APPENDIX E

AIR EMISSIONS WORKSHEETS

Plant No. 1 Operations

worker commute

Employee Commute Vehicle Inputs	
Number of Workers	208
Average Trip Distance (One Way/ Miles)	30
Number of Biosolid Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Grit/Screening Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	
Average Trip Distance (One Way/ Miles)	

Total Trips, POV (One Way)	208
Total Trips Truck (One Way)	0

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	6240
%LDT	30.00%	Daily VMT Haul Truck	0

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Plant No. 1 Operations, continued

worker commute

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	43.90
Reactive Organic Compounds (ROC)	0.19	2.65
Nitrogen Oxides (NOx)	0.27	3.64
Sulfur Oxides (SOx)	0.05	0.69
Particulates (PM10)	0.01	0.14

Source: Emission Factors From EMFAC2002

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		5.8

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	43.90		43.90	550	NO
Reactive Organic Compounds (ROC	2.65		2.65	55	NO
Nitrogen Oxides (NOx)	3.64		3.64	55	NO
Sulfur Oxides (SOx)	0.69		0.69	150	NO
Particulates (PM10)	5.94		5.94	150	NO

Plant No. 1 Operations, continued

chemical delivery

Chemical Delivery Vehicle Inputs	
Number of Workers	
Average Trip Distance (One Way/ Miles)	
Number of Biosolid Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Grit/Screening Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	20
Average Trip Distance (One Way/ Miles)	30

Total Trips, POV (One Way)	0
Total Trips Truck (One Way)	20

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	0
%LDT	30.00%	Daily VMT Haul Truck	1200

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	7.67
Reactive Organic Compounds (ROC)	0.65	1.72
Nitrogen Oxides (NOx)	15.97	42.21
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	0.69

Source: EMFAC2002

Plant No. 1 Operations, continued

chemical delivery

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	0.00
Reactive Organic Compounds (ROC)	0.19	0.00
Nitrogen Oxides (NOx)	0.27	0.00
Sulfur Oxides (SOx) *	0.05	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		1.1

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	7.67		7.67	550	NO
Reactive Organic Compounds (ROC	1.72		1.72	55	NO
Nitrogen Oxides (NOx)	42.21		42.21	55	NO
Sulfur Oxides (SOx)	0.00		0.00	150	NO
Particulates (PM10)	1.80		1.80	150	NO

Plant No. 1 Operations, continued

biosolids transport

Biosolids Haul Trip Vehicle Inputs	
Number of Workers	
Average Trip Distance (One Way/ Miles)	
Number of Biosolid Truck Trips Per Day	42
Average Trip Distance (One Way/ Miles)	200
Number of Grit/Screening Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	
Average Trip Distance (One Way/ Miles)	

Total Trips, POV (One Way)	0
Total Trips Truck (One Way)	42

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	0
%LDT	30.00%	Daily VMT Haul Truck	16800

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	107.31
Reactive Organic Compounds (ROC)	0.65	24.05
Nitrogen Oxides (NOx)	15.97	590.96
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	9.62

*Source: EMFAC2002

Plant No. 1 Operations, continued

biosolids transport

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	0.00
Reactive Organic Compounds (ROC)	0.19	0.00
Nitrogen Oxides (NOx)	0.27	0.00
Sulfur Oxides (SOx)	0.05	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		15.6

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	107.31		107.31	550	NO
Reactive Organic Compounds (ROC	24.05		24.05	55	NO
Nitrogen Oxides (NOx)	590.96		590.96	55	YES
Sulfur Oxides (SOx)	0.00		0.00	150	NO
Particulates (PM10)	25.24		25.24	150	NO

Plant No. 1 Operations, continued

grit and screening transport

Grit and Screening Vehicle Inputs	
Number of Workers	
Average Trip Distance (One Way/ Miles)	
Number of Biosolid Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Grit/Screening Truck Trips Per Day	2
Average Trip Distance (One Way/ Miles)	60
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	
Average Trip Distance (One Way/ Miles)	

Total Trips, POV (One Way)	0
Total Trips Truck (One Way)	0

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	0
%LDT	30.00%	Daily VMT Haul Truck	240

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.53
Reactive Organic Compounds (ROC)	0.65	0.34
Nitrogen Oxides (NOx)	15.97	8.44
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	0.14

Source: EMFAC2002

Plant No. 1 Operations, continued

grit and screening transport

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	0.00
Reactive Organic Compounds (ROC)	0.19	0.00
Nitrogen Oxides (NOx)	0.27	0.00
Sulfur Oxides (SOx) *	0.05	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

*Source: Table A9-5-L SCAQMD CEQA Handbook

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		0.2

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	1.53		1.53	550	NO
Reactive Organic Compounds (ROC	0.34		0.34	55	NO
Nitrogen Oxides (NOx)	8.44		8.44	55	NO
Sulfur Oxides (SOx)	0.00		0.00	150	NO
Particulates (PM10)	0.36		0.36	150	NO

Plant No. 2 Operations

worker commute

Employee Commute Vehicle Inputs	
Number of Workers	208
Average Trip Distance (One Way/ Miles)	30
Number of Biosolid Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Grit/Screening Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	
Average Trip Distance (One Way/ Miles)	

Total Trips, POV (One Way)	208
Total Trips Truck (One Way)	0

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	6240
%LDT	30.00%	Daily VMT Haul Truck	0

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Plant No. 2 Operations, continued

worker commute

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	43.90
Reactive Organic Compounds (ROC)	0.19	2.65
Nitrogen Oxides (NOx)	0.27	3.64
Sulfur Oxides (SOx)	0.05	0.69
Particulates (PM10)	0.01	0.14

Source: Emission Factors From EMFAC2002

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		5.8

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	43.90		43.90	550	NO
Reactive Organic Compounds (ROC	2.65		2.65	55	NO
Nitrogen Oxides (NOx)	3.64		3.64	55	NO
Sulfur Oxides (SOx)	0.69		0.69	150	NO
Particulates (PM10)	5.94		5.94	150	NO

Plant No. 2 Operations, continued

chemical delivery

Chemical Delivery Vehicle Inputs	
Number of Workers	
Average Trip Distance (One Way/ Miles)	
Number of Biosolid Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Grit/Screening Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	26
Average Trip Distance (One Way/ Miles)	30

Total Trips, POV (One Way)	0
Total Trips Truck (One Way)	26

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	0
%LDT	30.00%	Daily VMT Haul Truck	1560

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	9.96
Reactive Organic Compounds (ROC)	0.65	2.23
Nitrogen Oxides (NOx)	15.97	54.87
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	0.89

