2.5	0.00006389	PM2.5	0.00023906

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2023**

All model years in the range 1979 to 2023

Passenger Vehicles (pounds/mile)	
CO	0.00377527
NOx	0.00032851
ROG	0.00046900
SOx	0.00001070
PM10	0.00009676
PM2.5	0.00006405

Delivery Trucks (pounds/mile)	
CO	0.00658123
NOx	0.00679147
ROG	0.00102852
SOx	0.00002790
PM10	0.00030109
PM2.5	0.00022582

Scenario Year: **2024**

All model years in the range 1980 to 2024

Passenger Vehicles (pounds/mile)	
CO	0.00358611
NOx	0.00030721
ROG	0.00045136
SOx	0.00001080
PM10	0.00009676
PM2.5	0.00006410

Delivery Trucks (pounds/mile)	
CO	0.00625076
NOx	0.00647083
ROG	0.00096578
SOx	0.00002807
PM10	0.00029407
PM2.5	0.00021880

Scenario Year: **2025**

All model years in the range 1981 to 2025

Passenger Vehicles (pounds/mile)	
CO	0.00342738
NOx	0.00028846
ROG	0.00043545
SOx	0.00001070
PM10	0.00009679
PM2.5	0.00006418

Delivery Trucks (pounds/mile)	
CO	0.00595363
NOx	0.00615945
ROG	0.00092178
SOx	0.00002761
PM10	0.00028425
PM2.5	0.00020958

Scenario Year: **2026**

All model years in the range 1982 to 2026

Passenger Vehicles (pounds/mile)	
CO	0.00328779
NOx	0.00027141
ROG	0.00042052
SOx	0.00001076
PM10	0.00009687
PM2.5	0.00006415

Delivery Trucks (pounds/mile)	
CO	0.00569435
NOx	0.00589869
ROG	0.00088403
SOx	0.00002716
PM10	0.00027657
PM2.5	0.00020187

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixer	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188
Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927

SCAB Fleet Average Emission Factors (Diesel)

Crawler Tractors	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipmen	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604
	Composite	0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders	25	0.038	0.071	0.005	0.000	0.014
	Composite	0.038	0.071	0.005	0.000	0.014
Excavators	25	0.068	0.135	0.009	0.000	0.021
	50	0.353	0.278	0.034	0.000	0.151
	120	0.550	1.031	0.096	0.001	0.179
	175	0.676	1.390	0.079	0.001	0.179
	250	0.464	1.856	0.064	0.002	0.173
	500	0.765	2.381	0.086	0.002	0.229
	750	1.265	4.076	0.144	0.004	0.384
	Composite	0.598	1.423	0.078	0.001	0.182
Forklifts	50	0.212	0.164	0.021	0.000	0.093
	120	0.234	0.436	0.043	0.000	0.079
	175	0.334	0.702	0.042	0.001	0.093
	250	0.192	0.893	0.027	0.001	0.076
	500	0.278	1.119	0.036	0.001	0.099
	Composite	0.250	0.643	0.035	0.001	0.086
Generator Sets	15	0.076	0.128	0.008	0.000	0.020
	25	0.114	0.180	0.012	0.000	0.035
	50	0.308	0.320	0.032	0.000	0.129
	120	0.519	1.034	0.079	0.001	0.164
	175	0.757	1.694	0.079	0.002	0.194
	250	0.597	2.384	0.074	0.002	0.198
	500	1.121	3.473	0.108	0.003	0.282
	750	1.810	5.739	0.177	0.005	0.470
	9999	4.408	13.258	0.415	0.011	1.195
	Composite	0.355	0.725	0.045	0.001	0.113
Graders	50	0.393	0.310	0.038	0.000	0.173
	120	0.566	1.102	0.100	0.001	0.190
	175	0.754	1.626	0.091	0.001	0.207
	250	0.581	2.148	0.080	0.002	0.209
	500	0.967	2.541	0.096	0.002	0.249
	750	2.037	5.515	0.205	0.005	0.532
	Composite	0.671	1.720	0.089	0.001	0.206
Off-Highway Tractors	120	0.772	1.614	0.140	0.001	0.283
	175	0.884	2.021	0.113	0.001	0.264
	250	0.612	1.952	0.085	0.001	0.215
	750	4.355	7.822	0.327	0.006	0.834
	1000	6.736	12.573	0.455	0.008	1.277
	Composite	0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks	175	0.770	1.588	0.092	0.001	0.209
	250	0.510	1.999	0.071	0.002	0.193
	500	0.945	2.853	0.105	0.003	0.287
	750	1.528	4.773	0.173	0.004	0.469
	1000	2.606	8.328	0.257	0.006	0.753
	Composite	0.913	2.914	0.106	0.003	0.288
Other Construction Equip	15	0.062	0.077	0.006	0.000	0.012

SCAB Fleet Average Emission Factors (Diesel)

Other Construction Equip		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial E		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211
Other Material Handling E		50	0.450	0.347	0.044	0.000	0.203
		120	0.463	0.909	0.085	0.001	0.162
		175	0.744	1.650	0.094	0.001	0.215
		250	0.465	1.840	0.065	0.002	0.173
		500	0.754	2.169	0.078	0.002	0.204
		9999	3.669	10.294	0.326	0.007	0.960
	Composite		0.630	1.836	0.082	0.002	0.204
Pavers		25	0.100	0.177	0.013	0.000	0.037
		50	0.413	0.323	0.040	0.000	0.188
		120	0.543	1.117	0.096	0.001	0.192
		175	0.821	1.856	0.102	0.001	0.236
		250	0.819	2.705	0.113	0.002	0.284
		500	1.494	2.940	0.119	0.002	0.303
	Composite		0.600	1.129	0.080	0.001	0.206
Paving Equipment		25	0.054	0.110	0.007	0.000	0.018
		50	0.350	0.276	0.034	0.000	0.159
		120	0.425	0.875	0.075	0.001	0.150
		175	0.641	1.454	0.079	0.001	0.184
		250	0.512	1.694	0.070	0.001	0.177
	Composite		0.469	1.033	0.071	0.001	0.156
Plate Compactors		15	0.026	0.035	0.002	0.000	0.005
	Composite		0.026	0.035	0.002	0.000	0.005
Pressure Washers		15	0.036	0.061	0.004	0.000	0.009
		25	0.046	0.073	0.005	0.000	0.014
		50	0.122	0.145	0.013	0.000	0.049
		120	0.153	0.306	0.022	0.000	0.046
	Composite		0.070	0.108	0.008	0.000	0.023
Pumps		15	0.055	0.095	0.007	0.000	0.017
		25	0.126	0.199	0.015	0.000	0.051
		50	0.362	0.362	0.037	0.000	0.154
		120	0.526	1.049	0.082	0.001	0.169
		175	0.758	1.696	0.082	0.002	0.198
		250	0.577	2.293	0.073	0.002	0.194
		500	1.202	3.599	0.115	0.003	0.298
		750	1.988	6.090	0.192	0.006	0.507
		9999	5.920	17.310	0.544	0.014	1.568
	Composite		0.324	0.622	0.044	0.001	0.109
Rollers		15	0.039	0.048	0.003	0.000	0.008
		25	0.058	0.117	0.007	0.000	0.018

SCAB Fleet Average Emission Factors (Diesel)

Rollers		50	0.344	0.288	0.034	0.000	0.152
		120	0.433	0.865	0.073	0.001	0.145
		175	0.640	1.419	0.075	0.001	0.175
		250	0.539	1.919	0.073	0.002	0.187
		500	1.002	2.475	0.093	0.002	0.237
	Composite		0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts		50	0.463	0.375	0.045	0.000	0.202
		120	0.460	0.882	0.080	0.001	0.151
		175	0.739	1.570	0.087	0.001	0.198
		250	0.520	2.030	0.072	0.002	0.188
		500	0.900	2.692	0.097	0.003	0.252
	Composite		0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers		175	0.896	2.045	0.116	0.001	0.271
		250	0.884	2.800	0.124	0.002	0.314
		500	2.120	3.663	0.156	0.003	0.404
		750	3.171	5.593	0.236	0.004	0.609
		1000	5.061	9.296	0.342	0.006	0.954
	Composite		1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders		25	0.071	0.144	0.009	0.000	0.022
		50	0.440	0.349	0.043	0.000	0.194
		120	0.442	0.860	0.078	0.001	0.148
		175	0.643	1.385	0.077	0.001	0.176
		250	0.496	1.845	0.068	0.002	0.178
		500	0.971	2.604	0.098	0.002	0.253
		750	1.979	5.471	0.202	0.005	0.524
		1000	2.830	8.007	0.249	0.006	0.732
	Composite		0.555	1.382	0.077	0.001	0.173
Scrapers		120	0.745	1.513	0.134	0.001	0.264
		175	0.957	2.137	0.120	0.002	0.277
		250	0.861	2.901	0.119	0.002	0.305
		500	1.948	4.005	0.162	0.003	0.417
		750	3.347	7.044	0.282	0.006	0.724
	Composite		1.525	3.399	0.147	0.003	0.368
Signal Boards		15	0.038	0.045	0.003	0.000	0.007
		50	0.406	0.384	0.041	0.000	0.174
		120	0.552	1.088	0.088	0.001	0.177
		175	0.854	1.879	0.094	0.002	0.223
		250	0.732	2.919	0.095	0.003	0.250
	Composite		0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders		25	0.081	0.136	0.010	0.000	0.032
		50	0.284	0.261	0.028	0.000	0.113
		120	0.292	0.526	0.046	0.001	0.084
	Composite		0.273	0.337	0.033	0.000	0.098
Surfacing Equipment		50	0.164	0.152	0.016	0.000	0.071
		120	0.450	0.902	0.072	0.001	0.145
		175	0.490	1.083	0.054	0.001	0.128
		250	0.456	1.628	0.059	0.002	0.152
		500	0.989	2.426	0.087	0.002	0.223
		750	1.544	3.888	0.138	0.003	0.356
	Composite		0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers		15	0.073	0.088	0.006	0.000	0.012
		25	0.082	0.167	0.011	0.000	0.025
		50	0.443	0.352	0.043	0.000	0.197
		120	0.554	1.060	0.100	0.001	0.189
		175	0.816	1.767	0.101	0.002	0.230

SCAB Fleet Average Emission Factors (Diesel)

Sweepers/Scrubbers		250	0.434	1.913	0.061	0.002	0.166
	Composite		0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backho		25	0.074	0.144	0.009	0.000	0.025
		50	0.398	0.329	0.039	0.000	0.168
		120	0.375	0.698	0.063	0.001	0.118
		175	0.592	1.209	0.067	0.001	0.151
		250	0.472	1.931	0.064	0.002	0.171
		500	1.028	3.377	0.118	0.004	0.307
		750	1.537	5.237	0.179	0.006	0.469
	Composite		0.414	0.830	0.064	0.001	0.131
Trenchers		15	0.052	0.062	0.005	0.000	0.010
		25	0.138	0.280	0.018	0.000	0.043
		50	0.465	0.376	0.045	0.000	0.211
		120	0.503	1.043	0.087	0.001	0.177
		175	0.913	2.073	0.111	0.002	0.260
		250	0.947	3.094	0.129	0.003	0.325
		500	2.068	3.932	0.159	0.003	0.402
		750	3.874	7.525	0.301	0.006	0.764
	Composite		0.517	0.858	0.071	0.001	0.194
Welders		15	0.046	0.080	0.006	0.000	0.014
		25	0.073	0.115	0.009	0.000	0.029
		50	0.317	0.282	0.032	0.000	0.139
		120	0.280	0.556	0.047	0.000	0.093
		175	0.557	1.243	0.064	0.001	0.152
		250	0.360	1.418	0.048	0.001	0.126
		500	0.632	1.809	0.061	0.002	0.158
	Composite		0.234	0.319	0.030	0.000	0.092

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project By Phase

EGGWC Diversion Alternative 5
Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Vegetation & Debris Removal	1.6	6.8	12.0	0.0	5.9	1.7
RC Channel Wall Demolition	1.3	5.7	8.1	0.0	0.6	0.5
EGGWC Inlet, Pump, & Rubber Dam	4.3	15.7	30.4	0.0	1.8	1.6
Central Park Pump Station, Inlet & Controls	3.4	12.6	25.0	0.0	1.5	1.3
Modified Low Flow Channel	0.6	3.6	4.4	0.0	0.2	1.3
Air Compressor & Dam Controls	3.0	10.0	12.3	0.0	1.0	0.9
RC Channel Wall Construction	2.7	15.6	9.9	0.0	0.7	0.6
Pipeline to Gothard St. Storm Drain	5.3	20.8	47.1	0.0	2.4	2.2
Localized Significance Threshold*	**N/A**	**950**	**335**	**N/A**	**14**	**8**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook

Calculations prepared by Sam Stewart, BonTerra Consulting (3/10/2008).

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Project	Construction Activity	
EGGWC Diversion Alternative 5	Site Preparation (Vegetation Removal)	6,750 Square Feet[a]

Site Preparation Schedule - 5 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Rubber Tired Loaders	1	7.0	5

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i] mph	Moisture Content[d]	Dirt Handled[a] cy	Debris Handled[a] cy	Dirt Handled[j] lb/day
0.35	11	7.9	30	30	15,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	Nox lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Total	**1.2**	**3.9**	**9.67**	**0.01**	**0.54**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[l]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.00
Total		**5.27**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.6**	**6.8**	**12.0**	**0.0**	**5.9**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.5	0.5
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	5.3	1.1
Total		**5.9**	**1.7**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,030 cubic yards of dirt handled [(0,030 cyd x 2,500 lb/cyd)/5 days = 15,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) App. C of the Methodology Paper for applicable LSTs.

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Project	Construction Activity	
EGGWC Diversion Alternative 5	Site Preparation (Channel Demolition)	600 Square Feet[a]

Site Preparation Schedule -	2.5 days[a]			
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**	
Air Compressors	1	7.0	5	
Other Construction Equipment	2	7.0		Breakers
Excavators	1	7.0		

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Air Compressors	0.1285	0.3872	0.8302	0.0007	0.0579
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776

Demolition Description[a]	Width of Wall ft	Length of Wall ft	Height of Building ft
Total Project	1	60	10

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e] mph	Moisture Content[f]	Debris Handled[g] ton/day	Debris Handled[a] cy	lbs/day
0.35	11	2.0	11	35	11,040

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	Nox lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Air Compressors	0.08	0.43	0.54	0.00	0.04
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Excavators	0.90	2.71	5.81	0.00	0.41
Total	**0.9**	**2.7**	**5.81**	**0.00**	**0.41**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling[1]	0	0.03
Total		**0.03**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**1.3**	**5.7**	**8.1**	**0.0**	**0.6**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	0.0	0.0
Total		**0.6**	**0.5**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,035 cubic yards of dirt handled [(0,035 cyd x 2,500 lb/cyd)/2.5 days = 11,040 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, $\leq$ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 0,600 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading $\leq$ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Project	Construction Activity	
EGGWC Diversion Alternative 5	Inlet, Pump Station, Controls & Rubber Dam	6,000 Square Feet[a]

Site Preparation Schedule - 45 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	36
Pumps	1	7.0	
Cranes	1	7.0	
Air Compressor	1	7.0	
Other Construction Equipment	2	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC	CO	Nox	SOx	PM10
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[aj]	Debris Handled[aj]
	mph		cy	cy
0.35	11	2.0	480	480
			lb/day	lb/day
			26,667	26,667

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Air Compressor	0.76	2.27	4.36	0.00	0.31
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Total	**3.8**	**12.1**	**26.0**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Dirt)	0	0.04
Material Handling (Debris)	0	0.04
Total		**0.08**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.3**	**15.7**	**30.4**	**0.0**	**1.8**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.1	0.0
Total		**1.8**	**1.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,480 cubic yards of dirt handled [(0,480 cyd x 2,500 lb/cyd)/45 days = 26,667 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 6,000 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	Construction Activity	
EGGWC Diversion Alternative 5	Central Park Inlet & Pump Station	2,200 Square Feet[a]

Site Preparation Schedule - 20 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC	CO	Nox	SOx	PM10
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[aj]	Debris Handled[aj]
	mph		cy	cy
0.35	11	2.0	520	256
			lb/day	lb/day
			65,000	32,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Total	**2.8**	**9.0**	**20.6**	**0.0**	**1.1**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Dirt)	0	0.10
Material Handling (Debris)	0	0.05
Total		**0.15**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.4**	**12.6**	**25.0**	**0.0**	**1.5**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.1	1.1

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.2	0.0
Total		**1.5**	**1.3**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,520 cubic yards of dirt handled [(0,520 cyd x 2,500 lb/cyd)/20 days = 65,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 2,200 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Lake EGGWC Diversion Project By Phase

EGGWC Diversion Alternative 6
Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Vegetation & Debris Removal	1.6	6.8	12.0	0.0	5.9	1.7
RC Channel Wall Demolition	1.5	6.3	10.2	0.0	0.7	0.6
EGGWC Inlet, Forebay, & Pump	4.3	15.3	29.9	0.0	1.8	1.6
Central Park Pump Station, Inlet & Controls	3.4	12.6	25.0	0.0	1.5	1.3
Modified Low Flow Channel	2.7	15.6	9.9	0.0	0.7	0.6
RC Channel Wall Construction	2.7	15.6	9.9	0.0	0.7	0.6
Pipeline to Gothard St. Storm Drain	5.3	20.8	47.1	0.0	2.4	2.2
Localized Significance Threshold*	**N/A**	**950**	**335**	**N/A**	**14**	**8**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook

Calculations prepared by Sam Stewart, BonTerra Consulting (3/10/2008).

