Appendix E
Air Quality and Health Risk Data

Appendix E1
Criteria Pollutant and GHG Emission Calculations

Appendix E1.1
Construction Emission Calculations

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Construction Emission Calculations

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Table E1.1-1. Unmitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM10*	*PM2.5*
Construction Year 2002								
Air Compressor - 100 CFM	Offroad	49	4.619	8.085	6.739	0.064	0.837	0.770
Air Compressor - 185 CFM	Offroad	62	2.022	4.380	9.577	0.058	0.823	0.757
Anchor Winch	Offroad	305	1.035	4.121	8.198	0.048	0.346	0.319
Backhoe	Offroad	160	1.380	3.430	8.660	0.055	0.488	0.449
Boom Hoist	Offroad	700	1.050	4.121	8.304	0.048	0.348	0.321
Boom Truck	Offroad	325	0.972	3.277	7.919	0.048	0.325	0.299
Breasting Winch	Offroad	210	1.159	2.776	8.774	0.055	0.393	0.362
Bulldozer - D6	Offroad	165	1.697	4.181	10.513	0.055	0.613	0.564
Compactive Roller	Offroad	165	1.404	3.606	9.100	0.055	0.490	0.451
Concrete/Industrial Saw	Offroad	84	1.909	4.218	9.283	0.058	0.762	0.701
Crane - 100 ton	Offroad	350	1.078	4.535	8.447	0.048	0.365	0.336
Crane - 300 ton	Offroad	564	1.089	4.504	8.550	0.050	0.366	0.337
Crane - 4000	Offroad	350	1.078	4.535	8.447	0.048	0.365	0.336
Crane - 50 ton	Offroad	330	1.078	4.535	8.447	0.048	0.365	0.336
Crane - 888	Offroad	330	1.078	4.535	8.447	0.048	0.365	0.336
Crane	Offroad	190	1.221	2.883	9.130	0.055	0.419	0.385
Deck Winch	Offroad	120	1.410	3.589	9.122	0.055	0.493	0.454
Deck Winch	Offroad	238	1.159	2.776	8.774	0.055	0.393	0.362
Derrick Barge Crane Hoist	Offroad	564	1.050	4.121	8.304	0.048	0.348	0.321
Emergency Generator	Offroad	210	1.181	2.808	8.871	0.055	0.402	0.370
Generator	Offroad	135	1.181	2.808	8.871	0.055	0.402	0.370
Generator	Offroad	229	1.181	2.808	8.871	0.055	0.402	0.370
Generator	Offroad	432	1.052	4.145	8.267	0.048	0.353	0.325
Generator	Offroad	90	2.129	4.533	10.006	0.058	0.877	0.807
Genset	Offroad	89	1.759	4.018	8.842	0.058	0.678	0.624
Genset	Offroad	66	1.759	4.018	8.842	0.058	0.678	0.624
Grader	Offroad	180	1.145	2.653	8.799	0.055	0.388	0.357
Jet Pump	Offroad	290	0.850	3.171	7.483	0.048	0.271	0.249
Loader - 950G	Offroad	180	0.999	2.230	8.169	0.055	0.329	0.302
Loader - 962G - Anchorage Rd.	Offroad	200	0.999	2.230	8.169	0.055	0.329	0.302
Loader	Offroad	215	0.878	2.806	7.480	0.055	0.291	0.268
Main Generator	Offroad	485	0.830	2.985	7.404	0.048	0.262	0.241
Main Hoist	Offroad	335	1.035	4.121	8.198	0.048	0.346	0.319
Main Hoist	Offroad	700	1.050	4.121	8.304	0.048	0.348	0.321
Other Equipment	Offroad	190	0.845	2.837	7.334	0.048	0.276	0.254
Paving Machine	Offroad	200	1.292	3.119	9.440	0.055	0.445	0.410
Pile Hammer	Offroad	190	0.845	2.837	7.334	0.048	0.276	0.254
Pile Handler	Offroad	456	0.845	2.837	7.334	0.048	0.276	0.254
Rough Terrain Forklift	Offroad	94	2.080	4.448	9.598	0.058	0.875	0.805
Scraper	Offroad	195	1.299	3.074	9.496	0.055	0.448	0.412
Tracked Loader - Cat 973	Offroad	210	0.999	2.230	8.169	0.055	0.329	0.302
Water Truck	Offroad	325	0.972	3.277	7.919	0.048	0.325	0.299
Welder - 300 Amp.	Offroad	33	4.268	7.542	6.634	0.064	0.790	0.727
Welder - 400 Amp.	Offroad	35	4.268	7.542	6.634	0.064	0.790	0.727
Winch	Offroad	305	1.035	4.121	8.198	0.048	0.346	0.319

Table E1.1-1. Unmitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM10*	*PM2.5*
Construction Year 2003								0.000
Air Compressor - 100 CFM	Offroad	49	4.561	8.000	6.663	0.064	0.830	0.764
Air Compressor - 185 CFM	Offroad	62	1.981	4.311	9.267	0.058	0.818	0.753
Anchor Winch	Offroad	305	0.968	3.575	7.837	0.048	0.324	0.298
Backhoe	Offroad	160	1.317	3.393	8.342	0.055	0.473	0.435
Boom Hoist	Offroad	700	0.984	3.575	7.956	0.048	0.326	0.300
Boom Truck	Offroad	325	0.907	2.896	7.544	0.048	0.301	0.277
Breasting Winch	Offroad	210	1.088	2.574	8.443	0.055	0.367	0.338
Bulldozer - D6	Offroad	165	1.650	4.128	10.252	0.055	0.601	0.553
Compactive Roller	Offroad	165	1.350	3.545	8.809	0.055	0.476	0.438
Concrete/Industrial Saw	Offroad	84	1.876	4.160	9.006	0.058	0.759	0.699
Crane - 100 ton	Offroad	350	1.013	4.087	8.104	0.048	0.344	0.316
Crane - 300 ton	Offroad	564	1.024	4.061	8.225	0.050	0.345	0.317
Crane - 4000	Offroad	350	1.013	4.087	8.104	0.048	0.344	0.316
Crane - 50 ton	Offroad	330	1.013	4.087	8.104	0.048	0.344	0.316
Crane - 888	Offroad	330	1.013	4.087	8.104	0.048	0.344	0.316
Crane	Offroad	190	1.151	2.701	8.818	0.055	0.393	0.361
Deck Winch	Offroad	120	1.358	3.506	8.807	0.055	0.478	0.440
Deck Winch	Offroad	238	1.088	2.574	8.443	0.055	0.367	0.338
Derrick Barge Crane Hoist	Offroad	564	0.984	3.575	7.956	0.048	0.326	0.300
Emergency Generator	Offroad	210	1.109	2.604	8.537	0.055	0.376	0.346
Generator	Offroad	135	1.109	2.604	8.537	0.055	0.376	0.346
Generator	Offroad	229	1.109	2.604	8.537	0.055	0.376	0.346
Generator	Offroad	432	0.984	3.597	7.903	0.048	0.331	0.304
Generator	Offroad	90	2.088	4.463	9.694	0.058	0.873	0.803
Genset	Offroad	89	1.727	3.958	8.563	0.058	0.675	0.621
Genset	Offroad	66	1.727	3.958	8.563	0.058	0.675	0.621
Grader	Offroad	180	1.074	2.478	8.489	0.055	0.363	0.334
Jet Pump	Offroad	290	0.785	2.809	7.133	0.048	0.252	0.232
Loader - 950G	Offroad	180	0.926	2.060	7.853	0.055	0.303	0.279
Loader - 962G - Anchorage Rd.	Offroad	200	0.926	2.060	7.853	0.055	0.303	0.279
Loader	Offroad	215	0.810	2.483	7.117	0.055	0.269	0.248
Main Generator	Offroad	485	0.766	2.656	7.057	0.048	0.243	0.224
Main Hoist	Offroad	335	0.968	3.575	7.837	0.048	0.324	0.298
Main Hoist	Offroad	700	0.984	3.575	7.956	0.048	0.326	0.300
Other Equipment	Offroad	190	0.777	2.494	6.973	0.048	0.255	0.235
Paving Machine	Offroad	200	1.229	2.958	9.153	0.055	0.424	0.390
Pile Hammer	Offroad	190	0.777	2.494	6.973	0.048	0.255	0.235
Pile Handler	Offroad	456	0.777	2.494	6.973	0.048	0.255	0.235
Rough Terrain Forklift	Offroad	94	2.051	4.398	9.327	0.058	0.874	0.804
Scraper	Offroad	195	1.232	2.909	9.203	0.055	0.424	0.390
Tracked Loader - Cat 973	Offroad	210	0.926	2.060	7.853	0.055	0.303	0.279
Water Truck	Offroad	325	0.907	2.896	7.544	0.048	0.301	0.277
Welder - 300 Amp.	Offroad	33	4.215	7.461	6.558	0.064	0.784	0.721
Welder - 400 Amp.	Offroad	35	4.215	7.461	6.558	0.064	0.784	0.721
Winch	Offroad	305	0.968	3.575	7.837	0.048	0.324	0.298

Table E1.1-1. Unmitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM10*	*PM2.5*
Construction Year 2009								0.000
Air Compressor - 100 CFM	Offroad	49	3.722	7.316	6.165	0.007	0.701	0.645
Air Compressor - 185 CFM	Offroad	62	1.542	4.085	7.569	0.007	0.682	0.627
Anchor Winch	Offroad	305	0.640	1.966	5.744	0.006	0.209	0.192
Backhoe	Offroad	160	0.875	3.302	5.829	0.006	0.335	0.308
Boom Hoist	Offroad	700	0.649	1.966	5.882	0.006	0.212	0.195
Boom Truck	Offroad	325	0.649	1.691	5.179	0.006	0.193	0.178
Breasting Winch	Offroad	210	0.714	1.691	6.412	0.006	0.230	0.212
Bulldozer - D6	Offroad	165	1.310	3.851	8.211	0.006	0.473	0.435
Compactive Roller	Offroad	165	0.981	3.312	6.679	0.006	0.361	0.332
Concrete/Industrial Saw	Offroad	84	1.320	3.855	6.979	0.007	0.579	0.533
Crane - 100 ton	Offroad	350	0.721	2.258	5.923	0.006	0.229	0.211
Crane - 300 ton	Offroad	564	0.726	2.251	6.067	0.006	0.232	0.213
Crane - 4000	Offroad	350	0.721	2.258	5.923	0.006	0.229	0.211
Crane - 50 ton	Offroad	330	0.721	2.258	5.923	0.006	0.229	0.211
Crane - 888	Offroad	330	0.721	2.258	5.923	0.006	0.229	0.211
Crane	Offroad	190	0.796	1.856	6.640	0.006	0.254	0.234
Deck Winch	Offroad	120	1.018	3.320	6.784	0.006	0.376	0.346
Deck Winch	Offroad	238	0.714	1.691	6.412	0.006	0.230	0.212
Derrick Barge Crane Hoist	Offroad	564	0.649	1.966	5.882	0.006	0.212	0.195
Emergency Generator	Offroad	210	0.729	1.705	6.477	0.006	0.233	0.215
Generator	Offroad	135	0.729	1.705	6.477	0.006	0.233	0.215
Generator	Offroad	229	0.729	1.705	6.477	0.006	0.233	0.215
Generator	Offroad	432	0.655	1.977	5.787	0.006	0.212	0.195
Generator	Offroad	90	1.567	4.160	7.669	0.007	0.699	0.643
Genset	Offroad	89	1.289	3.717	6.933	0.007	0.541	0.498
Genset	Offroad	66	1.289	3.717	6.933	0.007	0.541	0.498
Grader	Offroad	180	0.733	1.714	6.283	0.006	0.233	0.214
Jet Pump	Offroad	290	0.517	1.686	5.392	0.006	0.170	0.156
Loader - 950G	Offroad	180	0.593	1.399	5.514	0.006	0.185	0.170
Loader - 962G - Anchorage Rd.	Offroad	200	0.593	1.399	5.514	0.006	0.185	0.170
Loader	Offroad	215	0.542	1.484	4.814	0.006	0.171	0.157
Main Generator	Offroad	485	0.500	1.621	5.330	0.006	0.164	0.151
Main Hoist	Offroad	335	0.640	1.966	5.744	0.006	0.209	0.192
Main Hoist	Offroad	700	0.649	1.966	5.882	0.006	0.212	0.195
Other Equipment	Offroad	190	0.485	1.459	4.744	0.006	0.161	0.148
Paving Machine	Offroad	200	0.882	2.137	7.137	0.006	0.291	0.268
Pile Hammer	Offroad	190	0.485	1.459	4.744	0.006	0.161	0.148
Pile Handler	Offroad	456	0.485	1.459	4.744	0.006	0.161	0.148
Rough Terrain Forklift	Offroad	94	1.420	4.089	7.095	0.007	0.652	0.600
Scraper	Offroad	195	0.891	2.102	7.096	0.006	0.289	0.266
Tracked Loader - Cat 973	Offroad	210	0.593	1.399	5.514	0.006	0.185	0.170
Water Truck	Offroad	325	0.649	1.691	5.179	0.006	0.193	0.178
Welder - 300 Amp.	Offroad	33	3.381	6.752	6.042	0.007	0.654	0.601
Welder - 400 Amp.	Offroad	35	3.381	6.752	6.042	0.007	0.654	0.601
Winch	Offroad	305	0.640	1.966	5.744	0.006	0.209	0.192

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Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM10*	*PM2.5*
Construction Year 2010								0.000
Air Compressor - 100 CFM	Offroad	49	3.548	7.179	6.087	0.007	0.675	0.621
Air Compressor - 185 CFM	Offroad	62	1.467	4.056	7.235	0.007	0.660	0.607
Anchor Winch	Offroad	305	0.594	1.774	5.395	0.006	0.194	0.178
Backhoe	Offroad	160	0.815	3.296	5.407	0.006	0.315	0.290
Boom Hoist	Offroad	700	0.603	1.774	5.533	0.006	0.196	0.180
Boom Truck	Offroad	325	0.622	1.574	4.839	0.006	0.182	0.167
Breasting Winch	Offroad	210	0.660	1.567	6.040	0.006	0.211	0.194
Bulldozer - D6	Offroad	165	1.258	3.813	7.848	0.006	0.455	0.418
Compactive Roller	Offroad	165	0.928	3.295	6.318	0.006	0.346	0.318
Concrete/Industrial Saw	Offroad	84	1.229	3.814	6.592	0.007	0.551	0.507
Crane - 100 ton	Offroad	350	0.687	2.090	5.592	0.006	0.216	0.199
Crane - 300 ton	Offroad	564	0.691	2.084	5.732	0.006	0.219	0.201
Crane - 4000	Offroad	350	0.687	2.090	5.592	0.006	0.216	0.199
Crane - 50 ton	Offroad	330	0.687	2.090	5.592	0.006	0.216	0.199
Crane - 888	Offroad	330	0.687	2.090	5.592	0.006	0.216	0.199
Crane	Offroad	190	0.753	1.755	6.269	0.006	0.238	0.219
Deck Winch	Offroad	120	0.963	3.303	6.404	0.006	0.361	0.332
Deck Winch	Offroad	238	0.660	1.567	6.040	0.006	0.211	0.194
Derrick Barge Crane Hoist	Offroad	564	0.603	1.774	5.533	0.006	0.196	0.180
Emergency Generator	Offroad	210	0.676	1.581	6.100	0.006	0.215	0.197
Generator	Offroad	135	0.676	1.581	6.100	0.006	0.215	0.197
Generator	Offroad	229	0.676	1.581	6.100	0.006	0.215	0.197
Generator	Offroad	432	0.611	1.785	5.434	0.006	0.197	0.181
Generator	Offroad	90	1.473	4.116	7.262	0.007	0.668	0.615
Genset	Offroad	89	1.215	3.685	6.617	0.007	0.521	0.479
Genset	Offroad	66	1.215	3.685	6.617	0.007	0.521	0.479
Grader	Offroad	180	0.695	1.629	5.912	0.006	0.219	0.201
Jet Pump	Offroad	290	0.482	1.549	5.117	0.006	0.160	0.147
Loader - 950G	Offroad	180	0.561	1.336	5.127	0.006	0.173	0.159
Loader - 962G - Anchorage Rd.	Offroad	200	0.561	1.336	5.127	0.006	0.173	0.159
Loader	Offroad	215	0.518	1.400	4.489	0.006	0.161	0.149
Main Generator	Offroad	485	0.465	1.494	5.057	0.006	0.155	0.142
Main Hoist	Offroad	335	0.594	1.774	5.395	0.006	0.194	0.178
Main Hoist	Offroad	700	0.603	1.774	5.533	0.006	0.196	0.180
Other Equipment	Offroad	190	0.456	1.356	4.431	0.006	0.152	0.139
Paving Machine	Offroad	200	0.837	2.028	6.794	0.006	0.275	0.253
Pile Hammer	Offroad	190	0.456	1.356	4.431	0.006	0.152	0.139
Pile Handler	Offroad	456	0.456	1.356	4.431	0.006	0.152	0.139
Rough Terrain Forklift	Offroad	94	1.319	4.047	6.667	0.007	0.615	0.566
Scraper	Offroad	195	0.849	1.999	6.733	0.006	0.273	0.251
Tracked Loader - Cat 973	Offroad	210	0.561	1.336	5.127	0.006	0.173	0.159
Water Truck	Offroad	325	0.622	1.574	4.839	0.006	0.182	0.167
Welder - 300 Amp.	Offroad	33	3.220	6.623	5.964	0.007	0.629	0.579
Welder - 400 Amp.	Offroad	35	3.220	6.623	5.964	0.007	0.629	0.579
Winch	Offroad	305	0.594	1.774	5.395	0.006	0.194	0.178