Source: EMFAC2002

Plant No. 2 Operations, continued

chemical delivery

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	0.00
Reactive Organic Compounds (ROC)	0.19	0.00
Nitrogen Oxides (NOx)	0.27	0.00
Sulfur Oxides (SOx) *	0.05	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

*Source: Table A9-5-L SCAQMD CEQA Handbook

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		1.5

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	9.96		9.96	550	NO
Reactive Organic Compounds (ROC	2.23		2.23	55	NO
Nitrogen Oxides (NOx)	54.87		54.87	55	NO
Sulfur Oxides (SOx)	0.00		0.00	150	NO
Particulates (PM10)	2.34		2.34	150	NO

Plant No. 2 Operations, continued

biosolids transport

Biosolids Haul Trip Vehicle Inputs	
Number of Workers	
Average Trip Distance (One Way/ Miles)	
Number of Biosolid Truck Trips Per Day	33
Average Trip Distance (One Way/ Miles)	200
Number of Grit/Screening Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	
Average Trip Distance (One Way/ Miles)	

Total Trips, POV (One Way)	0
Total Trips Truck (One Way)	33

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	0
%LDT	30.00%	Daily VMT Haul Truck	13200

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	84.32
Reactive Organic Compounds (ROC)	0.65	18.90
Nitrogen Oxides (NOx)	15.97	464.33
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	7.56

Source: EMFAC2002

Plant No. 2 Operations, continued

biosolids transport

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	0.00
Reactive Organic Compounds (ROC)	0.19	0.00
Nitrogen Oxides (NOx)	0.27	0.00
Sulfur Oxides (SOx) *	0.05	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

*Source: Table A9-5-L SCAQMD CEQA Handbook

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		12.3

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	84.32		84.32	550	NO
Reactive Organic Compounds (ROC	18.90		18.90	55	NO
Nitrogen Oxides (NOx)	464.33		464.33	55	YES
Sulfur Oxides (SOx)	0.00		0.00	150	NO
Particulates (PM10)	19.83		19.83	150	NO

Plant No. 2 Operations, continued

grit and screening transport

Grit and Screening Vehicle Inputs	
Number of Workers	
Average Trip Distance (One Way/ Miles)	
Number of Biosolid Truck Trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Grit/Screening Truck Trips Per Day	3
Average Trip Distance (One Way/ Miles)	60
Number of septage disposal trips Per Day	
Average Trip Distance (One Way/ Miles)	
Number of Delivery Trucks	
Average Trip Distance (One Way/ Miles)	

Total Trips, POV (One Way)	0
Total Trips Truck (One Way)	0

Assumptions Used in EMFAC2002 For Automobiles			
% LDA	70.00%	Daily VMT LDA & LDT	0
%LDT	30.00%	Daily VMT Haul Truck	360

EMFAC2002 Inputs	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
(ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Sulfur Oxides (SOx)	NA	NA	NA
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	2.30
Reactive Organic Compounds (ROC)	0.65	0.52
Nitrogen Oxides (NOx)	15.97	12.66
Sulfur Oxides (SOx)	0	0.00
Particulates (PM10)	0.26	0.21

Source: EMFAC2002

Plant No. 2 Operations, continued

grit and screening transport

POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.19	0.00
Reactive Organic Compounds (ROC)	0.19	0.00
Nitrogen Oxides (NOx)	0.27	0.00
Sulfur Oxides (SOx) *	0.05	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

*Source: Table A9-5-L SCAQMD CEQA Handbook

Fugitive Dust Emissions from project-related trips on local	PM10 grams/VMT		lbs/day
Local Streets	0.42		0.3

Source: Air Resources Board Recommended

Total Operational Emissions					
Air Pollutant	Mobile (lbs/day)		Total (lbs/day)	SCAQMD Thresholds lb/day	Significant?
Carbon Monoxide (CO)	2.30		2.30	550	NO
Reactive Organic Compounds (ROC	0.52		0.52	55	NO
Nitrogen Oxides (NOx)	12.66		12.66	55	NO
Sulfur Oxides (SOx)	0.00		0.00	150	NO
Particulates (PM10)	0.54		0.54	150	NO

P1-82 Site Clearing Activities (2005)

P1-82 Site Clearing Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	55
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	2
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel
# of equipment	2	1				
Hours per Day	6	6	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	3322.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	23.54
Reactive Organic Compounds (ROC)	0.1934	1.42
Nitrogen Oxides (NOx)	0.267	1.95
Particulates (PM10)	0.01	0.07

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	4.6
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	2.4
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	41.6
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	1.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	14.4	lb/day	50%	7
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				3.35
					Total Particulates	**11**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**30.08**		550.00	NO
Reactive Organic Compounds (ROC)	**4.24**		75.00	NO
Nitrogen Oxides (NOx)	**54.09**		100.00	NO
Particulates (PM10)	**11.89**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-100 Construction Activities (2008-2010)

P1-100 Construction Imports Inputs

Total days Allowed for Project	480
Total Days Allowed for Construction (Days)	480
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	6
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment				1		
Hours per Day	8	8	8	6	8	8
Days in Operation	480	480	480	480	480	480
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel
# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	480	480	480	480	480	480
Miles Per Hour						
	loaders diesel	crawler dozer diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1056.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.48
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	1.3
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.7
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	12.1
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.3

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.25
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**10.72**		550.00	NO
Reactive Organic Compounds (ROC)	**1.54**		75.00	NO
Nitrogen Oxides (NOx)	**23.23**		100.00	NO
Particulates (PM10)	**1.75**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-82 Excavation Activities (2006)

P1-82 Excavation Imports Inputs

Total days Allowed for Project	80
Total Days Allowed for Construction (Days)	80
Number of Employees	55
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Total Soil excavated (cubic yards)	7500
Daily Number of Haul Trucks	4.6875
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	4
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment		1				
Hours per Day	6	6	8	4	8	6
Days in Operation	80	80	80	80	80	80
Miles Per Hour		5				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	6	8	8	8	8	4
Days in Operation	80	80	80	80	80	80
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	3324.000
%LDT	34.00%			Daily VMT Haul Truck	281.25
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	23.56
Reactive Organic Compounds (ROC)	0.1934	1.42
Nitrogen Oxides (NOx)	0.267	1.95
Particulates (PM10)	0.01	0.07

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.80
Reactive Organic Compounds (ROC)	0.65	0.40
Nitrogen Oxides (NOx)	15.97	9.89
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.16