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Project	Construction Activity	
EGGWC Diversion Alternative 6	Site Preparation (Vegetation Removal)	4,800 Square Feet[a]

Site Preparation Schedule -	5 days[a]		
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Rubber Tired Loaders	1	7.0	5

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]	Dirt Handled[j]
	mph		cy	cy	lb/day
0.35	11	7.9	30	30	15,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Total	**1.2**	**3.9**	**9.67**	**0.01**	**0.54**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[l]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.00
Total		**5.27**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.40**	**2.95**	**2.32**	**0.00**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.6**	**6.8**	**12.0**	**0.0**	**5.9**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.5	0.5
Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	5.3	1.1
Total		**5.9**	**1.7**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,030 cubic yards of dirt handled [(0,030 cyd x 2,500 lb/cyd)/5 days = 15,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) App. C of the Methodology Paper for applicable LSTs.

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Project	Construction Activity	
EGGWC Diversion Alternative 6	Site Preparation (Channel Demolition)	500 Square Feet[a]

Site Preparation Schedule -	2.5 days[a]			
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**	
Air Compressors	1	7.0	5	
Other Construction Equipment	2	7.0		Breakers
Excavators	1	7.0		

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Air Compressors	0.1285	0.3872	0.8302	0.0007	0.0579
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776

Demolition Description[a]	Width of Wall	Length of Wall	Height of Building
	ft	ft	ft
Total Project	1	60	10

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[f]	Debris Handled[g]	Debris Handled[a]	
	mph		ton/day	cy	lbs/day
0.35	11	2.0	9	60	9,200

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Air Compressors	0.08	0.43	0.54	0.00	0.04
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Excavators	0.90	2.71	5.81	0.00	0.41
Total	**0.9**	**2.7**	**5.81**	**0.00**	**0.41**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling[1]	0	0.03
Total		**0.03**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Demolition Phase

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**1.5**	**6.3**	**10.2**	**0.0**	**0.7**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.0	0.0
Total		**0.7**	**0.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,060 cubic yards of dirt handled [(0,060 cyd x 2,500 lb/cyd)/2.5 days = 9,200 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, $\leq$ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 0,500 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading $\leq$ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Project	Construction Activity	
EGGWC Diversion Alternative 6	Inlet, Forebay, & Pump	4,400 Square Feet[a]

Site Preparation Schedule - 30 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	36
Pumps	1	7.0	
Cranes	1	7.0	
Air Compressor	1	7.0	
Other Construction Equipment	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC	CO	Nox	SOx	PM10
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[aj]	Debris Handled[aj]
	mph		cy	cy
0.35	11	2.0	520	256
			lb/day	lb/day
			43,333	21,333

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Air Compressor	0.76	2.27	4.36	0.00	0.31
Other Construction Equipment	0.08	0.43	0.54	0.00	0.04
Total	**3.7**	**11.7**	**25.5**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Dirt)	0	0.07
Material Handling (Debris)	0	0.03
Total		**0.10**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 1

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.3**	**15.3**	**29.9**	**0.0**	**1.8**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.1	0.0
Total		**1.8**	**1.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,520 cubic yards of dirt handled [(0,520 cyd x 2,500 lb/cyd)/30 days = 43,333 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 4,400 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	Construction Activity	
EGGWC Diversion Alternative 6	Central Park Inlet & Pump Station	2,200 Square Feet[a]

Site Preparation Schedule - 20 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC	CO	Nox	SOx	PM10
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[aj]	Debris Handled[aj]
	mph		cy	cy
0.35	11	2.0	520	256
			lb/day	lb/day
			65,000	32,000

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	5	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Total	**2.8**	**9.0**	**20.6**	**0.0**	**1.1**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling (Dirt)	0	0.10
Material Handling (Debris)	0	0.05
Total		**0.15**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	0.24	2.31	0.24	0.00	0.02
Total	**0.56**	**3.58**	**4.39**	**0.01**	**0.22**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.4**	**12.6**	**25.0**	**0.0**	**1.5**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.1	1.1

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Combustion (Onroad)	0.96	0.22	0.21
Fugitive	0.21	0.2	0.0
Total		**1.5**	**1.3**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbing)

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,520 cubic yards of dirt handled [(0,520 cyd x 2,500 lb/cyd)/20 days = 65,000 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 2,200 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

Project	Construction Activity	
EGGWC Diversion Alternative 6	Modified Low Flow Channel	4,800 Square Feet[a]

Site Preparation Schedule - 30 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	Nox lb/mile	SOx lb/mile	PM10 lb/mile
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**1.5**	**4.5**	**8.7**	**0.0**	**0.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 2

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.7**	**15.6**	**9.9**	**0.0**	**0.7**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.6	0.6
Combustion (Onroad)	0.96	0.08	0.08
Total		**0.7**	**0.6**
Localized Significance Threshold[e]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Project	**Construction Activity**	
EGGWC Diversion Alternative 4	Channel Wall Construction	500 Square Feet[a]

Site Preparation Schedule - 25 days[a]

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.76	2.27	4.36	0.00	0.31
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**1.5**	**4.5**	**8.7**	**0.0**	**0.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake EGGWC Diversion Project - Construction Phase 3

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.7**	**15.6**	**9.9**	**0.0**	**0.7**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.6	0.6
Combustion (Onroad)	0.96	0.08	0.08
Total		**0.7**	**0.6**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Localized Significance Threshold (LST) Analysis for theRonald Talbert Lake EGGWC Diversion Project - Construction Phase 4

Project	Construction Activity	
EGGWC Diversion Alternative 4	Pipline Instatllation	15,000 Square Feet[a]

Site Preparation Schedule - 15 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Tractors/Loaders/Backhoes	1	7.0	8
Cranes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]

	mph		cy	cy	
0.35	11	7.9	1,070	1,070	
			lb/day	lb/day	
			178,333	178,333	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[k]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[k]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Heavy Duty Truck	8	22
Employee Vehicles	8	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Tractors/Loaders/Backhoes	1.32	4.46	11.86	0.01	0.53
Cranes	1.32	4.46	11.86	0.01	0.53
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**3.6**	**12.0**	**30.1**	**0.0**	**1.5**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	**PM10**
Description	%	lb/day
Material Handling (Debris)	0	0.04

Material Handling	0	0.04
Total		**0.04**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	1.31	5.09	16.61	0.01	0.81
Employee Vehicles	0.38	3.70	0.39	0.00	0.03
Total	**1.69**	**8.79**	**17.00**	**0.02**	**0.84**

Total Incremental Localized Emissions from Construction Activities

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**5.3**	**20.8**	**47.1**	**0.0**	**2.4**
Localized Significance Threshold[n]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.5	1.4
Combustion (Onroad)	0.96	0.84	0.81
Fugitive	0.21	0.0	0.0
Total		**2.4**	**2.2**
Localized Significance Threshold[o]			**9**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Assumed area for storage pile is 1.0 acre in size

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006, Aerodynamic particle size multiplier for agricultural tilling (assumed to be roughly equivalent to vegetation grubbin

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 1,070 cubic yards of dirt handled [(1,070 cyd x 2,500 lb/cyd)/15 days = 178,333 lb/day]

k) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

l) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

o) App. C of the Methodology Paper for applicable LSTs.

o) Assumed six foot wide water truck traverses over 15,000 square feet of disturbed area

p) USEPA, AP-42, July 1998, Table 11.9-1, Equation for Site Grading≤ 10 µm

q) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

r) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, Sept 1992, EPA-450/2-92-004, Equation 2-12

s) Includes watering at least three times a day per Rule 403 (68% control efficiency) and tarps/covers for storage piles (additional 5%).

t) App. C of the Methodology Paper for applicable LSTs.

u) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy Heavy Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy heavy duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy heavy duty diesel trucks.

Scenario Year: **2007**

All model years in the range 1965 to 2007

HHDT-DSL (pounds/mile)	
CO	**0.01446237**
NOx	**0.04718166**
ROG	**0.00372949**
SOx	**0.00003962**
PM10	**0.00230900**
PM2.5	**0.00204018**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00216752**
PM2.5	**0.00199491**

Scenario Year: **2008**

All model years in the range 1965 to 2008

HHDT-DSL (pounds/mile)	
CO	**0.01361368**
NOx	**0.04458017**
ROG	**0.00351579**
SOx	**0.00004136**
PM10	**0.00215635**
PM2.5	**0.00189990**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00201296**
PM2.5	**0.00185303**

Scenario Year: **2009**

All model years in the range 1965 to 2009

HHDT-DSL (pounds/mile)	
CO	**0.01282236**
NOx	**0.04184591**
ROG	**0.00329320**
SOx	**0.00004013**
PM10	**0.00199572**
PM2.5	**0.00175227**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00185393**
PM2.5	**0.00170680**

Scenario Year: **2010**

All model years in the range 1966 to 2010

HHDT-DSL (pounds/mile)	
CO	**0.01195456**
NOx	**0.03822102**
ROG	**0.00304157**
SOx	**0.00004131**
PM10	**0.00183062**
PM2.5	**0.00160083**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00168861**
PM2.5	**0.00155435**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2011**

All model years in the range 1967 to 2011

HHDT-DSL (pounds/mile)	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	0.00003972
PM10	0.00166087
PM2.5	0.00144489

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00151936
PM2.5	0.00139772

Scenario Year: **2012**

All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	0.00004042
PM10	0.00149566
PM2.5	0.00129354

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00135537
PM2.5	0.00124837

Scenario Year: **2013**

All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	0.00931790
NOx	0.02742935
ROG	0.00226308
SOx	0.00004086
PM10	0.00133697
PM2.5	0.00114629

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00119623
PM2.5	0.00109863

Scenario Year: **2014**

All model years in the range 1970 to 2014

HHDT-DSL (pounds/mile)	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	0.00004092
PM10	0.00118458
PM2.5	0.00100582

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00104243
PM2.5	0.00096059

Scenario Year: **2015**

All model years in the range 1971 to 2015

HHDT-DSL (pounds/mile)	
CO	0.00766891
NOx	0.02122678
ROG	0.00178608
SOx	0.00004082
PM10	0.00104715
PM2.5	0.00087977

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00090631
PM2.5	0.00083282

Scenario Year: **2016**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	0.00704604
NOx	0.01887374
ROG	0.00161035
SOx	0.00003952
PM10	0.00094448
PM2.5	0.00078443

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00080419
PM2.5	0.00073898

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

HHDT-DSL (pounds/mile)	
CO	0.00650533
NOx	0.01690387
ROG	0.00145203
SOx	0.00004033
PM10	0.00084894
PM2.5	0.00069721

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00070873
PM2.5	0.00065111

Scenario Year: **2018**
All model years in the range 1974 to 2018

HHDT-DSL (pounds/mile)	
CO	0.00604721
NOx	0.01526414
ROG	0.00131697
SOx	0.00003934
PM10	0.00076808
PM2.5	0.00062383

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00062758
PM2.5	0.00057700

Scenario Year: **2019**
All model years in the range 1975 to 2019

HHDT-DSL (pounds/mile)	
CO	0.00565433
NOx	0.01389113
ROG	0.00120235
SOx	0.00004032
PM10	0.00070198
PM2.5	0.00056085

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00056085
PM2.5	0.00051320

Scenario Year: **2020**
All model years in the range 1976 to 2020

HHDT-DSL (pounds/mile)	
CO	0.00532242
NOx	0.01274755
ROG	0.00110621
SOx	0.00003957
PM10	0.00064574
PM2.5	0.00050904

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00050364
PM2.5	0.00046227

Scenario Year: **2021**
All model years in the range 1977 to 2021

HHDT-DSL (pounds/mile)	
CO	0.00503726
NOx	0.01179977
ROG	0.00103095
SOx	0.00004033
PM10	0.00059437
PM2.5	0.00046287

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00045411
PM2.5	0.00041729

Scenario Year: **2022**
All model years in the range 1978 to 2022

HHDT-DSL (pounds/mile)	
CO	0.00478830
NOx	0.01098794
ROG	0.00096142
SOx	0.00004106
PM10	0.00055427
PM2.5	0.00042597

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00041399
PM2.5	0.00037807

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2023**
All model years in the range 1979 to 2023

HHDT-DSL (pounds/mile)	
CO	**0.00457902**
NOx	**0.01031407**
ROG	**0.00090210**
SOx	**0.00004009**
PM10	**0.00052122**
PM2.5	**0.00039592**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00037922**
PM2.5	**0.00034915**

Scenario Year: **2024**
All model years in the range 1980 to 2024

HHDT-DSL (pounds/mile)	
CO	**0.00444444**
NOx	**0.00974372**
ROG	**0.00084009**
SOx	**0.00003930**
PM10	**0.00050766**
PM2.5	**0.00038320**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00036682**
PM2.5	**0.00033735**

Scenario Year: **2025**
All model years in the range 1981 to 2025

HHDT-DSL (pounds/mile)	
CO	**0.00431086**
NOx	**0.00932573**
ROG	**0.00080206**
SOx	**0.00004018**
PM10	**0.00048541**
PM2.5	**0.00036326**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00034397**
PM2.5	**0.00031664**

Scenario Year: **2026**
All model years in the range 1982 to 2026

HHDT-DSL (pounds/mile)	
CO	**0.00420297**
NOx	**0.00898990**
ROG	**0.00077178**
SOx	**0.00003946**
PM10	**0.00046717**
PM2.5	**0.00034564**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00032670**
PM2.5	**0.00029830**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2007**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.01155158**
NOx	**0.00121328**
ROG	**0.00118234**
SOx	**0.00001078**
PM10	**0.00008447**
PM2.5	**0.00005243**

Delivery Trucks (pounds/mile)	
CO	**0.02407553**
NOx	**0.02508445**
ROG	**0.00323145**
SOx	**0.00002626**
PM10	**0.00091020**
PM2.5	**0.00078884**

Scenario Year: **2008**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.01054844**
NOx	**0.00110288**
ROG	**0.00107919**
SOx	**0.00001075**
PM10	**0.00008505**
PM2.5	**0.00005293**

Delivery Trucks (pounds/mile)	
CO	**0.02194915**
NOx	**0.02371258**
ROG	**0.00299270**
SOx	**0.00002565**
PM10	**0.00085607**
PM2.5	**0.00073933**

Scenario Year: **2009**

All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**

Scenario Year: **2010**

All model years in the range 1966 to 2010

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

Passenger Vehicles (pounds/mile)	
CO	0.00826276
NOx	0.00084460
ROG	0.00085233
SOx	0.00001077
PM10	0.00008879
PM2.5	0.00005653

Delivery Trucks (pounds/mile)	
CO	0.01693242
NOx	0.01893366
ROG	0.00241868
SOx	0.00002728
PM10	0.00070097
PM2.5	0.00059682

Scenario Year: **2012**
All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)	
CO	0.00765475
NOx	0.00077583
ROG	0.00079628
SOx	0.00001073
PM10	0.00008979
PM2.5	0.00005750

Delivery Trucks (pounds/mile)	
CO	0.01545741
NOx	0.01732423
ROG	0.00223776
SOx	0.00002667
PM10	0.00064975
PM2.5	0.00054954

Scenario Year: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	0.00709228
NOx	0.00071158
ROG	0.00074567
SOx	0.00001072
PM10	0.00009067
PM2.5	0.00005834

Delivery Trucks (pounds/mile)	
CO	0.01407778
NOx	0.01577311
ROG	0.00206295
SOx	0.00002682
PM10	0.00059956
PM2.5	0.00050174

Scenario Year: **2014**
All model years in the range 1970 to 2014

Passenger Vehicles (pounds/mile)	
CO	0.00660353
NOx	0.00065484
ROG	0.00070227
SOx	0.00001069
PM10	0.00009185
PM2.5	0.00005939

Delivery Trucks (pounds/mile)	
CO	0.01284321
NOx	0.01425162
ROG	0.00189649
SOx	0.00002754
PM10	0.00054929
PM2.5	0.00045519

Scenario Year: **2015**
All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	0.00614108
NOx	0.00060188
ROG	0.00066355
SOx	0.00001070
PM10	0.00009259
PM2.5	0.00006015

Delivery Trucks (pounds/mile)	
CO	0.01169445
NOx	0.01285026
ROG	0.00173890
SOx	0.00002741
PM10	0.00050307
PM2.5	0.00041268

Scenario Year: **2016**
All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131

Delivery Trucks (pounds/mile)	
CO	0.01080542
NOx	0.01172881
ROG	0.00161521
SOx	0.00002767
PM10	0.00046606
PM2.5	0.00037868

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00537891	CO	0.00998101
NOx	0.00051297	NOx	0.01070034
ROG	0.00060109	ROG	0.00150242
SOx	0.00001079	SOx	0.00002723
PM10	0.00009446	PM10	0.00043131
PM2.5	0.00006192	PM2.5	0.00034605

Scenario Year: **2018**
All model years in the range 1974 to 2018

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00502881	CO	0.00923234
NOx	0.00047300	NOx	0.00979416
ROG	0.00057178	ROG	0.00139856
SOx	0.00001071	SOx	0.00002749
PM10	0.00009494	PM10	0.00040110
PM2.5	0.00006234	PM2.5	0.00031792

Scenario Year: **2019**
All model years in the range 1975 to 2019

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00471820	CO	0.00857192
NOx	0.00043716	NOx	0.00900205
ROG	0.00054654	ROG	0.00130563
SOx	0.00001072	SOx	0.00002706
PM10	0.00009523	PM10	0.00037393
PM2.5	0.00006259	PM2.5	0.00029276