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Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM10*	*PM2.5*
Construction Year 2011								0.000
Air Compressor - 100 CFM	Offroad	49	3.335	6.991	5.997	0.007	0.645	0.593
Air Compressor - 185 CFM	Offroad	62	1.383	4.020	6.872	0.007	0.634	0.583
Anchor Winch	Offroad	305	0.551	1.603	4.994	0.006	0.174	0.160
Backhoe	Offroad	160	0.760	3.292	5.020	0.006	0.297	0.273
Boom Hoist	Offroad	700	0.558	1.603	5.132	0.006	0.177	0.163
Boom Truck	Offroad	325	0.592	1.473	4.432	0.006	0.164	0.151
Breasting Winch	Offroad	210	0.608	1.456	5.617	0.006	0.189	0.174
Bulldozer - D6	Offroad	165	1.208	3.777	7.500	0.006	0.438	0.403
Compactive Roller	Offroad	165	0.878	3.281	5.975	0.006	0.332	0.306
Concrete/Industrial Saw	Offroad	84	1.142	3.776	6.222	0.007	0.524	0.483
Crane - 100 ton	Offroad	350	0.651	1.937	5.204	0.006	0.198	0.182
Crane - 300 ton	Offroad	564	0.654	1.931	5.340	0.006	0.200	0.184
Crane - 4000	Offroad	350	0.651	1.937	5.204	0.006	0.198	0.182
Crane - 50 ton	Offroad	330	0.651	1.937	5.204	0.006	0.198	0.182
Crane - 888	Offroad	330	0.651	1.937	5.204	0.006	0.198	0.182
Crane	Offroad	190	0.709	1.660	5.838	0.006	0.217	0.200
Deck Winch	Offroad	120	0.909	3.287	6.031	0.006	0.346	0.318
Deck Winch	Offroad	238	0.608	1.456	5.617	0.006	0.189	0.174
Derrick Barge Crane Hoist	Offroad	564	0.558	1.603	5.132	0.006	0.177	0.163
Emergency Generator	Offroad	210	0.625	1.470	5.671	0.006	0.192	0.177
Generator	Offroad	135	0.625	1.470	5.671	0.006	0.192	0.177
Generator	Offroad	229	0.625	1.470	5.671	0.006	0.192	0.177
Generator	Offroad	432	0.569	1.614	5.029	0.006	0.177	0.163
Generator	Offroad	90	1.381	4.073	6.861	0.007	0.637	0.586
Genset	Offroad	89	1.137	3.651	6.282	0.007	0.499	0.459
Genset	Offroad	66	1.137	3.651	6.282	0.007	0.499	0.459
Grader	Offroad	180	0.657	1.555	5.477	0.006	0.199	0.183
Jet Pump	Offroad	290	0.443	1.418	4.766	0.006	0.145	0.133
Loader - 950G	Offroad	180	0.528	1.284	4.663	0.006	0.154	0.142
Loader - 962G - Anchorage Rd.	Offroad	200	0.528	1.284	4.663	0.006	0.154	0.142
Loader	Offroad	215	0.492	1.329	4.089	0.006	0.145	0.133
Main Generator	Offroad	485	0.425	1.372	4.709	0.006	0.140	0.129
Main Hoist	Offroad	335	0.551	1.603	4.994	0.006	0.174	0.160
Main Hoist	Offroad	700	0.558	1.603	5.132	0.006	0.177	0.163
Other Equipment	Offroad	190	0.426	1.270	4.045	0.006	0.135	0.124
Paving Machine	Offroad	200	0.791	1.927	6.404	0.006	0.255	0.234
Pile Hammer	Offroad	190	0.426	1.270	4.045	0.006	0.135	0.124
Pile Handler	Offroad	456	0.426	1.270	4.045	0.006	0.135	0.124
Rough Terrain Forklift	Offroad	94	1.223	4.008	6.261	0.007	0.578	0.532
Scraper	Offroad	195	0.807	1.904	6.320	0.006	0.253	0.232
Tracked Loader - Cat 973	Offroad	210	0.528	1.284	4.663	0.006	0.154	0.142
Water Truck	Offroad	325	0.592	1.473	4.432	0.006	0.164	0.151
Welder - 300 Amp.	Offroad	33	3.028	6.457	5.874	0.007	0.601	0.553
Welder - 400 Amp.	Offroad	35	3.028	6.457	5.874	0.007	0.601	0.553
Winch	Offroad	305	0.551	1.603	4.994	0.006	0.174	0.160

Table E1.1-1. Unmitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM10*	*PM2.5*
Construction Year 2012								0.000
Air Compressor - 100 CFM	Offroad	49	3.079	6.752	5.894	0.007	0.609	0.560
Air Compressor - 185 CFM	Offroad	62	1.289	3.978	6.456	0.007	0.596	0.548
Anchor Winch	Offroad	305	0.521	1.481	4.633	0.006	0.159	0.146
Backhoe	Offroad	160	0.709	3.288	4.649	0.006	0.268	0.246
Boom Hoist	Offroad	700	0.527	1.481	4.769	0.006	0.162	0.149
Boom Truck	Offroad	325	0.564	1.390	4.062	0.006	0.147	0.135
Breasting Winch	Offroad	210	0.571	1.386	5.232	0.006	0.172	0.158
Bulldozer - D6	Offroad	165	1.159	3.743	7.156	0.006	0.415	0.382
Compactive Roller	Offroad	165	0.829	3.269	5.636	0.006	0.311	0.286
Concrete/Industrial Saw	Offroad	84	1.058	3.740	5.844	0.007	0.490	0.451
Crane - 100 ton	Offroad	350	0.617	1.796	4.836	0.006	0.180	0.166
Crane - 300 ton	Offroad	564	0.620	1.792	4.967	0.006	0.183	0.168
Crane - 4000	Offroad	350	0.617	1.796	4.836	0.006	0.180	0.166
Crane - 50 ton	Offroad	330	0.617	1.796	4.836	0.006	0.180	0.166
Crane - 888	Offroad	330	0.617	1.796	4.836	0.006	0.180	0.166
Crane	Offroad	190	0.668	1.572	5.428	0.006	0.197	0.181
Deck Winch	Offroad	120	0.855	3.274	5.657	0.006	0.323	0.297
Deck Winch	Offroad	238	0.571	1.386	5.232	0.006	0.172	0.158
Derrick Barge Crane Hoist	Offroad	564	0.527	1.481	4.769	0.006	0.162	0.149
Emergency Generator	Offroad	210	0.589	1.400	5.278	0.006	0.175	0.161
Generator	Offroad	135	0.589	1.400	5.278	0.006	0.175	0.161
Generator	Offroad	229	0.589	1.400	5.278	0.006	0.175	0.161
Generator	Offroad	432	0.540	1.491	4.663	0.006	0.162	0.149
Generator	Offroad	90	1.288	4.032	6.448	0.007	0.598	0.550
Genset	Offroad	89	1.051	3.613	5.905	0.007	0.467	0.430
Genset	Offroad	66	1.051	3.613	5.905	0.007	0.467	0.430
Grader	Offroad	180	0.621	1.488	5.067	0.006	0.180	0.166
Jet Pump	Offroad	290	0.411	1.322	4.422	0.006	0.132	0.122
Loader - 950G	Offroad	180	0.500	1.243	4.240	0.006	0.137	0.126
Loader - 962G - Anchorage Rd.	Offroad	200	0.500	1.243	4.240	0.006	0.137	0.126
Loader	Offroad	215	0.470	1.271	3.728	0.006	0.129	0.119
Main Generator	Offroad	485	0.394	1.285	4.369	0.006	0.128	0.117
Main Hoist	Offroad	335	0.521	1.481	4.633	0.006	0.159	0.146
Main Hoist	Offroad	700	0.527	1.481	4.769	0.006	0.162	0.149
Other Equipment	Offroad	190	0.405	1.213	3.705	0.006	0.122	0.112
Paving Machine	Offroad	200	0.749	1.834	6.030	0.006	0.236	0.217
Pile Hammer	Offroad	190	0.405	1.213	3.705	0.006	0.122	0.112
Pile Handler	Offroad	456	0.405	1.213	3.705	0.006	0.122	0.112
Rough Terrain Forklift	Offroad	94	1.129	3.972	5.847	0.007	0.532	0.490
Scraper	Offroad	195	0.768	1.818	5.928	0.006	0.233	0.214
Tracked Loader - Cat 973	Offroad	210	0.500	1.243	4.240	0.006	0.137	0.126
Water Truck	Offroad	325	0.564	1.390	4.062	0.006	0.147	0.135
Welder - 300 Amp.	Offroad	33	2.802	6.249	5.773	0.007	0.568	0.523
Welder - 400 Amp.	Offroad	35	2.802	6.249	5.773	0.007	0.568	0.523
Winch	Offroad	305	0.521	1.481	4.633	0.006	0.159	0.146

Note: emission factors of TOG, NOx, CO, SO2, and PM10 were from Offroad2007. PM2.5 emission factors were obtained from the SCAQMD PM2.5 to PM10 Fraction (SCAQMD, October 2006) for diesel offroad vehicles

Table E1.1-2. Mitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin
Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM*	*PM2.5*
Construction Year 2009								
Air Compressor - 100 CF	Offroad	49	0.560	4.100	5.040	0.007	0.225	0.207
Air Compressor - 185 CF	Offroad	62	0.560	3.700	5.040	0.007	0.150	0.138
Anchor Winch	Offroad	305	0.480	1.966	4.320	0.006	0.075	0.069
Backhoe	Offroad	160	0.490	3.302	4.410	0.006	0.110	0.101
Boom Hoist	Offroad	700	0.480	1.966	4.320	0.006	0.075	0.069
Boom Truck	Offroad	325	0.480	1.691	4.320	0.006	0.075	0.069
Breasting Winch	Offroad	210	0.490	1.691	4.410	0.006	0.075	0.069
Bulldozer - D6	Offroad	165	0.490	3.700	4.410	0.006	0.110	0.101
Compactive Roller	Offroad	165	0.490	3.312	4.410	0.006	0.110	0.101
Concrete/Industrial Saw	Offroad	84	0.560	3.700	5.040	0.007	0.150	0.138
Crane - 100 ton	Offroad	350	0.480	2.258	4.320	0.006	0.075	0.069
Crane - 300 ton	Offroad	564	0.480	2.251	4.320	0.006	0.075	0.069
Crane - 4000	Offroad	350	0.480	2.258	4.320	0.006	0.075	0.069
Crane - 50 ton	Offroad	330	0.480	2.258	4.320	0.006	0.075	0.069
Crane - 888	Offroad	330	0.480	2.258	4.320	0.006	0.075	0.069
Crane	Offroad	190	0.490	1.856	4.410	0.006	0.075	0.069
Deck Winch	Offroad	120	0.490	3.320	4.410	0.006	0.110	0.101
Deck Winch	Offroad	238	0.490	1.691	4.410	0.006	0.075	0.069
Derrick Barge Crane Hoi	Offroad	564	0.480	1.966	4.320	0.006	0.075	0.069
Emergency Generator	Offroad	210	0.490	1.705	4.410	0.006	0.075	0.069
Generator	Offroad	135	0.490	1.705	4.410	0.006	0.110	0.101
Generator	Offroad	229	0.490	1.705	4.410	0.006	0.075	0.069
Generator	Offroad	432	0.480	1.977	4.320	0.006	0.075	0.069
Generator	Offroad	90	0.560	3.700	5.040	0.007	0.150	0.138
Genset	Offroad	89	0.560	3.700	5.040	0.007	0.150	0.138
Genset	Offroad	66	0.560	3.700	5.040	0.007	0.150	0.138
Grader	Offroad	180	0.490	1.714	4.410	0.006	0.075	0.069
Jet Pump	Offroad	290	0.490	1.686	4.410	0.006	0.075	0.069
Loader - 950G	Offroad	180	0.490	1.399	4.410	0.006	0.075	0.069
Loader - 962G - Anchora	Offroad	200	0.490	1.399	4.410	0.006	0.075	0.069
Loader	Offroad	215	0.490	1.484	4.410	0.006	0.075	0.069
Main Generator	Offroad	485	0.480	1.621	4.320	0.006	0.075	0.069
Main Hoist	Offroad	335	0.480	1.966	4.320	0.006	0.075	0.069
Main Hoist	Offroad	700	0.480	1.966	4.320	0.006	0.075	0.069
Other Equipment	Offroad	190	0.485	1.459	4.410	0.006	0.075	0.069
Paving Machine	Offroad	200	0.490	2.137	4.410	0.006	0.075	0.069
Pile Hammer	Offroad	190	0.485	1.459	4.410	0.006	0.075	0.069
Pile Handler	Offroad	456	0.480	1.459	4.320	0.006	0.075	0.069
Rough Terrain Forklift	Offroad	94	0.560	3.700	5.040	0.007	0.150	0.138
Scraper	Offroad	195	0.490	2.102	4.410	0.006	0.075	0.069
Tracked Loader - Cat 97	Offroad	210	0.490	1.399	4.410	0.006	0.075	0.069
Water Truck	Offroad	325	0.480	1.691	4.320	0.006	0.075	0.069
Welder - 300 Amp.	Offroad	33	0.560	4.100	5.040	0.007	0.225	0.207
Welder - 400 Amp.	Offroad	35	0.560	4.100	5.040	0.007	0.225	0.207
Winch	Offroad	305	0.480	1.966	4.320	0.006	0.075	0.069

Table E1.1-2. Mitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM*	*PM2.5*
Construction Year 2010								
Air Compressor - 100 CF	Offroad	49	0.560	4.100	5.040	0.007	0.225	0.207
Air Compressor - 185 CF	Offroad	62	0.560	3.700	5.040	0.007	0.150	0.138
Anchor Winch	Offroad	305	0.480	1.774	4.320	0.006	0.075	0.069
Backhoe	Offroad	160	0.490	3.296	4.410	0.006	0.110	0.101
Boom Hoist	Offroad	700	0.480	1.774	4.320	0.006	0.075	0.069
Boom Truck	Offroad	325	0.480	1.574	4.320	0.006	0.075	0.069
Breasting Winch	Offroad	210	0.490	1.567	4.410	0.006	0.075	0.069
Bulldozer - D6	Offroad	165	0.490	3.700	4.410	0.006	0.110	0.101
Compactive Roller	Offroad	165	0.490	3.295	4.410	0.006	0.110	0.101
Concrete/Industrial Saw	Offroad	84	0.560	3.700	5.040	0.007	0.150	0.138
Crane - 100 ton	Offroad	350	0.480	2.090	4.320	0.006	0.075	0.069
Crane - 300 ton	Offroad	564	0.480	2.084	4.320	0.006	0.075	0.069
Crane - 4000	Offroad	350	0.480	2.090	4.320	0.006	0.075	0.069
Crane - 50 ton	Offroad	330	0.480	2.090	4.320	0.006	0.075	0.069
Crane - 888	Offroad	330	0.480	2.090	4.320	0.006	0.075	0.069
Crane	Offroad	190	0.490	1.755	4.410	0.006	0.075	0.069
Deck Winch	Offroad	120	0.490	3.303	4.410	0.006	0.110	0.101
Deck Winch	Offroad	238	0.490	1.567	4.410	0.006	0.075	0.069
Derrick Barge Crane Hoi	Offroad	564	0.480	1.774	4.320	0.006	0.075	0.069
Emergency Generator	Offroad	210	0.490	1.581	4.410	0.006	0.075	0.069
Generator	Offroad	135	0.490	1.581	4.410	0.006	0.110	0.101
Generator	Offroad	229	0.490	1.581	4.410	0.006	0.075	0.069
Generator	Offroad	432	0.480	1.785	4.320	0.006	0.075	0.069
Generator	Offroad	90	0.560	3.700	5.040	0.007	0.150	0.138
Genset	Offroad	89	0.560	3.685	5.040	0.007	0.150	0.138
Genset	Offroad	66	0.560	3.685	5.040	0.007	0.150	0.138
Grader	Offroad	180	0.490	1.629	4.410	0.006	0.075	0.069
Jet Pump	Offroad	290	0.482	1.549	4.410	0.006	0.075	0.069
Loader - 950G	Offroad	180	0.490	1.336	4.410	0.006	0.075	0.069
Loader - 962G - Anchora	Offroad	200	0.490	1.336	4.410	0.006	0.075	0.069
Loader	Offroad	215	0.490	1.400	4.410	0.006	0.075	0.069
Main Generator	Offroad	485	0.465	1.494	4.320	0.006	0.075	0.069
Main Hoist	Offroad	335	0.480	1.774	4.320	0.006	0.075	0.069
Main Hoist	Offroad	700	0.480	1.774	4.320	0.006	0.075	0.069
Other Equipment	Offroad	190	0.456	1.356	4.410	0.006	0.075	0.069
Paving Machine	Offroad	200	0.490	2.028	4.410	0.006	0.075	0.069
Pile Hammer	Offroad	190	0.456	1.356	4.410	0.006	0.075	0.069
Pile Handler	Offroad	456	0.456	1.356	4.320	0.006	0.075	0.069
Rough Terrain Forklift	Offroad	94	0.560	3.700	5.040	0.007	0.150	0.138
Scraper	Offroad	195	0.490	1.999	4.410	0.006	0.075	0.069
Tracked Loader - Cat 97	Offroad	210	0.490	1.336	4.410	0.006	0.075	0.069
Water Truck	Offroad	325	0.480	1.574	4.320	0.006	0.075	0.069
Welder - 300 Amp.	Offroad	33	0.560	4.100	5.040	0.007	0.225	0.207
Welder - 400 Amp.	Offroad	35	0.560	4.100	5.040	0.007	0.225	0.207
Winch	Offroad	305	0.480	1.774	4.320	0.006	0.075	0.069