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	3.4
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	1.3
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	26.6
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.5
	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	2.8
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.4
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	24.8
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				3.34
				Total Particulates		**3**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**31.47**		550.00	NO
Reactive Organic Compounds (ROC)	**4.58**		75.00	NO
Nitrogen Oxides (NOx)	**63.27**		100.00	NO
Particulates (PM10)	**4.78**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P-1 82 Construction Activities (2006)

P1-82 Construction Imports Inputs

Total days Allowed for Project	180
Total Days Allowed for Construction (Days)	180
Number of Employees	55
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Daily Number of Haul Trucks	1.583333333
Average Trip Length One Way Haul Trucks (Miles)	30
Daily Delivery trucks	5
Total VMT Water Trucks per day (Miles)	4
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment				1		
Hours per Day	8	8	8	4	8	6
Days in Operation	180	180	180	180	180	180
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel
# of equipment						
Hours per Day	8	8	6	8	8	4
Days in Operation	180	180	180	180	180	180
Miles Per Hour						
	loaders diesel	crawler dozer diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	3324.000
%LDT	34.00%			Daily VMT Haul Truck	245
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	23.56
Reactive Organic Compounds (ROC)	0.1934	1.42
Nitrogen Oxides (NOx)	0.267	1.95
Particulates (PM10)	0.01	0.07

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.56
Reactive Organic Compounds (ROC)	0.65	0.35
Nitrogen Oxides (NOx)	15.97	8.62
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.14

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.9
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.4
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	8.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.2

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			3.30
				Total Particulates	**3**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**26.00**		550.00	NO
Reactive Organic Compounds (ROC)	**2.21**		75.00	NO
Nitrogen Oxides (NOx)	**18.61**		100.00	NO
Particulates (PM10)	**3.72**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-97 Site Clearing Activities (2005)

P1-97 Site Clearing Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	1
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	1
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		1				
Hours per Day	8	6	8	8	8	6
Days in Operation	40	40	40	40	40	1
Miles Per Hour		5				
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	921.000
%LDT	34.00%			Daily VMT Haul Truck	60
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	6.53
Reactive Organic Compounds (ROC)	0.1934	0.39
Nitrogen Oxides (NOx)	0.267	0.54
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.38
Reactive Organic Compounds (ROC)	0.65	0.09
Nitrogen Oxides (NOx)	15.97	2.11
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.03

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	1.9
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	16.7
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.4

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	14.4 lb/day	50%	7
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.91
				Total Particulates	**8**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**8.77**	550.00	NO
Reactive Organic Compounds (ROC)	**1.44**	75.00	NO
Nitrogen Oxides (NOx)	**19.39**	100.00	NO
Particulates (PM10)	**8.58**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-97 Excavation Activities (2005-2006)

P1-97 Excavation Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Total Soil Excavated (cubic yards)	20
Daily Number of Haul Trucks	0.5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment						1
Hours per Day	6	6	8	4	8	8
Days in Operation	40	40	40	40	40	40
Miles Per Hour						5
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	6	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	920.000
%LDT	34.00%			Daily VMT Haul Truck	30
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	6.52
Reactive Organic Compounds (ROC)	0.1934	0.39
Nitrogen Oxides (NOx)	0.267	0.54
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions			
	EMFAC Emissions Factor. Grams/Mile		Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9		0.19
Reactive Organic Compounds (ROC)	0.65		0.04
Nitrogen Oxides (NOx)	15.97		1.06
Sulfur Oxides (SOx)	NA		0
Particulates (PM10)	0.26		0.02

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.9
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.5
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	8.1
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.2
	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0.04816 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.88
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**7.59**	550.00	NO
Reactive Organic Compounds (ROC)	**0.91**	75.00	NO
Nitrogen Oxides (NOx)	**9.68**	100.00	NO
Particulates (PM10)	**1.10**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-97 Construction Activities (2006-2007)

P1-97 Construction Imports Inputs

Total days Allowed for Project	400
Total Days Allowed for Construction (Days)	400
Number of Employees	170
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	1
Average Trip Length One Way Haul Trucks (Miles)	30
Daily Delivery Trucks	5
Total VMT Water Trucks per day (Miles)	3
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment						1
Hours per Day	8	8	8	4	8	8
Days in Operation	400	400	400	400	400	400
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	400	400	400	400	400	400
Miles Per Hour						
	loaders diesel	crawler dozer diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	10223.000
%LDT	34.00%			Daily VMT Haul Truck	210
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	72.44
Reactive Organic Compounds (ROC)	0.1934	4.35
Nitrogen Oxides (NOx)	0.267	6.01
Particulates (PM10)	0.01	0.23

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.34
Reactive Organic Compounds (ROC)	0.65	0.30
Nitrogen Oxides (NOx)	15.97	7.39
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.12

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.9
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.5
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	8.1
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.2

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0.04816 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			9.65
				Total Particulates	**10**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**74.67**	550.00	NO
Reactive Organic Compounds (ROC)	**5.14**	75.00	NO
Nitrogen Oxides (NOx)	**21.48**	100.00	NO
Particulates (PM10)	**10.18**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-100 Site Clearing Activities (2007-2008)

P1-100 Site Clearing Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	0
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	6	8	8	8	6
Days in Operation	40	40	40	40	40	0
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	920.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	6.52
Reactive Organic Compounds (ROC)	0.1934	0.39
Nitrogen Oxides (NOx)	0.267	0.54
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions			
	EMFAC Emissions Factor. Grams/Mile		Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9		0.00
Reactive Organic Compounds (ROC)	0.65		0.00
Nitrogen Oxides (NOx)	15.97		0.00
Sulfur Oxides (SOx)	NA		0
Particulates (PM10)	0.26		0.00

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.85
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**6.52**		550.00	NO
Reactive Organic Compounds (ROC)	**0.39**		75.00	NO
Nitrogen Oxides (NOx)	**0.54**		100.00	NO
Particulates (PM10)	**0.87**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-100 Excavation Activities (2008-2009)

P1-100 Excavation Imports Inputs

Total days Allowed for Project	80
Total Days Allowed for Construction (Days)	80
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Total soil excavated (cubic yards)	400
Daily Number of Haul Trucks	0.25
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment		1				
Hours per Day	6	8	8	4	8	8
Days in Operation	80	80	80	80	80	80
Miles Per Hour		5				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	6	8	8	8	8	6
Days in Operation	80	80	80	80	80	80
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1050.000
%LDT	34.00%			Daily VMT Haul Truck	15
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.44
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.10
Reactive Organic Compounds (ROC)	0.65	0.02
Nitrogen Oxides (NOx)	15.97	0.53
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.01

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	4.5
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	1.8
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	35.4
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.7