Scenario Year: **2020**
All model years in the range 1976 to 2020

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00444247	CO	0.00799617
NOx	0.00040506	NOx	0.00831802
ROG	0.00052463	ROG	0.00122382
SOx	0.00001073	SOx	0.00002733
PM10	0.00009550	PM10	0.00035054
PM2.5	0.00006279	PM2.5	0.00027128

Scenario Year: **2021**
All model years in the range 1977 to 2021

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00421218	CO	0.00748303
NOx	0.00037757	NOx	0.00773500
ROG	0.00050573	ROG	0.00115568
SOx	0.00001073	SOx	0.00002755
PM10	0.00009640	PM10	0.00033125
PM2.5	0.00006364	PM2.5	0.00025331

Scenario Year: **2022**
All model years in the range 1978 to 2022

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00397866	CO	0.00699290
NOx	0.00035150	NOx	0.00722470
ROG	0.00048658	ROG	0.00108569
SOx	0.00001072	SOx	0.00002774
PM10	0.00009661	PM10	0.00031501
PM2.5	0.00006389	PM2.5	0.00023906

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2023**

All model years in the range 1979 to 2023

Passenger Vehicles (pounds/mile)	
CO	0.00377527
NOx	0.00032851
ROG	0.00046900
SOx	0.00001070
PM10	0.00009676
PM2.5	0.00006405

Delivery Trucks (pounds/mile)	
CO	0.00658123
NOx	0.00679147
ROG	0.00102852
SOx	0.00002790
PM10	0.00030109
PM2.5	0.00022582

Scenario Year: **2024**

All model years in the range 1980 to 2024

Passenger Vehicles (pounds/mile)	
CO	0.00358611
NOx	0.00030721
ROG	0.00045136
SOx	0.00001080
PM10	0.00009676
PM2.5	0.00006410

Delivery Trucks (pounds/mile)	
CO	0.00625076
NOx	0.00647083
ROG	0.00096578
SOx	0.00002807
PM10	0.00029407
PM2.5	0.00021880

Scenario Year: **2025**

All model years in the range 1981 to 2025

Passenger Vehicles (pounds/mile)	
CO	0.00342738
NOx	0.00028846
ROG	0.00043545
SOx	0.00001070
PM10	0.00009679
PM2.5	0.00006418

Delivery Trucks (pounds/mile)	
CO	0.00595363
NOx	0.00615945
ROG	0.00092178
SOx	0.00002761
PM10	0.00028425
PM2.5	0.00020958

Scenario Year: **2026**

All model years in the range 1982 to 2026

Passenger Vehicles (pounds/mile)	
CO	0.00328779
NOx	0.00027141
ROG	0.00042052
SOx	0.00001076
PM10	0.00009687
PM2.5	0.00006415

Delivery Trucks (pounds/mile)	
CO	0.00569435
NOx	0.00589869
ROG	0.00088403
SOx	0.00002716
PM10	0.00027657
PM2.5	0.00020187

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixer	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188
Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927

SCAB Fleet Average Emission Factors (Diesel)

Crawler Tractors	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipmen	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604
	Composite	0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders	25	0.038	0.071	0.005	0.000	0.014
	Composite	0.038	0.071	0.005	0.000	0.014
Excavators	25	0.068	0.135	0.009	0.000	0.021
	50	0.353	0.278	0.034	0.000	0.151
	120	0.550	1.031	0.096	0.001	0.179
	175	0.676	1.390	0.079	0.001	0.179
	250	0.464	1.856	0.064	0.002	0.173
	500	0.765	2.381	0.086	0.002	0.229
	750	1.265	4.076	0.144	0.004	0.384
	Composite	0.598	1.423	0.078	0.001	0.182
Forklifts	50	0.212	0.164	0.021	0.000	0.093
	120	0.234	0.436	0.043	0.000	0.079
	175	0.334	0.702	0.042	0.001	0.093
	250	0.192	0.893	0.027	0.001	0.076
	500	0.278	1.119	0.036	0.001	0.099
	Composite	0.250	0.643	0.035	0.001	0.086
Generator Sets	15	0.076	0.128	0.008	0.000	0.020
	25	0.114	0.180	0.012	0.000	0.035
	50	0.308	0.320	0.032	0.000	0.129
	120	0.519	1.034	0.079	0.001	0.164
	175	0.757	1.694	0.079	0.002	0.194
	250	0.597	2.384	0.074	0.002	0.198
	500	1.121	3.473	0.108	0.003	0.282
	750	1.810	5.739	0.177	0.005	0.470
	9999	4.408	13.258	0.415	0.011	1.195
	Composite	0.355	0.725	0.045	0.001	0.113
Graders	50	0.393	0.310	0.038	0.000	0.173
	120	0.566	1.102	0.100	0.001	0.190
	175	0.754	1.626	0.091	0.001	0.207
	250	0.581	2.148	0.080	0.002	0.209
	500	0.967	2.541	0.096	0.002	0.249
	750	2.037	5.515	0.205	0.005	0.532
	Composite	0.671	1.720	0.089	0.001	0.206
Off-Highway Tractors	120	0.772	1.614	0.140	0.001	0.283
	175	0.884	2.021	0.113	0.001	0.264
	250	0.612	1.952	0.085	0.001	0.215
	750	4.355	7.822	0.327	0.006	0.834
	1000	6.736	12.573	0.455	0.008	1.277
	Composite	0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks	175	0.770	1.588	0.092	0.001	0.209
	250	0.510	1.999	0.071	0.002	0.193
	500	0.945	2.853	0.105	0.003	0.287
	750	1.528	4.773	0.173	0.004	0.469
	1000	2.606	8.328	0.257	0.006	0.753
	Composite	0.913	2.914	0.106	0.003	0.288
Other Construction Equip	15	0.062	0.077	0.006	0.000	0.012

SCAB Fleet Average Emission Factors (Diesel)

Other Construction Equip		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial E		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211
Other Material Handling E		50	0.450	0.347	0.044	0.000	0.203
		120	0.463	0.909	0.085	0.001	0.162
		175	0.744	1.650	0.094	0.001	0.215
		250	0.465	1.840	0.065	0.002	0.173
		500	0.754	2.169	0.078	0.002	0.204
		9999	3.669	10.294	0.326	0.007	0.960
	Composite		0.630	1.836	0.082	0.002	0.204
Pavers		25	0.100	0.177	0.013	0.000	0.037
		50	0.413	0.323	0.040	0.000	0.188
		120	0.543	1.117	0.096	0.001	0.192
		175	0.821	1.856	0.102	0.001	0.236
		250	0.819	2.705	0.113	0.002	0.284
		500	1.494	2.940	0.119	0.002	0.303
	Composite		0.600	1.129	0.080	0.001	0.206
Paving Equipment		25	0.054	0.110	0.007	0.000	0.018
		50	0.350	0.276	0.034	0.000	0.159
		120	0.425	0.875	0.075	0.001	0.150
		175	0.641	1.454	0.079	0.001	0.184
		250	0.512	1.694	0.070	0.001	0.177
	Composite		0.469	1.033	0.071	0.001	0.156
Plate Compactors		15	0.026	0.035	0.002	0.000	0.005
	Composite		0.026	0.035	0.002	0.000	0.005
Pressure Washers		15	0.036	0.061	0.004	0.000	0.009
		25	0.046	0.073	0.005	0.000	0.014
		50	0.122	0.145	0.013	0.000	0.049
		120	0.153	0.306	0.022	0.000	0.046
	Composite		0.070	0.108	0.008	0.000	0.023
Pumps		15	0.055	0.095	0.007	0.000	0.017
		25	0.126	0.199	0.015	0.000	0.051
		50	0.362	0.362	0.037	0.000	0.154
		120	0.526	1.049	0.082	0.001	0.169
		175	0.758	1.696	0.082	0.002	0.198
		250	0.577	2.293	0.073	0.002	0.194
		500	1.202	3.599	0.115	0.003	0.298
		750	1.988	6.090	0.192	0.006	0.507
		9999	5.920	17.310	0.544	0.014	1.568
	Composite		0.324	0.622	0.044	0.001	0.109
Rollers		15	0.039	0.048	0.003	0.000	0.008
		25	0.058	0.117	0.007	0.000	0.018

SCAB Fleet Average Emission Factors (Diesel)

Rollers		50	0.344	0.288	0.034	0.000	0.152
		120	0.433	0.865	0.073	0.001	0.145
		175	0.640	1.419	0.075	0.001	0.175
		250	0.539	1.919	0.073	0.002	0.187
		500	1.002	2.475	0.093	0.002	0.237
	Composite		0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts		50	0.463	0.375	0.045	0.000	0.202
		120	0.460	0.882	0.080	0.001	0.151
		175	0.739	1.570	0.087	0.001	0.198
		250	0.520	2.030	0.072	0.002	0.188
		500	0.900	2.692	0.097	0.003	0.252
	Composite		0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers		175	0.896	2.045	0.116	0.001	0.271
		250	0.884	2.800	0.124	0.002	0.314
		500	2.120	3.663	0.156	0.003	0.404
		750	3.171	5.593	0.236	0.004	0.609
		1000	5.061	9.296	0.342	0.006	0.954
	Composite		1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders		25	0.071	0.144	0.009	0.000	0.022
		50	0.440	0.349	0.043	0.000	0.194
		120	0.442	0.860	0.078	0.001	0.148
		175	0.643	1.385	0.077	0.001	0.176
		250	0.496	1.845	0.068	0.002	0.178
		500	0.971	2.604	0.098	0.002	0.253
		750	1.979	5.471	0.202	0.005	0.524
		1000	2.830	8.007	0.249	0.006	0.732
	Composite		0.555	1.382	0.077	0.001	0.173
Scrapers		120	0.745	1.513	0.134	0.001	0.264
		175	0.957	2.137	0.120	0.002	0.277
		250	0.861	2.901	0.119	0.002	0.305
		500	1.948	4.005	0.162	0.003	0.417
		750	3.347	7.044	0.282	0.006	0.724
	Composite		1.525	3.399	0.147	0.003	0.368
Signal Boards		15	0.038	0.045	0.003	0.000	0.007
		50	0.406	0.384	0.041	0.000	0.174
		120	0.552	1.088	0.088	0.001	0.177
		175	0.854	1.879	0.094	0.002	0.223
		250	0.732	2.919	0.095	0.003	0.250
	Composite		0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders		25	0.081	0.136	0.010	0.000	0.032
		50	0.284	0.261	0.028	0.000	0.113
		120	0.292	0.526	0.046	0.001	0.084
	Composite		0.273	0.337	0.033	0.000	0.098
Surfacing Equipment		50	0.164	0.152	0.016	0.000	0.071
		120	0.450	0.902	0.072	0.001	0.145
		175	0.490	1.083	0.054	0.001	0.128
		250	0.456	1.628	0.059	0.002	0.152
		500	0.989	2.426	0.087	0.002	0.223
		750	1.544	3.888	0.138	0.003	0.356
	Composite		0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers		15	0.073	0.088	0.006	0.000	0.012
		25	0.082	0.167	0.011	0.000	0.025
		50	0.443	0.352	0.043	0.000	0.197
		120	0.554	1.060	0.100	0.001	0.189
		175	0.816	1.767	0.101	0.002	0.230

SCAB Fleet Average Emission Factors (Diesel)

Sweepers/Scrubbers		250	0.434	1.913	0.061	0.002	0.166
	Composite		0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backho		25	0.074	0.144	0.009	0.000	0.025
		50	0.398	0.329	0.039	0.000	0.168
		120	0.375	0.698	0.063	0.001	0.118
		175	0.592	1.209	0.067	0.001	0.151
		250	0.472	1.931	0.064	0.002	0.171
		500	1.028	3.377	0.118	0.004	0.307
		750	1.537	5.237	0.179	0.006	0.469
	Composite		0.414	0.830	0.064	0.001	0.131
Trenchers		15	0.052	0.062	0.005	0.000	0.010
		25	0.138	0.280	0.018	0.000	0.043
		50	0.465	0.376	0.045	0.000	0.211
		120	0.503	1.043	0.087	0.001	0.177
		175	0.913	2.073	0.111	0.002	0.260
		250	0.947	3.094	0.129	0.003	0.325
		500	2.068	3.932	0.159	0.003	0.402
		750	3.874	7.525	0.301	0.006	0.764
	Composite		0.517	0.858	0.071	0.001	0.194
Welders		15	0.046	0.080	0.006	0.000	0.014
		25	0.073	0.115	0.009	0.000	0.029
		50	0.317	0.282	0.032	0.000	0.139
		120	0.280	0.556	0.047	0.000	0.093
		175	0.557	1.243	0.064	0.001	0.152
		250	0.360	1.418	0.048	0.001	0.126
		500	0.632	1.809	0.061	0.002	0.158
	Composite		0.234	0.319	0.030	0.000	0.092

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Laske Project By Phase

Talbert Lake Interim Condition

Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Clearing & Grubbing	8.2	33.6	91.6	0.1	10.1	5.3
Riparian Habitat Earthfill	6.7	25.9	43.0	0.0	21.2	6.5
De-Watering	6.4	28.6	49.6	0.1	2.2	2.1
Landscaping	1.5	8.4	6.4	0.0	0.5	0.5
Temporary Lake Overflow Pipe	1.7	10.3	6.6	0.0	0.5	0.5
Localized Significance Threshold*	**N/A**	**1124**	**335**	**N/A**	**43**	**18**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook & Distance to Sensitive Receptors of 50 meters

Prepared by Sam Stewart, BonTerra Consulting (3/11/08)

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Project	Construction Activity		
Talbert Lake	Clearing & Grubbing	65,340	Square Feet[a]

Site Preparation Schedule - **5** **days**[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Other Construction Equipment	1	7.0	6	120 HP (Brush Chipper)
Other Construction Equipment	2	7.0		15 HP (Chainsaws)
Rubber Tired Loaders	1	7.0		Loader
Off-Highway Trucks	1	7.0		Dump Truck

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Other Construction Equipment	0.1711	0.5607	1.0579	0.0009	0.0896
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768
Off-Highway Trucks	0.2881	0.9133	2.9144	0.0027	0.1056

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	7.9	4,800	4,800	3,400
			lb/day	lb/day	
			2,400,000	2,400,000	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Heavy-Duty Truck[1]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[1]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	34	22
Employee Vehicles	12	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Other Construction Equipment	1.21	3.89	9.67	0.01	0.54
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Off-Highway Trucks	2.02	6.39	20.40	0.02	0.74
Total	**2.0**	**6.4**	**20.40**	**0.02**	**0.74**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.55
Total		**5.82**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	5.58	21.64	70.58	0.06	3.45
Employee Vehicles	0.57	5.54	0.58	0.01	0.04
Total	**6.15**	**27.18**	**71.17**	**0.06**	**3.49**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**8.2**	**33.6**	**91.6**	**0.1**	**10.1**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.7	0.7
Combustion (Onroad)	0.96	3.49	3.36
Fugitive	0.21	5.8	1.2
Total		**10.1**	**5.3**
Localized Significance Threshold[q]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 4,800 cubic yards of dirt, as provided by Pace Engineering [(4,800 cyd x 2,500 lb/cyd)/5 days = 2,400,000 lb/day]

k) Assuming cy cubic yards of debris handled, as provided by Pace Engineering [(cy cyd x 2,500 lb/cyd)/5 days = 2,400,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Project	Construction Activity	
Talbert Lake	Site Preparation (Vegetation Removal)	95,400 Square Feet[a]
Site Preparation Schedule -	**10 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Scrapers	1	7.0	8
Crawler Tractors	1	7.0	
Rubber Tired Loaders	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Scrapers	0.2643	0.7453	1.5133	0.0011	0.1342
Crawler Tractors	0.2180	0.7090	1.6218	0.0013	0.0988
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	2.19

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt Handled[j]
	mph		cy	cy	lb/day
0.35	11	7.9	9,000	0	2,250,000
			lb/day	lb/day	
			2,250,000	0	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Heavy Duty Truck[1]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[1]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Water Truck	10	4.5
Employee Vehicles	16	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Scrapers	1.85	5.22	10.59	0.01	0.94
Crawler Tractors	1.53	4.96	11.35	0.01	0.69
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**5.6**	**17.2**	**38.0**	**0.0**	**2.6**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	60	2.11
Storage Piles	60	16.03
Material Handling	60	0.21
Total		**18.35**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.34	1.30	4.25	0.00	0.21
Employee Vehicles	0.76	7.39	0.78	0.01	0.05
Total	**1.09**	**8.69**	**5.02**	**0.01**	**0.26**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**6.7**	**25.9**	**43.0**	**0.0**	**21.2**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	2.6	2.4
Combustion (Onroad)	0.96	0.26	0.25
Fugitive	0.21	18.4	3.9
Total		**21.2**	**6.5**
Localized Significance Threshold[q]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 9,000 cubic yards of dirt, as provided by Pace Engineering [(9,000 cyd x 2,500 lb/cyd)/10 days = 2,250,000 lb/day]

k) Assuming 0,000 cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/10 days = 0,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

Project	Construction Activity		
Talbert Lake		Dewatering	130,680 Square Feet[a]
Site Preparation Schedule -	**5 days[a]**		

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Bore/Drill Rigs	1	7.0	12
Cranes	1	7.0	
Tractors/Loaders/Backhoes	1	7.0	
Off-Highway Trucks	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Bore/Drill Rigs	0.1457	0.5388	1.4734	0.0017	0.0648
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Off-Highway Trucks	0.2881	0.9133	2.9144	0.0027	0.1056

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[f]	Dirt Handled[g]	Debris Handled[h]

	mph		cy	cy
0.35	11	2.0	0	0
			lb/day	lb/day
			0	0

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[f]
6.9	2

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[i]	Mean Wind Speed Percent[j]	TSP Fraction	Area[k] (acres)
6.9	34	50	0.5	0

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	0	22
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Bore/Drill Rigs	1.02	3.77	10.31	0.01	0.45
Cranes	1.32	4.46	11.86	0.01	0.53
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Off-Highway Trucks	2.02	6.39	20.40	0.02	0.74
Total	**5.3**	**17.5**	**48.4**	**0.0**	**2.2**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

Equations:

Material Handling[m]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Storage Piles	0	0.00

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

Material Handling (Dirt)	0	0.00
Material Handling (Debris)	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.00	0.00	0.00	0.00	0.00
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Total Incremental Localized Emissions from Construction Activities

	VOC	**CO**	**NOx**	**SOx**	**PM10**
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**6.4**	**28.6**	**49.6**	**0.1**	**2.2**
Localized Significance Threshold[n]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[o]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	2.2	2.0
Combustion (Onroad)	0.96	0.08	0.08
Fugitive	0.21	0.0	0.0
Total		**2.2**	**2.1**
Localized Significance Threshold[p]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed - maximum of daily average wind speeds reported in 2003 to 2007 meteorological data.

f) CEQA Handbook Table A9-9-F-1

g) Assuming 0,000 cubic yards of dirt, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/5 days = 0,000 lb/day]

h) Assuming 0,000 cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/5 days = 0,000 lb/day]

i) CEQA Handbook Table A9-9-D-4

j) Mean wind speed - maximum of daily average wind speeds reported in 2003 to 2007 meteorological data.

k) Assuming a 2 acre storage pile per PACE Engineering

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

n) App. C of the Methodology Paper for applicable LSTs.