Table E1.1-2. Mitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM*	*PM2.5*
Construction Year 2011								
Air Compressor - 100 CF	Offroad	49	0.560	4.100	5.040	0.007	0.225	0.207
Air Compressor - 185 CF	Offroad	62	0.560	3.700	5.040	0.007	0.150	0.138
Anchor Winch	Offroad	305	0.480	1.603	4.320	0.006	0.075	0.069
Backhoe	Offroad	160	0.490	3.292	4.410	0.006	0.110	0.101
Boom Hoist	Offroad	700	0.480	1.603	4.320	0.006	0.075	0.069
Boom Truck	Offroad	325	0.480	1.473	4.320	0.006	0.075	0.069
Breasting Winch	Offroad	210	0.490	1.456	4.410	0.006	0.075	0.069
Bulldozer - D6	Offroad	165	0.490	3.700	4.410	0.006	0.110	0.101
Compactive Roller	Offroad	165	0.490	3.281	4.410	0.006	0.110	0.101
Concrete/Industrial Saw	Offroad	84	0.560	3.700	5.040	0.007	0.150	0.138
Crane - 100 ton	Offroad	350	0.480	1.937	4.320	0.006	0.075	0.069
Crane - 300 ton	Offroad	564	0.480	1.931	4.320	0.006	0.075	0.069
Crane - 4000	Offroad	350	0.480	1.937	4.320	0.006	0.075	0.069
Crane - 50 ton	Offroad	330	0.480	1.937	4.320	0.006	0.075	0.069
Crane - 888	Offroad	330	0.480	1.937	4.320	0.006	0.075	0.069
Crane	Offroad	190	0.490	1.660	4.410	0.006	0.075	0.069
Deck Winch	Offroad	120	0.490	3.287	4.410	0.006	0.110	0.101
Deck Winch	Offroad	238	0.490	1.456	4.410	0.006	0.075	0.069
Derrick Barge Crane Hoi	Offroad	564	0.480	1.603	4.320	0.006	0.075	0.069
Emergency Generator	Offroad	210	0.490	1.470	4.410	0.006	0.075	0.069
Generator	Offroad	135	0.490	1.470	4.410	0.006	0.110	0.101
Generator	Offroad	229	0.490	1.470	4.410	0.006	0.075	0.069
Generator	Offroad	432	0.480	1.614	4.320	0.006	0.075	0.069
Generator	Offroad	90	0.560	3.700	5.040	0.007	0.150	0.138
Genset	Offroad	89	0.560	3.651	5.040	0.007	0.150	0.138
Genset	Offroad	66	0.560	3.651	5.040	0.007	0.150	0.138
Grader	Offroad	180	0.490	1.555	4.410	0.006	0.075	0.069
Jet Pump	Offroad	290	0.443	1.418	4.410	0.006	0.075	0.069
Loader - 950G	Offroad	180	0.490	1.284	4.410	0.006	0.075	0.069
Loader - 962G - Anchora	Offroad	200	0.490	1.284	4.410	0.006	0.075	0.069
Loader	Offroad	215	0.490	1.329	4.089	0.006	0.075	0.069
Main Generator	Offroad	485	0.425	1.372	4.320	0.006	0.075	0.069
Main Hoist	Offroad	335	0.480	1.603	4.320	0.006	0.075	0.069
Main Hoist	Offroad	700	0.480	1.603	4.320	0.006	0.075	0.069
Other Equipment	Offroad	190	0.426	1.270	4.045	0.006	0.075	0.069
Paving Machine	Offroad	200	0.490	1.927	4.410	0.006	0.075	0.069
Pile Hammer	Offroad	190	0.426	1.270	4.045	0.006	0.075	0.069
Pile Handler	Offroad	456	0.426	1.270	4.045	0.006	0.075	0.069
Rough Terrain Forklift	Offroad	94	0.560	3.700	5.040	0.007	0.150	0.138
Scraper	Offroad	195	0.490	1.904	4.410	0.006	0.075	0.069
Tracked Loader - Cat 97	Offroad	210	0.490	1.284	4.410	0.006	0.075	0.069
Water Truck	Offroad	325	0.480	1.473	4.320	0.006	0.075	0.069
Welder - 300 Amp.	Offroad	33	0.560	4.100	5.040	0.007	0.225	0.207
Welder - 400 Amp.	Offroad	35	0.560	4.100	5.040	0.007	0.225	0.207
Winch	Offroad	305	0.480	1.603	4.320	0.006	0.075	0.069

Table E1.1-2. Mitigated Construction Equipment Emission Factors Derived from Offroad2007 for South Coast Air Basin

Diesel Construction Equipment

			Emission Factor (g/hp-hr)					
Construction Equipment	Type	*HP*	*TOG*	*CO*	*NOX*	*SO2*	*PM*	*PM2.5*
Construction Year 2012								
Air Compressor - 100 CF	Offroad	49	0.560	4.100	5.040	0.007	0.225	0.207
Air Compressor - 185 CF	Offroad	62	0.560	3.700	5.040	0.007	0.150	0.138
Anchor Winch	Offroad	305	0.480	1.481	4.320	0.006	0.075	0.069
Backhoe	Offroad	160	0.490	3.288	4.410	0.006	0.110	0.101
Boom Hoist	Offroad	700	0.480	1.481	4.320	0.006	0.075	0.069
Boom Truck	Offroad	325	0.480	1.390	4.062	0.006	0.075	0.069
Breasting Winch	Offroad	210	0.490	1.386	4.410	0.006	0.075	0.069
Bulldozer - D6	Offroad	165	0.490	3.700	4.410	0.006	0.110	0.101
Compactive Roller	Offroad	165	0.490	3.269	4.410	0.006	0.110	0.101
Concrete/Industrial Saw	Offroad	84	0.560	3.700	5.040	0.007	0.150	0.138
Crane - 100 ton	Offroad	350	0.480	1.796	4.320	0.006	0.075	0.069
Crane - 300 ton	Offroad	564	0.480	1.792	4.320	0.006	0.075	0.069
Crane - 4000	Offroad	350	0.480	1.796	4.320	0.006	0.075	0.069
Crane - 50 ton	Offroad	330	0.480	1.796	4.320	0.006	0.075	0.069
Crane - 888	Offroad	330	0.480	1.796	4.320	0.006	0.075	0.069
Crane	Offroad	190	0.490	1.572	4.410	0.006	0.075	0.069
Deck Winch	Offroad	120	0.490	3.274	4.410	0.006	0.110	0.101
Deck Winch	Offroad	238	0.490	1.386	4.410	0.006	0.075	0.069
Derrick Barge Crane Hoi	Offroad	564	0.480	1.481	4.320	0.006	0.075	0.069
Emergency Generator	Offroad	210	0.490	1.400	4.410	0.006	0.075	0.069
Generator	Offroad	135	0.490	1.400	4.410	0.006	0.110	0.101
Generator	Offroad	229	0.490	1.400	4.410	0.006	0.075	0.069
Generator	Offroad	432	0.480	1.491	4.320	0.006	0.075	0.069
Generator	Offroad	90	0.560	3.700	5.040	0.007	0.150	0.138
Genset	Offroad	89	0.560	3.613	5.040	0.007	0.150	0.138
Genset	Offroad	66	0.560	3.613	5.040	0.007	0.150	0.138
Grader	Offroad	180	0.490	1.488	4.410	0.006	0.075	0.069
Jet Pump	Offroad	290	0.411	1.322	4.410	0.006	0.075	0.069
Loader - 950G	Offroad	180	0.490	1.243	4.240	0.006	0.075	0.069
Loader - 962G - Anchora	Offroad	200	0.490	1.243	4.240	0.006	0.075	0.069
Loader	Offroad	215	0.470	1.271	3.728	0.006	0.075	0.069
Main Generator	Offroad	485	0.394	1.285	4.320	0.006	0.075	0.069
Main Hoist	Offroad	335	0.480	1.481	4.320	0.006	0.075	0.069
Main Hoist	Offroad	700	0.480	1.481	4.320	0.006	0.075	0.069
Other Equipment	Offroad	190	0.405	1.213	3.705	0.006	0.075	0.069
Paving Machine	Offroad	200	0.490	1.834	4.410	0.006	0.075	0.069
Pile Hammer	Offroad	190	0.405	1.213	3.705	0.006	0.075	0.069
Pile Handler	Offroad	456	0.405	1.213	3.705	0.006	0.075	0.069
Rough Terrain Forklift	Offroad	94	0.560	3.700	5.040	0.007	0.150	0.138
Scraper	Offroad	195	0.490	1.818	4.410	0.006	0.075	0.069
Tracked Loader - Cat 97	Offroad	210	0.490	1.243	4.240	0.006	0.075	0.069
Water Truck	Offroad	325	0.480	1.390	4.062	0.006	0.075	0.069
Welder - 300 Amp.	Offroad	33	0.560	4.100	5.040	0.007	0.225	0.207
Welder - 400 Amp.	Offroad	35	0.560	4.100	5.040	0.007	0.225	0.207
Winch	Offroad	305	0.480	1.481	4.320	0.006	0.075	0.069

Table E1.1-3. Emission Factors for Tier 2 Construction Equipment with Level 2 PM Control

hp Category	VOC (g/hp-hr)	CO (g/hp-hr)	NOx (g/hp-hr)	SOx (g/hp-hr)	PM10 (g/hp-hr)
25-50	0.56	4.10	5.04	NA	0.23
50-100	0.56	3.70	5.04	NA	0.15
100-175	0.49	3.70	4.41	NA	0.11
175 -300	0.49	2.60	4.41	NA	0.08
300-600	0.48	2.60	4.32	NA	0.08
600-750	0.48	2.60	4.32	NA	0.08
> 750	0.48	2.60	4.32	NA	0.08

Notes:

(1) Mitigation includes equipment that meets Tier 2 offroad emission standards.

(2) PM2.5 emission factors were obtained from the SCAQMD PM2.5 to PM10 Fraction (SCAQMD, October 2006) for diesel offroad vehicles

(3) It is assumed that NOx emissions are 90% of the total HC and NOx emissions.

(4) PM10 mitigation includes a 50% control (CARB Level 2 control) in addition to the Tier II PM10 standard.

Table E1.1-4. Emission Factors for Construction Activities Not Included in the OFFROAD Model

Emission Factor Description	Emission Factor ID	E.F. Units	Emission Factors VOC	CO	NOx	SOx	PM10	PM2.5	Notes
Construction Year 2002									
On-road Truck - 10 mph	truck10	g/mile	9.17	32.78	34.60	0.24	3.18	2.89	(1)
On-road Truck - 25 mph	truck25	g/mile	2.12	15.67	21.65	0.16	1.31	1.17	(1)
On-road Truck - 55 mph	truck55	g/mile	1.23	8.51	21.82	0.13	0.93	0.82	(1)
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	2.82	17.38	22.94	0.16	1.50	1.34	(2)
Other On-Road Trucks - Composite	truckother	g/mile	2.47	14.52	23.01	0.15	1.35	1.20	(3)
On-road Truck - Idle	truckidle	g/hr	17.64	51.70	83.91	0.50	3.25	2.99	(1)
Building Demolition	demo	lb/Kcf					0.41	0.09	(4)
Fugitive Dust	dust	lb/acre/day					13.45	2.81	(5)
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.54	1.19	14.24	0.16	0.78	0.71	(6)
General Cargo Ship - Transit (One-way)	transit	lb/transit	33.92	83.23	959.50	876.16	103.60	83.30	(7)
General Cargo Ship - Hoteling	hotel	lb/day/ship	8.83	23.86	315.67	576.30	49.03	39.23	(8)
Construction Year 2003									
On-road Truck - 10 mph	truck10	g/mile	9.11	31.22	34.37	0.24	3.05	2.77	(1)
On-road Truck - 25 mph	truck25	g/mile	2.07	14.81	21.36	0.16	1.24	1.10	(1)
On-road Truck - 55 mph	truck55	g/mile	1.21	8.01	21.42	0.13	0.90	0.79	(1)
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	2.78	16.45	22.66	0.16	1.42	1.27	(2)
Other On-Road Trucks - Composite	truckother	g/mile	2.43	13.73	22.69	0.15	1.28	1.15	(3)
On-road Truck - Idle	truckidle	g/hr	16.69	50.89	87.57	0.50	3.03	2.79	(1)
Building Demolition	demo	lb/Kcf					0.41	0.09	(4)
Fugitive Dust	dust	lb/acre/day					13.45	2.81	(5)
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.54	1.19	14.24	0.16	0.78	0.71	(6)
General Cargo Ship - Transit (One-way)	transit	lb/transit	33.92	83.23	959.50	876.16	103.60	83.30	(7)
General Cargo Ship - Hoteling	hotel	lb/day/ship	8.83	23.86	315.67	576.30	49.03	39.23	(8)
Construction Year 2009									
On-road Truck - 10 mph	truck10	g/mile	7.44	21.34	29.26	0.03	2.00	1.81	(1)
On-road Truck - 25 mph	truck25	g/mile	1.61	9.65	17.57	0.02	0.80	0.70	(1)
On-road Truck - 55 mph	truck55	g/mile	0.94	5.40	16.58	0.02	0.69	0.60	(1)
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	2.19	10.82	18.74	0.02	0.92	0.81	(2)
Other On-Road Trucks - Composite	truckother	g/mile	1.92	9.12	18.34	0.02	0.88	0.77	(3)
On-road Truck - Idle	truckidle	g/hr	12.55	46.95	103.59	0.06	1.89	1.73	(1)
Building Demolition	demo	lb/Kcf					0.41	0.09	(4)
Fugitive Dust	dust	lb/acre/day					13.45	2.81	(5)
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	13.25	0.01	0.56	0.51	(6)
General Cargo Ship - Transit (One-way)	transit	lb/transit	33.92	83.23	959.50	876.16	103.60	83.30	(7)
General Cargo Ship - Hoteling	hotel	lb/day/ship	8.83	23.86	315.67	576.30	49.03	39.23	(8)
Construction Year 2010									
On-road Truck - 10 mph	truck10	g/mile	6.91	19.55	26.95	0.03	1.79	1.61	(1)
On-road Truck - 25 mph	truck25	g/mile	1.50	8.75	16.12	0.02	0.72	0.63	(1)
On-road Truck - 55 mph	truck55	g/mile	0.86	5.02	15.06	0.02	0.65	0.56	(1)
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	2.04	9.83	17.21	0.02	0.83	0.73	(2)
Other On-Road Trucks - Composite	truckother	g/mile	1.78	8.34	16.78	0.02	0.80	0.70	(3)
On-road Truck - Idle	truckidle	g/hr	11.97	46.32	105.77	0.06	1.72	1.58	(1)
Building Demolition	demo	lb/Kcf					0.41	0.09	(4)
Fugitive Dust	dust	lb/acre/day					13.45	2.81	(5)
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	13.25	0.01	0.56	0.51	(6)
General Cargo Ship - Transit (One-way)	transit	lb/transit	33.92	83.23	959.50	876.16	103.60	83.30	(7)
General Cargo Ship - Hoteling	hotel	lb/day/ship	8.83	23.86	315.67	576.30	49.03	39.23	(8)
Construction Year 2011									
On-road Truck - 10 mph	truck10	g/mile	6.33	17.67	24.52	0.03	1.58	1.42	(1)
On-road Truck - 25 mph	truck25	g/mile	1.38	7.83	14.62	0.02	0.65	0.56	(1)
On-road Truck - 55 mph	truck55	g/mile	0.79	4.61	13.50	0.02	0.60	0.51	(1)
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	1.87	8.81	15.61	0.02	0.74	0.64	(2)
Other On-Road Trucks - Composite	truckother	g/mile	1.64	7.52	15.16	0.02	0.72	0.63	(3)
On-road Truck - Idle	truckidle	g/hr	11.43	45.71	107.82	0.06	1.56	1.43	(1)
Building Demolition	demo	lb/Kcf					0.41	0.09	(4)
Fugitive Dust	dust	lb/acre/day					13.45	2.81	(5)
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	13.25	0.01	0.56	0.51	(6)
General Cargo Ship - Transit (One-way)	transit	lb/transit	33.92	83.23	959.50	876.16	103.60	83.30	(7)
General Cargo Ship - Hoteling	hotel	lb/day/ship	8.83	23.86	315.67	576.30	49.03	39.23	(8)
Construction Year 2012									
On-road Truck - 10 mph	truck10	g/mile	5.74	15.78	22.10	0.03	1.37	1.23	(1)
On-road Truck - 25 mph	truck25	g/mile	1.25	6.91	13.12	0.02	0.57	0.49	(1)
On-road Truck - 55 mph	truck55	g/mile	0.71	4.20	11.97	0.02	0.55	0.47	(1)
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	1.70	7.80	14.02	0.02	0.65	0.56	(2)
Other On-Road Trucks - Composite	truckother	g/mile	1.48	6.71	13.56	0.02	0.64	0.55	(3)
On-road Truck - Idle	truckidle	g/hr	10.94	45.15	109.72	0.06	1.40	1.29	(1)
Building Demolition	demo	lb/Kcf					0.41	0.09	(4)
Fugitive Dust	dust	lb/acre/day					13.45	2.81	(5)
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	13.25	0.01	0.56	0.51	(6)
General Cargo Ship - Transit (One-way)	transit	lb/transit	33.92	83.23	959.50	876.16	103.60	83.30	(7)
General Cargo Ship - Hoteling	hotel	lb/day/ship	8.83	23.86	315.67	576.30	49.03	39.23	(8)

Notes: (1) From EMFAC2007 (CARB 2007). Units in grams/mile, SCAB fleet, annual average conditions, 60 degrees F, and 50% humidity.