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	2.8
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.4
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	24.8
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0.09996	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				0.99
					Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**14.78**		550.00	NO
Reactive Organic Compounds (ROC)	**3.67**		75.00	NO
Nitrogen Oxides (NOx)	**61.43**		100.00	NO
Particulates (PM10)	**2.46**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-101 Site Clearing Activities (2008)

P1-101 Site Clearing Imports Inputs

Total days Allowed for Project	80
Total Days Allowed for Construction (Days)	80
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	2
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment						1
Hours per Day	8	8	8	8	8	6
Days in Operation	80	80	80	80	80	80
Miles Per Hour						5
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		1				
Hours per Day	8	6	8	8	8	6
Days in Operation	80	80	80	80	80	2
Miles Per Hour		5				
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1522.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	10.79
Reactive Organic Compounds (ROC)	0.1934	0.65
Nitrogen Oxides (NOx)	0.267	0.90
Particulates (PM10)	0.01	0.03

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.7
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.4
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	6.1
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.1

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	1.9
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	16.7
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.4

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	14.4	lb/day	50%	7
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0.03612	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				1.69
					Total Particulates	**9**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**15.22**		550.00	NO
Reactive Organic Compounds (ROC)	**2.40**		75.00	NO
Nitrogen Oxides (NOx)	**34.25**		100.00	NO
Particulates (PM10)	**9.65**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-101 Excavation Activities (2008-2009)

P1-101 Excavation Imports Inputs

Total days Allowed for Project	80
Total Days Allowed for Construction (Days)	80
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Total soil excavated (cubic yards)	10000
Daily Number of Haul Trucks	6.25
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment	1	1				
Hours per Day	6	6	8	4	8	8
Days in Operation	80	80	80	80	80	80
Miles Per Hour	5	5				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2				2	
Hours per Day	6	8	8	8	8	6
Days in Operation	80	80	80	80	80	80
Miles Per Hour	5				5	
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1520.000
%LDT	34.00%			Daily VMT Haul Truck	375
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	10.77
Reactive Organic Compounds (ROC)	0.1934	0.65
Nitrogen Oxides (NOx)	0.267	0.89
Particulates (PM10)	0.01	0.03

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	2.40
Reactive Organic Compounds (ROC)	0.65	0.54
Nitrogen Oxides (NOx)	15.97	13.19
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.21

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	5.4
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	2.4
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	45.4
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	1.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	3.6
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.9
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	32.7
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.8

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	129	lb/day	50%	64.5
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				1.75
					Total Particulates	**66**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**22.13**		550.00	NO
Reactive Organic Compounds (ROC)	**5.50**		75.00	NO
Nitrogen Oxides (NOx)	**92.13**		100.00	NO
Particulates (PM10)	**68.36**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-101 Construction Activities (2009-2010)

P1-101 Construction Imports Inputs

Total days Allowed for Project	320
Total Days Allowed for Construction (Days)	320
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Concrete Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	6
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment			2	1		
Hours per Day	8	8	8	4	8	8
Days in Operation	320	320	320	320	320	320
Miles Per Hour			5			
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment			1		1	
Hours per Day	8	8	8	8	8	4
Days in Operation	320	320	320	320	320	320
Miles Per Hour						
	loaders diesel	crawler dozer diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1526.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	10.81
Reactive Organic Compounds (ROC)	0.1934	0.65
Nitrogen Oxides (NOx)	0.267	0.90
Particulates (PM10)	0.01	0.03

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	1.7
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.9
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	15.9
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.4

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.2	0.24	0.05	0.25	2.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.15	0.12	0.03	0.13	1.4
Nitrogen Oxides (NOx)	2.07	2.79	2.7	2.18	0.49	2.35	25.5
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.69
				Total Particulates	**2**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**16.41**		550.00	NO
Reactive Organic Compounds (ROC)	**3.44**		75.00	NO
Nitrogen Oxides (NOx)	**52.85**		100.00	NO
Particulates (PM10)	**2.89**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-102 Site Clearing Activities (2007-2008)

P1-102 Site Clearing Imports Inputs

Total days Allowed for Project	120
Total Days Allowed for Construction (Days)	120
Number of Employees	65
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	5
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment	1					
Hours per Day	8	8	8	8	8	6
Days in Operation	120	120	120	120	120	120
Miles Per Hour	3					
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel
# of equipment	2					
Hours per Day	8	6	8	8	8	6
Days in Operation	120	120	120	120	120	120
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	4055.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	28.74
Reactive Organic Compounds (ROC)	0.1934	1.73
Nitrogen Oxides (NOx)	0.267	2.38
Particulates (PM10)	0.01	0.09

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	2.7
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	1.4
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	25.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.6

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	3.7
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.9
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	33.1
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.8

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.19992	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	103.2	lb/day	50%	51.6
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				4.03
					Total Particulates	**56**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**37.05**	550.00	NO
Reactive Organic Compounds (ROC)	**5.52**	75.00	NO
Nitrogen Oxides (NOx)	**71.10**	100.00	NO
Particulates (PM10)	**57.43**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-102 Excavation Activities (2007-2008)

P1-102 Excavation Imports Inputs

Total days Allowed for Project	160
Total Days Allowed for Construction (Days)	160
Number of Employees	65
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Total soil excavated (cubic yards)	435000
Daily Number of Haul Trucks	135.9375
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	5
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment		3		1		
Hours per Day	6	6	8	4	8	8
Days in Operation	160	160	160	160	160	160
Miles Per Hour		3				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	6	8	8	8	8	6
Days in Operation	160	160	160	160	160	160
Miles Per Hour	3					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	4055.000
%LDT	34.00%			Daily VMT Haul Truck	8156.25
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	28.74
Reactive Organic Compounds (ROC)	0.1934	1.73
Nitrogen Oxides (NOx)	0.267	2.38
Particulates (PM10)	0.01	0.09

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	52.10
Reactive Organic Compounds (ROC)	0.65	11.68
Nitrogen Oxides (NOx)	15.97	286.91
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	4.67

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	11.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	4.4
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	87.8
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	1.8

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	2.8
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.4
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	24.8
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				11.30
				Total Particulates		**11**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**94.55**		550.00	NO
Reactive Organic Compounds (ROC)	**19.24**		75.00	NO
Nitrogen Oxides (NOx)	**401.91**		100.00	YES
Particulates (PM10)	**18.55**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-102 Construction Activities (2008-2010)