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

p) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	**Construction Activity**		
Talbert Lake		Landscaping	130,680 Square Feet[a]
Site Preparation Schedule -	**15 days[a]**		

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Tractors/Loaders/Backhoes	1	7.0	6

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	**Mean Wind Speed[i]**	**Moisture Content[d]**	**Dirt Handled[j]**	**Debris Handled[k]**	**Dirt/Debris Disposal**
	mph		cy	cy	cy
0.35	11	2.0	100	0	0
			lb/day	lb/day	
			16,667	0	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	12	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Total	**0.9**	**2.9**	**5.8**	**0.0**	**0.4**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	0.57	5.54	0.58	0.01	0.04
Total	**0.57**	**5.54**	**0.58**	**0.01**	**0.04**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**1.5**	**8.4**	**6.4**	**0.0**	**0.5**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	PM2.5 Fraction[p]	PM10	PM2.5
		lb/day	lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	0.04	0.04
Fugitive	0.21	0.0	0.0
Total		**0.5**	**0.5**
Localized Significance Threshold[q]			**18**
Exceed Significance?			**NO**

Notes:

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.
b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.
c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.
d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations
e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993
f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.
g) Debris will be disposed of as it is produced. No storage piles anticipated.
h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006
i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.
j) Assuming 0,100 cubic yards of dirt, as provided by Pace Engineering [(0,100 cyd x 2,500 lb/cyd)/15 days = 16,667 lb/day]
k) Assuming 0,000 cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/15 days = 0,000 lb/day]
l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT
m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm
n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1
o) App. C of the Methodology Paper for applicable LSTs.
p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.
q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Laske Project By Phase

Talbert Lake
Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Clearing & Grubbing	4.6	19.6	45.9	0.0	7.3	3.0
Excavation & Stockpiling	7.0	29.6	43.4	0.0	12.6	4.7
Soil Disposal	5.2	28.5	42.7	0.0	17.5	5.4
Subsurface Wetland Construction	7.1	32.7	48.5	0.0	2.7	2.5
Berm Construction	6.8	29.0	48.1	0.0	2.7	2.4
Weir Construction	4.3	27.1	27.1	0.0	6.8	2.5
Pump Station Construction	5.1	31.8	27.3	0.0	1.4	1.3
Biofilters & Pipeline	3.9	22.2	22.3	0.0	1.2	1.1
Aeration Blower & Lines	4.6	29.9	21.1	0.0	1.1	1.1
Wetlands & Lake Edge Construction	5.3	31.8	23.9	0.0	1.4	1.3
Localized Significance Threshold*	**N/A**	**1124**	**335**	**N/A**	**43**	**18**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook & Distance to Sensitive Receptors of 50 meters

Prepared by Sam Stewart, BonTerra Consulting

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Project	Construction Activity	
Talbert Lake	Site Preparation (Vegetation Removal)	143,748 Square Feet[a]
Site Preparation Schedule -	**15 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Other Construction Equipment	1	7.0	6	120 HP (Brush Chipper)
Other Construction Equipment	2	7.0		15 HP (Chainsaws)
Rubber Tired Loaders	1	7.0		Loader
Off-Highway Trucks	1	7.0		Dump Truck

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	NOx lb/hr	SOx lb/hr	PM10 lb/hr
Other Construction Equipment	0.1711	0.5607	1.0579	0.0009	0.0896
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768
Off-Highway Trucks	0.2881	0.9133	2.9144	0.0027	0.1056

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	35	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i] mph	Moisture Content[d]	Dirt Handled[j] cy	Debris Handled[k] cy	Dirt/Debris Disposal cy
0.35	11	7.9	0	5,200	3,600
			lb/day	lb/day	
			0	866,667	

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Heavy-Duty Truck[1]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[1]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	12	22
Employee Vehicles	12	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Other Construction Equipment	1.21	3.89	9.67	0.01	0.54
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Off-Highway Trucks	2.02	6.39	20.40	0.02	0.74
Total	**2.0**	**6.4**	**20.40**	**0.02**	**0.74**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.00
Total		**5.27**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	1.97	7.64	24.91	0.02	1.22
Employee Vehicles	0.57	5.54	0.58	0.01	0.04
Total	**2.54**	**13.18**	**25.49**	**0.03**	**1.26**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.6**	**19.6**	**45.9**	**0.0**	**7.3**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.7	0.7
Combustion (Onroad)	0.96	1.26	1.21
Fugitive	0.21	5.3	1.1
Total		**7.3**	**3.0**
Localized Significance Threshold[o]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,000 cubic yards of dirt, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/15 days = 0,000 lb/day]

k) Assuming cy cubic yards of debris handled, as provided by Pace Engineering [(cy cyd x 2,500 lb/cyd)/15 days = 866,667 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Project	Construction Activity	
Talbert Lake	Excavation & Stockpiling	566,280 Square Feet[a]
Site Preparation Schedule -	**20 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Scrapers	1	7.0	12
Crawler Tractors	1	7.0	
Rubber Tired Loaders	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Scrapers	0.2643	0.7453	1.5133	0.0011	0.1342
Crawler Tractors	0.2180	0.7090	1.6218	0.0013	0.0988
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction[d]	Area[g] (acres)
6.9	35	50	0.5	1

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt Handled[j]
	mph		cy	cy	lb/day
0.35	11	7.9	20,000	34,000	2,500,000
			lb/day	lb/day	
			2,500,000	4,250,000	

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Water Truck	10	4.5
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Scrapers	1.85	5.22	10.59	0.01	0.94
Crawler Tractors	1.53	4.96	11.35	0.01	0.69
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**5.6**	**17.2**	**38.0**	**0.0**	**2.6**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Clearing	60	2.11
Storage Piles	60	7.32
Material Handling	60	0.23
Total		**9.66**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Excavation Stockpiling Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.34	1.30	4.25	0.00	0.21
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.47**	**12.39**	**5.41**	**0.01**	**0.29**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**7.0**	**29.6**	**43.4**	**0.0**	**12.6**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	2.6	2.4
Combustion (Onroad)	0.96	0.29	0.28
Fugitive	0.21	9.7	2.0
Total		**12.6**	**4.7**
Localized Significance Threshold[m]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 20,000 cubic yards of dirt, as provided by Pace Engineering [(20,000 cyd x 2,500 lb/cyd)/20 days = 2,500,000 lb/day]

k) Assuming 34,000 cubic yards of debris handled, as provided by Pace Engineering [(34,000 cyd x 2,500 lb/cyd)/20 days = 4,250,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

Project	Construction Activity		
Talbert Lake		Soil Disposal	87,120 Square Feet[a]
Site Preparation Schedule -	**80 days[a]**		

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Tractors/Loaders/Backhoes	1	7.0	16

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[f]	Dirt Handled	Debris Handled
	mph		cy	cy
0.35	11	2.0	26,000	0
			lb/day	lb/day
			812,500	0

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[f]
6.9	2

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[g]	Mean Wind Speed Percent[h]	TSP Fraction[d]	Area[a] (acres)
6.9	34	50	0.5	2

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[j]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[j]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	17	22
Employee Vehicles	32	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day

	VOC	CO	NOx	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Total	**0.9**	**2.9**	**5.8**	**0.0**	**0.4**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Material Handling[k]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Storage Piles	60	14.69
Material Handling (Dirt)	60	0.51
Material Handling (Debris)	60	0.00
Total		**15.20**

Localized Significance Threshold (LST) Analysis for theTalbert Lake Project - Soil Disposal

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	2.79	10.82	35.29	0.03	1.73
Employee Vehicles	1.51	14.79	1.55	0.01	0.11
Total	**4.30**	**25.60**	**36.84**	**0.04**	**1.84**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**5.2**	**28.5**	**42.7**	**0.0**	**17.5**
Localized Significance Threshold[l]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction**[m]	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.4	0.4
Combustion (Onroad)	0.96	1.84	1.76
Fugitive	0.21	15.2	3.2
Total		**17.5**	**5.4**
Localized Significance Threshold[l]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed - maximum of daily average wind speeds reported in 2003 to 2007 meteorological data.

f) CEQA Handbook Table A9-9-F-1

g) CEQA Handbook Table A9-9-D-4

h) Mean wind speed - maximum of daily average wind speeds reported in 2003 to 2007 meteorological data.

i) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

j) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

k) App. C of the Methodology Paper for applicable LSTs.

l) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

m) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	Construction Activity	
Talbert Lake	Subsurface Wetland Construction	21,780 Square Feet[a]
Site Preparation Schedule -	**5 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Scrapers	1	7.0	8
Crawler Tractors	1	7.0	
Tractors/Loaders/Backhoes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Scrapers	0.3677	1.5249	3.3991	0.0027	0.1465
Crawler Tractors	0.2180	0.7090	1.6218	0.0013	0.0988
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[d]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Scrapers	2.57	10.67	23.79	0.02	1.03
Crawler Tractors	1.53	4.96	11.35	0.01	0.69
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**6.0**	**21.6**	**47.3**	**0.0**	**2.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.14**	**11.09**	**1.16**	**0.01**	**0.08**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**7.1**	**32.7**	**48.5**	**0.0**	**2.7**
Localized Significance Threshold[e]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	2.6	2.4
Combustion (Onroad)	0.96	0.08	0.08
Total		**2.7**	**2.5**
Localized Significance Threshold[e]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	**Construction Activity**	
Talbert Lake	Berm Construction	21,780 Square Feet[a]
Site Preparation Schedule -	**10 days**[a]	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Scrapers	1	7.0	8
Crawler Tractors	1	7.0	
Tractors/Loaders/Backhoes	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Scrapers	0.3677	1.5249	3.3991	0.0027	0.1465
Crawler Tractors	0.2180	0.7090	1.6218	0.0013	0.0988
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Construction Vehicle (Mobile Source) Emission Factors

	VOC	**CO**	**Nox**	**SOx**	**PM10**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[d]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Employee Vehicles	16	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Scrapers	2.57	10.67	23.79	0.02	1.03
Crawler Tractors	1.53	4.96	11.35	0.01	0.69
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**6.0**	**21.6**	**47.3**	**0.0**	**2.6**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Employee Vehicles	0.76	7.39	0.78	0.01	0.05
Total	**0.76**	**7.39**	**0.78**	**0.01**	**0.05**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**6.8**	**29.0**	**48.1**	**0.0**	**2.7**
Localized Significance Threshold[e]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[f]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	2.6	2.4
Combustion (Onroad)	0.96	0.05	0.05
Total		**2.7**	**2.4**
Localized Significance Threshold[e]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	Construction Activity		
Talbert Lake	Weir Construction	65,340 Square Feet[a]	
Site Preparation Schedule -	**5 days[a]**		

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Other Construction Equipment	1	7.0	20	120 HP (Brush Chipper)
Other Construction Equipment	2	7.0		15 HP (Chainsaws)
Excavators	1	7.0		Composite
Pumps	1	7.0		Composite

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	NOx lb/hr	SOx lb/hr	PM10 lb/hr
Other Construction Equipment	0.1311	0.4749	1.2411	0.0013	0.0539
Other Construction Equipment	0.1311	0.4749	1.2411	0.0013	0.0539
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[e]	Mean Wind Speed[f] mph	Moisture Content[e]	Dirt Handled cy	Debris Handled cy	Dirt/Debris Disposal cy
0.35	11	7.9	500	500	1,000
			lb/day 250,000	lb/day 250,000	

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[g]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[g]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	10	22
Employee Vehicles	40	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Other Construction Equipment	1.27	4.18	9.96	0.01	0.54
Other Construction Equipment	1.83	6.65	17.38	0.02	0.75
Excavators	1.27	4.18	9.96	0.01	0.54
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**0.8**	**2.3**	**4.36**	**0.00**	**0.31**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[h]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[i]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Material Handling	0	0.06
Total		**5.33**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	1.64	6.36	20.76	0.02	1.02
Employee Vehicles	1.89	18.48	1.94	0.02	0.14
Total	**3.53**	**24.85**	**22.70**	**0.03**	**1.15**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Total Incremental Localized Emissions from Construction Activities

Sources	**VOC** lb/day	**CO** lb/day	**NOx** lb/day	**SOx** lb/day	**PM10** lb/day
On-site Emissions	**4.3**	**27.1**	**27.1**	**0.0**	**6.8**
Localized Significance Threshold[j]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[k]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	0.3	0.3
Combustion (Onroad)	0.96	1.15	1.11
Fugitive	0.21	5.3	1.1
Total		**6.8**	**2.5**
Localized Significance Threshold[j]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

h) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

i) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

j) App. C of the Methodology Paper for applicable LSTs.

k) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	Construction Activity	
Talbert Lake	Pump Station Construction	2,200 Square Feet[a]
Site Preparation Schedule -	**8 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	2.0	1,100	0	600
			lb/day	lb/day	
			343,750	0	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[f]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[f]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	4	22
Employee Vehicles	48	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Cement and Mortar Mixers	0.08	0.32	0.48	0.00	0.03
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Total	**2.2**	**7.0**	**16.7**	**0.0**	**0.9**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[g]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[h]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.66	2.55	8.30	0.01	0.41
Employee Vehicles	2.27	22.18	2.33	0.02	0.16
Total	**2.93**	**24.72**	**10.63**	**0.03**	**0.57**

Total Incremental Localized Emissions from Construction Activities

Sources	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
On-site Emissions	**5.1**	**31.8**	**27.3**	**0.0**	**1.4**
Localized Significance Threshold[i]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	PM2.5 Fraction[j]	PM10 lb/day	PM2.5 lb/day
Combustion (Offroad)	0.92	0.9	0.8
Combustion (Onroad)	0.96	0.57	0.55
Fugitive	0.21	0.0	0.0

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Total	**1.4**	**1.3**
Localized Significance Threshold[i]		**18**
Exceed Significance?		**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

f) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

g) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, $\leq$ 10 µm

h) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

i) App. C of the Methodology Paper for applicable LSTs.

j) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	Construction Activity	
Talbert Lake	Biofilters & Pipeline	25,650 Square Feet[a]
Site Preparation Schedule -	**28 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	15
Pumps	1	7.0	
Cranes	1	7.0	
Tractors/Loaders/Backhoes	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[d]	Dirt Handled[a]	Debris Handled[a]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	2.0	1,100	0	600
			lb/day	lb/day	
			98,214	0	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[f]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[f]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	2	22
Employee Vehicles	30	20

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.08	0.32	0.48	0.00	0.03
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Total	**2.2**	**7.0**	**16.7**	**0.0**	**0.9**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[g]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[h]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.33	1.27	4.15	0.00	0.20
Employee Vehicles	1.42	13.86	1.46	0.01	0.10
Total	**1.75**	**15.13**	**5.61**	**0.02**	**0.30**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**3.9**	**22.2**	**22.3**	**0.0**	**1.2**
Localized Significance Threshold[i]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction**[j]	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.9	0.8
Combustion (Onroad)	0.96	0.30	0.29
Fugitive	0.21	0.0	0.0
Total		**1.2**	**1.1**
Localized Significance Threshold[i]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

f) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

g) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden, ≤ 10 µm

h) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

i) App. C of the Methodology Paper for applicable LSTs.

j) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	Construction Activity	
Talbert Lake	Aeration Blower & Lines	25,650 Square Feet[a]
Site Preparation Schedule -	**20 days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Cement and Mortar Mixers	1	7.0	24
Pumps	1	7.0	
Cranes	1	7.0	
Tractors/Loaders/Backhoes	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	2.0	500	0	300
			lb/day	lb/day	
			62,500	0	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[e]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[e]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	22
Employee Vehicles	48	20

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Cement and Mortar Mixers	0.08	0.32	0.48	0.00	0.03
Pumps	0.76	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Total	**2.2**	**7.0**	**16.7**	**0.0**	**0.9**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[f]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[g]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.16	0.64	2.08	0.00	0.10
Employee Vehicles	2.27	22.18	2.33	0.02	0.16
Total	**2.43**	**22.82**	**4.41**	**0.02**	**0.26**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**4.6**	**29.9**	**21.1**	**0.0**	**1.1**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[i]**	**PM10** lb/day	**PM2.5** lb/day
Combustion (Offroad)	0.92	0.9	0.8
Combustion (Onroad)	0.96	0.26	0.25
Fugitive	0.21	0.0	0.0
Total		**1.1**	**1.1**
Localized Significance Threshold[h]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

f) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

g) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

h) App. C of the Methodology Paper for applicable LSTs.

i) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Project	**Construction Activity**	
Talbert Lake	Wetlands & Lake Edge	87,120 Square Feet[a]
Site Preparation Schedule -	**15 days[a]**	

Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Cement and Mortar Mixers	2	7.0	24
Pumps	2	7.0	
Tractors/Loaders/Backhoes	1	7.0	

Construction Equipment Emission Factors

Equipment Type[c]	**VOC** lb/hr	**CO** lb/hr	**Nox** lb/hr	**SOx** lb/hr	**PM10** lb/hr
Cement and Mortar Mixers	0.0120	0.0455	0.0693	0.0001	0.0050
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439
Tractors/Loaders/Backhoes	0.1882	0.6365	1.6948	0.0014	0.0755

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	**CO** lb/mile	**Nox** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Heavy-Duty Truck[d]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[d]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	**No. of One-Way Trips/Day**	**One WayTrip Length (miles)**
Employee Vehicles	48	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	**VOC** lb/day	**CO** lb/day	**Nox** lb/day	**SOx** lb/day	**PM10** lb/day
Cement and Mortar Mixers	0.17	0.64	0.97	0.00	0.07
Pumps	1.53	4.54	8.71	0.01	0.61
Tractors/Loaders/Backhoes	1.32	4.46	11.86	0.01	0.53
Total	**3.0**	**9.6**	**21.5**	**0.0**	**1.2**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Project - Construction

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Employee Vehicles	2.27	22.18	2.33	0.02	0.16
Total	**2.27**	**22.18**	**2.33**	**0.02**	**0.16**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**5.3**	**31.8**	**23.9**	**0.0**	**1.4**
Localized Significance Threshold[f]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.2	1.1
Combustion (Onroad)	0.96	0.16	0.16
Total		**1.4**	**1.3**
Localized Significance Threshold[g]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

e) App. C of the Methodology Paper for applicable LSTs.

f) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

g) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy Heavy Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy heavy duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy heavy duty diesel trucks.