(2) Composite emission factor for dredge haul trucks is based on a typical round trip of 90% of trip distance at 25 mph and 10% at 10 mph.

(3) For all on-road trucks other then dredge material haul trucks. Composite factor based on a typical trip of 40% of trip distance at 55 mph, 50% at 25 mph, 10% at 10 mph.

(4) CEQA Air Quality Handbook, Table A9-9-H (SCAQMD 1993). Units in lbs/1000 cubic feet (cf) of demolished building. PM10 and PM2.5 factors determined by factoring the PM by ratios given in the California Emissions Inventory Development and Reporting System (CEIDARS) Table PMSIZEPROFILE (ARB 2006).

(5) *Compilation of Air Pollutant Emission Factors, AP-42, Volume I, Section 13.2.3 (EPA 1995)*. PM10 and PM2.5 factors determined by factoring the PM by ratios given in the California Emissions Inventory Development and Reporting System (CEIDARS) Table PMSIZEPROFILE (ARB 2006). The EPA emission factor is reduced 75% to reflect site watering in compliance with SCAQMD Rule 403 (SCAQMD, URBEMIS 2002 [version 8.7.0].

(6) Composite emission factors include main engine plus auxiliary engine. Auxiliary engine produces 7.9% of the power of the main engine. Entec, 2002. Assume the tugboats will use ultra low sulfur diesel fuel.

(7) Includes emissions from both ships and tug assists out to AQMD overwater boundary. Ships assumed to use 4.5% sulfur fuel.

(8) Assumes 24 hr/day hoteling. Ships assumed to use 4.5% sulfur fuel.

Table E1.1-5. Emission Factors for Diesel Trucks - With Mitigation

Emission Factor Description	Emission Factor ID	E.F. Units	Emission Factors VOC	CO	NOx	SOx	PM10	PM2.5
Construction Year 2002								
On-road Truck - 10 mph	truck10	g/mile						
On-road Truck - 25 mph	truck25	g/mile						
On-road Truck - 55 mph	truck55	g/mile						
Dredge Materials Haul Truck - Composite	truckdredge	g/mile						
Other On-Road Trucks - Composite	truckother	g/mile						
On-road Truck - Idle	truckidle	g/hr						
Building Demolition	demo	lb/Kcf						
Fugitive Dust	dust	lb/acre/day						
Tugboat/Towboat/Pushboat	tug	g/kW-hr						
General Cargo Ship - Transit (One-way)	transit	lb/transit						
General Cargo Ship - Hoteling	hotel	lb/day/ship						
Construction Year 2003								
On-road Truck - 10 mph	truck10	g/mile						
On-road Truck - 25 mph	truck25	g/mile						
On-road Truck - 55 mph	truck55	g/mile						
Dredge Materials Haul Truck - Composite	truckdredge	g/mile						
Other On-Road Trucks - Composite	truckother	g/mile						
On-road Truck - Idle	truckidle	g/hr						
Building Demolition	demo	lb/Kcf						
Fugitive Dust	dust	lb/acre/day						
Tugboat/Towboat/Pushboat	tug	g/kW-hr						
General Cargo Ship - Transit (One-way)	transit	lb/transit						
General Cargo Ship - Hoteling	hotel	lb/day/ship						
Construction Year 2009								
On-road Truck - 10 mph	truck10	g/mile	3.12	6.74	25.02	0.03	0.15	0.10
On-road Truck - 25 mph	truck25	g/mile	0.77	2.55	13.98	0.02	0.14	0.09
On-road Truck - 55 mph	truck55	g/mile	0.38	2.74	9.81	0.02	0.19	0.13
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	1.00	2.97	15.08	0.02	0.14	0.09
Other On-Road Trucks - Composite	truckother	g/mile	0.85	3.04	13.41	0.02	0.16	0.11
On-road Truck - Idle	truckidle	g/hr	7.65	41.43	123.52	0.06	0.15	0.14
Building Demolition	demo	lb/Kcf						
Fugitive Dust	dust	lb/acre/day					11.00	2.29
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	8.84	0.01	0.53	0.49
General Cargo Ship - Transit (One-way)	transit	lb/transit						
General Cargo Ship - Hoteling	hotel	lb/day/ship						
Construction Year 2010								
On-road Truck - 10 mph	truck10	g/mile	3.43	7.43	25.76	0.03	0.16	0.11
On-road Truck - 25 mph	truck25	g/mile	0.84	2.81	14.39	0.02	0.14	0.09
On-road Truck - 55 mph	truck55	g/mile	0.42	3.02	10.10	0.02	0.20	0.14
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	1.10	3.27	15.53	0.02	0.14	0.09
Other On-Road Trucks - Composite	truckother	g/mile	0.93	3.35	13.81	0.02	0.17	0.11
On-road Truck - Idle	truckidle	g/hr	7.65	41.43	123.52	0.06	0.15	0.14
Building Demolition	demo	lb/Kcf						
Fugitive Dust	dust	lb/acre/day					11.00	2.29
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	8.84	0.01	0.53	0.49
General Cargo Ship - Transit (One-way)	transit	lb/transit						
General Cargo Ship - Hoteling	hotel	lb/day/ship						
Construction Year 2011								
On-road Truck - 10 mph	truck10	g/mile	3.73	8.06	26.45	0.03	0.17	0.11
On-road Truck - 25 mph	truck25	g/mile	0.92	3.05	14.78	0.02	0.15	0.10
On-road Truck - 55 mph	truck55	g/mile	0.46	3.27	10.37	0.02	0.20	0.15
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	1.20	3.55	15.94	0.02	0.15	0.10
Other On-Road Trucks - Composite	truckother	g/mile	1.01	3.64	14.18	0.02	0.17	0.12
On-road Truck - Idle	truckidle	g/hr	7.65	41.43	123.52	0.06	0.15	0.14
Building Demolition	demo	lb/Kcf						
Fugitive Dust	dust	lb/acre/day					11.00	2.29
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	8.84	0.01	0.53	0.49
General Cargo Ship - Transit (One-way)	transit	lb/transit						
General Cargo Ship - Hoteling	hotel	lb/day/ship						
Construction Year 2012								
On-road Truck - 10 mph	truck10	g/mile	3.99	8.64	27.08	0.03	0.17	0.12
On-road Truck - 25 mph	truck25	g/mile	0.98	3.27	15.13	0.02	0.15	0.10
On-road Truck - 55 mph	truck55	g/mile	0.49	3.51	10.62	0.02	0.21	0.16
Dredge Materials Haul Truck - Composite	truckdredge	g/mile	1.28	3.81	16.32	0.02	0.15	0.10
Other On-Road Trucks - Composite	truckother	g/mile	1.09	3.90	14.52	0.02	0.18	0.13
On-road Truck - Idle	truckidle	g/hr	7.65	41.43	123.52	0.06	0.15	0.14
Building Demolition	demo	lb/Kcf						
Fugitive Dust	dust	lb/acre/day					11.00	2.29
Tugboat/Towboat/Pushboat	tug	g/kW-hr	0.39	1.19	8.84	0.01	0.53	0.49
General Cargo Ship - Transit (One-way)	transit	lb/transit						
General Cargo Ship - Hoteling	hotel	lb/day/ship						

Notes: (1) Mitigation for trucks is: All on-road heavy duty trucks with a GVWR or 19,000 lb or greater used in the execution of the work on-site or used to convey to or from the site concrete reinforcing steel, rock products, ready-mix concrete, fill material, or base and asphalt concrete shall meet EPA 2004 standards, and equipped with CARB level 3 control device for PM control. Emission factors were from EMFAC2007, and applied 85% control to the PM10 and PM2.5 exhaust emissions.

(2) Fugitive dust will be 90% controlled.

(3) Tub boats meet the Tier 2 emission standards

Table E1.1-6a

Phase 1: Construct 1,000-foot Wharf at Berth 100

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Pinpiles/Indicators														
Derrick Barge Crane Hoist	Offroad	564	0.25	2002	1	4	564	48						
Deck Winch	Offroad	238	0.50	2002	2	2	476	48						
Generator	Offroad	432	0.60	2002	1	8	2,074	48						
Generator	Offroad	135	0.60	2002	1	2	162	48						
Pile Hammer	Offroad	190	0.60	2002	1	8	912	48						
Jet Pump	Offroad	290	0.60	2002	1	8	1,392	48						
Haul Trucks - Pile Deliveries	truckother			2002				24		130	12	10	1,560	
Subtotal, Piledriving - Pinpiles/Indicators														
Rip-Rap Placement (1,000')														
Main Hoist	Offroad	335	0.50	2002	1	10	1,675	60						
Generator	Offroad	90	0.60	2002	1	10	540	60						
Generator	Offroad	229	0.60	2002	1	10	1,374	60						
Deck Winch	Offroad	120	0.50	2002	1	10	600	60						
Tracked Loader - Cat 973	Offroad	210	0.50	2002	1	10	1,050	60						
Tugboat	tug	2,420	0.43	2002	1	8	8,325	30						
Genset	Offroad	89	0.60	2002	1	9	481	30						
Tugboat	tug	2,420	0.43	2002	1	8	8,325	30						
Genset	Offroad	66	0.60	2002	1	9	356	30						
Subtotal, Rip-Rap Placement - 1000'														
Piledriving - Production Pile														
Main Hoist	Offroad	700	0.25	2002	1	4	700	53						
Main Generator	Offroad	485	0.60	2002	1	8	2,328	53						
Boom Hoist	Offroad	700	0.25	2002	1	8	1,400	53						
Anchor Winch	Offroad	305	0.50	2002	1	2	305	53						
Breasting Winch	Offroad	210	0.60	2002	1	2	252	53						
Emergency Generator	Offroad	210	0.60	2002	1	2	252	53						
Pile Hammer	Offroad	190	0.60	2002	1	8	912	53						
Jet Pump	Offroad	290	0.60	2002	1	8	1,392	53						
Pile Handler	Offroad	456	0.50	2002	1	2	456	53						
Haul Trucks - Pile Deliveries	truckother			2002				53		130	10	10	1,300	
Subtotal, Piledriving - Production Pile														
Wharf Construction														
Crane - 888	Offroad	330	0.30	2002	1	8	792	100						
Crane - 4000	Offroad	350	0.50	2002	1	8	1,400	100						
Air Compressor - 100 CFM	Offroad	49	0.60	2002	2	4	235	100						
Air Compressor - 185 CFM	Offroad	62	0.60	2002	1	4	149	100						
Air Compressor - 185 CFM	Offroad	62	0.60	2002	1	4	149	100						
Welder - 300 Amp.	Offroad	33	0.60	2002	1	4	79	100						
Welder - 400 Amp.	Offroad	35	0.60	2002	1	4	84	100						
Haul Trucks	truckother			2002				34		40	5	10	200	
Concrete Trucks	truckother			2002				68		15	25	20	375	
Subtotal, Wharf Construction														
Total - Construct a 1000' Wharf at Berth 100 (1)														

Notes: (1) The four sub-activities are assumed not to occur simultaneously.

Table E1.1-6a

Phase 1: Construct 1,000-foot Wharf at Berth 100

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators													
Derrick Barge Crane Hoist	g/Hp-hr	1.0498972	4.1209945	8.3036251	0.0483439	0.348457	0.3205805						
Deck Winch	g/Hp-hr	1.158933	2.7755154	8.7741525	0.0554186	0.3932028	0.3617466						
Generator	g/Hp-hr	1.0521648	4.1451903	8.2668818	0.0483439	0.3534039	0.3251316						
Generator	g/Hp-hr	1.1807016	2.8078088	8.8707008	0.0554186	0.4024548	0.3702584						
Pile Hammer	g/Hp-hr	0.8454382	2.8370792	7.3344267	0.0483439	0.27583	0.2537636						
Jet Pump	g/Hp-hr	0.8495547	3.1708198	7.4828846	0.0483439	0.2709742	0.2492963						
Haul Trucks - Pile Deliveries	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Piledriving - Pinpiles/Indicators													
Rip-Rap Placement (1,000')													
Main Hoist	g/Hp-hr	1.0354408	4.1209924	8.1982703	0.0483439	0.3462797	0.3185774						
Generator	g/Hp-hr	2.1287012	4.5329466	10.005506	0.0577769	0.8773942	0.8072026						
Generator	g/Hp-hr	1.1807016	2.8078088	8.8707008	0.0554186	0.4024548	0.3702584						
Deck Winch	g/Hp-hr	1.4103695	3.5889198	9.1216197	0.0554186	0.4934876	0.4540086						
Tracked Loader - Cat 973	g/Hp-hr	0.9985027	2.2300339	8.1693348	0.0554186	0.3286571	0.3023645						
Tugboat	g/kW-hr	0.5395	1.1869	14.2428	0.16185	0.77688	0.7147296						
Genset	g/Hp-hr	1.7591876	4.018103	8.842106	0.0577768	0.6783063	0.6240418						
Tugboat	g/kW-hr	0.5395	1.1869	14.2428	0.16185	0.77688	0.7147296						
Genset	g/Hp-hr	1.7591876	4.018103	8.842106	0.0577768	0.6783063	0.6240418						
Subtotal, Rip-Rap Placement - 1000'													
Piledriving - Production Pile													
Main Hoist	g/Hp-hr	1.0498972	4.1209945	8.3036251	0.0483439	0.348457	0.3205805						
Main Generator	g/Hp-hr	0.8297895	2.9852303	7.4035185	0.0483439	0.2621007	0.2411326						
Boom Hoist	g/Hp-hr	1.0498972	4.1209945	8.3036251	0.0483439	0.348457	0.3205805						
Anchor Winch	g/Hp-hr	1.0354408	4.1209924	8.1982703	0.0483439	0.3462797	0.3185774						
Breasting Winch	g/Hp-hr	1.158933	2.7755154	8.7741525	0.0554186	0.3932028	0.3617466						
Emergency Generator	g/Hp-hr	1.1807016	2.8078088	8.8707008	0.0554186	0.4024548	0.3702584						
Pile Hammer	g/Hp-hr	0.8454382	2.8370792	7.3344267	0.0483439	0.27583	0.2537636						
Jet Pump	g/Hp-hr	0.8495547	3.1708198	7.4828846	0.0483439	0.2709742	0.2492963						
Pile Handler	g/Hp-hr	0.8454382	2.8370792	7.3344267	0.0483439	0.27583	0.2537636						
Haul Trucks - Pile Deliveries	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Piledriving - Production Pile													
Wharf Construction													
Crane - 886	g/Hp-hr	1.0784796	4.5350605	8.446897	0.0483439	0.365491	0.3362517						
Crane - 4000	g/Hp-hr	1.0784796	4.5350605	8.446897	0.0483439	0.365491	0.3362517						
Air Compressor - 100 CFM	g/Hp-hr	4.6185603	8.0851619	6.7389329	0.0636724	0.8371243	0.7701543						
Air Compressor - 185 CFM	g/Hp-hr	2.0216212	4.3798889	9.5772698	0.0577769	0.8227435	0.756924						
Air Compressor - 185 CFM	g/Hp-hr	2.0216212	4.3798889	9.5772698	0.0577769	0.8227435	0.756924						
Welder - 300 Amp.	g/Hp-hr	4.2681201	7.5415549	6.6339819	0.0636724	0.7900495	0.7268456						
Welder - 400 Amp.	g/Hp-hr	4.2681201	7.5415549	6.6339819	0.0636724	0.7900495	0.7268456						
Haul Trucks	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Concrete Trucks	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Wharf Construction													
Total - Construct a 1000' Wharf at Berth 100 (1)													

Notes: (1) The four sub-activities are assumed not to occur simultaneously.