P1-101 Construction Imports Inputs

Total days Allowed for Project	800
Total Days Allowed for Construction (Days)	800
Number of Employees	65
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Concrete Trucks	10.25
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	5
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment				3		
Hours per Day	8	8	8	6	8	8
Days in Operation	800	800	800	800	800	800
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		4				
Hours per Day	8	8	8	8	8	4
Days in Operation	800	800	800	800	800	800
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	4055.000
%LDT	34.00%			Daily VMT Haul Truck	615
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	28.74
Reactive Organic Compounds (ROC)	0.1934	1.73
Nitrogen Oxides (NOx)	0.267	2.38
Particulates (PM10)	0.01	0.09

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	3.93
Reactive Organic Compounds (ROC)	0.65	0.88
Nitrogen Oxides (NOx)	15.97	21.63
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.35

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	4.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	2.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	36.2
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.9

	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	4.8
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	9.6
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	86.4
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	2.2

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	76.8	lb/day	50%	38
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				4.32
					Total Particulates	**43**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**41.42**		550.00	NO
Reactive Organic Compounds (ROC)	**14.19**		75.00	NO
Nitrogen Oxides (NOx)	**146.60**		100.00	YES
Particulates (PM10)	**46.30**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-106 Site Clearing Activities (2007-2008)

P1-106 Site Clearing Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	4
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	8	6	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1054.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.47
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0
	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	3.7
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.9
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	33.1
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.8

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.19992	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				1.25
					Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**13.07**	550.00	NO
Reactive Organic Compounds (ROC)	**2.80**	75.00	NO
Nitrogen Oxides (NOx)	**44.29**	100.00	NO
Particulates (PM10)	**2.35**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-106 Excavation Activities (2007)

P1-106 Excavation Imports Inputs

Total days Allowed for Project	20
Total Days Allowed for Construction (Days)	20
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Total Soil excavated (cubic Yards)	1000
Daily Number of Haul Trucks	2.5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	2
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment		1				
Hours per Day	6	8	8	4	8	8
Days in Operation	20	20	20	20	20	20
Miles Per Hour		3				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	8	8	8	8	8	6
Days in Operation	20	20	20	20	20	20
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	922.000
%LDT	34.00%			Daily VMT Haul Truck	150
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	6.53
Reactive Organic Compounds (ROC)	0.1934	0.39
Nitrogen Oxides (NOx)	0.267	0.54
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.96
Reactive Organic Compounds (ROC)	0.65	0.21
Nitrogen Oxides (NOx)	15.97	5.28
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.09

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	4.5
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	1.8
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	35.4
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.7

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	3.7
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.9
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	33.1
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.8

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.19992	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				0.99
					Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**15.65**		550.00	NO
Reactive Organic Compounds (ROC)	**4.29**		75.00	NO
Nitrogen Oxides (NOx)	**74.38**		100.00	NO
Particulates (PM10)	**2.72**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P1-106 Construction Activities (2007)

P1-106 Construction Imports Inputs	
Total days Allowed for Project	180
Total Days Allowed for Construction (Days)	180
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	4
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	4	8	8
Days in Operation	180	180	180	180	180	180
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel
# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	180	180	180	180	180	180
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1054.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.47
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.25
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**9.39**		550.00	NO
Reactive Organic Compounds (ROC)	**0.88**		75.00	NO
Nitrogen Oxides (NOx)	**11.17**		100.00	NO
Particulates (PM10)	**1.45**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-74 Site Clearing Activities (2006-2007)

P1-102 Site Clearing Imports Inputs

Total days Allowed for Project	1
Total Days Allowed for Construction (Days)	1
Number of Employees	0
Average Trip Length One Way POV (Miles)	0
Total Work Hours Per Day (Hours/Day)	0
Daily Number of Haul Trucks	0
Average Trip Length One Way Haul Trucks (Miles)	0
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	0

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	6	8	8	8	6
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	0.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	0.00
Reactive Organic Compounds (ROC)	0.1934	0.00
Nitrogen Oxides (NOx)	0.267	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.00
				Total Particulates	**0**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**0.00**	550.00	NO
Reactive Organic Compounds (ROC)	**0.00**	75.00	NO
Nitrogen Oxides (NOx)	**0.00**	100.00	NO
Particulates (PM10)	**0.00**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-74 Excavation Activities (2007-2008)

P1-106 Excavation Imports Inputs

Total days Allowed for Project	1
Total Days Allowed for Construction (Days)	1
Number of Employees	0
Average Trip Length One Way POV (Miles)	0
Total Work Hours Per Day (Hours/Day)	0
Daily Number of Haul Trucks	0
Average Trip Length One Way Haul Trucks (Miles)	0
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	0

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	6	6	8	4	8	8
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	6	8	8	8	8	6
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	0.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	0.00
Reactive Organic Compounds (ROC)	0.1934	0.00
Nitrogen Oxides (NOx)	0.267	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0
	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.00
				Total Particulates	**0**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**0.00**		550.00	NO
Reactive Organic Compounds (ROC)	**0.00**		75.00	NO
Nitrogen Oxides (NOx)	**0.00**		100.00	NO
Particulates (PM10)	**0.00**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-74 Construction Activities (2007-2008)

P2-74 Construction Imports Inputs

Total days Allowed for Project	560
Total Days Allowed for Construction (Days)	560
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	0
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	4	8	8
Days in Operation	560	560	560	560	560	560
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	560	560	560	560	560	560
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1050.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.44
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0
	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.97
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**7.44**	550.00	NO
Reactive Organic Compounds (ROC)	**0.45**	75.00	NO
Nitrogen Oxides (NOx)	**0.62**	100.00	NO
Particulates (PM10)	**0.99**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-80 Site Clearing Activities (2006-2007)

P2-80 Site Clearing Imports Inputs

Total days Allowed for Project	1
Total Days Allowed for Construction (Days)	1
Number of Employees	0
Average Trip Length One Way POV (Miles)	0
Total Work Hours Per Day (Hours/Day)	0
Daily Number of Haul Trucks	0
Average Trip Length One Way Haul Trucks (Miles)	0
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	0

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	1	585	585	585	585	585
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	6	8	8	8	6
Days in Operation	585	585	585	585	585	585
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	0.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	0.00
Reactive Organic Compounds (ROC)	0.1934	0.00
Nitrogen Oxides (NOx)	0.267	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.00
				Total Particulates	**0**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**0.00**	550.00	NO
Reactive Organic Compounds (ROC)	**0.00**	75.00	NO
Nitrogen Oxides (NOx)	**0.00**	100.00	NO
Particulates (PM10)	**0.00**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-80 Excavation Activities (2007-2008)

