Appendix C Air Quality

Construction Air Emissions Summary - Nacimiento Water Project

Emissions Summary - Treated Water Option

Location and Construction Activity	Peak Daily Emission (lbs/day)					Quarterly Emissions (tons/qtr)					Annual Emissions (tons/year)				
	CO	ROC	NOx	SO_2	PM_{10}	CO	ROC	NOx	SO_2	PM_{10}	CO	ROC	NOx	SO_2	PM_{10}
Water Intake and Intake PS	86.9	16.8	179.2	18.2	17.2	2.91	0.57	5.41	0.55	0.45	5.29	1.00	11.05	1.17	0.90
WTP and WTP PS	94.3	19.2	187.0	18.1	29.5	3.30	0.68	6.04	0.58	0.87	11.55	2.34	23.02	2.28	2.83
Happy Valley PS	61.4	11.2	138.9	14.8	11.6	1.47	0.29	3.22	0.33	0.25	1.90	0.40	4.42	0.45	0.33
Pipeline (four headings)	417.8	80.0	872.4	89.2	118.4	18.21	3.67	31.22	2.92	2.96	55.17	10.59	114.46	11.68	11.10
WTP Water Storage Facility	57.5	10.8	120.7	13.0	16.8	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Rocky Road Water Tank	57.5	10.8	120.7	13.0	16.8	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Cuesta Tunnel Water Tank	57.5	10.8	120.7	13.0	16.8	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Construction Total Emissions	**623.6**	**118.8**	**1,311.2**	**135.2**	**164.0**	**24.03**	**4.83**	**42.68**	**4.09**	**3.96**	**68.19**	**13.09**	**142.11**	**14.59**	**13.48**
Significance Criteria	**-**	**185**	**185**	**-**	**185**	**-**	**2.5-6.0**	**2.5-6.0**	**-**	**2.5-6.0**					
Significant?		**No**	**Yes**		**No**		**Yes**	**Yes**		**Yes**					

Emissions Summary - Raw Water Option

Location and Construction Activity	Peak Daily Emission (lbs/day)					Quarterly Emissions (tons/qtr)					Annual Emissions (tons/year)				
	CO	ROC	NOx	SO_2	PM_{10}	CO	ROC	NOx	SO_2	PM_{10}	CO	ROC	NOx	SO_2	PM_{10}
Water Intake and Intake PS	86.9	16.8	179.2	18.2	17.2	2.91	0.57	5.41	0.55	0.45	5.29	1.00	11.05	1.17	0.90
WTP PS	61.4	11.2	138.9	14.8	11.6	1.47	0.29	3.22	0.33	0.25	1.90	0.40	4.42	0.45	0.33
Happy Valley PS	61.4	11.2	138.9	14.8	11.6	1.47	0.29	3.22	0.33	0.25	1.90	0.40	4.42	0.45	0.33
Pipeline (four headings)	417.8	80.0	872.4	89.2	118.4	18.21	3.67	31.22	2.92	2.96	55.17	10.59	114.46	11.68	11.10
Discharge Area (Atascadero)	36.9	5.9	81.3	9.5	17.6	1.16	0.18	2.61	0.31	0.32	1.41	0.22	3.19	0.38	0.37
Discharge Area (Templeton)	36.9	5.9	81.3	9.5	17.6	1.16	0.18	2.61	0.31	0.32	1.41	0.22	3.19	0.38	0.37
Discharge Area (Paso Robles)	36.9	5.9	81.3	9.5	17.6	1.16	0.18	2.61	0.31	0.32	1.41	0.22	3.19	0.38	0.37
WTP Water Storage Facility	57.5	10.8	120.7	13.0	16.8	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Rocky Road Water Tank	57.5	10.8	120.7	13.0	16.8	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Cuesta Tunnel Water Tank	57.5	10.8	120.7	13.0	16.8	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Construction Total Emissions	**623.6**	**118.8**	**1,311.2**	**135.2**	**164.0**	**24.03**	**4.83**	**42.68**	**4.09**	**3.96**	**74.31**	**14.15**	**156.11**	**16.18**	**14.94**
Significance Criteria	**-**	**185**	**185**	**-**	**185**	**-**	**2.5-6.0**	**2.5-6.0**	**-**	**2.5-6.0**					
Significant?		**No**	**Yes**		**No**		**Yes**	**Yes**		**Yes**					

Construction Emissions Summary by Separate Facilities

	Peak Daily Emission (lbs/day)					Quarterly Emissions (tons/qtr)					Annual Emissions (tons/year)				
WTP	**CO**	**ROC**	**NOx**	**SO_2**	**PM_{10}**	**CO**	**ROC**	**NOx**	**SO_2**	**PM_{10}**	**CO**	**ROC**	**NOx**	**SO_2**	**PM_{10}**
Construction	71.05	13.63	177.05	17.97	12.60	2.24	0.43	5.59	0.57	0.40	8.87	1.69	22.10	2.26	1.56
Offsite	23.22	5.59	9.96	0.12	0.66	1.06	0.25	0.45	0.01	0.03	2.69	0.66	0.92	0.01	0.06
Fugitive Dust	-	-	-	-	16.20	-	-	-	-	0.44	-	-	-	-	1.21
Total	94.27	19.22	187.01	18.09	29.45	3.30	0.68	6.04	0.58	0.87	11.55	2.34	23.02	2.28	2.83
Pipeline															
Construction	375.23	70.23	845.04	88.96	68.27	12.20	2.28	27.46	2.89	2.22	49.16	9.20	110.70	11.65	8.94
Offsite	42.53	9.80	27.37	0.20	1.93	6.01	1.39	3.76	0.03	0.26	6.01	1.39	3.76	0.03	0.26
Fugitive Dust	-	-	-	-	48.17	-	-	-	-	0.47	-	-	-	-	1.89
Total	417.76	80.03	872.42	89.16	118.37	18.21	3.67	31.22	2.92	2.96	55.17	10.59	114.46	11.68	11.10
Intake															
Construction	72.56	13.37	171.65	18.17	13.22	2.13	0.39	5.07	0.54	0.39	4.52	0.81	10.71	1.16	0.82
Offsite	14.37	3.39	7.58	0.07	0.52	0.77	0.19	0.34	0.00	0.02	0.77	0.19	0.34	0.00	0.02
Fugitive Dust	-	-	-	-	3.51	-	-	-	-	0.04	-	-	-	-	0.05
Total	86.93	16.76	179.23	18.24	17.25	2.91	0.57	5.41	0.55	0.45	5.29	1.00	11.05	1.17	0.90
Pump Station															
Construction	54.24	9.48	135.09	14.78	10.19	1.21	0.23	3.11	0.33	0.22	1.64	0.33	4.30	0.45	0.31
Offsite	7.18	1.70	3.79	0.04	0.26	0.26	0.06	0.11	0.00	0.01	0.26	0.06	0.11	0.00	0.01
Fugitive Dust	-	-	-	-	1.17	-	-	-	-	0.02	-	-	-	-	0.02
Total	61.42	11.18	138.88	14.81	11.62	1.47	0.29	3.22	0.33	0.25	1.90	0.40	4.42	0.45	0.33
Water Storage															
Construction	46.74	8.26	114.49	12.95	9.22	1.07	0.20	2.63	0.30	0.22	1.56	0.28	3.87	0.43	0.30
Offsite	10.80	2.53	6.21	0.05	0.43	0.39	0.09	0.19	0.00	0.01	0.39	0.09	0.19	0.00	0.01
Fugitive Dust	-	-	-	-	7.13	-	-	-	-	0.07	-	-	-	-	0.07
Total	57.54	10.79	120.70	13.00	16.79	1.46	0.29	2.83	0.30	0.30	1.95	0.37	4.06	0.43	0.38
Discharge Area															
Construction	32.70	4.96	78.32	9.50	6.49	1.06	0.16	2.55	0.31	0.21	1.31	0.20	3.13	0.38	0.26
Offsite	4.23	0.96	3.00	0.02	0.21	0.10	0.02	0.06	0.00	0.00	0.10	0.02	0.06	0.00	0.00
Fugitive Dust	-	-	-	-	10.92	-	-	-	-	0.11	-	-	-	-	0.11
Total	36.94	5.92	81.32	9.52	17.63	1.16	0.18	2.61	0.31	0.32	1.41	0.22	3.19	0.38	0.37