Scenario Year: **2007**

All model years in the range 1965 to 2007

HHDT-DSL (pounds/mile)	
CO	**0.01446237**
NOx	**0.04718166**
ROG	**0.00372949**
SOx	**0.00003962**
PM10	**0.00230900**
PM2.5	**0.00204018**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00216752**
PM2.5	**0.00199491**

Scenario Year: **2008**

All model years in the range 1965 to 2008

HHDT-DSL (pounds/mile)	
CO	**0.01361368**
NOx	**0.04458017**
ROG	**0.00351579**
SOx	**0.00004136**
PM10	**0.00215635**
PM2.5	**0.00189990**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00201296**
PM2.5	**0.00185303**

Scenario Year: **2009**

All model years in the range 1965 to 2009

HHDT-DSL (pounds/mile)	
CO	**0.01282236**
NOx	**0.04184591**
ROG	**0.00329320**
SOx	**0.00004013**
PM10	**0.00199572**
PM2.5	**0.00175227**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00185393**
PM2.5	**0.00170680**

Scenario Year: **2010**

All model years in the range 1966 to 2010

HHDT-DSL (pounds/mile)	
CO	**0.01195456**
NOx	**0.03822102**
ROG	**0.00304157**
SOx	**0.00004131**
PM10	**0.00183062**
PM2.5	**0.00160083**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00168861**
PM2.5	**0.00155435**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

HHDT-DSL (pounds/mile)	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	0.00003972
PM10	0.00166087
PM2.5	0.00144489

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00151936
PM2.5	0.00139772

Scenario Year: **2012**
All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	0.00004042
PM10	0.00149566
PM2.5	0.00129354

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00135537
PM2.5	0.00124837

Scenario Year: **2013**
All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	0.00931790
NOx	0.02742935
ROG	0.00226308
SOx	0.00004086
PM10	0.00133697
PM2.5	0.00114629

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00119623
PM2.5	0.00109863

Scenario Year: **2014**
All model years in the range 1970 to 2014

HHDT-DSL (pounds/mile)	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	0.00004092
PM10	0.00118458
PM2.5	0.00100582

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00104243
PM2.5	0.00096059

Scenario Year: **2015**
All model years in the range 1971 to 2015

HHDT-DSL (pounds/mile)	
CO	0.00766891
NOx	0.02122678
ROG	0.00178608
SOx	0.00004082
PM10	0.00104715
PM2.5	0.00087977

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00090631
PM2.5	0.00083282

Scenario Year: **2016**
All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	0.00704604
NOx	0.01887374
ROG	0.00161035
SOx	0.00003952
PM10	0.00094448
PM2.5	0.00078443

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00080419
PM2.5	0.00073898

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

HHDT-DSL (pounds/mile)	
CO	0.00650533
NOx	0.01690387
ROG	0.00145203
SOx	0.00004033
PM10	0.00084894
PM2.5	0.00069721

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00070873
PM2.5	0.00065111

Scenario Year: **2018**
All model years in the range 1974 to 2018

HHDT-DSL (pounds/mile)	
CO	0.00604721
NOx	0.01526414
ROG	0.00131697
SOx	0.00003934
PM10	0.00076808
PM2.5	0.00062383

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00062758
PM2.5	0.00057700

Scenario Year: **2019**
All model years in the range 1975 to 2019

HHDT-DSL (pounds/mile)	
CO	0.00565433
NOx	0.01389113
ROG	0.00120235
SOx	0.00004032
PM10	0.00070198
PM2.5	0.00056085

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00056085
PM2.5	0.00051320

Scenario Year: **2020**
All model years in the range 1976 to 2020

HHDT-DSL (pounds/mile)	
CO	0.00532242
NOx	0.01274755
ROG	0.00110621
SOx	0.00003957
PM10	0.00064574
PM2.5	0.00050904

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00050364
PM2.5	0.00046227

Scenario Year: **2021**
All model years in the range 1977 to 2021

HHDT-DSL (pounds/mile)	
CO	0.00503726
NOx	0.01179977
ROG	0.00103095
SOx	0.00004033
PM10	0.00059437
PM2.5	0.00046287

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00045411
PM2.5	0.00041729

Scenario Year: **2022**
All model years in the range 1978 to 2022

HHDT-DSL (pounds/mile)	
CO	0.00478830
NOx	0.01098794
ROG	0.00096142
SOx	0.00004106
PM10	0.00055427
PM2.5	0.00042597

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00041399
PM2.5	0.00037807

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2023**
All model years in the range 1979 to 2023

HHDT-DSL (pounds/mile)	
CO	0.00457902
NOx	0.01031407
ROG	0.00090210
SOx	0.00004009
PM10	0.00052122
PM2.5	0.00039592

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00037922
PM2.5	0.00034915

Scenario Year: **2024**
All model years in the range 1980 to 2024

HHDT-DSL (pounds/mile)	
CO	0.00444444
NOx	0.00974372
ROG	0.00084009
SOx	0.00003930
PM10	0.00050766
PM2.5	0.00038320

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00036682
PM2.5	0.00033735

Scenario Year: **2025**
All model years in the range 1981 to 2025

HHDT-DSL (pounds/mile)	
CO	0.00431086
NOx	0.00932573
ROG	0.00080206
SOx	0.00004018
PM10	0.00048541
PM2.5	0.00036326

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00034397
PM2.5	0.00031664

Scenario Year: **2026**
All model years in the range 1982 to 2026

HHDT-DSL (pounds/mile)	
CO	0.00420297
NOx	0.00898990
ROG	0.00077178
SOx	0.00003946
PM10	0.00046717
PM2.5	0.00034564

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00032670
PM2.5	0.00029830

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2007**
All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.01155158**
NOx	**0.00121328**
ROG	**0.00118234**
SOx	**0.00001078**
PM10	**0.00008447**
PM2.5	**0.00005243**

Delivery Trucks (pounds/mile)	
CO	**0.02407553**
NOx	**0.02508445**
ROG	**0.00323145**
SOx	**0.00002626**
PM10	**0.00091020**
PM2.5	**0.00078884**

Scenario Year: **2008**
All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.01054844**
NOx	**0.00110288**
ROG	**0.00107919**
SOx	**0.00001075**
PM10	**0.00008505**
PM2.5	**0.00005293**

Delivery Trucks (pounds/mile)	
CO	**0.02194915**
NOx	**0.02371258**
ROG	**0.00299270**
SOx	**0.00002565**
PM10	**0.00085607**
PM2.5	**0.00073933**

Scenario Year: **2009**
All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**

Scenario Year: **2010**
All model years in the range 1966 to 2010

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

Passenger Vehicles (pounds/mile)	
CO	0.00826276
NOx	0.00084460
ROG	0.00085233
SOx	0.00001077
PM10	0.00008879
PM2.5	0.00005653

Delivery Trucks (pounds/mile)	
CO	0.01693242
NOx	0.01893366
ROG	0.00241868
SOx	0.00002728
PM10	0.00070097
PM2.5	0.00059682

Scenario Year: **2012**
All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)	
CO	0.00765475
NOx	0.00077583
ROG	0.00079628
SOx	0.00001073
PM10	0.00008979
PM2.5	0.00005750

Delivery Trucks (pounds/mile)	
CO	0.01545741
NOx	0.01732423
ROG	0.00223776
SOx	0.00002667
PM10	0.00064975
PM2.5	0.00054954

Scenario Year: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	0.00709228
NOx	0.00071158
ROG	0.00074567
SOx	0.00001072
PM10	0.00009067
PM2.5	0.00005834

Delivery Trucks (pounds/mile)	
CO	0.01407778
NOx	0.01577311
ROG	0.00206295
SOx	0.00002682
PM10	0.00059956
PM2.5	0.00050174

Scenario Year: **2014**
All model years in the range 1970 to 2014

Passenger Vehicles (pounds/mile)	
CO	0.00660353
NOx	0.00065484
ROG	0.00070227
SOx	0.00001069
PM10	0.00009185
PM2.5	0.00005939

Delivery Trucks (pounds/mile)	
CO	0.01284321
NOx	0.01425162
ROG	0.00189649
SOx	0.00002754
PM10	0.00054929
PM2.5	0.00045519

Scenario Year: **2015**
All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	0.00614108
NOx	0.00060188
ROG	0.00066355
SOx	0.00001070
PM10	0.00009259
PM2.5	0.00006015

Delivery Trucks (pounds/mile)	
CO	0.01169445
NOx	0.01285026
ROG	0.00173890
SOx	0.00002741
PM10	0.00050307
PM2.5	0.00041268

Scenario Year: **2016**
All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131

Delivery Trucks (pounds/mile)	
CO	0.01080542
NOx	0.01172881
ROG	0.00161521
SOx	0.00002767
PM10	0.00046606
PM2.5	0.00037868

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00537891	CO	0.00998101
NOx	0.00051297	NOx	0.01070034
ROG	0.00060109	ROG	0.00150242
SOx	0.00001079	SOx	0.00002723
PM10	0.00009446	PM10	0.00043131
PM2.5	0.00006192	PM2.5	0.00034605

Scenario Year: **2018**
All model years in the range 1974 to 2018

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00502881	CO	0.00923234
NOx	0.00047300	NOx	0.00979416
ROG	0.00057178	ROG	0.00139856
SOx	0.00001071	SOx	0.00002749
PM10	0.00009494	PM10	0.00040110
PM2.5	0.00006234	PM2.5	0.00031792

Scenario Year: **2019**
All model years in the range 1975 to 2019

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00471820	CO	0.00857192
NOx	0.00043716	NOx	0.00900205
ROG	0.00054654	ROG	0.00130563
SOx	0.00001072	SOx	0.00002706
PM10	0.00009523	PM10	0.00037393
PM2.5	0.00006259	PM2.5	0.00029276

Scenario Year: **2020**
All model years in the range 1976 to 2020

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00444247	CO	0.00799617
NOx	0.00040506	NOx	0.00831802
ROG	0.00052463	ROG	0.00122382
SOx	0.00001073	SOx	0.00002733
PM10	0.00009550	PM10	0.00035054
PM2.5	0.00006279	PM2.5	0.00027128

Scenario Year: **2021**
All model years in the range 1977 to 2021

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00421218	CO	0.00748303
NOx	0.00037757	NOx	0.00773500
ROG	0.00050573	ROG	0.00115568
SOx	0.00001073	SOx	0.00002755
PM10	0.00009640	PM10	0.00033125
PM2.5	0.00006364	PM2.5	0.00025331

Scenario Year: **2022**
All model years in the range 1978 to 2022

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00397866	CO	0.00699290
NOx	0.00035150	NOx	0.00722470
ROG	0.00048658	ROG	0.00108569
SOx	0.00001072	SOx	0.00002774
PM10	0.00009661	PM10	0.00031501
PM2.5	0.00006389	PM2.5	0.00023906

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2023**

All model years in the range 1979 to 2023

Passenger Vehicles (pounds/mile)	
CO	0.00377527
NOx	0.00032851
ROG	0.00046900
SOx	0.00001070
PM10	0.00009676
PM2.5	0.00006405

Delivery Trucks (pounds/mile)	
CO	0.00658123
NOx	0.00679147
ROG	0.00102852
SOx	0.00002790
PM10	0.00030109
PM2.5	0.00022582

Scenario Year: **2024**

All model years in the range 1980 to 2024

Passenger Vehicles (pounds/mile)	
CO	0.00358611
NOx	0.00030721
ROG	0.00045136
SOx	0.00001080
PM10	0.00009676
PM2.5	0.00006410

Delivery Trucks (pounds/mile)	
CO	0.00625076
NOx	0.00647083
ROG	0.00096578
SOx	0.00002807
PM10	0.00029407
PM2.5	0.00021880

Scenario Year: **2025**

All model years in the range 1981 to 2025

Passenger Vehicles (pounds/mile)	
CO	0.00342738
NOx	0.00028846
ROG	0.00043545
SOx	0.00001070
PM10	0.00009679
PM2.5	0.00006418

Delivery Trucks (pounds/mile)	
CO	0.00595363
NOx	0.00615945
ROG	0.00092178
SOx	0.00002761
PM10	0.00028425
PM2.5	0.00020958

Scenario Year: **2026**

All model years in the range 1982 to 2026

Passenger Vehicles (pounds/mile)	
CO	0.00328779
NOx	0.00027141
ROG	0.00042052
SOx	0.00001076
PM10	0.00009687
PM2.5	0.00006415

Delivery Trucks (pounds/mile)	
CO	0.00569435
NOx	0.00589869
ROG	0.00088403
SOx	0.00002716
PM10	0.00027657
PM2.5	0.00020187

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixers	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188
Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927
	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipment	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604

SCAB Fleet Average Emission Factors (Diesel)

Crushing/Proc. Equipment	Composite		0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders		25	0.038	0.071	0.005	0.000	0.014
	Composite		0.038	0.071	0.005	0.000	0.014
Excavators		25	0.068	0.135	0.009	0.000	0.021
		50	0.353	0.278	0.034	0.000	0.151
		120	0.550	1.031	0.096	0.001	0.179
		175	0.676	1.390	0.079	0.001	0.179
		250	0.464	1.856	0.064	0.002	0.173
		500	0.765	2.381	0.086	0.002	0.229
		750	1.265	4.076	0.144	0.004	0.384
	Composite		0.598	1.423	0.078	0.001	0.182
Forklifts		50	0.212	0.164	0.021	0.000	0.093
		120	0.234	0.436	0.043	0.000	0.079
		175	0.334	0.702	0.042	0.001	0.093
		250	0.192	0.893	0.027	0.001	0.076
		500	0.278	1.119	0.036	0.001	0.099
	Composite		0.250	0.643	0.035	0.001	0.086
Generator Sets		15	0.076	0.128	0.008	0.000	0.020
		25	0.114	0.180	0.012	0.000	0.035
		50	0.308	0.320	0.032	0.000	0.129
		120	0.519	1.034	0.079	0.001	0.164
		175	0.757	1.694	0.079	0.002	0.194
		250	0.597	2.384	0.074	0.002	0.198
		500	1.121	3.473	0.108	0.003	0.282
		750	1.810	5.739	0.177	0.005	0.470
		9999	4.408	13.258	0.415	0.011	1.195
	Composite		0.355	0.725	0.045	0.001	0.113
Graders		50	0.393	0.310	0.038	0.000	0.173
		120	0.566	1.102	0.100	0.001	0.190
		175	0.754	1.626	0.091	0.001	0.207
		250	0.581	2.148	0.080	0.002	0.209
		500	0.967	2.541	0.096	0.002	0.249
		750	2.037	5.515	0.205	0.005	0.532
	Composite		0.671	1.720	0.089	0.001	0.206
Off-Highway Tractors		120	0.772	1.614	0.140	0.001	0.283
		175	0.884	2.021	0.113	0.001	0.264
		250	0.612	1.952	0.085	0.001	0.215
		750	4.355	7.822	0.327	0.006	0.834
		1000	6.736	12.573	0.455	0.008	1.277
	Composite		0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks		175	0.770	1.588	0.092	0.001	0.209
		250	0.510	1.999	0.071	0.002	0.193
		500	0.945	2.853	0.105	0.003	0.287
		750	1.528	4.773	0.173	0.004	0.469
		1000	2.606	8.328	0.257	0.006	0.753
	Composite		0.913	2.914	0.106	0.003	0.288
Other Construction Equipment		15	0.062	0.077	0.006	0.000	0.012
		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial Equipment		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211