P2-80 Excavation Imports Inputs

Total days Allowed for Project	1
Total Days Allowed for Construction (Days)	1
Number of Employees	
Average Trip Length One Way POV (Miles)	
Total Work Hours Per Day (Hours/Day)	
Daily Number of Haul Trucks	
Average Trip Length One Way Haul Trucks (Miles)	
Total VMT Water Trucks per day (Miles)	
Total VMT Dump Trucks per day (Miles)	

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	6	6	8	4	8	8
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	6	8	8	8	8	6
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	0.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	0.00
Reactive Organic Compounds (ROC)	0.1934	0.00
Nitrogen Oxides (NOx)	0.267	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.00
				Total Particulates	**0**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**0.00**		550.00	NO
Reactive Organic Compounds (ROC)	**0.00**		75.00	NO
Nitrogen Oxides (NOx)	**0.00**		100.00	NO
Particulates (PM10)	**0.00**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-80 Construction Activities (2007-2008)

P2-80 Construction Imports Inputs

Total days Allowed for Project	740
Total Days Allowed for Construction (Days)	740
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment				2		
Hours per Day	8	8	8	4	8	8
Days in Operation	740	740	740	740	740	740
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	740	740	740	740	740	740
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1650.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	11.69
Reactive Organic Compounds (ROC)	0.1934	0.70
Nitrogen Oxides (NOx)	0.267	0.97
Particulates (PM10)	0.01	0.04

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	1.8
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.9
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	16.1
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.4

	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.80
				Total Particulates	**2**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**15.37**	550.00	NO
Reactive Organic Compounds (ROC)	**2.01**	75.00	NO
Nitrogen Oxides (NOx)	**27.60**	100.00	NO
Particulates (PM10)	**2.41**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-89 Construction Activities (2008-2010)

P2-89 Construction Imports Inputs

Total days Allowed for Project	940
Total Days Allowed for Construction (Days)	940
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	4	8	8
Days in Operation	940	940	940	940	940	940
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	940	940	940	940	940	940
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1050.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.44
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0
	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.25
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**9.36**	550.00	NO
Reactive Organic Compounds (ROC)	**0.88**	75.00	NO
Nitrogen Oxides (NOx)	**11.17**	100.00	NO
Particulates (PM10)	**1.44**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-90 Site Clearing Activities (2007-2008)

P2-90 Site Clearing Imports Inputs

Total days Allowed for Project	120
Total Days Allowed for Construction (Days)	120
Number of Employees	35
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	15
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment	1					
Hours per Day	8	8	8	8	8	6
Days in Operation	120	120	120	120	120	120
Miles Per Hour	3					
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		1				
Hours per Day	8	6	8	8	8	6
Days in Operation	120	120	120	120	120	120
Miles Per Hour		5				
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	2265.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	16.05
Reactive Organic Compounds (ROC)	0.1934	0.96
Nitrogen Oxides (NOx)	0.267	1.33
Particulates (PM10)	0.01	0.05

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	2.7
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	1.4
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	25.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.6

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	1.9
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	16.7
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.4

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	14.4 lb/day	50%	7
Particulates (PM10) Scraper***	4.3	lb/vmt	103.2 lb/day	50%	51.6
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			2.37
				Total Particulates	**61**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**22.55**	550.00	NO
Reactive Organic Compounds (ROC)	**3.79**	75.00	NO
Nitrogen Oxides (NOx)	**53.66**	100.00	NO
Particulates (PM10)	**62.45**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-90 Excavation Activities (2008-2010)

P2-90 Excavation Imports Inputs

Total days Allowed for Project	240
Total Days Allowed for Construction (Days)	240
Number of Employees	35
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Total soil excavated (cubic yards)	70000
Daily Number of Haul Trucks	14.58333333
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	15
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment	1	1		1		
Hours per Day	6	6	8	4	8	8
Days in Operation	240	240	240	240	240	240
Miles Per Hour	3	5				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	6	8	8	8	8	6
Days in Operation	240	240	240	240	240	240
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	2265.000
%LDT	34.00%			Daily VMT Haul Truck	875
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	16.05
Reactive Organic Compounds (ROC)	0.1934	0.96
Nitrogen Oxides (NOx)	0.267	1.33
Particulates (PM10)	0.01	0.05

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	5.59
Reactive Organic Compounds (ROC)	0.65	1.25
Nitrogen Oxides (NOx)	15.97	30.78
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.50

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	6.3
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	2.8
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	53.4
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	1.2

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	2.8
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.4
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	24.8
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	77.4	lb/day	50%	38.7
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				2.90
					Total Particulates	**42**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**30.68**		550.00	NO
Reactive Organic Compounds (ROC)	**6.50**		75.00	NO
Nitrogen Oxides (NOx)	**110.35**		100.00	YES
Particulates (PM10)	**44.05**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-90 Construction Activities (2008-2011)

P2-90 Construction Imports Inputs

Total days Allowed for Project	620
Total Days Allowed for Construction (Days)	620
Number of Employees	35
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Concrete Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	15
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment				3		
Hours per Day	8	8	8	4	8	8
Days in Operation	620	620	620	620	620	620
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		4				
Hours per Day	8	8	8	8	8	4
Days in Operation	620	620	620	620	620	620
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	2265.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	16.05
Reactive Organic Compounds (ROC)	0.1934	0.96
Nitrogen Oxides (NOx)	0.267	1.33
Particulates (PM10)	0.01	0.05

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	2.6
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	1.3
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	24.1
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.6

	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	4.8
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	9.6
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	86.4
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	2.2

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	76.8 lb/day	50%	38
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			2.37
				Total Particulates	**41**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**25.41**	550.00	NO
Reactive Organic Compounds (ROC)	**12.31**	75.00	NO
Nitrogen Oxides (NOx)	**122.40**	100.00	YES
Particulates (PM10)	**43.83**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-91 Excavation Activities (2008-2009)

P2-91 Excavation Imports Inputs

Total days Allowed for Project	1
Total Days Allowed for Construction (Days)	1
Number of Employees	
Average Trip Length One Way POV (Miles)	
Total Work Hours Per Day (Hours/Day)	
Daily Number of Haul Trucks	
Average Trip Length One Way Haul Trucks (Miles)	
Total VMT Water Trucks per day (Miles)	
Total VMT Dump Trucks per day (Miles)	

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	6	6	8	4	8	8
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	6	8	8	8	8	6
Days in Operation	1	1	1	1	1	1
Miles Per Hour						
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	0.000
%LDT	34.00%			Daily VMT Haul Truck	0
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	0.00
Reactive Organic Compounds (ROC)	0.1934	0.00
Nitrogen Oxides (NOx)	0.267	0.00
Particulates (PM10)	0.01	0.00

