TABLE 14-III-1 AIR QUALITY CALCULATIONS

Construction Engine Emissions

SOURCE	SIZE / GROSS HP	DAILY AMOUNT (1) (hrs or trips)	NUMBER OF DAYS	NUMBER OF UNITS	ONE-WAY DISTANCE (miles)	NO_x EF (2)	NO_x Daily (lbs/day)	NO_x Total (tons)	ROC EF (2)	ROC Daily (lbs/day)	ROC Total (tons)	PM_{10} EF (2)	PM_{10} Daily (lbs/day)	PM_{10} Total (tons)	SO_x EF (2)	SO_x Daily (lbs/day)	SO_x Total (tons)	CO EF (2)	CO Daily (lbs/day)	CO Total (tons)	NOTES
Site Grading (11 cy)																					
Backhoe Loader	200	1	1	1	-	2370	5.2	0.0026	180	0.4	0.0002	15	0.03	0.0000	135	0.30	0.0001	205	0.5	0.0002	6
Vac Truck	153	2	1	1	-	1660	7.3	0.0037	110	0.5	0.0002	15	0.07	0.0000	105	0.46	0.0002	110	0.5	0.0002	6
Surveying Lt-Heavy Duty Truck	117	3	1	1	-	780	5.2	0.0026	72	0.5	0.0002	44	0.29	0.0001	85	0.56	0.0003	105	0.7	0.0003	6
Lt-Heavy Duty Truck	10 cu yd	1	1	1	30	11.3	1.5	0.0007	2.2	0.3	0.0001	0.59	0.08	0.0000	0.31	0.04	0.0000	14.0	1.9	0.0009	7
Worker Light Truck	175	1	1	1	30	18.4	2.4	0.0012	4.4	0.6	0.0003	0.84	0.11	0.0001	0.31	0.04	0.0000	35	4.6	0.0023	6
Equipment Delivery Truck	Low boy	3	1	-	30	11.3	4.5	0.0022	2.2	0.9	0.0004	0.59	0.23	0.0001	0.31	0.12	0.0001	14.0	5.6	0.0028	7
Worker Light Truck	Light	2	1	-	30	1.0	0.3	0.0001	0.35	0.1	0.0000	0	0.00	0.0000	0.06	0.02	0.0000	7.22	1.9	0.0010	7
Maxima and Subtotals (Site Grading)							16.0	0.0132		2.3	0.0016		0.71	0.0004		0.78	0.0008		14.6	0.0078	
Interior Construction (120 cu.yds.)																					
Semi-end Dump Trucks	20 ton	2	3	-	100	11.3	9.9	0.0149	2.2	1.9	0.0029	0.59	0.52	0.0008	0.31	0.27	0.0004	14.0	12.4	0.0186	7
Worker Light Truck	Light	12	3	-	30	1.00	1.6	0.0024	0.35	0.6	0.0008	0	0.00	0.0000	0.06	0.10	0.0001	7.22	11.5	0.0172	7
Maxima and Subtotals (Demolition)							11.5	0.0173		2.5	0.0037		0.52	0.0008		0.37	0.0006		23.8	0.0358	
Pad Construction (11cy)																					
Cement Truck	10 yd3	1	1	-	30	11.3	1.5	0.0007	2.2	0.3	0.0001	0.59	0.08	0.0000	0.31	0.04	0.0000	14.0	1.9	0.0009	7
Gravel Truck	10 yd3	1	1	-	30	11.3	1.5	0.0007	2.2	0.3	0.0001	0.59	0.08	0.0000	0.31	0.04	0.0000	14.0	1.9	0.0009	7
Worker Light Truck	Light	2	1	-	30	1.00	0.3	0.0001	0.35	0.1	0.0000	0	0.00	0.0000	0.06	0.02	0.0000	7.22	1.9	0.0010	7
Maxima and Subtotals (Pad Construction)							3.2	0.0016		0.7	0.0003		0.16	0.0001		0.10	0.0000		5.6	0.0028	
Trenching & Utility Installation (350cy)																					
Excavator	84	8	12	1	-	774	13.6	0.0819	64	1.1	0.0068	13	0.23	0.0014	58	1.02	0.0061	79	1.4	0.0083	6
Equipment Delivery Truck	Low boy	1	2	-	30	11.3	1.5	0.0015	2.2	0.3	0.0003	0.59	0.08	0.0001	0.31	0.04	0.0000	14.0	1.9	0.0019	7
Worker Light Truck	Light	2	12	-	30	1.00	0.3	0.0016	0.35	0.1	0.0006	0	0.00	0.0000	0.06	0.02	0.0001	7.2	1.9	0.0115	7
Maxima and Subtotals (Trenching and Utility Installation)							15.4	0.0850		1.5	0.0076		0.31	0.0015		1.08	0.0062		5.2	0.0216	
Shelter Placement																					
Crane	150 ton	2	1	1	-	576	2.5	0.0013	82	0.4	0.0002	64	0.28	0.0001	41	0.18	0.0001	1624	7.2	0.0036	8
Equipment Delivery Truck	Low boy	1	1	-	150	11.3	7.4	0.0037	2.2	1.5	0.0007	0.59	0.39	0.0002	0.31	0.21	0.0001	14.0	9.3	0.0046	7
Worker Light Truck	Light	2	1	-	30	1.00	0.3	0.0001	0.35	0.1	0.0000	0	0.00	0.0000	0.06	0.02	0.0000	7.2	1.9	0.0010	7
Maxima and Subtotals (Shelter Placement)							10.2	0.0051		1.9	0.0010		0.67	0.0003		0.40	0.0002		18.4	0.0092	
General Construction Activities																					
Compactor	<25 hp	1	1	1	-	8	0.0	0.0000	227	0.5	0.0002	1.4	0.00	0.0000	0	0.00	0.0000	6350	14.0	0.0070	8
Equipment Delivery Truck	Low boy	1	1	-	30	11.3	1.5	0.0007	2.2	0.3	0.0001	0.59	0.08	0.0000	0.31	0.04	0.0000	14.0	1.9	0.0009	7
Construction Generator	<50 hp	8	12	1	-	0.02	0.0	0.0000	0.002	0.0	0.0000	0.001	0.00	0.0000	0.00	0.00	0.0000	0.01	0.0	0.0000	8
Water Truck	4500 gal.	1	2	-	30	11.3	1.5	0.0015	2.2	0.3	0.0003	0.59	0.08	0.0001	0.31	0.04	0.0000	14.0	1.9	0.0019	6
Worker Light Truck	Light	1	17	-	30	1.0	0.1	0.0011	0.35	0.0	0.0004	0	0.00	0.0000	0.06	0.01	0.0001	7.2	1.0	0.0081	7
Maxima and Subtotals (General Construction)							3.1	0.0034		1.1	0.0011		0.16	0.0001		0.09	0.0001		18.7	0.0179	
Maxima and Subtotals, Construction Engine Emissions [3]							16.0	0.1255		2.5	0.0154		0.71	0.0032		1.08	0.0080		23.8	0.0951	
Total Construction Emissions (Fugitive plus exhaust)								0.1255			0.0154		13.13	0.1317			0.0080			0.0951	
Construction Thresholds							N/A	N/A		N/A	N/A		N/A	N/A		N/A			N/A	N/A	
Insignifigant Impact [9]							N/A	N/A		N/A	N/A		N/A	N/A		N/A			N/A	N/A	