SCAB Fleet Average Emission Factors (Diesel)

Other Material Handling Equipment	50	0.450	0.347	0.044	0.000	0.203
	120	0.463	0.909	0.085	0.001	0.162
	175	0.744	1.650	0.094	0.001	0.215
	250	0.465	1.840	0.065	0.002	0.173
	500	0.754	2.169	0.078	0.002	0.204
	9999	3.669	10.294	0.326	0.007	0.960
	Composite	0.630	1.836	0.082	0.002	0.204
Pavers	25	0.100	0.177	0.013	0.000	0.037
	50	0.413	0.323	0.040	0.000	0.188
	120	0.543	1.117	0.096	0.001	0.192
	175	0.821	1.856	0.102	0.001	0.236
	250	0.819	2.705	0.113	0.002	0.284
	500	1.494	2.940	0.119	0.002	0.303
	Composite	0.600	1.129	0.080	0.001	0.206
Paving Equipment	25	0.054	0.110	0.007	0.000	0.018
	50	0.350	0.276	0.034	0.000	0.159
	120	0.425	0.875	0.075	0.001	0.150
	175	0.641	1.454	0.079	0.001	0.184
	250	0.512	1.694	0.070	0.001	0.177
	Composite	0.469	1.033	0.071	0.001	0.156
Plate Compactors	15	0.026	0.035	0.002	0.000	0.005
	Composite	0.026	0.035	0.002	0.000	0.005
Pressure Washers	15	0.036	0.061	0.004	0.000	0.009
	25	0.046	0.073	0.005	0.000	0.014
	50	0.122	0.145	0.013	0.000	0.049
	120	0.153	0.306	0.022	0.000	0.046
	Composite	0.070	0.108	0.008	0.000	0.023
Pumps	15	0.055	0.095	0.007	0.000	0.017
	25	0.126	0.199	0.015	0.000	0.051
	50	0.362	0.362	0.037	0.000	0.154
	120	0.526	1.049	0.082	0.001	0.169
	175	0.758	1.696	0.082	0.002	0.198
	250	0.577	2.293	0.073	0.002	0.194
	500	1.202	3.599	0.115	0.003	0.298
	750	1.988	6.090	0.192	0.006	0.507
	9999	5.920	17.310	0.544	0.014	1.568
	Composite	0.324	0.622	0.044	0.001	0.109
Rollers	15	0.039	0.048	0.003	0.000	0.008
	25	0.058	0.117	0.007	0.000	0.018
	50	0.344	0.288	0.034	0.000	0.152
	120	0.433	0.865	0.073	0.001	0.145
	175	0.640	1.419	0.075	0.001	0.175
	250	0.539	1.919	0.073	0.002	0.187
	500	1.002	2.475	0.093	0.002	0.237
	Composite	0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts	50	0.463	0.375	0.045	0.000	0.202
	120	0.460	0.882	0.080	0.001	0.151
	175	0.739	1.570	0.087	0.001	0.198
	250	0.520	2.030	0.072	0.002	0.188
	500	0.900	2.692	0.097	0.003	0.252
	Composite	0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers	175	0.896	2.045	0.116	0.001	0.271
	250	0.884	2.800	0.124	0.002	0.314
	500	2.120	3.663	0.156	0.003	0.404
	750	3.171	5.593	0.236	0.004	0.609
	1000	5.061	9.296	0.342	0.006	0.954
	Composite	1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders	25	0.071	0.144	0.009	0.000	0.022
	50	0.440	0.349	0.043	0.000	0.194
	120	0.442	0.860	0.078	0.001	0.148
	175	0.643	1.385	0.077	0.001	0.176
	250	0.496	1.845	0.068	0.002	0.178
	500	0.971	2.604	0.098	0.002	0.253

SCAB Fleet Average Emission Factors (Diesel)

Rubber Tired Loaders		750	1.979	5.471	0.202	0.005	0.524
		1000	2.830	8.007	0.249	0.006	0.732
		Composite	0.555	1.382	0.077	0.001	0.173
Scrapers		120	0.745	1.513	0.134	0.001	0.264
		175	0.957	2.137	0.120	0.002	0.277
		250	0.861	2.901	0.119	0.002	0.305
		500	1.948	4.005	0.162	0.003	0.417
		750	3.347	7.044	0.282	0.006	0.724
		Composite	1.525	3.399	0.147	0.003	0.368
Signal Boards		15	0.038	0.045	0.003	0.000	0.007
		50	0.406	0.384	0.041	0.000	0.174
		120	0.552	1.088	0.088	0.001	0.177
		175	0.854	1.879	0.094	0.002	0.223
		250	0.732	2.919	0.095	0.003	0.250
		Composite	0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders		25	0.081	0.136	0.010	0.000	0.032
		50	0.284	0.261	0.028	0.000	0.113
		120	0.292	0.526	0.046	0.001	0.084
		Composite	0.273	0.337	0.033	0.000	0.098
Surfacing Equipment		50	0.164	0.152	0.016	0.000	0.071
		120	0.450	0.902	0.072	0.001	0.145
		175	0.490	1.083	0.054	0.001	0.128
		250	0.456	1.628	0.059	0.002	0.152
		500	0.989	2.426	0.087	0.002	0.223
		750	1.544	3.888	0.138	0.003	0.356
		Composite	0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers		15	0.073	0.088	0.006	0.000	0.012
		25	0.082	0.167	0.011	0.000	0.025
		50	0.443	0.352	0.043	0.000	0.197
		120	0.554	1.060	0.100	0.001	0.189
		175	0.816	1.767	0.101	0.002	0.230
		250	0.434	1.913	0.061	0.002	0.166
		Composite	0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backhoes		25	0.074	0.144	0.009	0.000	0.025
		50	0.398	0.329	0.039	0.000	0.168
		120	0.375	0.698	0.063	0.001	0.118
		175	0.592	1.209	0.067	0.001	0.151
		250	0.472	1.931	0.064	0.002	0.171
		500	1.028	3.377	0.118	0.004	0.307
		750	1.537	5.237	0.179	0.006	0.469
		Composite	0.414	0.830	0.064	0.001	0.131
Trenchers		15	0.052	0.062	0.005	0.000	0.010
		25	0.138	0.280	0.018	0.000	0.043
		50	0.465	0.376	0.045	0.000	0.211
		120	0.503	1.043	0.087	0.001	0.177
		175	0.913	2.073	0.111	0.002	0.260
		250	0.947	3.094	0.129	0.003	0.325
		500	2.068	3.932	0.159	0.003	0.402
		750	3.874	7.525	0.301	0.006	0.764
		Composite	0.517	0.858	0.071	0.001	0.194
Welders		15	0.046	0.080	0.006	0.000	0.014
		25	0.073	0.115	0.009	0.000	0.029
		50	0.317	0.282	0.032	0.000	0.139
		120	0.280	0.556	0.047	0.000	0.093
		175	0.557	1.243	0.064	0.001	0.152
		250	0.360	1.418	0.048	0.001	0.126
		500	0.632	1.809	0.061	0.002	0.158
		Composite	0.234	0.319	0.030	0.000	0.092

Summary of the Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project By Phase

Wetland Treatment System
Total On-Site

	VOC	CO	NOx	SOx	PM10	PM2.5
Site Preparation	8.3	32.3	96.2	0.1	20.1	7.5
Wetland & Pond Grading	3.7	20.9	33.2	0.0	1.7	5.2
Pond Construction	1.2	8.7	6.4	0.0	0.3	4.8
Pipeline Construction	2.8	13.2	26.0	0.0	1.2	1.1
Distribution System	5.8	24.1	30.2	0.0	1.8	1.7
Localized Significance Threshold*	**N/A**	**1124**	**335**	**N/A**	**43**	**18**
Exceed Significance?	**N/A**	**NO**	**NO**	**N/A**	**NO**	**NO**

* Based on Tables C1-C6 of the SCAQMD CEQA Handbook & Distance to Sensitive Receptors of 50 meters

Prepared by Sam Stewart, BonTerra Consulting (3/11/2007)

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Site Preparation Phase

Project	Construction Activity	
Wetland Treatment System	Site Preparation (Vegetation Removal)	544,500 Square Feet[a]

Site Preparation Schedule - 50 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Other Construction Equipment	1	7.0	6	Brush Chipper
Other Construction Equipment	2	7.0		Chainsaws
Rubber Tired Loaders	1	7.0		Loader
Off-Highway Trucks	1	7.0		Dump Truck

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Other Construction Equipment	0.1711	0.5607	1.0579	0.0009	0.0896
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768
Off-Highway Trucks	0.2881	0.9133	2.9144	0.0027	0.1056

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	2

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	34	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	2.0	40,000	22,000	40,000
			lb/day	lb/day	
			2,000,000	1,100,000	

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Site Preparation Phase

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	40	20
Employee Vehicles	6	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Other Construction Equipment	1.21	3.89	9.67	0.01	0.54
Other Construction Equipment	0.17	0.86	1.08	0.00	0.08
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Off-Highway Trucks	2.02	6.39	20.40	0.02	0.74
Total	**2.0**	**6.4**	**20.40**	**0.02**	**0.74**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton)
(1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Clearing	60	14.42
Storage Piles	0	0.00
Material Handling	60	1.25
Total		**15.67**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Site Preparation Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	5.97	23.14	75.49	0.06	3.69
Employee Vehicles	0.28	2.77	0.29	0.00	0.02
Total	**6.25**	**25.91**	**75.78**	**0.07**	**3.71**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**8.3**	**32.3**	**96.2**	**0.1**	**20.1**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	0.7	0.7
Combustion (Onroad)	0.96	3.71	3.57
Fugitive	0.21	15.7	3.3
Total		**20.1**	**7.5**
Localized Significance Threshold[q]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-F2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 40,000 cubic yards of dirt, as provided by Pace Engineering [(40,000 cyd x 2,500 lb/cyd)/50 days = 2,000,000 lb/day]

k) Assuming 22,000 cubic yards of debris handled, as provided by Pace Engineering [(22,000 cyd x 2,500 lb/cyd)/50 days = 1,100,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Wetland Pond Grading Phase

Project	Construction Activity	
Wetland Treatment System	Wetland & Pond Grading	492,228 Square Feet[a]

Site Preparation Schedule - 70 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Scrapers	1	7.0	24
Crawler Tractors	1	7.0	
Rubber Tired Loaders	1	7.0	
Rollers	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Scrapers	0.2643	0.7453	1.5133	0.0011	0.1342
Crawler Tractors	0.2180	0.7090	1.6218	0.0013	0.0988
Rubber Tired Loaders	0.1730	0.5552	1.3821	0.0012	0.0768
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	34	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	7.9	37,000	0	11,500
			lb/day	lb/day	
			1,321,429	0	

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	NOx	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Wetland Pond Grading Phase

Water Truck[1]	0.003729	0.014462	0.047182	0.000040	0.002309
Heavy Duty Truck[1]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[1]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Wetland Pond Grading Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Water Truck	10	4.5
Heavy Duty Truck	17	20
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Scrapers	1.85	5.22	10.59	0.01	0.94
Crawler Tractors	1.53	4.96	11.35	0.01	0.69
Rubber Tired Loaders	1.21	3.89	9.67	0.01	0.54
Rollers	0.99	3.09	6.35	0.01	0.44
Total	**5.6**	**17.2**	**38.0**	**0.0**	**2.6**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.30
Total		**5.57**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Wetland Pond Grading Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Water Truck	0.34	1.30	4.25	0.00	0.21
Heavy-Duty Truck	2.54	9.83	32.08	0.03	1.57
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**3.67**	**20.92**	**33.25**	**0.04**	**1.65**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**9.2**	**38.1**	**71.2**	**0.1**	**9.8**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	2.6	2.4
Combustion (Onroad)	0.96	1.65	1.59
Fugitive	0.21	5.6	1.2
Total		**9.8**	**5.2**
Localized Significance Threshold[q]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 37,000 cubic yards of dirt, as provided by Pace Engineering [(37,000 cyd x 2,500 lb/cyd)/70 days = 1,321,429 lb/day]

k) Assuming 0,000 cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/70 days = 0,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Wetland Pond Grading Phase

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake Wetland Treatment System Project - Pond Construction Phase

Project	Construction Activity	
Wetland Treatment System	Initial Pond Construction	65,340 Square Feet[a]

Site Preparation Schedule -	30 days[a]		
Equipment Type[a,b]	**No. of Equipment**	**hr/day**	**Crew Size**
Rubber Tired Loaders	1	7.0	15
Off-Highway Trucks	2	7.0	
Rollers	1	7.0	
Graders	2	7.0	

Construction Equipment Emission Factors

	VOC	CO	NOx	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Rubber Tired Loaders	0.1480	0.4419	0.8601	0.0007	0.0775
Off-Highway Trucks	0.2881	0.9133	2.9144	0.0027	0.1056
Rollers	0.1410	0.4419	0.9073	0.0008	0.0629
Graders	0.2055	0.6712	1.7198	0.0015	0.0886

Fugitive Dust Clearing Parameters

Silt Content[d]	Moisture Content[d]
6.9	7.9

Fugitive Dust Stockpiling Parameters

Silt Content[d]	Precipitation Days[e]	Mean Wind Speed Percent[f]	TSP Fraction	Area[g] (acres)
6.9	34	50	0.5	0

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	7.9	3,000	0	1,500
			lb/day	lb/day	
			250,000	0	

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake Wetland Treatment System Project - Pond Construction Phase

Construction Vehicle (Mobile Source) Emission Factors					
	VOC lb/mile	**CO** lb/mile	**NOx** lb/mile	**SOx** lb/mile	**PM10** lb/mile
Heavy Duty Truck[1]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[1]	0.001182	0.011552	0.001213	0.000011	0.000084

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake Wetland Treatment System Project - Pond Construction Phase

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	3	20
Employee Vehicles	15	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	NOx lb/day	SOx lb/day	PM10 lb/day
Rubber Tired Loaders	1.04	3.09	6.02	0.00	0.54
Off-Highway Trucks	4.03	12.79	40.80	0.04	1.48
Rollers	0.99	3.09	6.35	0.01	0.44
Graders	2.88	9.40	24.08	0.02	1.24
Total	**8.9**	**28.4**	**77.3**	**0.1**	**3.7**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Clearing	0	5.27
Storage Piles	0	0.00
Material Handling	0	0.06
Total		**5.33**

Localized Significance Threshold (LST) Analysis for the Ronald Talbert Lake Wetland Treatment System Project - Pond Construction Phase

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	NOx	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.45	1.74	5.66	0.00	0.28
Employee Vehicles	0.71	6.93	0.73	0.01	0.05
Total	**1.16**	**8.67**	**6.39**	**0.01**	**0.33**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**10.1**	**37.0**	**83.6**	**0.1**	**9.4**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[p]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	3.7	3.4
Combustion (Onroad)	0.96	0.33	0.31
Fugitive	0.21	5.3	1.1
Total		**9.4**	**4.8**
Localized Significance Threshold[q]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,000 cubic yards of dirt, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/30 days = cy lb/day]

k) Assuming 0,000 cubic yards of debris handled, as provided by Pace Engineering [(cy cyd x 2,500 lb/cyd)/30 days = 0,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for theTalbert Lake Wetland Treatment System Project - Pipeline Construction Phase

Project	Construction Activity	
Wetland Treatment System	Pipeline Construction	2,800 Square Feet[a]

Site Preparation Schedule - 10 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Tractors/Loaders/Backhoes	1	7.0	8
Cranes	1	7.0	

Construction Equipment Emission Factors

	VOC	CO	Nox	SOx	PM10
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i]	Moisture Content[d]	Dirt Handled[j]	Debris Handled[k]	Dirt/Debris Disposal
	mph		cy	cy	cy
0.35	11	2.0	300		100

	lb/day	lb/day
	75,000	0

Construction Vehicle (Mobile Source) Emission Factors

	VOC	CO	Nox	SOx	PM10
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	20
Employee Vehicles	8	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Localized Significance Threshold (LST) Analysis for theTalbert Lake Wetland Treatment System Project - Pipeline Construction Phase

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day
Tractors/Loaders/Backhoes	0.91	4.46	11.86	0.01	0.53
Cranes	1.32	4.46	11.86	0.01	0.53
Total	**2.2**	**8.9**	**23.7**	**0.0**	**1.1**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

	Control Efficiency	PM10
Description	%	lb/day
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	VOC	CO	Nox	SOx	PM10
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day
Heavy-Duty Truck	0.15	0.58	1.89	0.00	0.09
Employee Vehicles	0.38	3.70	0.39	0.00	0.03
Total	**0.53**	**4.27**	**2.28**	**0.01**	**0.12**

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**2.8**	**13.2**	**26.0**	**0.0**	**1.2**
Localized Significance Threshold[o]	***N/A***	***1124***	***335***	***N/A***	***43***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	PM2.5 Fraction[n]	PM10	PM2.5
		lb/day	lb/day
Combustion (Offroad)	0.92	1.1	1.0

Localized Significance Threshold (LST) Analysis for theTalbert Lake Wetland Treatment System Project - Pipeline Construction Phase

Combustion (Onroad)	0.96	0.12	0.11
Fugitive	0.21	0.0	0.0
Total		**1.2**	**1.1**
Localized Significance Threshold[p]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,300 cubic yards of dirt, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/10 days = 75,000 lb/day]

k) Assuming 0,000 cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/10 days = 0,000 lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Distribution System Phase