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.00
Reactive Organic Compounds (ROC)	0.65	0.00
Nitrogen Oxides (NOx)	15.97	0.00
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.00

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.00
				Total Particulates	**0**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**0.00**	550.00	NO
Reactive Organic Compounds (ROC)	**0.00**	75.00	NO
Nitrogen Oxides (NOx)	**0.00**	100.00	NO
Particulates (PM10)	**0.00**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-91 Construction Activities (2008-2009)

P2-91 Construction Imports Inputs

Total days Allowed for Project	840
Total Days Allowed for Construction (Days)	840
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	0
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	4	8	8
Days in Operation	840	840	840	840	840	840
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	840	840	840	840	840	840
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1050.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.44
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions			
	EMFAC Emissions Factor. Grams/Mile		Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9		1.92
Reactive Organic Compounds (ROC)	0.65		0.43
Nitrogen Oxides (NOx)	15.97		10.55
Sulfur Oxides (SOx)	NA		0
Particulates (PM10)	0.26		0.17

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0
	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.25
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**9.36**		550.00	NO
Reactive Organic Compounds (ROC)	**0.88**		75.00	NO
Nitrogen Oxides (NOx)	**11.17**		100.00	NO
Particulates (PM10)	**1.44**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-92 Site Clearing Activities (2008-2009)

P2-92 Site Clearing Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	2
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						1
Hours per Day	8	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						5
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		1				
Hours per Day	8	6	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour		5				
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1652.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	11.71
Reactive Organic Compounds (ROC)	0.1934	0.70
Nitrogen Oxides (NOx)	0.267	0.97
Particulates (PM10)	0.01	0.04

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.7
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.4
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	6.1
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.1

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	1.9
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.0
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	16.7
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.4

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	14.4	lb/day	50%	7
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0.03612	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				1.81
					Total Particulates	**9**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**16.14**		550.00	NO
Reactive Organic Compounds (ROC)	**2.45**		75.00	NO
Nitrogen Oxides (NOx)	**34.32**		100.00	NO
Particulates (PM10)	**9.77**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-92 Excavation Activities (2009-2011)

P2-92 Excavation Imports Inputs	
Total days Allowed for Project	60
Total Days Allowed for Construction (Days)	60
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Total soil excavated (cubic yards)	6000
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	3
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment		2				
Hours per Day	6	6	8	4	8	8
Days in Operation	60	60	60	60	60	60
Miles Per Hour		3				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	6	8	8	8	8	6
Days in Operation	60	60	60	60	60	60
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1653.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	11.71
Reactive Organic Compounds (ROC)	0.1934	0.70
Nitrogen Oxides (NOx)	0.267	0.97
Particulates (PM10)	0.01	0.04

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	6.7
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	2.6
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	53.2
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	1.1

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	2.8
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.4
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	24.8
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction						
Air Pollutant	Emission Factor		Unmitigated Emissions		Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.14994	lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0	lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0	lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0	lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile				1.81
					Total Particulates	**2**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**23.11**		550.00	NO
Reactive Organic Compounds (ROC)	**5.21**		75.00	NO
Nitrogen Oxides (NOx)	**89.53**		100.00	NO
Particulates (PM10)	**3.77**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-92 Construction Activities (2009-2011)

P2-92 Construction Imports Inputs

Total days Allowed for Project	600
Total Days Allowed for Construction (Days)	600
Number of Employees	25
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	3
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment				1		
Hours per Day	8	8	8	4	8	8
Days in Operation	600	600	600	600	600	600
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment		1			1	
Hours per Day	8	8	8	8	8	4
Days in Operation	600	600	600	600	600	600
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1653.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	11.71
Reactive Organic Compounds (ROC)	0.1934	0.70
Nitrogen Oxides (NOx)	0.267	0.97
Particulates (PM10)	0.01	0.04

Source: Emission Factors From EMFAC2002

Haul Truck Emissions		
	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions							
	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.9
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.4
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	8.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.2

	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	1.6
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	2.6
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	25.5
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.6

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	19.2 lb/day	50%	10
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.81
				Total Particulates	**11**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and			
Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**16.11**	550.00	NO
Reactive Organic Compounds (ROC)	**4.21**	75.00	NO
Nitrogen Oxides (NOx)	**45.09**	100.00	NO
Particulates (PM10)	**12.45**	150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-93 Site Clearing Activities (2007-2008)

P2-93 Site Clearing Imports Inputs

Total days Allowed for Project	40
Total Days Allowed for Construction (Days)	40
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	6
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	4
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour						
	scraper diesel	forklift diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel
# of equipment	2					
Hours per Day	8	6	8	8	8	6
Days in Operation	40	40	40	40	40	40
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%	Daily VMT LDA & LDT	1054.000	
%LDT	34.00%	Daily VMT Haul Truck	300	
Season	summer			

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.47
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	forklift 175 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.24	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.13	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	2.24	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.05	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	3.7
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.9
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	33.1
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.8

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.19992 lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.25
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**13.07**		550.00	NO
Reactive Organic Compounds (ROC)	**2.80**		75.00	NO
Nitrogen Oxides (NOx)	**44.29**		100.00	NO
Particulates (PM10)	**2.35**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-93 Excavation Activities (2007)

P2-93 Excavation Imports Inputs	
Total days Allowed for Project	20
Total Days Allowed for Construction (Days)	20
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Total Soil excavated (cubic Yards)	1000
Daily Number of Haul Trucks	2.5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	2
Total VMT Dump Trucks per day (Miles)	20

Total Number of Each Equipment used for Construction

# of equipment		1				
Hours per Day	6	8	8	4	8	8
Days in Operation	20	20	20	20	20	20
Miles Per Hour		3				
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment	2					
Hours per Day	8	8	8	8	8	6
Days in Operation	20	20	20	20	20	20
Miles Per Hour	5					
	loaders diesel	crawler dozer diesel	drill rig diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	922.000
%LDT	34.00%			Daily VMT Haul Truck	150
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	6.53
Reactive Organic Compounds (ROC)	0.1934	0.39
Nitrogen Oxides (NOx)	0.267	0.54
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	0.96
Reactive Organic Compounds (ROC)	0.65	0.21
Nitrogen Oxides (NOx)	15.97	5.28
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.09

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	4.5
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	1.8
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	35.4
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.7

	loaders 175 hp diesel lbs/hour	crawler dozer 250 hp diesel lbs/hour	drill rig 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.31	0.22	0.24	0.05	0.25	3.7
Reactive Organic Compounds (ROC)	0.12	0.16	0.12	0.12	0.03	0.13	1.9
Nitrogen Oxides (NOx)	2.07	2.79	2.02	2.18	0.49	2.35	33.1
Particulates (PM10)	0.05	0.07	0.05	0.05	0.01	0.06	0.8