Table E1.1-6a

Phase 1: Construct 1,000-foot Wharf at Berth 100

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators													
Derrick Barge Crane Hoist	1.3	5.1	10.3	0.1	0.43	0.40	Emulsified Fuel	-23.0%	-10.0%	15.0%	0.0%	30.0%	30.0%
Deck Winch	1.2	2.9	9.2	0.1	0.4	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	4.8	18.9	37.8	0.2	1.6	1.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	0.4	1.0	3.2	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Hammer	1.7	5.7	14.7	0.1	0.6	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Jet Pump	2.6	9.7	23.0	0.1	0.8	0.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Pile Deliveries	8.6	50.2	79.5	0.5	4.6	4.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Piledriving - Pinpiles/Indicators	*20.6*	*93.6*	*177.7*	*1.1*	*8.6*	*7.8*							
Rip-Rap Placement (1,000')													
Main Hoist	3.8	15.2	30.3	0.2	1.3	1.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	2.5	5.4	11.9	0.1	1.0	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	3.6	8.5	26.9	0.2	1.2	1.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deck Winch	1.9	4.7	12.1	0.1	0.7	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tracked Loader - Cat 973	2.3	5.2	18.9	0.1	0.8	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tugboat	7.4	16.3	195.0	2.2	10.6	9.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Genset	1.9	4.3	9.4	0.1	0.7	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tugboat	7.4	16.3	195.0	2.2	10.6	9.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Genset	1.4	3.2	6.9	0.0	0.5	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Rip-Rap Placement - 1000'	*32.1*	*78.9*	*506.3*	*5.2*	*27.5*	*25.3*							
Piledriving - Production Pile													
Main Hoist	1.6	6.4	12.8	0.1	0.5	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Main Generator	4.3	15.3	38.0	0.2	1.3	1.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Boom Hoist	3.2	12.7	25.6	0.1	1.1	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Anchor Winch	0.7	2.8	5.5	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Breasting Winch	0.6	1.5	4.9	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Emergency Generator	0.7	1.6	4.9	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Hammer	1.7	5.7	14.7	0.1	0.6	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Jet Pump	2.6	9.7	23.0	0.1	0.8	0.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Handler	0.8	2.9	7.4	0.0	0.3	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Pile Deliveries	7.1	41.8	66.3	0.4	3.9	3.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Piledriving - Production Pile	*23.4*	*100.4*	*203.1*	*1.3*	*9.2*	*8.3*							
Wharf Construction													
Crane - 888	1.9	7.9	14.7	0.1	0.6	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Crane - 4000	3.3	14.0	26.1	0.1	1.1	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 100 CFM	2.4	4.2	3.5	0.0	0.4	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 185 CFM	0.7	1.4	3.1	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 185 CFM	0.7	1.4	3.1	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Welder - 300 Amp.	0.7	1.3	1.2	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Welder - 400 Amp.	0.8	1.4	1.2	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks	1.1	6.5	10.3	0.1	0.6	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks	2.4	13.0	20.6	0.1	1.2	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Wharf Construction	*14.0*	*51.1*	*83.8*	*0.5*	*4.8*	*4.4*							
Total - Construct a 1000' Wharf at Berth 100 (1)	**32.1**	**100.4**	**506.3**	**5.2**	**27.5**	**25.3**							

Notes: (1) The four sub-activities are assumed not to occur simultaneously.

Table E1.1-6a

Phase 1: Construct 1,000-foot Wharf at Berth 100

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators																		
Derrick Barge Crane Hoist													1.6	5.6	8.8	0.1	0.3	0.3
Deck Winch													1.2	2.9	9.2	0.1	0.4	0.4
Generator													4.8	18.9	37.8	0.2	1.6	1.5
Generator													0.4	1.0	3.2	0.0	0.1	0.1
Pile Hammer													1.7	5.7	14.7	0.1	0.6	0.5
Jet Pump													2.6	9.7	23.0	0.1	0.8	0.8
Haul Trucks - Pile Deliveries													8.6	50.2	79.5	0.5	4.6	4.1
Subtotal, Piledriving - Pinpiles/Indicators													*20.9*	*94.1*	*176.2*	*1.1*	*8.5*	*7.7*
Rip-Rap Placement (1,000')																		
Main Hoist													3.8	15.2	30.3	0.2	1.3	1.2
Generator													2.5	5.4	11.9	0.1	1.0	1.0
Generator													3.6	8.5	26.9	0.2	1.2	1.1
Deck Winch													1.9	4.7	12.1	0.1	0.7	0.6
Tracked Loader - Cat 973													2.3	5.2	18.9	0.1	0.8	0.7
Tugboat													7.4	16.3	195.0	2.2	10.6	9.8
Genset													1.9	4.3	9.4	0.1	0.7	0.7
Tugboat													7.4	16.3	195.0	2.2	10.6	9.8
Genset													1.4	3.2	6.9	0.0	0.5	0.5
Subtotal, Rip-Rap Placement - 1000'													*32.1*	*78.9*	*506.3*	*5.2*	*27.5*	*25.3*
Piledriving - Production Pile																		
Main Hoist													1.6	6.4	12.8	0.1	0.5	0.5
Main Generator													4.3	15.3	38.0	0.2	1.3	1.2
Boom Hoist													3.2	12.7	25.6	0.1	1.1	1.0
Anchor Winch													0.7	2.8	5.5	0.0	0.2	0.2
Breasting Winch													0.6	1.5	4.9	0.0	0.2	0.2
Emergency Generator													0.7	1.6	4.9	0.0	0.2	0.2
Pile Hammer													1.7	5.7	14.7	0.1	0.6	0.5
Jet Pump													2.6	9.7	23.0	0.1	0.8	0.8
Pile Handler													0.8	2.9	7.4	0.0	0.3	0.3
Haul Trucks - Pile Deliveries													7.1	41.8	66.3	0.4	3.9	3.5
Subtotal, Piledriving - Production Pile													*23.4*	*100.4*	*203.1*	*1.3*	*9.2*	*8.3*
Wharf Construction																		
Crane - 888													1.9	7.9	14.7	0.1	0.6	0.6
Crane - 4000													3.3	14.0	26.1	0.1	1.1	1.0
Air Compressor - 100 CFM													2.4	4.2	3.5	0.0	0.4	0.4
Air Compressor - 185 CFM													0.7	1.4	3.1	0.0	0.3	0.2
Air Compressor - 185 CFM													0.7	1.4	3.1	0.0	0.3	0.2
Welder - 300 Amp.													0.7	1.3	1.2	0.0	0.1	0.1
Welder - 400 Amp.													0.8	1.4	1.2	0.0	0.1	0.1
Haul Trucks													1.1	6.5	10.3	0.1	0.6	0.5
Concrete Trucks													2.4	13.0	20.6	0.1	1.2	1.0
Subtotal, Wharf Construction													*14.0*	*51.1*	*83.8*	*0.5*	*4.8*	*4.4*
Total - Construct a 1000' Wharf at Berth 100 (1)													**32.1**	**100.4**	**506.3**	**5.2**	**27.5**	**25.3**

Notes: (1) The four sub-activities are assumed not to occur simultaneously.

Table E1.1-6b

Phase 1: Construct 200-foot Wharf at Berth 100

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Pinpiles/Indicators (1)														
Derrick Barge Crane Hoist	Offroad	564	0.25	2003	1	4	564	10						
Deck Winch	Offroad	238	0.50	2003	2	2	476	10						
Generator	Offroad	432	0.60	2003	1	8	2,074	10						
Generator	Offroad	135	0.60	2003	1	2	162	10						
Pile Hammer	Offroad	190	0.60	2003	1	8	912	10						
Jet Pump	Offroad	290	0.60	2003	1	8	1,392	10						
Haul Trucks - Pile Deliveries	truckother			2003				5		130	12	10	1,560	
Subtotal, Piledriving - Pinpiles/Indicators														
Piledriving - Production Pile (1)														
Main Hoist	Offroad	700	0.25	2003	1	4	700	11						
Main Generator	Offroad	485	0.60	2003	1	8	2,328	11						
Boom Hoist	Offroad	700	0.25	2003	1	8	1,400	11						
Anchor Winch	Offroad	305	0.50	2003	1	2	305	11						
Breasting Winch	Offroad	210	0.60	2003	1	2	252	11						
Emergency Generator	Offroad	210	0.60	2003	1	2	252	11						
Pile Hammer	Offroad	190	0.60	2003	1	8	912	11						
Jet Pump	Offroad	290	0.60	2003	1	8	1,392	11						
Pile Handler	Offroad	456	0.50	2003	1	2	456	11						
Haul Trucks - Pile Deliveries	truckother			2003				11		130	10	10	1,300	
Subtotal, Piledriving - Production Pile														
Dredge 200' and Disposal														
Derrick Barge Crane Hoist	Offroad	564	0.50	2003	1	24	6,768	14						
Deck Winch	Offroad	238	0.50	2003	2	6	1,428	14						
Generator	Offroad	432	0.60	2003	1	24	6,221	14						
Generator	Offroad	135	0.60	2003	1	6	486	14						
Tug Boat - Transport Barge to Berth 205 (3)	tug	2,420	0.43	2003	1	4	4,162	14						
Loader - 962G - Anchorage Rd.	Offroad	200	0.50	2003	1	16	1,600	14						
Haul Trucks - Berth 205 to Anch. Rd. (4)	truckdredge			2003				14		1	180	10	180	
Subtotal, Dredge and Disposal														
Rip-Rap Placement - 200' (north extension)														
Main Hoist	Offroad	335	0.50	2003	1	10	1,675	37						
Generator	Offroad	90	0.60	2003	1	10	540	37						
Generator	Offroad	229	0.60	2003	1	10	1,374	37						
Deck Winch	Offroad	120	0.50	2003	1	10	600	37						
Tracked Loader - Cat 973	Offroad	210	0.50	2003	1	10	1,050	37						
Tugboat	tug	2,420	0.43	2003	1	8	8,325	37						
Genset	Offroad	89	0.60	2003	1	9	481	37						
Tugboat	tug	2,420	0.43	2003	1	8	8,325	37						
Genset	Offroad	66	0.60	2003	1	9	356	37						
Subtotal, Rip-Rap Placement - 200'														
Dike Filling														
Loader - 950G	Offroad	160	0.60	2003	2	8	1,440	15						
Haul Trucks - Fill (2)	truckother			2003				15		12	47	10	560	
Subtotal, Dike Filling														
Wharf Construction (1)														
Crane - 888	Offroad	330	0.30	2003	1	8	792	20						
Crane - 4000	Offroad	350	0.50	2003	1	8	1,400	20						
Air Compressor - 100 CFM	Offroad	49	0.60	2003	2	4	235	20						
Air Compressor - 185 CFM	Offroad	62	0.60	2003	1	4	149	20						
Air Compressor - 185 CFM	Offroad	62	0.60	2003	1	4	149	20						
Welder - 300 Amp.	Offroad	33	0.60	2003	1	4	79	20						
Welder - 400 Amp.	Offroad	35	0.60	2003	1	4	84	20						
Haul Trucks	truckother			2003				7		40	5	10	200	
Concrete Trucks	truckother			2003				14		15	25	20	375	
Subtotal, Wharf Construction														
Total - Construct a 200' North Extension of Wharf at Berth 100 (5)														

Notes: (1) Data obtained by multiplying total work days from construction of a 1000' wharf at Berth 100 (Table C-1) by 200/1000.

(2) Assumes a truck capacity of 20 cy and a fill volume of 14,000 cy.

(3) Daily/total dredging volumes = 3,000/41,000 cubic yards (cy). With a water bulking factor of 1.2, daily/total disposal volumes = 3,600/49,200 cy. Use of a 1,800 cy barge will require two round trips/day. Roundtrip barging distance = 2 nautical miles.

(4) Assumes a truck capacity of 20 cy and a water-bulked daily disposal volume of 3,600 cy.

(5) The six sub-activities are assumed not to occur simultaneously.

Table E1.1-6c

Phase 1: Crane Delivery and Installation

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Crane - 50 ton	Offroad	330	0.30	2002	2	8	1,584	5						
Winch	Offroad	305	0.50	2002	1	4	610	4						
General Cargo Ship - Transit (1)	transit			2002	1			2						
General Cargo Ship - Hoteling	hotel			2002	1			5						
Total, Crane Delivery and Installation														

Notes: (1) Four new shore-side A-Frame cranes were delivered via one ship. Arrival and departure on separate days. Emissions include tugboat assists.

Table E1.1-6b

Phase 1: Construct 200-foot Wharf at Berth 100

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)													
Derrick Barge Crane Hoist	g/Hp-hr	0.9835783	3.5753065	7.9563819	0.0483439	0.3263423	0.3002349						
Deck Winch	g/Hp-hr	1.0882702	2.5741869	8.4429464	0.0554186	0.3672188	0.3378413						
Generator	g/Hp-hr	0.9844928	3.5974017	7.9031012	0.0483439	0.3306715	0.3042178						
Generator	g/Hp-hr	1.1086832	2.6036782	8.5367946	0.0554186	0.3756188	0.3455693						
Pile Hammer	g/Hp-hr	0.7768764	2.4938688	6.9732183	0.0483439	0.2554435	0.2350081						
Jet Pump	g/Hp-hr	0.7853906	2.8085736	7.1326798	0.0483439	0.2517409	0.2316017						
Haul Trucks - Pile Deliveries	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Subtotal, Piledriving - Pinpiles/Indicators													
Piledriving - Production Pile (1)													
Main Hoist	g/Hp-hr	0.9835783	3.5753065	7.9563819	0.0483439	0.3263423	0.3002349						
Main Generator	g/Hp-hr	0.7664905	2.6562207	7.0568917	0.0483439	0.243442	0.2239667						
Boom Hoist	g/Hp-hr	0.9835783	3.5753065	7.9563819	0.0483439	0.3263423	0.3002349						
Anchor Winch	g/Hp-hr	0.9684688	3.5753064	7.8370494	0.0483439	0.3240965	0.2981688						
Breasting Winch	g/Hp-hr	1.0882702	2.5741869	8.4429464	0.0554186	0.3672188	0.3378413						
Emergency Generator	g/Hp-hr	1.1086832	2.6036782	8.5367946	0.0554186	0.3756188	0.3455693						
Pile Hammer	g/Hp-hr	0.7768764	2.4938688	6.9732183	0.0483439	0.2554435	0.2350081						
Jet Pump	g/Hp-hr	0.7853906	2.8085736	7.1326798	0.0483439	0.2517409	0.2316017						
Pile Handler	g/Hp-hr	0.7768764	2.4938688	6.9732183	0.0483439	0.2554435	0.2350081						
Haul Trucks - Pile Deliveries	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Subtotal, Piledriving - Production Pile													
Dredge 200' and Disposal													
Derrick Barge Crane Hoist	g/Hp-hr	0.9835783	3.5753065	7.9563819	0.0483439	0.3263423	0.3002349						
Deck Winch	g/Hp-hr	1.0882702	2.5741869	8.4429464	0.0554186	0.3672188	0.3378413						
Generator	g/Hp-hr	0.9844928	3.5974017	7.9031012	0.0483439	0.3306715	0.3042178						
Generator	g/Hp-hr	1.1086832	2.6036782	8.5367946	0.0554186	0.3756188	0.3455693						
Tug Boat - Transport Barge to Berth 205 (3)	g/kW-hr	0.5395	1.1869	14.2428	0.16185	0.77688	0.7147296						
Loader - 962G - Anchorage Rd.	g/Hp-hr	0.9263361	2.0604709	7.8526922	0.0554186	0.3033327	0.2790661						
Haul Trucks - Berth 205 to Anch. Rd. (4)	g/mile	2.7763	16.4486	22.662	0.1646	1.4202	1.2707	16.69	50.89	87.57	0.50	3.03	2.785
Subtotal, Dredge and Disposal													
Rip-Rap Placement - 200' (north extension)													
Main Hoist	g/Hp-hr	0.9684688	3.5753064	7.8370494	0.0483439	0.3240965	0.2981688						
Generator	g/Hp-hr	2.0877698	4.4626817	9.6940257	0.0577769	0.87299	0.8031508						
Generator	g/Hp-hr	1.1086832	2.6036782	8.5367946	0.0554186	0.3756188	0.3455693						
Deck Winch	g/Hp-hr	1.3576814	3.5056635	8.8067133	0.0554186	0.4783475	0.4400797						
Tracked Loader - Cat 973	g/Hp-hr	0.9263361	2.0604709	7.8526922	0.0554186	0.3033327	0.2790661						
Tugboat	g/kW-hr	0.5395	1.1869	14.2428	0.16185	0.77688	0.7147296						
Genset	g/Hp-hr	1.7266008	3.9579722	8.5632221	0.0577769	0.6753053	0.6212808						
Tugboat	g/kW-hr	0.5395	1.1869	14.2428	0.16185	0.77688	0.7147296						
Genset	g/Hp-hr	1.7266008	3.9579722	8.5632221	0.0577769	0.6753053	0.6212808						
Subtotal, Rip-Rap Placement - 200'													
Dike Filling													
Loader - 950G	g/Hp-hr	0.9263361	2.0604709	7.8526922	0.0554186	0.3033327	0.2790661						
Haul Trucks - Fill (2)	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Subtotal, Dike Filling													
Wharf Construction (1)													
Crane - 888	g/Hp-hr	1.013128	4.0865651	8.1037846	0.0483439	0.343749	0.3162491						
Crane - 4000	g/Hp-hr	1.013128	4.0865651	8.1037846	0.0483439	0.343749	0.3162491						
Air Compressor - 100 CFM	g/Hp-hr	4.5614005	7.9999703	6.6628176	0.0636724	0.8303948	0.7639632						
Air Compressor - 185 CFM	g/Hp-hr	1.9811541	4.3105835	9.2672366	0.0577768	0.818244	0.7527845						
Air Compressor - 185 CFM	g/Hp-hr	1.9811541	4.3105835	9.2672366	0.0577768	0.818244	0.7527845						
Welder - 300 Amp.	g/Hp-hr	4.214658	7.4609377	6.5577248	0.0636725	0.7835952	0.7209076						
Welder - 400 Amp.	g/Hp-hr	4.214658	7.4609377	6.5577248	0.0636725	0.7835952	0.7209076						
Haul Trucks	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Concrete Trucks	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Subtotal, Wharf Construction													
Total - Construct a 200' North Extension of Wharf at Berth 100 (5)													