Project	Construction Activity	
Wetland Treatment System	Central Park Distribution System	3,200 Square Feet[a]

Site Preparation Schedule - 40 days[a]

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size	
Other Construction Equipment	2	7.0	24	15 hp (breakers)
Excavators	1	7.0		Composite
Cranes	1	7.0		Composite
Tractors/Loaders/Backhoes	1	7.0		Composite
Plate Compactors	1	7.0		Composite
Pumps	1	7.0		Composite

Construction Equipment Emission Factors

Equipment Type[c]	VOC lb/hr	CO lb/hr	Nox lb/hr	SOx lb/hr	PM10 lb/hr
Other Construction Equipment	0.0121	0.0617	0.0770	0.0002	0.0056
Excavators	0.1816	0.5977	1.4225	0.0013	0.0776
Cranes	0.1882	0.6365	1.6948	0.0014	0.0755
Tractors/Loaders/Backhoes	0.1307	0.4142	0.8303	0.0008	0.0639
Plate Compactors	0.0054	0.0263	0.0351	0.0001	0.0025
Pumps	0.1090	0.3243	0.6224	0.0006	0.0439

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[h]	Mean Wind Speed[i] mph	Moisture Content[d]	Dirt Handled[j] cy	Debris Handled[k] cy	Dirt/Debris Disposal cy
0.35	11	2.0	1,945	945	462
			lb/day	lb/day	
			121,563	59,063	

Construction Vehicle (Mobile Source) Emission Factors

	VOC lb/mile	CO lb/mile	Nox lb/mile	SOx lb/mile	PM10 lb/mile
Heavy-Duty Truck[l]	0.003729	0.014462	0.047182	0.000040	0.002309
Employee Vehicles[l]	0.001182	0.011552	0.001213	0.000011	0.000084

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	One WayTrip Length (miles)
Heavy Duty Truck	1	20
Employee Vehicles	24	20

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factors (lb/BHP-hr) x No. of Equipment x Work Day (hr/day) x Equipment rating (hp) x Load Factor (%/100) = Onsite Construction Emissions (lb/day)

Equipment Type	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Other Construction Equipment	0.17	0.37	0.49	0.00	0.03
Excavators	1.27	2.27	4.36	0.00	0.31
Cranes	1.32	4.46	11.86	0.01	0.53
Tractors/Loaders/Backhoes	0.91	2.90	5.81	0.01	0.45
Plate Compactors	0.04	0.18	0.25	0.00	0.02
Pumps	0.76	2.27	4.36	0.00	0.31
Total	**4.5**	**12.4**	**27.1**	**0.0**	**1.6**

Incremental Increase in Fugitive Dust Emissions from Construction Operations

Equations:

Clearing[m]: PM10 Emissions (lb/day) = 0.75 x (silt content$^{1.5}$)/(moisture content$^{1.4}$) x hours operated (hr/day) x (1 - control efficiency)

Storage Piles: PM10 Emissions (lb/day) = 1.7 x (silt content/7.5) x ((365-precipitation days)/35) x wind speed percent/15 x TSP fraction x Area) x (1 - control efficiency)

Material Handling[n]: PM10 Emissions (lb/day) = (0.0032 x aerodynamic particle size multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x dirt handled (lb/day)/2,000 (lb/ton) (1 - control efficiency)

Description	Control Efficiency %	PM10 lb/day
Material Handling	0	0.00
Total		**0.00**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	VOC lb/day	CO lb/day	Nox lb/day	SOx lb/day	PM10 lb/day
Heavy-Duty Truck	0.15	0.58	1.89	0.00	0.09
Employee Vehicles	1.14	11.09	1.16	0.01	0.08
Total	**1.28**	**11.67**	**3.05**	**0.01**	**0.17**

Localized Significance Threshold (LST) Analysis for the Talbert Lake Wetland Treatment System Project - Distribution System Phase

Total Incremental Localized Emissions from Construction Activities

	VOC	CO	Nox	SOx	PM10
Sources	lb/day	lb/day	lb/day	lb/day	lb/day
On-site Emissions	**5.8**	**24.1**	**30.2**	**0.0**	**1.8**
Localized Significance Threshold[o]	***N/A***	***950***	***335***	***N/A***	***14***
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**

Combustion and Fugitive Summary	**PM2.5 Fraction[n]**	**PM10**	**PM2.5**
		lb/day	lb/day
Combustion (Offroad)	0.92	1.6	1.5
Combustion (Onroad)	0.96	0.17	0.17
Fugitive	0.21	0.0	0.0
Total		**1.8**	**1.7**
Localized Significance Threshold[p]			**18**
Exceed Significance?			**NO**

Notes:

a) Construction schedule, equipment and quantities as estimated by Pace Engineering.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, 2007. Assumed equipment is diesel fueled.

d) USEPA, AP-42, July 1998, Table 11.9-3 Typical Values for Corection Factors Applicable to the Predictive Emission Factor Equations

e) Table A9-9-E2, SCAQMD CEQA Air Quality Handbook, 1993

f) Mean wind speed percent - percent of time mean wind speed exceeds 12 mph, as measured from weather records for 2003-2007.

g) Debris will be disposed of as it is produced. No storage piles anticipated.

h) USEPA, AP-42, Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors - November 2006

i) Mean wind speed - maximum of daily average wind speeds reported in 2005 to 2007 meteorological data.

j) Assuming 0,000 cubic yards of dirt, as provided by Pace Engineering [(cy cyd x 2,500 lb/cyd)/VOC days = 0,000 lb/day]

k) Assuming cy cubic yards of debris handled, as provided by Pace Engineering [(0,000 cyd x 2,500 lb/cyd)/VOC days = cy lb/day]

l) CARB, EMFAC2007 (version 2.3) Burden Model, Winter 2007, 75 F, 40% RH: EF, lb/yr = (EF, ton/yr x 2,000 lb/ton)/VMT

m) USEPA, AP-42, July 1998, Table 11.9-1, Equation for bulldozer, overburden,≤ 10 µm

n) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, Equation 1

o) App. C of the Methodology Paper for applicable LSTs.

p) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.App. C of the Methodology Paper for applicable LSTs.

q) SCAQMD Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy Heavy Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy heavy duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy heavy duty diesel trucks.

Scenario Year: **2007**

All model years in the range 1965 to 2007

HHDT-DSL (pounds/mile)	
CO	**0.01446237**
NOx	**0.04718166**
ROG	**0.00372949**
SOx	**0.00003962**
PM10	**0.00230900**
PM2.5	**0.00204018**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00216752**
PM2.5	**0.00199491**

Scenario Year: **2008**

All model years in the range 1965 to 2008

HHDT-DSL (pounds/mile)	
CO	**0.01361368**
NOx	**0.04458017**
ROG	**0.00351579**
SOx	**0.00004136**
PM10	**0.00215635**
PM2.5	**0.00189990**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00201296**
PM2.5	**0.00185303**

Scenario Year: **2009**

All model years in the range 1965 to 2009

HHDT-DSL (pounds/mile)	
CO	**0.01282236**
NOx	**0.04184591**
ROG	**0.00329320**
SOx	**0.00004013**
PM10	**0.00199572**
PM2.5	**0.00175227**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00185393**
PM2.5	**0.00170680**

Scenario Year: **2010**

All model years in the range 1966 to 2010

HHDT-DSL (pounds/mile)	
CO	**0.01195456**
NOx	**0.03822102**
ROG	**0.00304157**
SOx	**0.00004131**
PM10	**0.00183062**
PM2.5	**0.00160083**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00168861**
PM2.5	**0.00155435**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2011**

All model years in the range 1967 to 2011

HHDT-DSL (pounds/mile)	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	0.00003972
PM10	0.00166087
PM2.5	0.00144489

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00151936
PM2.5	0.00139772

Scenario Year: **2012**

All model years in the range 1968 to 2012

HHDT-DSL (pounds/mile)	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	0.00004042
PM10	0.00149566
PM2.5	0.00129354

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00135537
PM2.5	0.00124837

Scenario Year: **2013**

All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	0.00931790
NOx	0.02742935
ROG	0.00226308
SOx	0.00004086
PM10	0.00133697
PM2.5	0.00114629

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00119623
PM2.5	0.00109863

Scenario Year: **2014**

All model years in the range 1970 to 2014

HHDT-DSL (pounds/mile)	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	0.00004092
PM10	0.00118458
PM2.5	0.00100582

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00104243
PM2.5	0.00096059

Scenario Year: **2015**

All model years in the range 1971 to 2015

HHDT-DSL (pounds/mile)	
CO	0.00766891
NOx	0.02122678
ROG	0.00178608
SOx	0.00004082
PM10	0.00104715
PM2.5	0.00087977

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00090631
PM2.5	0.00083282

Scenario Year: **2016**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	0.00704604
NOx	0.01887374
ROG	0.00161035
SOx	0.00003952
PM10	0.00094448
PM2.5	0.00078443

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00080419
PM2.5	0.00073898

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

HHDT-DSL (pounds/mile)	
CO	0.00650533
NOx	0.01690387
ROG	0.00145203
SOx	0.00004033
PM10	0.00084894
PM2.5	0.00069721

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00070873
PM2.5	0.00065111

Scenario Year: **2018**
All model years in the range 1974 to 2018

HHDT-DSL (pounds/mile)	
CO	0.00604721
NOx	0.01526414
ROG	0.00131697
SOx	0.00003934
PM10	0.00076808
PM2.5	0.00062383

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00062758
PM2.5	0.00057700

Scenario Year: **2019**
All model years in the range 1975 to 2019

HHDT-DSL (pounds/mile)	
CO	0.00565433
NOx	0.01389113
ROG	0.00120235
SOx	0.00004032
PM10	0.00070198
PM2.5	0.00056085

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00056085
PM2.5	0.00051320

Scenario Year: **2020**
All model years in the range 1976 to 2020

HHDT-DSL (pounds/mile)	
CO	0.00532242
NOx	0.01274755
ROG	0.00110621
SOx	0.00003957
PM10	0.00064574
PM2.5	0.00050904

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00050364
PM2.5	0.00046227

Scenario Year: **2021**
All model years in the range 1977 to 2021

HHDT-DSL (pounds/mile)	
CO	0.00503726
NOx	0.01179977
ROG	0.00103095
SOx	0.00004033
PM10	0.00059437
PM2.5	0.00046287

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00045411
PM2.5	0.00041729

Scenario Year: **2022**
All model years in the range 1978 to 2022

HHDT-DSL (pounds/mile)	
CO	0.00478830
NOx	0.01098794
ROG	0.00096142
SOx	0.00004106
PM10	0.00055427
PM2.5	0.00042597

HHDT-DSL, Exh (pounds/mile)	
PM10	0.00041399
PM2.5	0.00037807

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Heavy Heavy Duty Diesel Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy Heavy Duty Diesel Trucks (33,001 to 60,000 pounds)

Scenario Year: **2023**
All model years in the range 1979 to 2023

HHDT-DSL (pounds/mile)	
CO	**0.00457902**
NOx	**0.01031407**
ROG	**0.00090210**
SOx	**0.00004009**
PM10	**0.00052122**
PM2.5	**0.00039592**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00037922**
PM2.5	**0.00034915**

Scenario Year: **2024**
All model years in the range 1980 to 2024

HHDT-DSL (pounds/mile)	
CO	**0.00444444**
NOx	**0.00974372**
ROG	**0.00084009**
SOx	**0.00003930**
PM10	**0.00050766**
PM2.5	**0.00038320**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00036682**
PM2.5	**0.00033735**

Scenario Year: **2025**
All model years in the range 1981 to 2025

HHDT-DSL (pounds/mile)	
CO	**0.00431086**
NOx	**0.00932573**
ROG	**0.00080206**
SOx	**0.00004018**
PM10	**0.00048541**
PM2.5	**0.00036326**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00034397**
PM2.5	**0.00031664**

Scenario Year: **2026**
All model years in the range 1982 to 2026

HHDT-DSL (pounds/mile)	
CO	**0.00420297**
NOx	**0.00898990**
ROG	**0.00077178**
SOx	**0.00003946**
PM10	**0.00046717**
PM2.5	**0.00034564**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00032670**
PM2.5	**0.00029830**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:
Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2007**

All model years in the range 1965 to 2007

Passenger Vehicles (pounds/mile)	
CO	**0.01155158**
NOx	**0.00121328**
ROG	**0.00118234**
SOx	**0.00001078**
PM10	**0.00008447**
PM2.5	**0.00005243**

Delivery Trucks (pounds/mile)	
CO	**0.02407553**
NOx	**0.02508445**
ROG	**0.00323145**
SOx	**0.00002626**
PM10	**0.00091020**
PM2.5	**0.00078884**

Scenario Year: **2008**

All model years in the range 1965 to 2008

Passenger Vehicles (pounds/mile)	
CO	**0.01054844**
NOx	**0.00110288**
ROG	**0.00107919**
SOx	**0.00001075**
PM10	**0.00008505**
PM2.5	**0.00005293**

Delivery Trucks (pounds/mile)	
CO	**0.02194915**
NOx	**0.02371258**
ROG	**0.00299270**
SOx	**0.00002565**
PM10	**0.00085607**
PM2.5	**0.00073933**

Scenario Year: **2009**

All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**

Scenario Year: **2010**

All model years in the range 1966 to 2010

Passenger Vehicles (pounds/mile)	
CO	**0.00826276**
NOx	**0.00091814**
ROG	**0.00091399**
SOx	**0.00001077**
PM10	**0.00008698**
PM2.5	**0.00005478**

Delivery Trucks (pounds/mile)	
CO	**0.01843765**
NOx	**0.02062460**
ROG	**0.00258958**
SOx	**0.00002701**
PM10	**0.00075121**
PM2.5	**0.00064233**

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2011**
All model years in the range 1967 to 2011

Passenger Vehicles (pounds/mile)	
CO	0.00826276
NOx	0.00084460
ROG	0.00085233
SOx	0.00001077
PM10	0.00008879
PM2.5	0.00005653

Delivery Trucks (pounds/mile)	
CO	0.01693242
NOx	0.01893366
ROG	0.00241868
SOx	0.00002728
PM10	0.00070097
PM2.5	0.00059682

Scenario Year: **2012**
All model years in the range 1968 to 2012

Passenger Vehicles (pounds/mile)	
CO	0.00765475
NOx	0.00077583
ROG	0.00079628
SOx	0.00001073
PM10	0.00008979
PM2.5	0.00005750

Delivery Trucks (pounds/mile)	
CO	0.01545741
NOx	0.01732423
ROG	0.00223776
SOx	0.00002667
PM10	0.00064975
PM2.5	0.00054954

Scenario Year: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	0.00709228
NOx	0.00071158
ROG	0.00074567
SOx	0.00001072
PM10	0.00009067
PM2.5	0.00005834

Delivery Trucks (pounds/mile)	
CO	0.01407778
NOx	0.01577311
ROG	0.00206295
SOx	0.00002682
PM10	0.00059956
PM2.5	0.00050174

Scenario Year: **2014**
All model years in the range 1970 to 2014

Passenger Vehicles (pounds/mile)	
CO	0.00660353
NOx	0.00065484
ROG	0.00070227
SOx	0.00001069
PM10	0.00009185
PM2.5	0.00005939

Delivery Trucks (pounds/mile)	
CO	0.01284321
NOx	0.01425162
ROG	0.00189649
SOx	0.00002754
PM10	0.00054929
PM2.5	0.00045519

Scenario Year: **2015**
All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	0.00614108
NOx	0.00060188
ROG	0.00066355
SOx	0.00001070
PM10	0.00009259
PM2.5	0.00006015

Delivery Trucks (pounds/mile)	
CO	0.01169445
NOx	0.01285026
ROG	0.00173890
SOx	0.00002741
PM10	0.00050307
PM2.5	0.00041268

Scenario Year: **2016**
All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131

Delivery Trucks (pounds/mile)	
CO	0.01080542
NOx	0.01172881
ROG	0.00161521
SOx	0.00002767
PM10	0.00046606
PM2.5	0.00037868

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2017**
All model years in the range 1973 to 2017

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00537891	CO	0.00998101
NOx	0.00051297	NOx	0.01070034
ROG	0.00060109	ROG	0.00150242
SOx	0.00001079	SOx	0.00002723
PM10	0.00009446	PM10	0.00043131
PM2.5	0.00006192	PM2.5	0.00034605

Scenario Year: **2018**
All model years in the range 1974 to 2018

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00502881	CO	0.00923234
NOx	0.00047300	NOx	0.00979416
ROG	0.00057178	ROG	0.00139856
SOx	0.00001071	SOx	0.00002749
PM10	0.00009494	PM10	0.00040110
PM2.5	0.00006234	PM2.5	0.00031792

Scenario Year: **2019**
All model years in the range 1975 to 2019

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00471820	CO	0.00857192
NOx	0.00043716	NOx	0.00900205
ROG	0.00054654	ROG	0.00130563
SOx	0.00001072	SOx	0.00002706
PM10	0.00009523	PM10	0.00037393
PM2.5	0.00006259	PM2.5	0.00029276

Scenario Year: **2020**
All model years in the range 1976 to 2020

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00444247	CO	0.00799617
NOx	0.00040506	NOx	0.00831802
ROG	0.00052463	ROG	0.00122382
SOx	0.00001073	SOx	0.00002733
PM10	0.00009550	PM10	0.00035054
PM2.5	0.00006279	PM2.5	0.00027128