Assumptions used in Emissions Calculations for the NWP

1 Each of the 4 headings of the pipeline construction would be moving at 100-300 feet per day on active construction days.
2 Equipment (backhoes, cranes, etc) delivered to and removed from construction site as 2 separate trips.
3 Staging areas for the pipeline equipment storage are constructed as part of pipeline construction.
4 There are 65 work days in 3 months, 86 work days in 4 months.
5 Construction materials are delivered every other day during active construction.
6 Construction of the pipeline would often be during Saturdays also.
7 Construction of Water Intake includes construction of Pump Station at the Intake
8 Construction of WTP includes construction of Pump Station at the WTP
9 The worst quarter or day is when the pipeline and two other facilities are constructed simultaneously
10 The worst year is when the pipeline and all other facilities except for the WTP are constructed

Onsite Construction Equipment Emissions - Proposed Project

Construction Equipment	No.	Daily Usage	Daily Hours	Duration		Emission Factors (lb/hr)					Peak Daily Emission (lbs/day)					Quarterly Emissions (tons/qtr)					Total (Yearly) Emissions (tons)				
				Days	Quarters	CO	ROC	NO_x	SO_2	PM_{10}	CO	ROC	NO_x	SO_2	PM_{10}	CO	ROC	NOx	SO2	PM_{10}	CO	ROC	NO_x	SO_2	PM_{10}
WTP (Includes Pump Station #2)																									
Air Compressor	1	0.8	10	262	4.0	**0.15**	**0.04**	**0.71**	**0.09**	**0.06**	1.21	0.32	5.70	0.69	0.49	0.04	0.01	0.19	0.02	0.02	0.16	0.04	0.75	0.09	0.06
Backhoe	1	0.8	10	262	4.0	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	2.77	0.97	10.08	1.10	0.90	0.09	0.03	0.33	0.04	0.03	0.36	0.13	1.32	0.14	0.12
Bulldozer	1	0.5	10	262	4.0	**0.95**	**0.19**	**2.00**	**0.19**	**0.10**	4.75	0.95	9.98	0.95	0.48	0.15	0.03	0.32	0.03	0.02	0.62	0.12	1.31	0.12	0.06
Concrete Truck	1	0.5	10	262	4.0	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	8.97	0.96	20.83	2.27	1.28	0.29	0.03	0.68	0.07	0.04	1.18	0.13	2.73	0.30	0.17
Compactor	1	0.5	10	262	4.0	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.44	0.10	1.11	0.09	0.09
Crane	1	0.5	8	262	4.0	**0.30**	**0.07**	**0.86**	**0.07**	**0.05**	1.22	0.27	3.45	0.27	0.20	0.04	0.01	0.11	0.01	0.01	0.16	0.04	0.45	0.04	0.03
Dredger	1	0.7	8	262	4.0	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.78	0.85	9.47	0.80	0.78	0.12	0.03	0.31	0.03	0.03	0.50	0.11	1.24	0.10	0.10
Dump Truck	2	0.5	10	262	4.0	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	17.94	1.92	41.66	4.54	2.56	0.58	0.06	1.35	0.15	0.08	2.35	0.25	5.46	0.59	0.34
Excavator	1	0.5	10	262	4.0	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.44	0.10	1.11	0.09	0.09
Forklift	1	0.5	10	262	4.0	**0.52**	**0.17**	**1.54**	**0.14**	**0.09**	2.60	0.85	7.70	0.72	0.47	0.08	0.03	0.25	0.02	0.02	0.34	0.11	1.01	0.09	0.06
Grader	1	0.7	8	262	4.0	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	1.94	0.68	7.06	0.77	0.63	0.06	0.02	0.23	0.02	0.02	0.25	0.09	0.92	0.10	0.08
Boring Machine	1	0.7	8	30	0.5	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.78	0.85	9.47	0.80	0.78	0.06	0.01	0.14	0.01	0.01	0.06	0.01	0.14	0.01	0.01
Loader	1	0.7	10	262	4.0	**0.57**	**0.25**	**1.89**	**0.18**	**0.17**	4.00	1.75	13.23	1.27	1.20	0.13	0.06	0.43	0.04	0.04	0.52	0.23	1.73	0.17	0.16
Generator	2	1	10	262	4.0	**0.24**	**0.04**	**0.40**	**0.04**	**0.02**	4.84	0.88	7.92	0.88	0.44	0.16	0.03	0.26	0.03	0.01	0.63	0.12	1.04	0.12	0.06
Water Truck	1	0.3	8	262	4.0	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	4.31	0.46	10.00	1.09	0.61	0.14	0.01	0.32	0.04	0.02	0.56	0.06	1.31	0.14	0.08
Welding Truck	1	0.5	8	262	4.0	**0.55**	**0.10**	**0.90**	**0.10**	**0.10**	2.20	0.40	3.60	0.40	0.40	0.07	0.01	0.12	0.01	0.01	0.29	0.05	0.47	0.05	0.05
Total											**71.05**	**13.63**	**177.05**	**17.97**	**12.60**	**2.24**	**0.43**	**5.59**	**0.57**	**0.40**	**8.87**	**1.69**	**22.10**	**2.26**	**1.56**
Pipeline (Each Heading at up to 4 Headings)																									
Backhoe	1	0.8	10	262	4.0	**0.346**	**0.121**	**1.26**	**0.137**	**0.11**	2.77	0.97	10.08	1.10	0.90	0.09	0.03	0.33	0.04	0.03	0.36	0.13	1.32	0.14	0.12
Blade	1	0.7	10	262	4.0	**0.151**	**0.04**	**0.713**	**0.086**	**0.06**	1.06	0.28	4.99	0.60	0.43	0.03	0.01	0.16	0.02	0.01	0.14	0.04	0.65	0.08	0.06
Broom	1	0.5	10	262	4.0	**0.151**	**0.04**	**0.713**	**0.086**	**0.06**	0.76	0.20	3.57	0.43	0.31	0.02	0.01	0.12	0.01	0.01	0.10	0.03	0.47	0.06	0.04
Bulldozer	1	0.7	10	262	4.0	**1.257**	**0.282**	**2.84**	**0.463**	**0.41**	8.80	1.97	19.88	3.24	2.84	0.29	0.06	0.65	0.11	0.09	1.15	0.26	2.60	0.42	0.37
Stringing Eq.	1	0.5	10	262	4.0	**1.17**	**0.39**	**2.99**	**0.26**	**0.39**	5.85	1.95	14.95	1.30	1.95	0.19	0.06	0.49	0.04	0.06	0.77	0.26	1.96	0.17	0.26
Concrete Truck	1	0.5	10	262	4.0	**1.794**	**0.192**	**4.166**	**0.454**	**0.26**	8.97	0.96	20.83	2.27	1.28	0.29	0.03	0.68	0.07	0.04	1.18	0.13	2.73	0.30	0.17
Compactor	1	0.5	10	262	4.0	**0.675**	**0.152**	**1.691**	**0.143**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.44	0.10	1.11	0.09	0.09
Drilling Rig	1	0.5	10	262	4.0	**4.18**	**0.627**	**5.016**	**0.418**	**0.31**	20.90	3.14	25.08	2.09	1.57	0.68	0.10	0.82	0.07	0.05	2.74	0.41	3.29	0.27	0.21
Dump Truck	1	0.7	10	262	4.0	**1.794**	**0.192**	**4.166**	**0.454**	**0.26**	12.56	1.34	29.16	3.18	1.79	0.41	0.04	0.95	0.10	0.06	1.65	0.18	3.82	0.42	0.23
Excavator	1	0.5	10	262	4.0	**0.675**	**0.152**	**1.691**	**0.143**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.44	0.10	1.11	0.09	0.09
Forklift	1	0.7	10	262	4.0	**0.52**	**0.17**	**1.54**	**0.143**	**0.09**	3.64	1.19	10.78	1.00	0.65	0.12	0.04	0.35	0.03	0.02	0.48	0.16	1.41	0.13	0.09
Loader	1	0.7	10	262	4.0	**0.572**	**0.25**	**1.89**	**0.182**	**0.17**	4.00	1.75	13.23	1.27	1.20	0.13	0.06	0.43	0.04	0.04	0.52	0.23	1.73	0.17	0.16
Microtunneling Eq.	1	0.5	10	262	4.0	**0.675**	**0.152**	**1.691**	**0.143**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.44	0.10	1.11	0.09	0.09
Trailer w/ Dozer	1	0.5	10	262	4.0	**1.8**	**0.19**	**4.17**	**0.45**	**0.26**	9.00	0.95	20.85	2.25	1.30	0.29	0.03	0.68	0.07	0.04	1.18	0.12	2.73	0.29	0.17
Water Truck	1	0.3	10	262	4.0	**1.794**	**0.192**	**4.166**	**0.454**	**0.26**	5.38	0.58	12.50	1.36	0.77	0.17	0.02	0.41	0.04	0.02	0.71	0.08	1.64	0.18	0.10
Total - each heading											**93.81**	**17.56**	**211.26**	**22.24**	**17.07**	**3.05**	**0.57**	**6.87**	**0.72**	**0.55**	**12.29**	**2.30**	**27.68**	**2.91**	**2.24**
Total for 4 headings											**375.23**	**70.23**	**845.04**	**88.96**	**68.27**	**12.20**	**2.28**	**27.46**	**2.89**	**2.22**	**49.16**	**9.20**	**110.70**	**11.65**	**8.94**

Onsite Construction Equipment Emissions - Proposed Project (Continued)