Table E1.1-6c

Phase 1: Crane Delivery and Installation

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton	g/Hp-hr	1.0784796	4.5350605	8.446897	0.0483439	0.365491	0.3362517						
Winch	g/Hp-hr	1.0354408	4.1209924	8.1982703	0.0483439	0.3462797	0.3185774						
General Cargo Ship - Transit (1)	lb/transit	33.920579	83.232476	959.50017	876.15759	103.59836	83.295325						
General Cargo Ship - Hoteling	lb/day/ship	8.8300529	23.862011	315.67111	576.3021	49.033164	39.226531						
Total, Crane Delivery and Installation													

Table E1.1-6b

Phase 1: Construct 200-foot Wharf at Berth 100

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)													
Derrick Barge Crane Hoist	1.2	4.4	9.9	0.1	0.4	0.4	Emulsified Fuel	-23.0%	-10.0%	15.0%	0.0%	30.0%	30.0%
Deck Winch	1.1	2.7	8.9	0.1	0.4	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	4.5	16.4	36.1	0.2	1.5	1.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	0.4	0.9	3.0	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Hammer	1.6	5.0	14.0	0.1	0.5	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Jet Pump	2.4	8.6	21.9	0.1	0.8	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Pile Deliveries	8.4	47.4	78.4	0.5	4.4	4.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Piledriving - Pinpiles/Indicators	***19.7***	***85.6***	***172.2***	***1.1***	***8.2***	***7.4***							
Piledriving - Production Pile (1)													
Main Hoist	1.5	5.5	12.3	0.1	0.5	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Main Generator	3.9	13.6	36.2	0.2	1.2	1.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Boom Hoist	3.0	11.0	24.6	0.1	1.0	0.9		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Anchor Winch	0.7	2.4	5.3	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Breasting Winch	0.6	1.4	4.7	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Emergency Generator	0.6	1.4	4.7	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Hammer	1.6	5.0	14.0	0.1	0.5	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Jet Pump	2.4	8.6	21.9	0.1	0.8	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Handler	0.8	2.5	7.0	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Pile Deliveries	7.0	39.5	65.3	0.4	3.7	3.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Piledriving - Production Pile	***22.1***	***91.1***	***196.0***	***1.3***	***8.6***	***7.8***							
Dredge 200' and Disposal													
Derrick Barge Crane Hoist	14.7	53.3	118.7	0.7	4.9	4.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deck Winch	3.4	8.1	26.6	0.2	1.2	1.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	13.5	49.3	108.4	0.7	4.5	4.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	1.2	2.8	9.1	0.1	0.4	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tug Boat - Transport Barge to Berth 205 (3)	3.7	8.1	97.5	1.1	5.3	4.9		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Loader - 962G - Anchorage Rd.	3.3	7.3	27.7	0.2	1.1	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Berth 205 to Anch. Rd. (4)	2.2	9.9	14.8	0.1	0.8	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Dredge and Disposal	***42.0***	***138.9***	***402.8***	***3.0***	***18.1***	***16.7***							
Rip-Rap Placement - 200' (north extension)													
Main Hoist	3.6	13.2	28.9	0.2	1.2	1.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	2.5	5.3	11.5	0.1	1.0	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	3.4	7.9	25.9	0.2	1.1	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deck Winch	1.8	4.6	11.6	0.1	0.6	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tracked Loader - Cat 973	2.1	4.8	18.2	0.1	0.7	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tugboat	7.4	16.3	195.0	2.2	10.6	9.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Genset	1.8	4.2	9.1	0.1	0.7	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tugboat	7.4	16.3	195.0	2.2	10.6	9.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Genset	1.4	3.1	6.7	0.0	0.5	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Rip-Rap Placement - 200'	***31.3***	***75.6***	***502.0***	***5.2***	***27.2***	***25.0***							
Dike Filling													
Loader - 950G	2.9	6.5	24.9	0.2	1.0	0.9		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Fill (2)	3.3	17.8	29.5	0.2	1.6	1.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Dike Filling	***6.2***	***24.4***	***54.4***	***0.4***	***2.6***	***2.3***							
Wharf Construction (1)													
Crane - 888	1.8	7.1	14.1	0.1	0.6	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Crane - 4000	3.1	12.6	25.0	0.1	1.1	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 100 CFM	2.4	4.1	3.5	0.0	0.4	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 185 CFM	0.6	1.4	3.0	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 185 CFM	0.6	1.4	3.0	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Welder - 300 Amp.	0.7	1.3	1.1	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Welder - 400 Amp.	0.8	1.4	1.2	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks	1.1	6.1	10.2	0.1	0.6	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks	2.3	12.3	20.4	0.1	1.1	1.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Wharf Construction	***13.5***	***47.8***	***81.6***	***0.5***	***4.6***	***4.2***							
Total - Construct a 200' North Extension of Wharf at Berth 100 (5)	**42.0**	**138.9**	**502.0**	**5.2**	**27.2**	**25.0**							

Table E1.1-6c

Phase 1: Crane Delivery and Installation

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton	3.8	15.8	29.5	0.2	1.3	1.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Winch	1.4	5.5	11.0	0.1	0.5	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
General Cargo Ship - Transit (1)	33.9	83.2	959.5	876.2	103.6	83.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
General Cargo Ship - Hoteling	8.8	23.9	315.7	576.3	49.0	39.2		0.0%	0.0%	0.0%	0.0%	0.0%	- 0.0%
Total, Crane Delivery and Installation	**47.9**	**128.5**	**1,315.7**	**1,452.7**	**154.4**	**124.1**							

Table E1.1-6b

Phase 1: Construct 200-foot Wharf at Berth 100

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pipiles/Indicators (1)																		
Derrick Barge Crane Hoist													1.5	4.9	8.4	0.1	0.3	0.3
Deck Winch													1.1	2.7	8.9	0.1	0.4	0.4
Generator													4.5	16.4	36.1	0.2	1.5	1.4
Generator													0.4	0.9	3.0	0.0	0.1	0.1
Pile Hammer													1.6	5.0	14.0	0.1	0.5	0.5
Jet Pump													2.4	8.6	21.9	0.1	0.8	0.7
Haul Trucks - Pile Deliveries													6.4	47.4	78.4	0.5	4.4	4.0
Subtotal, Piledriving - Pipiles/Indicators													*19.9*	*86.0*	*170.8*	*1.1*	*8.0*	*7.3*
Piledriving - Production Pile (1)																		
Main Hoist													1.5	5.5	12.3	0.1	0.5	0.5
Main Generator													3.9	13.6	36.2	0.2	1.2	1.1
Boom Hoist													3.0	11.0	24.6	0.1	1.0	0.9
Anchor Winch													0.7	2.4	5.3	0.0	0.2	0.2
Breasting Winch													0.6	1.4	4.7	0.0	0.2	0.2
Emergency Generator													0.6	1.4	4.7	0.0	0.2	0.2
Pile Hammer													1.6	5.0	14.0	0.1	0.5	0.5
Jet Pump													2.4	8.6	21.9	0.1	0.8	0.7
Pile Handler													0.8	2.5	7.0	0.0	0.3	0.2
Haul Trucks - Pile Deliveries													7.0	39.5	65.3	0.4	3.7	3.3
Subtotal, Piledriving - Production Pile													*22.1*	*91.1*	*196.0*	*1.3*	*8.6*	*7.8*
Dredge 200' and Disposal																		
Derrick Barge Crane Hoist													14.7	53.3	118.7	0.7	4.9	4.5
Deck Winch													3.4	8.1	26.6	0.2	1.2	1.1
Generator													13.5	49.3	108.4	0.7	4.5	4.2
Generator													1.2	2.8	9.1	0.1	0.4	0.4
Tug Boat - Transport Barge to Berth 205 (3)													3.7	8.1	97.5	1.1	5.3	4.9
Loader - 962G - Anchorage Rd.													3.3	7.3	27.7	0.2	1.1	1.0
Haul Trucks - Berth 205 to Anch. Rd. (4)													2.2	9.9	14.8	0.1	0.8	0.7
Subtotal, Dredge and Disposal													*42.0*	*138.9*	*402.8*	*3.0*	*18.1*	*16.7*
Rip-Rap Placement - 200' (north extension)																		
Main Hoist													3.6	13.2	28.9	0.2	1.2	1.1
Generator													2.5	5.3	11.5	0.1	1.0	1.0
Generator													3.4	7.9	25.9	0.2	1.1	1.0
Deck Winch													1.8	4.6	11.6	0.1	0.6	0.6
Tracked Loader - Cat 973													2.1	4.8	18.2	0.1	0.7	0.6
Tugboat													7.4	16.3	195.0	2.2	10.6	9.8
Genset													1.8	4.2	9.1	0.1	0.7	0.7
Tugboat													7.4	16.3	195.0	2.2	10.6	9.8
Genset													1.4	3.1	6.7	0.0	0.5	0.5
Subtotal, Rip-Rap Placement - 200'													*31.3*	*75.6*	*502.0*	*5.2*	*27.2*	*26.0*
Dike Filling																		
Loader - 950G													2.9	6.5	24.9	0.2	1.0	0.9
Haul Trucks - Fill (2)													3.3	17.8	29.5	0.2	1.6	1.5
Subtotal, Dike Filling													*6.2*	*24.4*	*54.4*	*0.4*	*2.6*	*2.3*
Wharf Construction (1)																		
Crane - 888													1.8	7.1	14.1	0.1	0.6	0.6
Crane - 4000													3.1	12.6	25.0	0.1	1.1	1.0
Air Compressor - 100 CFM													2.4	4.1	3.5	0.0	0.4	0.4
Air Compressor - 185 CFM													0.6	1.4	3.0	0.0	0.3	0.2
Air Compressor - 185 CFM													0.6	1.4	3.0	0.0	0.3	0.2
Welder - 300 Amp.													0.7	1.3	1.1	0.0	0.1	0.1
Welder - 400 Amp.													0.8	1.4	1.2	0.0	0.1	0.1
Haul Trucks													1.1	6.1	10.2	0.1	0.6	0.5
Concrete Trucks													2.3	12.3	20.4	0.1	1.1	1.0
Subtotal, Wharf Construction													*13.5*	*47.8*	*81.6*	*0.5*	*4.6*	*4.2*
Total - Construct a 200' North Extension of Wharf at Berth 100 (5)													**42.0**	**138.9**	**502.0**	**5.2**	**27.2**	**25.0**

Table E1.1-6c

Phase 1: Crane Delivery and Installation

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton													3.8	15.8	29.5	0.2	1.3	1.2
Winch													1.4	5.5	11.0	0.1	0.5	0.4
General Cargo Ship - Transit (1)													33.9	83.2	959.5	876.2	103.6	83.3
General Cargo Ship - Hoteling													8.8	23.9	315.7	576.3	49.0	39.2
Total, Crane Delivery and Installation													**47.9**	**128.5**	**1,315.7**	**1,452.7**	**154.4**	**124.1**

Table E1.1-6d

Phase 1: Develop 72-acre Backlands at Berth 100

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Paving Machine	Offroad	200	0.50	2002	1	8	800	29						
Water Truck	Offroad	325	0.50	2002	1	8	1,300	231						
Compactive Roller	Offroad	165	0.50	2002	2	8	1,320	95						
Scraper	Offroad	195	0.50	2002	2	8	1,560	95						
Grader	Offroad	180	0.50	2002	1	8	720	106						
Loader	Offroad	215	0.50	2002	1	8	860	106						
Backhoe	Offroad	160	0.50	2002	1	8	640	73						
Bulldozer - D6	Offroad	165	0.50	2002	1	8	660	73						
Haul Truck - Paving	truckother			2002				49		15	33	10	495	
Haul Truck - Base	truckother			2002				49		15	16	10	240	
Semi Truck	truckother			2002				49		40	16	10	640	
Fugitive Dust (2)	dust			2002				107						14
Total, Develop 72-acre Backlands at Berth 100														

Notes: (1) Total work days for paving and truck trips were scaled from the West Basin FEIR Appendix E Table E.2-18 (LAHD 1997) by multiplying by 75/15.4, as these factors represent the backland construction acreages associated with the proposed Berth 100/Berth 147 terminals. Other equipment is scaled to fill the allotted construction time of 12 months.

(2) Assume 20% of the total backland area is disturbed at any one time.

Table E1.1-6e

Phase 1: Construct Bridge 1

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Abutments														
Crane - 100 ton	Offroad	350	0.25	2002	1	4	350	10						
Pile Hammer	Offroad	190	0.60	2002	1	4	456	10						
Haul Trucks - Pile Deliveries	truckother			2002				10		130	1	10	130	
Subtotal, Piledriving - Abutments														
Cast-In-Place Abutments														
Crane - 100 ton	Offroad	350	0.25	2002	1	6	525	60						
Concrete Trucks (1)	truckother			2002				2		15	19	20	284	
Subtotal, Cast-In-Place Abutments														
Pre-Cast Bridge Girders														
Crane - 300 ton	Offroad	564	0.25	2002	2	8	2,256	2						
Haul Trucks - Girder Deliveries	truckother			2002				2		130	4	10	520	
Subtotal, Pre-Cast Bridge Girders														
Cast-In-Place Deck														
Supply Trucks	truckother			2002				1		40	3	10	120	
Concrete Trucks (2)	truckother			2002				1		15	32	20	480	
Subtotal, Cast-In-Place Deck														
Side Abutments														
Boom Truck	Offroad	325	0.50	2002	1	8	1,300	2						
Concrete Trucks (3)	truckother			2002				2		15	3	20	45	
Subtotal, Side Abutments														
Total - Construct Bridge 1 (4)														

Notes: (1) Total concrete for both abutments is 303 cubic yards. Truck capacity is 8 CY. This results in 19 truck trips for each abutment.

(2) Total concrete for the deck is 253 cubic yards. Truck capacity is 8 CY. This results in 32 truck trips.

(3) Total concrete for the side abutments is 43 cubic yards. Truck capacity is 8 CY. This results in 6 truck trips.

(4) The five sub-activities are assumed not to occur simultaneously.

Table E1.1-6f

Phase 1: Construct Berth 121 Gate Modifications

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Generator	Offroad	135	0.60	2003	1	2	162	66						
Air Compressor - 185 CFM	Offroad	62	0.60	2003	1	4	149	66						
Compactive Roller	Offroad	165	0.50	2003	1	4	330	30						
Backhoe	Offroad	160	0.50	2003	1	4	320	30						
Haul Trucks	truckother			2003				66		40	1	10	40	
Concrete Trucks	truckother			2003				30		15	1	20	15	
Total - Berth 121 Gate Modifications														

Notes: (1) Activity data provided by S. Imparato/Parsons, 11/22/04.