Construction Fugitive Dust Emissions

SOURCE	DAILY AMOUNT (hours)	DAYS OF ACTIVITY	AREA OF GRADING / TRENCHING	PM_{10} EMISSIONS EF	PM_{10} EMISSIONS (daily lbs)	PM_{10} EMISSIONS (total tons)	NOTES
Gutting of Building Interior	8	3	0.27 acres	39.4 lb/acre-day	11	0.016	12
Access Road Use	8	17	0.23 acres	39.4 lb/acre-day	9.1	0.077	13
Trenching - Cable Installation	8	12	-	0.51 lb/hr	4.1	0.024	
Wind Erosion	24	12	0.29 acres	6.6 lb/acre-day	1.9	0.011	11
Subtotal, Construction Fugitive Emissions [3]					12	0.13	15
Total PM10 Construction Emissions (Engine Exhaust and Fugitive) [3]						0.13	

(Continued)

Operation Emissions [4]

SOURCE	SIZE / GROSS HP	DAILY AMOUNT (hours)	DAYS OF ACTIVITY	NUMBER OF UNITS	ONE-WAY DISTANCE (miles)	NO_x EF (g/hr) [2]	NO_x Daily (lbs/day)	NO_x Annual (tons/year)	ROC EF (g/hr) [2]	ROC Daily (lbs/day)	ROC Annual (tons/year)	PM_{10} EF (g/hr) [2]	PM_{10} Daily (lbs/day)	PM_{10} Annual (tons/year)	SO_x EF (g/hr) [2]	SO_x Daily (lbs/day)	SO_x Annual (tons/year)	CO EF (g/hr) [2]	CO Daily (lbs/day)	CO Annual (tons/year)	NOTES
Emergency Generator	337	0.5	60	1		2,325	2.6	0.08	337	0.37	0.011	135	0.15	0.004	313	0.35	0.010	2,865	3.2	0.09	6,14
	(300 KW)																				
Worker Light Truck	Light	-	60	1	30	1.0	0.13	0.004	0.35	0.05	0.001	0	0	0	0.06	0.01	0.0002	7.2	0.96	0.03	7
Total Operation Emissions [5]							2.70	0.08		0.42	0.013		0.15	0.004		0.35	0.011		4.1	0.12	
Operation Thresholds							Exempt			Exempt			Exempt			Exempt			Exempt		
Insignifigant Impact [10]							Yes			Yes			Yes			Yes			Yes		

'- = Not applicable

Unit abbreviations: g/hr = grams per hour, lb/day = pounds per day, tpy = tons per year, tpq = tons per quarter

(1) Daily amount is measured in hours for off-road construction equipment (e.g., grader), and in number of trips for on-road vehicles (e.g., worker light-truck).

(2) Emission factors are in grams per hour for off-road equipment, and in grams per mile for on-road vehicles.

(3) Construction engine emission subtotals are for the complete project. Major pieces of construction off-road equipment (e.g., grader, dozer) are used consecutively, not concurrently.

(4) Operation and construction will not occur simultaneously, and hence, the emissions are not additive.

(5) Operational emission totals are for the project. Only one generator will be tested on a single day.

(6) Emission factors are from Caterpillar Corp.

(7) EMFAC7G Emission Factors (1998, 15mph, 75^{0}F)

(8) SCAQMD CEQA Handbook, Table A9-8-B

(9) Construction emissions have insignifigant impact when no emission of a major piece of off-road equipment exceeds threshold (i.e., major pieces are used consequently, not concurrently).

(10) Operation emissions have an insignificant impact if emergency generators are exempt from regulatory limits or if no regulations apply.

(11) Number of days subject to wind erosion equal to days for trenching.

(12) Area to be graded is sum of 115-foot by 66-foot fenced compound and 10-foot wide perimeter band.

(13) Access road assumed to be 1000 ft long and 10 ft wide.

(14) The 25-minute test cycle will be conducted mostly at 50 percent load. To be conservative, the horsepower is stated and emissions are calculated at 75 percent load.

(15) Daily construction fugitive emissions includes the specific activity plus wind erosion.