Construction Equipment	No.	Daily Usage	Daily Hours	Duration Days	Duration Quarters	Emission Factors (lb/hr) CO	ROC	NO_x	SO_2	PM_{10}	Peak Daily Emission (lbs/day) CO	ROC	NO_x	SO_2	PM_{10}	Quarterly Emissions (tons/qtr) CO	ROC	NOx	SO2	PM_{10}	Total (Yearly) Emissions (tons) CO	ROG	NO_x	SO_2	PM_{10}
Water Intake (Includes Pump Station																									
Barge	2	0.8	10	30	0.5	**0.24**	**0.04**	**0.40**	**0.04**	**0.02**	3.87	0.70	6.34	0.70	0.35	0.06	0.01	0.10	0.01	0.01	0.06	0.01	0.10	0.01	0.01
Bulldozer	1	0.5	10	150	2.3	**1.26**	**0.28**	**2.84**	**0.46**	**0.41**	6.29	1.41	14.20	2.32	2.03	0.20	0.05	0.46	0.08	0.07	0.47	0.11	1.07	0.17	0.15
Concrete Truck	1	0.7	10	100	1.5	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	12.56	1.34	29.16	3.18	1.79	0.41	0.04	0.95	0.10	0.06	0.63	0.07	1.46	0.16	0.09
Compactor	1	0.5	10	100	1.5	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.17	0.04	0.42	0.04	0.03
Crane	2	0.5	10	120	1.8	**0.30**	**0.07**	**0.86**	**0.07**	**0.05**	3.04	0.67	8.62	0.67	0.50	0.10	0.02	0.28	0.02	0.02	0.18	0.04	0.52	0.04	0.03
Dredger	1	0.5	10	20	0.3	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.03	0.01	0.08	0.01	0.01	0.03	0.01	0.08	0.01	0.01
Dump Truck	1	0.7	10	180	2.8	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	12.56	1.34	29.16	3.18	1.79	0.41	0.04	0.95	0.10	0.06	1.13	0.12	2.62	0.29	0.16
Excavator	1	0.5	10	150	2.3	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.11	0.02	0.27	0.02	0.02	0.25	0.06	0.63	0.05	0.05
Greader	1	0.7	10	100	1.5	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	2.42	0.85	8.82	0.96	0.78	0.08	0.03	0.29	0.03	0.03	0.12	0.04	0.44	0.05	0.04
Boring Machine	1	0.7	10	30	0.5	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	4.73	1.06	11.84	1.00	0.97	0.07	0.02	0.18	0.02	0.01	0.07	0.02	0.18	0.02	0.01
Loader	1	0.7	10	170	2.6	**0.57**	**0.25**	**1.89**	**0.18**	**0.17**	4.00	1.75	13.23	1.27	1.20	0.13	0.06	0.43	0.04	0.04	0.34	0.15	1.12	0.11	0.10
Generator	2	1	10	180	2.8	**0.24**	**0.04**	**0.40**	**0.04**	**0.02**	4.84	0.88	7.92	0.88	0.44	0.16	0.03	0.26	0.03	0.01	0.44	0.08	0.71	0.08	0.04
Water Truck	1	0.3	10	180	2.8	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	5.38	0.58	12.50	1.36	0.77	0.17	0.02	0.41	0.04	0.02	0.48	0.05	1.12	0.12	0.07
Welding Truck	1	0.5	10	100	1.5	**0.55**	**0.10**	**0.90**	**0.10**	**0.10**	2.75	0.50	4.50	0.50	0.50	0.09	0.02	0.15	0.02	0.02	0.14	0.03	0.23	0.03	0.03
Total											**72.56**	**13.37**	**171.65**	**18.17**	**13.22**	**2.13**	**0.39**	**5.07**	**0.54**	**0.39**	**4.52**	**0.81**	**10.71**	**1.16**	**0.82**
Each Pump Station																									
Backhoe	1	0.5	10	100	1.5	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	1.73	0.61	6.30	0.69	0.56	0.06	0.02	0.20	0.02	0.02	0.09	0.03	0.32	0.03	0.03
Bulldozer	1	0.5	10	20	0.3	**1.26**	**0.28**	**2.84**	**0.46**	**0.41**	6.29	1.41	14.20	2.32	2.03	0.06	0.01	0.14	0.02	0.02	0.06	0.01	0.14	0.02	0.02
Concrete Truck	1	0.7	10	15	0.2	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	12.56	1.34	29.16	3.18	1.79	0.09	0.01	0.22	0.02	0.01	0.09	0.01	0.22	0.02	0.01