Table E1.1-6d

Phase 1: Develop 72-acre Backlands at Berth 100

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	g/Hp-hr	1.2917432	3.1186638	9.4403124	0.0554186	0.4454259	0.4097918						
Water Truck	g/Hp-hr	0.9720528	3.2770774	7.9186235	0.0483439	0.3246151	0.2986459						
Compactive Roller	g/Hp-hr	1.4044887	3.6064668	9.1002925	0.0554186	0.490263	0.4510419						
Scraper	g/Hp-hr	1.2989968	3.0742601	9.4956735	0.0554186	0.4479928	0.4121533						
Grader	g/Hp-hr	1.1445655	2.652623	8.7994494	0.0554186	0.3877822	0.3567596						
Loader	g/Hp-hr	0.8782271	2.8056865	7.4803247	0.0554186	0.2909386	0.2676636						
Backhoe	g/Hp-hr	1.3796508	3.4299783	8.6599023	0.0554186	0.4880428	0.4489994						
Bulldozer - D6	g/Hp-hr	1.6969868	4.1810981	10.513358	0.0554186	0.6131659	0.5641126						
Haul Truck - Paving	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Haul Truck - Base	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Semi Truck	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Fugitive Dust (2)	lb/acre/day	0	0	0	0	13.4475	2.805						
Total, Develop 72-acre Backlands at Berth 100													

Table E1.1-6e

Phase 1: Construct Bridge 1

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Abutments													
Crane - 100 ton	g/Hp-hr	1.3784796	4.5360605	8.446887	0.0483439	0.365451	0.3362517						
Pile Hammer	g/Hp-hr	0.8454382	2.8370792	7.3344267	0.0483439	0.27583	0.2537636						
Haul Trucks - Pile Deliveries	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Piledriving - Abutments													
Cast-In-Place Abutments													
Crane - 100 ton	g/Hp-hr	1.3784796	4.5360605	8.446887	0.0483439	0.365451	0.3362517						
Concrete Trucks (1)	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Cast-In-Place Abutments													
Pre-Cast Bridge Girders													
Crane - 300 ton	g/Hp-hr	1.0888581	4.5044671	8.5501222	0.049523	0.366161	0.3368681						
Haul Trucks - Girder Deliveries	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Pre-Cast Bridge Girders													
Cast-In-Place Deck													
Supply Trucks	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Concrete Trucks (2)	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Cast-In-Place Deck													
Side Abutments													
Boom Truck	g/Hp-hr	0.9720528	3.2770774	7.9186235	0.0483439	0.3246151	0.2986459						
Concrete Trucks (3)	g/mile	2.4695	14.5199	23.0098	0.152	1.3474	1.2028	17.64	51.70	83.91	0.50	3.25	2.99
Subtotal, Side Abutments													
Total - Construct Bridge 1 (4)													

Table E1.1-6f

Phase 1: Construct Berth 121 Gate Modifications

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Generator	g/Hp-hr	1.1086832	2.6036782	8.5367946	0.0554186	0.3756188	0.3455693						
Air Compressor - 185 CFM	g/Hp-hr	1.9811541	4.3105835	9.2672366	0.0577768	0.818244	0.7527845						
Compactive Roller	g/Hp-hr	1.349823	3.5452017	8.8090222	0.0554186	0.4761022	0.4380141						
Backhoe	g/Hp-hr	1.3172476	3.3927159	8.3418885	0.0554186	0.4732704	0.4354088						
Haul Trucks	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Concrete Trucks	g/mile	2.4299	13.7282	22.6856	0.153	1.2838	1.1451	16.69	50.89	87.57	0.50	3.03	2.785
Total - Berth 121 Gate Modifications													

Table E1.1-6d

Phase 1: Develop 72-acre Backlands at Berth 100

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	2.3	5.5	16.6	0.1	0.8	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Water Truck	2.8	9.4	22.7	0.1	0.9	0.9		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compactive Roller	4.1	10.5	26.5	0.2	1.4	1.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Scraper	4.5	10.6	32.7	0.2	1.5	1.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Grader	1.8	4.2	14.0	0.1	0.6	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Loader	1.7	5.3	14.2	0.1	0.6	0.5		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Backhoe	1.9	4.8	12.2	0.1	0.7	0.6		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bulldozer - D6	2.5	6.1	15.3	0.1	0.9	0.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Truck - Paving	2.9	16.5	26.1	0.2	1.5	1.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Truck - Base	1.4	8.0	12.7	0.1	0.7	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Semi Truck	3.6	20.8	33.0	0.2	1.9	1.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fugitive Dust (2)	0.0	0.0	0.0	0.0	193.6	40.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total, Develop 72-acre Backlands at Berth 100	**29.4**	**101.7**	**225.9**	**1.4**	**205.2**	**50.9**							

Table E1.1-6e

Phase 1: Construct Bridge 1

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Abutments													
Crane - 100 ton	0.8	3.5	6.5	0.0	0.3	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pile Hammer	0.8	2.9	7.4	0.0	0.3	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Pile Deliveries	0.7	4.2	6.6	0.0	0.4	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Piledriving - Abutments	***2.4***	***10.5***	***20.5***	***0.1***	***0.9***	***0.9***							
Cast-In-Place Abutments													
Crane - 100 ton	1.2	5.2	9.8	0.1	0.4	0.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks (1)	1.8	9.8	15.6	0.1	0.9	0.8		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Cast-In-Place Abutments	***3.0***	***15.1***	***25.4***	***0.2***	***1.3***	***1.2***							
Pre-Cast Bridge Girders													
Crane - 300 ton	5.4	22.4	42.5	0.2	1.8	1.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks - Girder Deliveries	2.9	16.7	26.5	0.2	1.5	1.4		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Pre-Cast Bridge Girders	***8.3***	***39.1***	***69.0***	***0.4***	***3.4***	***3.1***							
Cast-In-Place Deck													
Supply Trucks	0.7	3.9	6.2	0.0	0.4	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks (2)	3.0	16.6	26.3	0.2	1.5	1.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Cast-In-Place Deck	***3.7***	***20.5***	***32.5***	***0.2***	***1.9***	***1.7***							
Side Abutments													
Boom Truck	2.8	9.4	22.7	0.1	0.9	0.9		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks (3)	0.3	1.6	2.5	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal, Side Abutments	***3.1***	***10.9***	***25.2***	***0.2***	***1.1***	***1.0***							
Total - Construct Bridge 1 (4)	**8.3**	**39.1**	**69.0**	**0.4**	**3.4**	**3.1**							

Table E1.1-6f

Phase 1: Construct Berth 121 Gate Modifications

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Generator	0.4	0.9	3.0	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Air Compressor - 185 CFM	0.6	1.4	3.0	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compactive Roller	1.0	2.6	6.4	0.0	0.3	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Backhoe	0.9	2.4	5.9	0.0	0.3	0.3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Haul Trucks	0.2	1.2	2.0	0.0	0.1	0.1		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks	0.1	0.5	0.8	0.0	0.0	0.0		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total - Berth 121 Gate Modifications	**3.3**	**9.0**	**21.2**	**0.1**	**1.2**	**1.1**							

Table E1.1-6d

Phase 1: Develop 72-acre Backlands at Berth 100

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine													2.3	5.5	16.6	0.1	0.8	0.7
Water Truck													2.8	9.4	22.7	0.1	0.9	0.9
Compactive Roller													4.1	10.5	26.5	0.2	1.4	1.3
Scraper													4.5	10.6	32.7	0.2	1.5	1.4
Grader													1.8	4.2	14.0	0.1	0.6	0.6
Loader													1.7	5.3	14.2	0.1	0.6	0.5
Backhoe													1.9	4.8	12.2	0.1	0.7	0.6
Bulldozer - D6													2.5	6.1	15.3	0.1	0.9	0.8
Haul Truck - Paving													2.9	16.5	26.1	0.2	1.5	1.3
Haul Truck - Base													1.4	8.0	12.7	0.1	0.7	0.7
Semi Truck													3.6	20.8	33.0	0.2	1.9	1.7
Fugitive Dust (2)													0.0	0.0	0.0	0.0	193.6	40.4
Total, Develop 72-acre Backlands at Berth 100													**29.4**	**101.7**	**225.9**	**1.4**	**205.2**	**50.9**

Table E1.1-6e

Phase 1: Construct Bridge 1

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Abutments																		
Crane - 100 ton													0.8	3.5	6.5	0.0	0.3	0.3
Pile Hammer													0.8	2.9	7.4	0.0	0.3	0.3
Haul Trucks - Pile Deliveries													0.7	4.2	6.6	0.0	0.4	0.3
Subtotal, Piledriving - Abutments													*2.4*	*10.5*	*20.5*	*0.1*	*0.9*	*0.9*
Cast-In-Place Abutments																		
Crane - 100 ton													1.2	5.2	9.8	0.1	0.4	0.4
Concrete Trucks (1)													1.8	9.8	15.6	0.1	0.9	0.8
Subtotal, Cast-In-Place Abutments													*3.0*	*15.1*	*25.4*	*0.2*	*1.3*	*1.2*
Pre-Cast Bridge Girders																		
Crane - 300 ton													5.4	22.4	42.5	0.2	1.8	1.7
Haul Trucks - Girder Deliveries													2.9	16.7	26.5	0.2	1.5	1.4
Subtotal, Pre-Cast Bridge Girders													*8.3*	*39.1*	*69.0*	*0.4*	*3.4*	*3.1*
Cast-In-Place Deck																		
Supply Trucks													0.7	3.9	6.2	0.0	0.4	0.3
Concrete Trucks (2)													3.0	16.6	26.3	0.2	1.5	1.3
Subtotal, Cast-In-Place Deck													*3.7*	*20.5*	*32.5*	*0.2*	*1.9*	*1.7*
Side Abutments																		
Boom Truck													2.8	9.4	22.7	0.1	0.9	0.9
Concrete Trucks (3)													0.3	1.6	2.5	0.0	0.1	0.1
Subtotal, Side Abutments													*3.1*	*10.9*	*25.2*	*0.2*	*1.1*	*1.0*
Total - Construct Bridge 1 (4)													**8.3**	**39.1**	**69.0**	**0.4**	**3.4**	**3.1**

Table E1.1-6f

Phase 1: Construct Berth 121 Gate Modifications

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Generator													0.4	0.9	3.0	0.0	0.1	0.1
Air Compressor - 185 CFM													0.6	1.4	3.0	0.0	0.3	0.2
Compactive Roller													1.0	2.6	6.4	0.0	0.3	0.3
Backhoe													0.9	2.4	5.9	0.0	0.3	0.3
Haul Trucks													0.2	1.2	2.0	0.0	0.1	0.1
Concrete Trucks													0.1	0.5	0.8	0.0	0.0	0.0
Total - Berth 121 Gate Modifications													**3.3**	**9.0**	**21.2**	**0.1**	**1.2**	**1.1**

Table E1.1-7a

Phase 2: Construct Berth 102 - Phase II(a)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Pinpiles/Indicators (1)														
Derrick Barge Crane Hoist	Offroad	564	0.25	2009	1	4	564	44						
Deck Winch	Offroad	238	0.50	2009	2	2	476	44						
Generator	Offroad	432	0.60	2009	1	8	2,074	44						
Generator	Offroad	135	0.60	2009	1	2	162	44						
Pile Hammer	Offroad	190	0.60	2009	1	8	912	44						
Jet Pump	Offroad	290	0.60	2009	1	8	1,392	44						
Haul Trucks - Pile Deliveries	truckother			2009				22		130	12	10	1,560	
Subtotal, Piledriving - Pinpiles/Indicators														
Piledriving - Production Pile (1)														
Main Hoist	Offroad	700	0.25	2009	1	4	700	45						
Main Generator	Offroad	485	0.60	2009	1	8	2,328	49						
Boom Hoist	Offroad	700	0.25	2009	1	8	1,400	49						
Anchor Winch	Offroad	305	0.50	2009	1	2	305	49						
Breasting Winch	Offroad	210	0.60	2009	1	2	252	49						
Emergency Generator	Offroad	210	0.60	2009	1	2	252	49						
Pile Hammer	Offroad	190	0.60	2009	1	8	912	49						
Jet Pump	Offroad	290	0.60	2009	1	8	1,392	49						
Pile Handler	Offroad	456	0.50	2009	1	2	456	49						
Haul Trucks - Pile Deliveries	truckother			2009				49		130	10	10	1,300	
Subtotal, Piledriving - Production Pile														
Wharf Construction (1)														
Crane - 888	Offroad	330	0.30	2009	1	8	792	92						
Crane - 4000	Offroad	350	0.50	2009	1	8	1,400	92						
Air Compressor - 100 CFM	Offroad	49	0.60	2009	2	4	235	92						
Air Compressor - 185 CFM	Offroad	62	0.60	2009	2	4	298	92						
Welder - 300 Amp.	Offroad	33	0.60	2009	1	4	79	92						
Welder - 400 Amp.	Offroad	35	0.60	2009	1	4	84	92						
Haul Trucks	truckother			2009				31		40	5	10	200	
Concrete Trucks	truckother			2009				62		15	25	20	375	
Subtotal, Wharf Construction														
Total - Construct Berth 102 - Phase II(a)														

Notes: (1) Total work days obtained by multiplying total work days from construction of a 1000' wharf at Berth 100 (Table C-1) by 924/1000.

(2) The three sub-activities are assumed not to occur simultaneously.

Table E1.1-7b

Phase 2: Construct Berth 100-109 Buildings - Phase II(a)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Crane	Offroad	190	0.30	2009	1	8	456	66						
Concrete/Industrial Saw	Offroad	84	0.73	2009	1	8	491	66						
Rough Terrain Forklift	Offroad	94	0.48	2009	1	8	357	66						
Other Equipment	Offroad	190	0.62	2009	1	8	942	66						
Supply Trucks	truckother			2009				5		40	10	10	400	
Concrete Trucks	truckother			2009				3		15	14	20	210	
Total -Construct Berth 100-109 Buildings														

Notes: (1) Activity data based on default equipment assumptions in URBEMIS 2002 and additional information provided by POLA staff.

Table E1.1-7a

Phase 2: Construct Berth 102 - Phase II(a)

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)													
Derrick Barge Crane Hoist	g/Hp-hr	0.6493082	1.9660776	5.8823169	0.0055781	0.2115308	0.1946084						
Deck Winch	g/Hp-hr	0.7136709	1.6907786	6.4119897	0.0063945	0.2299652	0.2115679						
Generator	g/Hp-hr	0.655121	1.9769468	5.78689	0.0055781	0.2122281	0.1952498						
Generator	g/Hp-hr	0.729047	1.7052908	6.4773775	0.0063945	0.2334186	0.2147452						
Pile Hammer	g/Hp-hr	0.4847745	1.4592125	4.7441299	0.0055781	0.1612019	0.1483057						
Jet Pump	g/Hp-hr	0.5173127	1.6858324	5.3921542	0.0055781	0.170031	0.1564285						
Haul Trucks - Pile Deliveries	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Piledriving - Pinpiles/Indicators													
Piledriving - Production Pile (1)													
Main Hoist	g/Hp-hr	0.6493082	1.9660776	5.8823169	0.0055781	0.2115308	0.1946084						
Main Generator	g/Hp-hr	0.49998	1.6206859	5.3298667	0.0055781	0.164272	0.1511303						
Boom Hoist	g/Hp-hr	0.6493082	1.9660776	5.8823169	0.0055781	0.2115308	0.1946084						
Anchor Winch	g/Hp-hr	0.6396258	1.9660769	5.7439699	0.0055781	0.2089972	0.1922775						
Breasting Winch	g/Hp-hr	0.7136709	1.6907786	6.4119897	0.0063945	0.2299652	0.2115679						
Emergency Generator	g/Hp-hr	0.729047	1.7052908	6.4773775	0.0063945	0.2334186	0.2147452						
Pile Hammer	g/Hp-hr	0.4847745	1.4592125	4.7441299	0.0055781	0.1612019	0.1483057						
Jet Pump	g/Hp-hr	0.5173127	1.6858324	5.3921542	0.0055781	0.170031	0.1564285						
Pile Handler	g/Hp-hr	0.4847745	1.4592125	4.7441299	0.0055781	0.1612019	0.1483057						
Haul Trucks - Pile Deliveries	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Piledriving - Production Pile													
Wharf Construction (1)													
Crane - 888	g/Hp-hr	0.7212851	2.2584177	5.9228994	0.0055781	0.2292242	0.2108862						
Crane - 4000	g/Hp-hr	0.7212851	2.2584177	5.9228994	0.0055781	0.2292242	0.2108862						
Air Compressor - 100 CFM	g/Hp-hr	3.7220121	7.3158096	6.1648034	0.0073468	0.7007095	0.6446528						
Air Compressor - 185 CFM	g/Hp-hr	1.5417819	4.0852887	7.5688823	0.0066666	0.6816616	0.6271286						
Welder - 300 Amp.	g/Hp-hr	3.381364	6.7520009	6.0424876	0.0073468	0.653559	0.6012743						
Welder - 400 Amp.	g/Hp-hr	3.381364	6.7520009	6.0424876	0.0073468	0.653559	0.6012743						
Haul Trucks	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Concrete Trucks	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Wharf Construction													
Total - Construct Berth 102 - Phase II(a)													

Table E1.1-7b

Phase 2: Construct Berth 100-109 Buildings - Phase II(a)

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane	g/Hp-hr	0.795694	1.8563719	6.6402167	0.0063945	0.2539766	0.2336585						
Concrete/Industrial Saw	g/Hp-hr	1.3200761	3.8547509	6.9786427	0.0066666	0.5789242	0.5326103						
Rough Terrain Forklift	g/Hp-hr	1.4203807	4.0888305	7.0950456	0.0066666	0.6519173	0.599764						
Other Equipment	g/Hp-hr	0.4847745	1.4592125	4.7441299	0.0055781	0.1612019	0.1483057						
Supply Trucks	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Concrete Trucks	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Total -Construct Berth 100-109 Buildings													

Table E1.1-7a

Phase 2: Construct Berth 102 - Phase II(a)