Scenario Year: **2021**
All model years in the range 1977 to 2021

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00421218	CO	0.00748303
NOx	0.00037757	NOx	0.00773500
ROG	0.00050573	ROG	0.00115568
SOx	0.00001073	SOx	0.00002755
PM10	0.00009640	PM10	0.00033125
PM2.5	0.00006364	PM2.5	0.00025331

Scenario Year: **2022**
All model years in the range 1978 to 2022

Passenger Vehicles (pounds/mile)		Delivery Trucks (pounds/mile)	
CO	0.00397866	CO	0.00699290
NOx	0.00035150	NOx	0.00722470
ROG	0.00048658	ROG	0.00108569
SOx	0.00001072	SOx	0.00002774
PM10	0.00009661	PM10	0.00031501
PM2.5	0.00006389	PM2.5	0.00023906

Highest (Most Conservative) Emfac 2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

Scenario Year: **2023**

All model years in the range 1979 to 2023

Passenger Vehicles (pounds/mile)	
CO	0.00377527
NOx	0.00032851
ROG	0.00046900
SOx	0.00001070
PM10	0.00009676
PM2.5	0.00006405

Delivery Trucks (pounds/mile)	
CO	0.00658123
NOx	0.00679147
ROG	0.00102852
SOx	0.00002790
PM10	0.00030109
PM2.5	0.00022582

Scenario Year: **2024**

All model years in the range 1980 to 2024

Passenger Vehicles (pounds/mile)	
CO	0.00358611
NOx	0.00030721
ROG	0.00045136
SOx	0.00001080
PM10	0.00009676
PM2.5	0.00006410

Delivery Trucks (pounds/mile)	
CO	0.00625076
NOx	0.00647083
ROG	0.00096578
SOx	0.00002807
PM10	0.00029407
PM2.5	0.00021880

Scenario Year: **2025**

All model years in the range 1981 to 2025

Passenger Vehicles (pounds/mile)	
CO	0.00342738
NOx	0.00028846
ROG	0.00043545
SOx	0.00001070
PM10	0.00009679
PM2.5	0.00006418

Delivery Trucks (pounds/mile)	
CO	0.00595363
NOx	0.00615945
ROG	0.00092178
SOx	0.00002761
PM10	0.00028425
PM2.5	0.00020958

Scenario Year: **2026**

All model years in the range 1982 to 2026

Passenger Vehicles (pounds/mile)	
CO	0.00328779
NOx	0.00027141
ROG	0.00042052
SOx	0.00001076
PM10	0.00009687
PM2.5	0.00006415

Delivery Trucks (pounds/mile)	
CO	0.00569435
NOx	0.00589869
ROG	0.00088403
SOx	0.00002716
PM10	0.00027657
PM2.5	0.00020187

SCAB Fleet Average Emission Factors (Diesel)

Sum of Ems Factor #/hr		Year	Pollutant			
		2007				
Eq Name	Hp	CO	NOx	PM10	SOx	VOC
Aerial Lifts	15	0.054	0.078	0.005	0.000	0.012
	25	0.068	0.110	0.008	0.000	0.027
	50	0.204	0.206	0.021	0.000	0.087
	120	0.256	0.511	0.040	0.000	0.082
	500	0.738	2.216	0.070	0.002	0.183
	750	1.334	4.100	0.129	0.004	0.340
	Composite	0.225	0.403	0.028	0.000	0.078
Air Compressors	15	0.054	0.093	0.007	0.000	0.016
	25	0.093	0.147	0.011	0.000	0.038
	50	0.293	0.247	0.029	0.000	0.131
	120	0.342	0.676	0.059	0.001	0.116
	175	0.515	1.148	0.061	0.001	0.143
	250	0.407	1.600	0.056	0.001	0.146
	500	0.887	2.546	0.089	0.002	0.229
	750	1.370	4.028	0.139	0.004	0.361
	1000	2.326	6.541	0.205	0.005	0.603
	Composite	0.387	0.830	0.058	0.001	0.129
Bore/Drill Rigs	15	0.063	0.079	0.006	0.000	0.012
	25	0.069	0.140	0.009	0.000	0.022
	50	0.289	0.296	0.029	0.000	0.098
	120	0.501	0.841	0.068	0.001	0.121
	175	0.754	1.292	0.065	0.002	0.138
	250	0.353	1.632	0.043	0.002	0.113
	500	0.568	2.233	0.066	0.003	0.163
	750	1.122	4.654	0.134	0.006	0.337
	1000	1.934	9.882	0.247	0.009	0.701
	Composite	0.539	1.473	0.065	0.002	0.146
Cement and Mortar Mixers	15	0.040	0.060	0.004	0.000	0.009
	25	0.108	0.176	0.013	0.000	0.043
	Composite	0.046	0.069	0.005	0.000	0.012
Concrete/Industrial Saws	25	0.069	0.140	0.009	0.000	0.021
	50	0.352	0.324	0.035	0.000	0.151
	120	0.515	1.019	0.083	0.001	0.165
	175	0.894	1.968	0.099	0.002	0.234
	Composite	0.449	0.764	0.064	0.001	0.156
Cranes	50	0.345	0.267	0.033	0.000	0.155
	120	0.385	0.767	0.069	0.001	0.134
	175	0.497	1.101	0.061	0.001	0.142
	250	0.412	1.466	0.057	0.001	0.148
	500	0.848	2.105	0.082	0.002	0.212
	750	1.421	3.620	0.139	0.003	0.360
	9999	5.228	13.566	0.434	0.010	1.279
	Composite	0.637	1.695	0.075	0.001	0.188
Crawler Tractors	50	0.381	0.290	0.037	0.000	0.173
	120	0.522	1.054	0.094	0.001	0.184
	175	0.781	1.737	0.098	0.001	0.226
	250	0.671	2.282	0.093	0.002	0.239
	500	1.526	3.198	0.129	0.003	0.332
	750	2.719	5.841	0.232	0.005	0.599
	1000	4.284	9.552	0.324	0.007	0.927
	Composite	0.709	1.622	0.099	0.001	0.218
Crushing/Proc. Equipment	50	0.592	0.488	0.058	0.001	0.262
	120	0.609	1.192	0.106	0.001	0.205
	175	0.982	2.153	0.117	0.002	0.271
	250	0.743	2.956	0.102	0.003	0.268
	500	1.380	4.035	0.141	0.004	0.363
	750	2.091	6.537	0.223	0.006	0.580
	9999	5.980	17.550	0.544	0.013	1.604

SCAB Fleet Average Emission Factors (Diesel)

Crushing/Proc. Equipment	Composite		0.782	1.655	0.105	0.001	0.250
Dumpers/Tenders		25	0.038	0.071	0.005	0.000	0.014
	Composite		0.038	0.071	0.005	0.000	0.014
Excavators		25	0.068	0.135	0.009	0.000	0.021
		50	0.353	0.278	0.034	0.000	0.151
		120	0.550	1.031	0.096	0.001	0.179
		175	0.676	1.390	0.079	0.001	0.179
		250	0.464	1.856	0.064	0.002	0.173
		500	0.765	2.381	0.086	0.002	0.229
		750	1.265	4.076	0.144	0.004	0.384
	Composite		0.598	1.423	0.078	0.001	0.182
Forklifts		50	0.212	0.164	0.021	0.000	0.093
		120	0.234	0.436	0.043	0.000	0.079
		175	0.334	0.702	0.042	0.001	0.093
		250	0.192	0.893	0.027	0.001	0.076
		500	0.278	1.119	0.036	0.001	0.099
	Composite		0.250	0.643	0.035	0.001	0.086
Generator Sets		15	0.076	0.128	0.008	0.000	0.020
		25	0.114	0.180	0.012	0.000	0.035
		50	0.308	0.320	0.032	0.000	0.129
		120	0.519	1.034	0.079	0.001	0.164
		175	0.757	1.694	0.079	0.002	0.194
		250	0.597	2.384	0.074	0.002	0.198
		500	1.121	3.473	0.108	0.003	0.282
		750	1.810	5.739	0.177	0.005	0.470
		9999	4.408	13.258	0.415	0.011	1.195
	Composite		0.355	0.725	0.045	0.001	0.113
Graders		50	0.393	0.310	0.038	0.000	0.173
		120	0.566	1.102	0.100	0.001	0.190
		175	0.754	1.626	0.091	0.001	0.207
		250	0.581	2.148	0.080	0.002	0.209
		500	0.967	2.541	0.096	0.002	0.249
		750	2.037	5.515	0.205	0.005	0.532
	Composite		0.671	1.720	0.089	0.001	0.206
Off-Highway Tractors		120	0.772	1.614	0.140	0.001	0.283
		175	0.884	2.021	0.113	0.001	0.264
		250	0.612	1.952	0.085	0.001	0.215
		750	4.355	7.822	0.327	0.006	0.834
		1000	6.736	12.573	0.455	0.008	1.277
	Composite		0.927	2.274	0.111	0.002	0.269
Off-Highway Trucks		175	0.770	1.588	0.092	0.001	0.209
		250	0.510	1.999	0.071	0.002	0.193
		500	0.945	2.853	0.105	0.003	0.287
		750	1.528	4.773	0.173	0.004	0.469
		1000	2.606	8.328	0.257	0.006	0.753
	Composite		0.913	2.914	0.106	0.003	0.288
Other Construction Equipment		15	0.062	0.077	0.006	0.000	0.012
		25	0.057	0.115	0.007	0.000	0.018
		50	0.326	0.294	0.032	0.000	0.136
		120	0.561	1.058	0.090	0.001	0.171
		175	0.596	1.231	0.064	0.001	0.146
		500	0.769	2.447	0.083	0.002	0.209
	Composite		0.475	1.241	0.054	0.001	0.131
Other General Industrial Equipment		15	0.039	0.047	0.003	0.000	0.007
		25	0.063	0.127	0.008	0.000	0.019
		50	0.326	0.250	0.032	0.000	0.148
		120	0.476	0.934	0.088	0.001	0.167
		175	0.588	1.301	0.075	0.001	0.171
		250	0.437	1.727	0.061	0.002	0.163
		500	1.047	3.012	0.109	0.003	0.285
		750	1.725	5.087	0.182	0.004	0.476
		1000	2.774	7.795	0.247	0.006	0.728
	Composite		0.699	1.901	0.085	0.002	0.211

SCAB Fleet Average Emission Factors (Diesel)

Other Material Handling Equipment	50	0.450	0.347	0.044	0.000	0.203
	120	0.463	0.909	0.085	0.001	0.162
	175	0.744	1.650	0.094	0.001	0.215
	250	0.465	1.840	0.065	0.002	0.173
	500	0.754	2.169	0.078	0.002	0.204
	9999	3.669	10.294	0.326	0.007	0.960
	Composite	0.630	1.836	0.082	0.002	0.204
Pavers	25	0.100	0.177	0.013	0.000	0.037
	50	0.413	0.323	0.040	0.000	0.188
	120	0.543	1.117	0.096	0.001	0.192
	175	0.821	1.856	0.102	0.001	0.236
	250	0.819	2.705	0.113	0.002	0.284
	500	1.494	2.940	0.119	0.002	0.303
	Composite	0.600	1.129	0.080	0.001	0.206
Paving Equipment	25	0.054	0.110	0.007	0.000	0.018
	50	0.350	0.276	0.034	0.000	0.159
	120	0.425	0.875	0.075	0.001	0.150
	175	0.641	1.454	0.079	0.001	0.184
	250	0.512	1.694	0.070	0.001	0.177
	Composite	0.469	1.033	0.071	0.001	0.156
Plate Compactors	15	0.026	0.035	0.002	0.000	0.005
	Composite	0.026	0.035	0.002	0.000	0.005
Pressure Washers	15	0.036	0.061	0.004	0.000	0.009
	25	0.046	0.073	0.005	0.000	0.014
	50	0.122	0.145	0.013	0.000	0.049
	120	0.153	0.306	0.022	0.000	0.046
	Composite	0.070	0.108	0.008	0.000	0.023
Pumps	15	0.055	0.095	0.007	0.000	0.017
	25	0.126	0.199	0.015	0.000	0.051
	50	0.362	0.362	0.037	0.000	0.154
	120	0.526	1.049	0.082	0.001	0.169
	175	0.758	1.696	0.082	0.002	0.198
	250	0.577	2.293	0.073	0.002	0.194
	500	1.202	3.599	0.115	0.003	0.298
	750	1.988	6.090	0.192	0.006	0.507
	9999	5.920	17.310	0.544	0.014	1.568
	Composite	0.324	0.622	0.044	0.001	0.109
Rollers	15	0.039	0.048	0.003	0.000	0.008
	25	0.058	0.117	0.007	0.000	0.018
	50	0.344	0.288	0.034	0.000	0.152
	120	0.433	0.865	0.073	0.001	0.145
	175	0.640	1.419	0.075	0.001	0.175
	250	0.539	1.919	0.073	0.002	0.187
	500	1.002	2.475	0.093	0.002	0.237
	Composite	0.442	0.907	0.063	0.001	0.141
Rough Terrain Forklifts	50	0.463	0.375	0.045	0.000	0.202
	120	0.460	0.882	0.080	0.001	0.151
	175	0.739	1.570	0.087	0.001	0.198
	250	0.520	2.030	0.072	0.002	0.188
	500	0.900	2.692	0.097	0.003	0.252
	Composite	0.493	0.963	0.080	0.001	0.158
Rubber Tired Dozers	175	0.896	2.045	0.116	0.001	0.271
	250	0.884	2.800	0.124	0.002	0.314
	500	2.120	3.663	0.156	0.003	0.404
	750	3.171	5.593	0.236	0.004	0.609
	1000	5.061	9.296	0.342	0.006	0.954
	Composite	1.695	3.414	0.147	0.002	0.379
Rubber Tired Loaders	25	0.071	0.144	0.009	0.000	0.022
	50	0.440	0.349	0.043	0.000	0.194
	120	0.442	0.860	0.078	0.001	0.148
	175	0.643	1.385	0.077	0.001	0.176
	250	0.496	1.845	0.068	0.002	0.178
	500	0.971	2.604	0.098	0.002	0.253

SCAB Fleet Average Emission Factors (Diesel)

Rubber Tired Loaders		750	1.979	5.471	0.202	0.005	0.524
		1000	2.830	8.007	0.249	0.006	0.732
		Composite	0.555	1.382	0.077	0.001	0.173
Scrapers		120	0.745	1.513	0.134	0.001	0.264
		175	0.957	2.137	0.120	0.002	0.277
		250	0.861	2.901	0.119	0.002	0.305
		500	1.948	4.005	0.162	0.003	0.417
		750	3.347	7.044	0.282	0.006	0.724
		Composite	1.525	3.399	0.147	0.003	0.368
Signal Boards		15	0.038	0.045	0.003	0.000	0.007
		50	0.406	0.384	0.041	0.000	0.174
		120	0.552	1.088	0.088	0.001	0.177
		175	0.854	1.879	0.094	0.002	0.223
		250	0.732	2.919	0.095	0.003	0.250
		Composite	0.097	0.181	0.011	0.000	0.025
Skid Steer Loaders		25	0.081	0.136	0.010	0.000	0.032
		50	0.284	0.261	0.028	0.000	0.113
		120	0.292	0.526	0.046	0.001	0.084
		Composite	0.273	0.337	0.033	0.000	0.098
Surfacing Equipment		50	0.164	0.152	0.016	0.000	0.071
		120	0.450	0.902	0.072	0.001	0.145
		175	0.490	1.083	0.054	0.001	0.128
		250	0.456	1.628	0.059	0.002	0.152
		500	0.989	2.426	0.087	0.002	0.223
		750	1.544	3.888	0.138	0.003	0.356
		Composite	0.765	1.850	0.071	0.002	0.186
Sweepers/Scrubbers		15	0.073	0.088	0.006	0.000	0.012
		25	0.082	0.167	0.011	0.000	0.025
		50	0.443	0.352	0.043	0.000	0.197
		120	0.554	1.060	0.100	0.001	0.189
		175	0.816	1.767	0.101	0.002	0.230
		250	0.434	1.913	0.061	0.002	0.166
		Composite	0.567	1.028	0.082	0.001	0.196
Tractors/Loaders/Backhoes		25	0.074	0.144	0.009	0.000	0.025
		50	0.398	0.329	0.039	0.000	0.168
		120	0.375	0.698	0.063	0.001	0.118
		175	0.592	1.209	0.067	0.001	0.151
		250	0.472	1.931	0.064	0.002	0.171
		500	1.028	3.377	0.118	0.004	0.307
		750	1.537	5.237	0.179	0.006	0.469
		Composite	0.414	0.830	0.064	0.001	0.131
Trenchers		15	0.052	0.062	0.005	0.000	0.010
		25	0.138	0.280	0.018	0.000	0.043
		50	0.465	0.376	0.045	0.000	0.211
		120	0.503	1.043	0.087	0.001	0.177
		175	0.913	2.073	0.111	0.002	0.260
		250	0.947	3.094	0.129	0.003	0.325
		500	2.068	3.932	0.159	0.003	0.402
		750	3.874	7.525	0.301	0.006	0.764
		Composite	0.517	0.858	0.071	0.001	0.194
Welders		15	0.046	0.080	0.006	0.000	0.014
		25	0.073	0.115	0.009	0.000	0.029
		50	0.317	0.282	0.032	0.000	0.139
		120	0.280	0.556	0.047	0.000	0.093
		175	0.557	1.243	0.064	0.001	0.152
		250	0.360	1.418	0.048	0.001	0.126
		500	0.632	1.809	0.061	0.002	0.158
		Composite	0.234	0.319	0.030	0.000	0.092