Crane	1	0.7	10	60	0.9	**0.30**	**0.07**	**0.86**	**0.07**	**0.05**	2.13	0.47	6.03	0.47	0.35	0.06	0.01	0.18	0.01	0.01	0.06	0.01	0.18	0.01	0.01
Dump Truck	1	0.7	10	100	1.5	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	12.56	1.34	29.16	3.18	1.79	0.41	0.04	0.95	0.10	0.06	0.63	0.07	1.46	0.16	0.09
Excavator	1	0.5	10	50	0.8	**0.68**	**0.15**	**1.69**	**0.14**	**0.14**	3.38	0.76	8.46	0.72	0.70	0.08	0.02	0.21	0.02	0.02	0.08	0.02	0.21	0.02	0.02
Fork Lift	1	0.5	10	120	1.8	**0.52**	**0.17**	**1.54**	**0.14**	**0.09**	2.60	0.85	7.70	0.72	0.47	0.08	0.03	0.25	0.02	0.02	0.16	0.05	0.46	0.04	0.03
Loader	1	0.7	10	120	1.8	**0.57**	**0.25**	**1.89**	**0.18**	**0.17**	4.00	1.75	13.23	1.27	1.20	0.13	0.06	0.43	0.04	0.04	0.24	0.11	0.79	0.08	0.07
Tractor	1	0.5	10	50	0.8	**1.80**	**0.19**	**4.17**	**0.45**	**0.26**	9.00	0.95	20.85	2.25	1.30	0.23	0.02	0.52	0.06	0.03	0.23	0.02	0.52	0.06	0.03
Total											**54.24**	**9.48**	**135.09**	**14.78**	**10.19**	**1.21**	**0.23**	**3.11**	**0.33**	**0.22**	**1.64**	**0.33**	**4.30**	**0.45**	**0.31**
Each Water Storage Facility																									
Backhoe	1	0.5	10	100	1.5	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	1.73	0.61	6.30	0.69	0.56	0.06	0.02	0.20	0.02	0.02	0.09	0.03	0.32	0.03	0.03
Bulldozer	1	0.5	10	50	0.8	**1.26**	**0.28**	**2.84**	**0.46**	**0.41**	6.29	1.41	14.20	2.32	2.03	0.16	0.04	0.36	0.06	0.05	0.16	0.04	0.36	0.06	0.05
Concrete Truck	1	0.7	10	15	0.2	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	12.56	1.34	29.16	3.18	1.79	0.09	0.01	0.22	0.02	0.01	0.09	0.01	0.22	0.02	0.01
Crane	1	0.7	10	80	1.2	**0.30**	**0.07**	**0.86**	**0.07**	**0.05**	2.13	0.47	6.03	0.47	0.35	0.07	0.02	0.20	0.02	0.01	0.09	0.02	0.24	0.02	0.01
Dump Truck	1	0.8	10	120	1.8	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	14.35	1.54	33.33	3.63	2.05	0.47	0.05	1.08	0.12	0.07	0.86	0.09	2.00	0.22	0.12
Grader	1	0.7	10	20	0.3	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	2.42	0.85	8.82	0.96	0.78	0.02	0.01	0.09	0.01	0.01	0.02	0.01	0.09	0.01	0.01
Loader	1	0.5	10	100	1.5	**0.57**	**0.25**	**1.89**	**0.18**	**0.17**	2.86	1.25	9.45	0.91	0.86	0.09	0.04	0.31	0.03	0.03	0.14	0.06	0.47	0.05	0.04
Welding Truck	1	0.8	10	50	0.8	**0.55**	**0.10**	**0.90**	**0.10**	**0.10**	4.40	0.80	7.20	0.80	0.80	0.11	0.02	0.18	0.02	0.02	0.11	0.02	0.18	0.02	0.02
Total											**46.74**	**8.26**	**114.49**	**12.95**	**9.22**	**1.07**	**0.20**	**2.63**	**0.30**	**0.22**	**1.56**	**0.28**	**3.87**	**0.43**	**0.30**
Each Water Discharge Area																									
Backhoe	1	0.7	9	80	1.2	**0.35**	**0.12**	**1.26**	**0.14**	**0.11**	2.18	0.76	7.94	0.86	0.71	0.07	0.02	0.26	0.03	0.02	0.09	0.03	0.32	0.03	0.03
Bulldozer	1	0.7	9	80	1.2	**1.26**	**0.28**	**2.84**	**0.46**	**0.41**	7.92	1.78	17.89	2.92	2.56	0.26	0.06	0.58	0.09	0.08	0.32	0.07	0.72	0.12	0.10
Dump Truck	2	0.7	9	80	1.2	**1.79**	**0.19**	**4.17**	**0.45**	**0.26**	22.60	2.42	52.49	5.72	3.23	0.73	0.08	1.71	0.19	0.10	0.90	0.10	2.10	0.23	0.13
Total											**32.70**	**4.96**	**78.32**	**9.50**	**6.49**	**1.06**	**0.16**	**2.55**	**0.31**	**0.21**	**1.31**	**0.20**	**3.13**	**0.38**	**0.26**