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0.19992 lb/day	50%	0.1
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			0.99
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**15.65**		550.00	NO
Reactive Organic Compounds (ROC)	**4.29**		75.00	NO
Nitrogen Oxides (NOx)	**74.38**		100.00	NO
Particulates (PM10)	**2.72**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

P2-93 Construction Activities (2007)

P2-93 Construction Imports Inputs

Total days Allowed for Project	200
Total Days Allowed for Construction (Days)	200
Number of Employees	15
Average Trip Length One Way POV (Miles)	30
Total Work Hours Per Day (Hours/Day)	8
Daily Number of Haul Trucks	5
Average Trip Length One Way Haul Trucks (Miles)	30
Total VMT Water Trucks per day (Miles)	4
Total VMT Dump Trucks per day (Miles)	150

Total Number of Each Equipment used for Construction

# of equipment						
Hours per Day	8	8	8	4	8	8
Days in Operation	200	200	200	200	200	200
Miles Per Hour						
	scraper diesel	excavator diesel	compactor diesel	crane diesel	welder diesel	backhoe diesel

# of equipment						
Hours per Day	8	8	8	8	8	4
Days in Operation	200	200	200	200	200	200
Miles Per Hour						
	loaders diesel	rigs diesel	pile driver diesel	grader diesel	pump diesel	truck diesel

Assumptions Used in EMFAC2002

% LDA	66.00%			Daily VMT LDA & LDT	1054.000
%LDT	34.00%			Daily VMT Haul Truck	300
Season	summer				

EMFAC2002 Inputs

	LDA Grams/Mile	LDT Grams/Mile	HDD Grams/Mile
Carbon Monoxide (CO)	3.02	3.6	2.9
Reactive Organic Compounds (ROC)	0.19	0.2	0.65
Nitrogen Oxides (NOx)	0.25	0.3	15.97
Particulates (PM10)	0.01	0.01	0.26

Source: EMFAC2002

Vehicle Exhaust Emissions from POV, Excavation

Construction Workers POV Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	3.2172	7.47
Reactive Organic Compounds (ROC)	0.1934	0.45
Nitrogen Oxides (NOx)	0.267	0.62
Particulates (PM10)	0.01	0.02

Source: Emission Factors From EMFAC2002

Haul Truck Emissions	EMFAC Emissions Factor. Grams/Mile	Est. Emissions lbs/day
Carbon Monoxide (CO)	2.9	1.92
Reactive Organic Compounds (ROC)	0.65	0.43
Nitrogen Oxides (NOx)	15.97	10.55
Sulfur Oxides (SOx)	NA	0
Particulates (PM10)	0.26	0.17

Source: EMFAC2002

Construction Equipment Emissions	scraper 250 hp diesel lbs/hour	excavator 500 hp diesel lbs/hour	compactor 50 hp diesel lbs/hour	crane 175 hp diesel lbs/hour	welder 50 hp diesel lbs/hour	backhoe 120 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.34	0.56	0.05	0.22	0.55	0.11	0.0
Reactive Organic Compounds (ROC)	0.18	0.22	0.03	0.11	0.1	0.06	0.0
Nitrogen Oxides (NOx)	3.13	4.43	0.49	2.01	0.9	1.01	0.0
Particulates (PM10)	0.08	0.09	0.01	0.05	0.05	0.02	0.0

	loaders 175 hp diesel lbs/hour	rigs 250 hp diesel lbs/hour	pile driver 175 hp diesel lbs/hour	grader 175 hp diesel lbs/hour	pump 50 hp diesel lbs/hour	truck 175 hp diesel lbs/hour	Total Emissions lbs/day
Carbon Monoxide (CO)	0.23	0.15	0.2	0.24	0.05	0.25	0.0
Reactive Organic Compounds (ROC)	0.12	0.30	0.15	0.12	0.03	0.13	0.0
Nitrogen Oxides (NOx)	2.07	2.70	2.7	2.18	0.49	2.35	0.0
Particulates (PM10)	0.05	0.07	0.07	0.05	0.01	0.06	0.0

Source: ARB Emission Inventory Publication Number MO99_32.3 Table 13 released: 2000

Source: ARB Inventory Publication MO99_32.5 App. B released: 2000

Total PM10 Fugitive Dust Emissions from construction					
Air Pollutant	Emission Factor		Unmitigated Emissions	Mitigation Efficiency	Est. Emissions (lbs/day)
Particulates (PM10) Loaders*	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Bulldozer**	2.4	lb/hr	0 lb/day	50%	0
Particulates (PM10) Scraper***	4.3	lb/vmt	0 lb/day	50%	0
Particulates (PM10) Backhoe****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) Trencher*****	0.000035	lb/ton	0 lb/day	50%	0.0
Particulates (PM10) POV & Haul Truck	0.42	gm/mile			1.25
				Total Particulates	**1**

* Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 280 cubic yards per hour per loader, 1 cubic yard = 2550 pounds.

** Bulldozing Overburden Equation Table 11.9-1 AP-42 Assume 15% silt content, 7.9 % soil moisture content

*** Cut and Fill Operations with 15 Cubic Meter Pan Scraper Equation SCAQMD CEQA Air Quality Handbook, Table A9-9

**** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per backhoe, 1 cubic yard = 2550 pounds.

***** Aggragate Batch Drop Equation AP-42, 13.2.4-3 (1) Assume mean wind speed = 1.6475 mph, 7.9% soil moisture content & 135 cubic yards per hour per Trencher, 1 cubic yard = 2550 pounds.

Source: Table 11.9-1 EPA AP-42

Total Air Emissions from Excavation Including POV, Fugitive Dust, and				
Air Pollutant	Est. Emissions (lbs/day)		SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**9.39**		550.00	NO
Reactive Organic Compounds (ROC)	**0.88**		75.00	NO
Nitrogen Oxides (NOx)	**11.17**		100.00	NO
Particulates (PM10)	**1.45**		150.00	NO

Source: EMFAC2002 and SCAQMD CEQA Air Quality Handbook

Cumulative Daily Construction Air Emissions Estimates for 2008

Air Pollutant	Est. Emissions (lbs/day)	SCAQMD Thresholds (lbs/day)	Significant?
Carbon Monoxide (CO)	**197.64**	550.00	NO
Reactive Organic Compounds (ROC)	**37.84**	75.00	NO
Nitrogen Oxides (NOx)	**669.33**	100.00	YES
Particulates (PM10)	**83.81**	150.00	NO