Mobile Emissions - Offsite

	Parameters								Peak Day Emissions, lbs/day					Quarterly Emissions, Tons					Annual Emissions, Tons				
Source	Vehicle Type	Include in Peak Day? 1-yes, 0-no	No. per Day	Daily Trips (one way)	No.* of days per year	Distance One Way (miles)	Speed (mph)	Time of Trip (min)	CO	ROC	NOx	SO2	PM10	CO	ROC	NOx	SO2	PM10	CO	ROC	NOx	SO2	PM10
WTP & PS																							
Workers Commuting	Gasoline	1	60	120	270	5	25	12	14.03	3.60	1.29	0.08	0.03	0.640	0.164	0.059	0.011	0.004	1.894	0.486	0.174	0.011	0.004
Truck Travel	Diesel	1	7	14	215	10	25	24	4.29	0.93	4.04	0.02	0.30	0.196	0.042	0.185	0.001	0.013	0.461	0.100	0.435	0.002	0.032
Construction Equipment Delivery	Diesel	0	5	10	4	20	25	48	6.12	1.32	5.78	0.03	0.42	0.012	0.003	0.012	0.000	0.001	0.012	0.003	0.012	0.000	0.001
Construction Equipment Removal	Diesel	0	5	10	4	20	25	48	6.12	1.32	5.78	0.03	0.42	0.012	0.003	0.012	0.000	0.001	0.012	0.003	0.012	0.000	0.001
Construction Materials Delivery	Diesel	1	4	8	135	20	25	48	4.90	1.06	4.62	0.02	0.34	0.224	0.048	0.211	0.001	0.015	0.331	0.072	0.312	0.001	0.023
Total									***23.2***	***5.6***	***10.0***	***0.1***	***0.7***	***1.1***	***0.3***	***0.5***	***0.0***	***0.0***	***2.7***	***0.7***	***0.9***	***0.0***	***0.1***
Pipeline																							
Workers Commuting	Gasoline	1	64	128	300	5	25	12	14.97	3.84	1.38	0.08	0.03	2.245	0.576	0.207	0.013	0.004	2.245	0.576	0.207	0.013	0.004
Truck Travel	Diesel	1	12	24	300	10	25	24	7.35	1.59	6.93	0.03	0.51	1.102	0.238	1.040	0.005	0.076	1.102	0.238	1.040	0.005	0.076
Construction Equipment Delivery	Diesel	0	5	10	5	20	25	48	6.12	1.32	5.78	0.03	0.42	0.015	0.003	0.014	0.000	0.001	0.015	0.003	0.014	0.000	0.001
Construction Equipment Removal	Diesel	0	5	10	5	20	25	48	6.12	1.32	5.78	0.03	0.42	0.015	0.003	0.014	0.000	0.001	0.015	0.003	0.014	0.000	0.001
Construction Materials Delivery	Diesel	1	4	8	150	20	25	48	4.90	1.06	4.62	0.02	0.34	0.367	0.079	0.347	0.002	0.025	0.367	0.079	0.347	0.002	0.025
Traffic idling on lane closures	Gasoline	1	1000	2000	300	0.25	5	3	15.31	3.31	14.44	0.07	1.06	2.297	0.497	2.166	0.010	0.158	2.297	0.497	2.166	0.010	0.158
Total									***42.5***	***9.8***	***27.4***	***0.2***	***1.9***	***6.0***	***1.4***	***3.8***	***0.0***	***0.3***	***6.0***	***1.4***	***3.8***	***0.0***	***0.3***
Water Intake & PS																							
Workers Commuting	Gasoline	1	30	60	130	5	25	12	7.02	1.80	0.65	0.04	0.01	0.456	0.117	0.042	0.003	0.001	0.456	0.117	0.042	0.003	0.001
Truck Travel	Diesel	1	4	8	130	10	25	24	2.45	0.53	2.31	0.01	0.17	0.159	0.034	0.150	0.001	0.011	0.159	0.034	0.150	0.001	0.011
Construction Equipment Delivery	Diesel	0	5	10	5	20	25	48	6.12	1.32	5.78	0.03	0.42	0.015	0.003	0.014	0.000	0.001	0.015	0.003	0.014	0.000	0.001
Construction Equipment Removal	Diesel	0	5	10	5	20	25	48	6.12	1.32	5.78	0.03	0.42	0.015	0.003	0.014	0.000	0.001	0.015	0.003	0.014	0.000	0.001
Construction Materials Delivery	Diesel	1	4	8	65	20	25	48	4.90	1.06	4.62	0.02	0.34	0.159	0.034	0.150	0.001	0.011	0.159	0.034	0.150	0.001	0.011
Total									***14.4***	***3.4***	***7.6***	***0.1***	***0.5***	***0.8***	***0.2***	***0.3***	***0.0***	***0.0***	***0.8***	***0.2***	***0.3***	***0.0***	***0.0***

Mobile Emissions - Offsite (Continued)

	Parameters								Peak Day Emissions, lbs/day					Quarterly Emissions, Tons					Annual Emissions, Tons				
Source	Vehicle Type	Include in Peak Day? 1-yes, 0-no	Number of Vehicles per Day	Daily Trips (one way)	No.* of days per year	Distance One Way (miles)	Speed (mph)	Time of Trip (min)	CO	ROC	NOx	SO2	PM10	CO	ROC	NOx	SO2	PM10	CO	ROC	NOx	SO2	PM10
Pump Station (each)																							
Workers Commuting	Gasoline	1	15	30	86	5	25	12	3.51	0.90	0.32	0.02	0.01	0.151	0.039	0.014	0.001	0.000	0.151	0.039	0.014	0.001	0.000
Truck Travel	Diesel	1	2	4	86	10	25	24	1.22	0.26	1.16	0.01	0.08	0.053	0.011	0.050	0.000	0.004	0.053	0.011	0.050	0.000	0.004
Construction Equipment Delivery	Diesel	0	2	4	2	20	25	48	2.45	0.53	2.31	0.01	0.17	0.002	0.001	0.002	0.000	0.000	0.002	0.001	0.002	0.000	0.000
Construction Equipment Removal	Diesel	0	2	4	2	20	25	48	2.45	0.53	2.31	0.01	0.17	0.002	0.001	0.002	0.000	0.000	0.002	0.001	0.002	0.000	0.000
Construction Materials Delivery	Diesel	1	2	4	43	20	25	48	2.45	0.53	2.31	0.01	0.17	0.053	0.011	0.050	0.000	0.004	0.053	0.011	0.050	0.000	0.004
Total									***7.2***	***1.7***	***3.8***	***0.0***	***0.3***	***0.3***	***0.1***	***0.1***	***0.0***	***0.0***	***0.3***	***0.1***	***0.1***	***0.0***	***0.0***
Water Storage Facility (each)																							
Workers Commuting	Gasoline	1	20	40	86	5	25	12	4.68	1.20	0.43	0.03	0.01	0.201	0.052	0.019	0.001	0.000	0.201	0.052	0.019	0.001	0.000
Truck Travel	Diesel	1	4	8	86	10	25	24	2.45	0.53	2.31	0.01	0.17	0.105	0.023	0.099	0.000	0.007	0.105	0.023	0.099	0.000	0.007
Construction Equipment Delivery	Diesel	0	4	8	2	20	25	48	4.90	1.06	4.62	0.02	0.34	0.005	0.001	0.005	0.000	0.000	0.005	0.001	0.005	0.000	0.000
Construction Equipment Removal	Diesel	0	4	8	2	20	25	48	4.90	1.06	4.62	0.02	0.34	0.005	0.001	0.005	0.000	0.000	0.005	0.001	0.005	0.000	0.000
Construction Materials Delivery	Diesel	1	3	6	43	20	25	48	3.67	0.79	3.47	0.02	0.25	0.079	0.017	0.075	0.000	0.005	0.079	0.017	0.075	0.000	0.005
Total									***10.8***	***2.5***	***6.2***	***0.1***	***0.4***	***0.4***	***0.1***	***0.2***	***0.0***	***0.0***	***0.4***	***0.1***	***0.2***	***0.0***	***0.0***
River Discharge Area (each)																							
Workers Commuting	Gasoline	1	5	10	65	5	25	12	1.17	0.30	0.11	0.01	0.00	0.038	0.010	0.003	0.000	0.000	0.038	0.010	0.003	0.000	0.000
Truck Travel	Diesel	1	1	2	65	10	25	24	0.61	0.13	0.58	0.00	0.04	0.020	0.004	0.019	0.000	0.001	0.020	0.004	0.019	0.000	0.001
Construction Equipment Delivery	Diesel	0	1	2	2	20	25	48	1.22	0.26	1.16	0.01	0.08	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000
Construction Equipment Removal	Diesel	0	1	2	2	20	25	48	1.22	0.26	1.16	0.01	0.08	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000
Construction Materials Delivery	Diesel	1	2	4	33	20	25	48	2.45	0.53	2.31	0.01	0.17	0.040	0.009	0.038	0.000	0.003	0.040	0.009	0.038	0.000	0.003
Total									***4.2***	***1.0***	***3.0***	***0.0***	***0.2***	***0.1***	***0.0***	***0.1***	***0.0***	***0.0***	***0.1***	***0.0***	***0.1***	***0.0***	***0.0***

Emissions calculations based on EMFAC7G. See Emission Factors spreadsheet

* - Some parts of the project (e.g., pipeline) would take several years to complete; number of days is per each year of construction.

Construction Air Emissions - Fugitive Dust Emissions (PM_{10})

Emission factors for travel on unpaved roads are based on the following inputs

Inputs		Assumptions	Data Sources
Surface silt loading in percent	*28*		*Site debris clearing based on CEQA SCAQMD Tables 9-9 & 9-9-f*
Dust reduction due to watering,%	*38*		
Mean vehicle speed in mph	*5*		*Graded surface based on SCAQMD Table 9-9*
Mean vehicle weight in tons	*2*	Light vehicles only	
Mean number of wheels/vehicle	*4*	All vehicles are small	
Mean number of rain days/year	*40*		
Soil, tons/yd^3	*1.01*		
Silt content of soil	*7.5*	Overburden	
PM10 grading emission factor	*50*	PM10 lbs/acre-day	*SLOC APCD CEQA Handbook*
		Cut and fill piles would be a third of all graded/disturbed area	

Construction Activity	Source	Source Units	Number of Days per year	Emission Factor	Emission Factor Units	Mitigation Reduction %	Peak Day Emissions, lbs/day	Quarterly Emissions, tons	Total PM10 Emissions, tons
Water Treatment Plant & PS									
Site grading/Disturbed Area	31.7	acres	150	50	lbs/acre	38	6.55	0.26	0.491
Fill dumping	202,500	tons of soil	150	0.009	lbs/ton	38	7.60	0.14	0.570
Travel on dirt roads - estimate	1.42	vehicle-miles	250	0.55	lbs/vehicle-miles	38	0.00	0.00	0.000
Fill Storage Piles - estimate	10.56	acres	150	0.31	lbs/day/acre	38	2.05	0.04	0.154
Total							**16.20**	**0.44**	**1.21**
Pipeline									
Site grading/Disturbed Area	97	acres	79	50	lbs/acre	38	38.26	0.38	1.503
Fill dumping	50,625	tons of soil	79	0.009	lbs/ton	38	3.63	0.04	0.142
Travel on dirt roads - estimate	2.27	vehicle-miles	250	0.55	lbs/vehicle-miles	38	0.00	0.00	0.000
Fill Storage Piles - estimate	32.32	acres	79	0.31	lbs/day/acre	38	6.28	0.06	0.247
Total							**48.17**	**0.47**	**1.89**

Assumptions		
Average number of vehicles per day	15	
Travel distance (each vehicle) on site, ft	500	
Site disturbed area, acres per year	*31.67*	28 acres site; 4000'x40' road
Total days of excavation	*100*	Grading will occur during 1st year
Total fill excavated/delivered, yd^3/year	*200,000*	28 acre site preparation
Average number of vehicles per day	40	10 per each of 4 headings
Travel distance (each vehicle) on site, ft	300	
Site disturbed area, acres/year	*97*	64 miles x 50 feet wide, 4 years
Total days of excavation/year	*275*	64 miles @ 200-300 feet/day
Total fill excavated/delivered, yd^3/year	*50,000*	200,000 cu yds in 4 yrs

Construction Air Emissions - Fugitive Dust Emissions (PM_{10}) (Continued)

Construction Activity	Source	Source Units	Number of Days per year	Emission Factor	Emission Factor Units	Mitigation Reduction %	Peak Day Emissions, lbs/day	Quarterly Emissions, tons	Total PM10 Emissions, tons
Water Intake & PS									
Site grading/Disturbed Area	2.5	acres	30	50	lbs/acre	38	2.58	0.03	0.039
Fill dumping	4,050	tons of soil	30	0.009	lbs/ton	38	0.76	0.01	0.011
Travel on dirt roads - estimate	0.57	vehicle-miles	100	0.55	lbs/vehicle-miles	38	0.00	0.00	0.000
Fill Storage Piles - estimate	0.83	acres	20	0.31	lbs/day/acre	38	0.16	0.00	0.002
Total							**3.51**	**0.04**	**0.05**
Pump Station - Happy Valley PS									
Site grading/Disturbed Area	0.7	acres	30	50	lbs/acre	38	0.71	0.01	0.011
Fill dumping	1,470	tons of soil	20	0.009	lbs/ton	38	0.41	0.00	0.004
Travel on dirt roads - estimate	0.20	vehicle-miles	20	0.55	lbs/vehicle-miles	38	0.00	0.00	0.000
Fill Storage Piles - estimate	0.23	acres	20	0.31	lbs/day/acre	38	0.04	0.00	0.000
Total							**1.17**	**0.02**	**0.02**
Water Storage Facility (each)									
Site grading/Disturbed Area	1.2	acres	20	50	lbs/acre	38	1.92	0.02	0.019
Fill dumping	18,225	tons of soil	20	0.009	lbs/ton	38	5.13	0.05	0.051
Travel on dirt roads - estimate	0.14	vehicle-miles	40	0.55	lbs/vehicle-miles	38	0.00	0.00	0.000
Fill Storage Piles - estimate	0.41	acres	20	0.31	lbs/day/acre	38	0.08	0.00	0.001
Total							**7.13**	**0.07**	**0.07**
Water Discharge Area (each)									
Site grading/Disturbed Area	5.0	acres	20	50	lbs/acre	38	7.75	0.08	0.078
Fill dumping	10,125	tons of soil	20	0.009	lbs/ton	38	2.85	0.03	0.028
Travel on dirt roads - estimate	0.14	vehicle-miles	40	0.55	lbs/vehicle-miles	38	0.00	0.00	0.000
Fill Storage Piles - estimate	1.67	acres	20	0.31	lbs/day/acre	38	0.32	0.00	0.003
Total							**10.92**	**0.11**	**0.11**

Assumptions		
Average number of vehicles per day	10	
Travel distance (each vehicle) on site, ft	300	
Site disturbed area, acres	*2.50*	
Total days of excavation	*150*	
Total fill excavated/delivered, yd ^{3}	*4,000*	
Average number of vehicles per day	7	
Travel distance (each vehicle) on site, ft	150	
Site disturbed area, acres	*0.69*	150' x 200' - PS #3
Total days of excavation	*80*	
Total fill excavated/delivered, yd ^{3}	*1,452*	140' x 70' x 4' pond
Average number of vehicles per day	5	
Travel distance (each vehicle) on site, ft	150	
Site disturbed area, acres	*1.24*	360' x 150' area, largest reservoir
Total days of excavation, grading	*80*	
Total fill excavated/delivered, yd ^{3}	*18,000*	
Average number of vehicles per day	5	
Travel distance (each vehicle) on site, ft	150	
Site disturbed area, acres	*5.00*	each area is 5 acres
Total days of excavation	*80*	
Total fill excavated/delivered, yd ^{3}	*10,000*	

Equipment Emission Factors

Equipment	Hp	Type	Load Factor, %	Emission Factors (lb/hr)					Emission Factors (lb/hp-hr)					Reference
				CO	ROG	NO_x	SO_2	PM_{10}	CO	ROG	NO_x	SO_2	PM_{10}	
Air Compressor (400 ACFM)	150	Diesel	na	0.675	0.15	1.7	0.143	0.14	-	-	-	-	-	1) for misc. equip
Air Compressor				0.151	0.04	0.713	0.086	0.061						3)
Backhoe/Loader (510C)	86	Diesel	na	0.572	0.23	1.9	0.182	0.17	-	-	-	-	-	1) for wheeled loader
Backhoe				0.346	0.121	1.26	0.137	0.112						3)
Blade				0.151	0.04	0.713	0.086	0.061						3)
Concrete Saw	56	Diesel	100	1.12	1.344	0.112	0.168	0.056	0.020	0.024	0.002	0.003	0.001	1) concrete saw
Broom				0.151	0.04	0.713	0.086	0.061						3)
Concrete Pump Truck (65 CY/hr)	90	Diesel	na	1.8	0.19	4.17	0.45	0.26	-	-	-	-	-	1) for off-highway truck
Concrete Truck				1.794	0.192	4.166	0.454	0.256						3)
Compactor				0.675	0.152	1.691	0.143	0.139						3)
Crane (20 ton)	130	Diesel	100	1.17	0.39	2.99	0.26	0.39	0.009	0.003	0.023	0.002	0.003	2) for cranes
Crane				0.304	0.067	0.862	0.067	0.05						3)
Crawler Crane (250 ton)	330	Diesel	100	2.97	0.99	7.59	0.66	0.99	0.009	0.003	0.023	0.002	0.003	2) for cranes
Dozer	95	Diesel	100	0.95	0.19	1.995	0.19	0.095	0.010	0.002	0.021	0.002	0.001	2) for rubber tired dozer
Bulldozer				1.257	0.282	2.84	0.463	0.406						3)
Dredger				0.675	0.152	1.691	0.143	0.139						3)
Drill Rig				0.675	0.152	1.691	0.143	0.139						3)
Bore/Drill Rig	209	Diesel	100	4.18	0.627	5.016	0.418	0.3135	0.020	0.003	0.024	0.002	0.002	1) bore/drill rig
Dump Truck (16 CY)	250	Diesel	na	1.8	0.19	4.17	0.45	0.26	-	-	-	-	-	1) for off-highway truck
Dump Truck				1.794	0.192	4.166	0.454	0.256						3)
Excavator				0.675	0.152	1.691	0.143	0.139						3)
Fork Lift (7 ton)	100	Diesel	na	0.52	0.17	1.54	0.143	0.093	-	-	-	-	-	1) for 175 hp fork lift
Front End Loader (3 CY)	140	Diesel	na	0.572	0.23	1.9	0.182	0.17	-	-	-	-	-	1) for wheeled loader
Grader - SCAQMD	150	Diesel	na	1.25	0.27	3.84	0.46	0.41	-	-	-	-	-	1) for scraper
Grader				0.346	0.121	1.26	0.137	0.112						3)
Hydro Crane (18 ton)	130	Diesel	100	1.17	0.39	2.99	0.26	0.39	0.009	0.003	0.023	0.002	0.003	2) for cranes
Hydro Crane (30 ton)	130	Diesel	100	1.17	0.39	2.99	0.26	0.39	0.009	0.003	0.023	0.002	0.003	2) for cranes
Jack and Boring Machine				0.675	0.152	1.691	0.143	0.139						3)
Loader				0.572	0.25	1.89	0.182	0.172						3)
Man Lift (40 ft)	32	Diesel	na	0.18	0.053	0.441	0.143	0.031	-	-	-	-	-	1) for 50 hp forklift
Man Lift (80 ft)	63	Diesel	na	0.18	0.053	0.441	0.143	0.031	-	-	-	-	-	1) for 50 hp forklift
Misc. Equipment	50	Diesel	na	0.675	0.15	1.7	0.143	0.14	-	-	-	-	-	1) for misc. equip
Motor Grader	-	Diesel	na	0.151	0.039	0.713	0.086	0.061	-	-	-	-	-	1) for motor grader
Motor/Generator				0.675	0.152	1.691	0.143	0.139						3)
Pick-up Truck (3/4 ton)	250	Gasoline	na	17.02	0.543	0.412	0.023	0.026	-	-	-	-	-	1) for misc. equip
Pumps	20	Diesel	na	0.011	0.002	0.018	0.002	0.002	-	-	-	-	-	2) for pumps
Shovel/Breaker	128	Diesel	na	0.675	0.15	1.7	0.143	0.14	-	-	-	-	-	1) for misc. equip
Tractor/Trailer (60 ton, 40 ft)	225	Diesel	na	1.8	0.19	4.17	0.45	0.26	-	-	-	-	-	1) for off-highway truck
Trailer/dozer				0.151	0.04	0.713	0.086	0.061						3)
Truck Crane (65 ton)	400	Diesel	na	1.8	0.19	4.17	0.45	0.26	-	-	-	-	-	1) for off-highway truck
Vibro Roller	42	Diesel	na	0.3	0.065	0.87	0.067	0.05	-	-	-	-	-	1) for rollers
Water Truck (4,000 gal)	200	Diesel	na	1.8	0.19	4.17	0.45	0.26	-	-	-	-	-	1) for off-highway truck
Water Truck				1.794	0.192	4.166	0.454	0.256						3)
Welding Machine	50	Diesel	100	0.55	0.1	0.9	0.1	0.1	0.011	0.002	0.018	0.002	0.002	2) for welders
Welding Truck				1.794	0.192	4.166	0.454	0.256						3)
Paint emissions, per gallon	-	-	-	0.00	1.31	0	0	0	-	-	-	-	-	3) per gallon
Boiler/Reformer	-	-	-	6.5	6.5	10.0	0.30	7.8	-	-	-	-	-	4)
Flare, hydrogen combustion	-	-	-	0.000	0.000	0.072	0.000	0.000	-	-	-	-	-	5) lb/10° btu
Flare, natural gas combustion	-	-	-	0.370	0.120	0.072	0.0006	0.020	-	-	-	-	-	6) lb/10° btu
Flare, natural gas combustion	-	-	-	0.370	0.120	0.072	0.0000	0.020	-	-	-	-	-	7) lb/106 btu
Asphalt Paver	91	Diesel	100	0.637	0.091	2.093	0.182	0.091	0.007	0.001	0.023	0.002	0.001	1) for paving equip (4-strk)
Tug (EMD 12-645E5)	3000	Diesel	100	0.775	0.351	12.494	0.162	0.684						3)
Barge Generator (800 HP)	800	Diesel	100	8.712	1.584	14.256	1.584	0.792						3)
Generator sets <50HP	22	Diesel	100	0.242	0.044	0.396	0.044	0.022	0.011	0.002	0.018	0	0.001	1) for generator sets <50 HP

References

1) Emission factors taken from SCAQMD CEQA Air Quality Handbook, Table 9-8-A

2) Emission factors taken from SCAQMD CEQA Air Quality Handbook, Table 9-8-C. Pounds/hour calculated from load factor and hp rating

3) US EPA 1985

Operations

	Parameters									Peak Day Emissions, lbs/day					Quarterly Emissions, Tons					Annual Emissions, Tons				
Source	**Engine Type**	**Emission Factor Code**	**Include in Peak Day? 1-yes, 0-no**	**Number of Vehicles per Day**	**Daily Trips (one way)**	**No. of days per year**	**Distance One Way (miles)**	**Speed (mph)**	**Time of Trip (min)**	**CO**	**ROC**	**NOx**	**SO2**	**PM10**	**CO**	**ROC**	**NOx**	**SO2**	**PM10**	**CO**	**ROC**	**NOx**	**SO2**	**PM10**
WTP & PS																								
Workers Commuting	Gasoline	101	1	10	20	365	15	35	26	5.02	1.23	0.48	0.04	0.01	0.229	0.056	0.022	0.007	0.002	0.916	0.224	0.088	0.007	0.002
Truck Travel	Diesel	102	1	2	4	250	15	35	26	1.84	0.40	1.73	0.01	0.13	0.084	0.018	0.079	0.000	0.006	0.230	0.050	0.217	0.001	0.016
-	Diesel	-	1	-	-	-	-	-	2	3.87	0.70	6.34	0.70	0.35	0.126	0.023	0.206	0.023	0.011	0.145	0.026	0.238	0.026	0.013
Commercial Building			0							0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL										***10.73***	***2.33***	***8.55***	***0.75***	***0.49***	***0.44***	***0.10***	***0.31***	***0.03***	***0.02***	***1.29***	***0.30***	***0.54***	***0.03***	***0.03***

Assumption: Emergency generators are used 8 hours per day, at a maximum of one location.

Emissions from two 50 hp generators