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)													
Derrick Barge Crane Hoist	0.8	2.4	7.3	0.0	0.3	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deck Winch	0.7	1.8	6.7	0.0	0.2	0.2	Tier 2 with PM control	31.3%	0.0%	31.2%	0.0%	67.4%	67.4%
Generator	3.0	9.0	26.5	0.0	1.0	0.9	Tier 2 with PM control	26.7%	0.0%	25.3%	0.0%	64.7%	64.7%
Generator	0.3	0.6	2.3	0.0	0.1	0.1	Tier 2 with PM control	32.8%	0.0%	31.9%	0.0%	67.9%	67.9%
Pile Hammer	1.0	2.9	9.5	0.0	0.3	0.3	Tier 2 with PM control	0.0%	0.0%	7.0%	0.0%	53.5%	53.5%
Jet Pump	1.6	5.2	16.5	0.0	0.5	0.5	Tier 2 with PM control	5.3%	0.0%	18.2%	0.0%	55.9%	55.9%
Haul Trucks - Pile Deliveries	6.7	31.6	63.5	0.1	3.0	2.7	2004 std with PM control	55.8%	66.3%	26.6%	-4.9%	82.0%	86.0%
Subtotal, Piledriving - Pinpiles/Indicators	*14.0*	*53.5*	*132.4*	*0.1*	*5.4*	*4.9*							
Piledriving - Production Pile (1)													
Main Hoist	1.0	3.0	9.1	0.0	0.3	0.3	Tier 2 with PM control	26.1%	0.0%	26.6%	0.0%	64.5%	64.5%
Main Generator	2.6	8.3	27.4	0.0	0.8	0.8	Tier 2 with PM control	4.0%	0.0%	18.9%	0.0%	54.3%	54.3%
Boom Hoist	2.0	6.1	18.2	0.0	0.7	0.6	Tier 2 with PM control	26.1%	0.0%	26.6%	0.0%	64.5%	64.5%
Anchor Winch	0.4	1.3	3.9	0.0	0.1	0.1	Tier 2 with PM control	25.0%	0.0%	24.8%	0.0%	64.1%	64.1%
Breasting Winch	0.4	0.9	3.6	0.0	0.1	0.1	Tier 2 with PM control	31.3%	0.0%	31.2%	0.0%	67.4%	67.4%
Emergency Generator	0.4	0.9	3.6	0.0	0.1	0.1	Tier 2 with PM control	32.8%	0.0%	31.9%	0.0%	67.9%	67.9%
Pile Hammer	1.0	2.9	9.5	0.0	0.3	0.3	Tier 2 with PM control	0.0%	0.0%	7.0%	0.0%	53.5%	53.5%
Jet Pump	1.6	5.2	16.5	0.0	0.5	0.5	Tier 2 with PM control	5.3%	0.0%	18.2%	0.0%	55.9%	55.9%
Pile Handler	0.5	1.5	4.8	0.0	0.2	0.1	Tier 2 with PM control	0.0%	0.0%	7.0%	0.0%	53.5%	53.5%
Haul Trucks - Pile Deliveries	5.6	26.3	53.0	0.1	2.5	2.2	2004 std with PM control	55.8%	66.3%	26.6%	-4.9%	82.0%	86.0%
Subtotal, Piledriving - Production Pile	*15.4*	*56.5*	*149.4*	*0.2*	*5.8*	*5.2*							
Wharf Construction (1)													
Crane - 888	1.3	3.9	10.3	0.0	0.4	0.4	Tier 2 with PM control	33.5%	0.0%	27.1%	0.0%	67.3%	67.3%
Crane - 4000	2.2	7.0	18.3	0.0	0.7	0.7	Tier 2 with PM control	33.5%	0.0%	27.1%	0.0%	67.3%	67.3%
Air Compressor - 100 CFM	1.9	3.8	3.2	0.0	0.4	0.3	Tier 2 with PM control	85.0%	44.0%	18.2%	0.0%	67.9%	67.9%
Air Compressor - 185 CFM	1.0	2.7	5.0	0.0	0.4	0.4	Tier 2 with PM control	63.7%	9.4%	33.4%	0.0%	78.0%	78.0%
Welder - 300 Amp.	0.6	1.2	1.1	0.0	0.1	0.1	Tier 2 with PM control	83.4%	39.3%	16.6%	0.0%	65.6%	65.6%
Welder - 400 Amp.	0.6	1.3	1.1	0.0	0.1	0.1	Tier 2 with PM control	83.4%	39.3%	16.6%	0.0%	65.6%	65.6%
Haul Trucks	0.9	4.1	8.3	0.0	0.4	0.3	2004 std with PM control	55.5%	65.5%	25.8%	-4.8%	82.1%	86.1%
Concrete Trucks	1.8	8.4	17.1	0.0	0.8	0.7	2004 std with PM control	53.8%	61.0%	21.7%	-4.6%	82.4%	86.3%
Subtotal, Wharf Construction	*10.3*	*32.3*	*64.3*	*0.1*	*3.3*	*3.0*							
Total - Construct Berth 102 - Phase II(a)	**15.4**	**56.5**	**149.4**	**0.2**	**5.8**	**5.2**							

Table E1.1-7b

Phase 2: Construct Berth 100-109 Buildings - Phase II(a)

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Crane	0.8	1.9	6.7	0.0	0.3	0.2	Tier 2 with PM control	38.4%	0.0%	33.6%	0.0%	70.5%	70.5%
Concrete/Industrial Saw	1.4	4.2	7.5	0.0	0.6	0.6	Tier 2 with PM control	57.6%	4.0%	27.8%	0.0%	74.1%	74.1%
Rough Terrain Forklift	1.1	3.2	5.6	0.0	0.5	0.5	Tier 2 with PM control	60.6%	9.5%	29.0%	0.0%	77.0%	77.0%
Other Equipment	1.0	3.0	9.9	0.0	0.3	0.3	Tier 2 with PM control	0.0%	0.0%	7.0%	0.0%	53.5%	53.5%
Supply Trucks	1.7	8.2	16.6	0.0	0.8	0.7		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concrete Trucks	1.0	4.7	9.6	0.0	0.4	0.4	2004 std with PM control	53.8%	61.0%	21.7%	-4.6%	82.4%	86.3%
Total -Construct Berth 100-109 Buildings	**7.1**	**25.2**	**55.8**	**0.1**	**2.9**	**2.7**							

Table E1.1-7a

Phase 2: Construct Berth 102 - Phase II(a)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Pinpiles/Indicators (1)														
Derrick Barge Crane Hoist	Offroad	564	0.25	2009	1	4	564	44						
Deck Winch	Offroad	238	0.50	2009	2	2	476	44						
Generator	Offroad	432	0.60	2009	1	8	2,074	44						
Generator	Offroad	135	0.60	2009	1	2	162	44						
Pile Hammer	Offroad	190	0.60	2009	1	8	912	44						
Jet Pump	Offroad	290	0.50	2009	1	8	1,392	44						
Haul Trucks - Pile Deliveries	truckother			2009				22		130	12	10	1,560	
Subtotal, Piledriving - Pinpiles/Indicators														
Piledriving - Production Pile (1)														
Main Hoist	Offroad	700	0.25	2009	1	4	700	49						
Main Generator	Offroad	485	0.60	2009	1	8	2,328	49						
Boom Hoist	Offroad	700	0.25	2009	1	8	1,400	49						
Anchor Winch	Offroad	305	0.50	2009	1	2	305	49						
Breasting Winch	Offroad	210	0.60	2009	1	2	252	49						
Emergency Generator	Offroad	210	0.60	2009	1	2	252	49						
Pile Hammer	Offroad	190	0.60	2009	1	8	912	49						
Jet Pump	Offroad	290	0.60	2009	1	8	1,392	49						
Pile Handler	Offroad	456	0.50	2009	1	2	456	49						
Haul Trucks - Pile Deliveries	truckother			2009				49		130	10	10	1,300	
Subtotal, Piledriving - Production Pile														
Wharf Construction (1)														
Crane - 888	Offroad	330	0.30	2009	1	8	792	92						
Crane - 4000	Offroad	350	0.50	2009	1	8	1,400	92						
Air Compressor - 100 CFM	Offroad	49	0.60	2009	2	4	235	92						
Air Compressor - 185 CFM	Offroad	62	0.60	2009	2	4	298	92						
Welder - 300 Amp.	Offroad	33	0.60	2009	1	4	79	92						
Welder - 400 Amp.	Offroad	35	0.60	2009	1	4	84	92						
Haul Trucks	truckother			2009				31		40	5	10	200	
Concrete Trucks	truckother			2009				62		15	25	20	375	
Subtotal, Wharf Construction														
Total - Construct Berth 102 - Phase II(a)														

Notes: (1) Total work days obtained by multiplying total work days from construction of a 1000' wharf at Berth 100 (Table C-1) by 924/1000.

(2) The three sub-activities are assumed not to occur simultaneously.

Table E1.1-7b

Phase 2: Construct Berth 100-109 Buildings - Phase II(a)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Crane	Offroad	190	0.30	2009	1	8	456	66						
Concrete/Industrial Saw	Offroad	84	0.73	2009	1	8	491	66						
Rough Terrain Forklift	Offroad	94	0.48	2009	1	8	357	66						
Other Equipment	Offroad	190	0.62	2009	1	8	942	66						
Supply Trucks	truckother			2009				5		40	10	10	400	
Concrete Trucks	truckother			2009				3		15	14	20	210	
Total -Construct Berth 100-109 Buildings														

Notes: (1) Activity data based on default equipment assumptions in URBEMIS 2002 and additional information provided by POLA staff.

Table E1.1-7c

Phase 2: Construct 18 of 45-acre Backlands – Phase II(a)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Paving Machine	Offroad	200	0.50	2009	1	8	800	7						
Water Truck	Offroad	325	0.50	2009	1	8	1,300	127						
Compactive Roller	Offroad	165	0.50	2009	1	8	660	50						
Scraper	Offroad	195	0.50	2009	1	8	780	50						
Grader	Offroad	180	0.50	2009	1	8	720	58						
Loader	Offroad	215	0.50	2009	1	8	860	58						
Backhoe	Offroad	160	0.50	2009	1	8	640	41						
Bulldozer - D6	Offroad	165	0.50	2009	1	8	660	41						
Haul Truck - Paving	truckother			2009				12		15	33	10	495	
Haul Truck - Base	truckother			2009				12		15	16	10	240	
Semi Truck	truckother			2009				12		40	16	10	640	
Fugitive Dust (2)	dust			2009				26						4
Total, 18 Acre Backland Improvements at Berth 100														

Notes: (1) Total work days for paving and truck trips were scaled from the West Basin FEIR Appendix E Table E.2-18 (LAHD 1997) by multiplying by 35/15.4, as these factors represent the backland construction acreages associated with the proposed Berth 100/Berth 147 terminals. Other equipment is scaled to fill the allotted construction time of 12 months.

(2) Assume 20% of the total backland area is disturbed at any one time.

Table E1.1-7d

Phase 2: Construct Bridge 2

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Abutments														
Crane - 100 ton	Offroad	350	0.25	2009	1	4	350	10						
Pile Hammer	Offroad	190	0.60	2009	1	4	456	10						
Haul Trucks - Pile Deliveries	truckother			2009				10		130	1	10	130	
Subtotal, Piledriving - Abutments														
Cast-in-Place Abutments														
Crane - 100 ton	Offroad	350	0.25	2009	1	6	525	60						
Concrete Trucks (1)	truckother			2009				2		15	19	20	284	
Subtotal, Cast-In-Place Abutments														
Pre-Cast Bridge Girders														
Crane - 300 ton	Offroad	564	0.25	2009	2	8	2,256	2						
Haul Trucks - Girder Deliveries	truckother			2009				2		130	4	10	520	
Subtotal, Pre-Cast Bridge Girders														
Cast-in-Place Deck														
Supply Trucks	truckother			2009				1		40	3	10	120	
Concrete Trucks (2)	truckother			2009				1		15	32	20	480	
Subtotal, Cast-In-Place Deck														
Side Abutments														
Boom Truck	Offroad	325	0.50	2009	1	8	1,300	2						
Concrete Trucks (3)	truckother			2009				2		15	3	20	45	
Subtotal, Side Abutments														
Total - Construct Bridge 2 (4)														

Notes: (1) Total concrete for both abutments is 303 cubic yards. Truck capacity is 8 CY. This results in 19 truck trips for each abutment.

(2) Total concrete for the deck is 253 cubic yards. Truck capacity is 8 CY. This results in 32 truck trips.

(3) Total concrete for the side abutments is 43 cubic yards. Truck capacity is 8 CY. This results in 6 truck trips.

(4) The five sub-activities are assumed not to occur simultaneously.

Table E1.1-7e

Phase 2: Construct 17 of 45-acre Backland – Phase II (b)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Paving Machine	Offroad	200	0.50	2010	1	8	800	7						
Water Truck	Offroad	325	0.50	2010	1	8	1,300	119						
Compactive Roller	Offroad	165	0.50	2010	1	8	660	48						
Scraper	Offroad	195	0.50	2010	1	8	780	48						
Grader	Offroad	180	0.50	2010	1	8	720	55						
Loader	Offroad	215	0.50	2010	1	8	860	55						
Backhoe	Offroad	160	0.50	2010	1	8	640	38						
Bulldozer - D6	Offroad	165	0.50	2010	1	8	660	38						
Haul Truck - Paving	truckother			2010				11		15	33	10	495	
Haul Truck - Base	truckother			2010				11		15	16	10	240	
Semi Truck	truckother			2010				11		40	16	10	640	
Fugitive Dust (2)	dust			2010				24						3
Total, 17 Acre Backland Improvements at Berth 100														

Notes: (1) Total work days for paving and truck trips were scaled from the West Basin FEIR Appendix E Table E.2-18 (LAHD 1997) by multiplying by 35/15.4, as these factors represent the backland construction acreages associated with the proposed Berth 100/Berth 147 terminals. Other equipment is scaled to fill the allotted construction time of 12 months.

(2) Assume 20% of the total backland area is disturbed at any one time.

Table E1.1-7f

Phase 2: Construct 10 of 45-acre Backlands (Behind Rear B102) – Phase II(b)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Paving Machine	Offroad	200	0.50	2010	1	8	800	4						
Water Truck	Offroad	325	0.50	2010	1	8	1,300	70						
Compactive Roller	Offroad	165	0.50	2010	1	8	660	28						
Scraper	Offroad	195	0.50	2010	1	8	780	28						
Grader	Offroad	180	0.50	2010	1	8	720	32						
Loader	Offroad	215	0.50	2010	1	8	860	32						
Backhoe	Offroad	160	0.50	2010	1	8	640	23						
Bulldozer - D6	Offroad	165	0.50	2010	1	8	660	23						
Haul Truck - Paving	truckother			2010				7		15	33	10	495	
Haul Truck - Base	truckother			2010				7		15	16	10	240	
Semi Truck	truckother			2010				7		40	16	10	640	
Fugitive Dust (2)	dust			2010				14						2
Total, 10 Acre Backland Improvements at Berth 100														

Notes: (1) Total work days for paving and truck trips were scaled from the West Basin FEIR Appendix E Table E.2-18 (LAHD 1997) by multiplying by 35/15.4, as these factors represent the backland construction acreages associated with the proposed Berth 100/Berth 147 terminals. Other equipment is scaled to fill the allotted construction time of 12 months.

(2) Assume 20% of the total backland area is disturbed at any one time.

Table E1.1-7g

Phase 2: Crane Delivery and Installation

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Crane - 50 ton	Offroad	330	0.30	2010	2	8	1,584	8						
Winch	Offroad	305	0.50	2010	1	4	610	6						
General Cargo Ship - Transit (1)	transit			2010	1			4						
General Cargo Ship - Hoteling	hotel			2010	1			8						
Total, Crane Delivery and Installation														

Notes: (1) Five new shore-side A-Frame cranes will be delivered via ship. Each ship can transport up to 4 cranes; therefore, 2 ships are required. This results in 4 total transit days (2 ships, each arriving and departing, all on separate days). Emissions include tugboat assists.

Table E1.1-7c

Phase 2: Construct 18 of 45-acre Backlands – Phase II(a)

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	g/Hp-hr	0.8823216	2.1369279	7.1367826	0.0063945	0.2914622	0.2681453						
Water Truck	g/Hp-hr	0.6489831	1.6908672	5.1790944	0.0055781	0.192951	0.1775149						
Compactive Roller	g/Hp-hr	0.9814778	3.3123243	6.6787743	0.0063945	0.3610902	0.332203						
Scraper	g/Hp-hr	0.8907944	2.102321	7.0961303	0.0063945	0.2889078	0.2657951						
Grader	g/Hp-hr	0.7328187	1.714202	6.2827578	0.0063945	0.2326997	0.2140837						
Loader	g/Hp-hr	0.5417914	1.4835431	4.8136435	0.0063945	0.1708115	0.1571466						
Backhoe	g/Hp-hr	0.8753029	3.3021305	5.8285238	0.0063945	0.3347549	0.3079745						
Bulldozer - D6	g/Hp-hr	1.310414	3.8510057	8.2114337	0.0063945	0.4728764	0.4350463						
Haul Truck - Paving	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Haul Truck - Base	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Semi Truck	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Fugitive Dust (2)	lb/acre/day	0	0	0	0	13.4475	2.805						
Total, 18 Acre Backland Improvements at Berth 100													

Table E1.1-7d

Phase 2: Construct Bridge 2

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Pliedriving - Abutments													
Crane - 100 ton	g/Hp-hr	0.7212851	2.2584177	5.9228994	0.0055781	0.2292242	0.2108862						
Pile Hammer	g/Hp-hr	0.4847745	1.4592125	4.7441299	0.0055781	0.1612019	0.1483057						
Haul Trucks - Pile Deliveries	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Pliedriving - Abutments													
Cast-in-Place Abutments													
Crane - 100 ton	g/Hp-hr	0.7212851	2.2584177	5.9228994	0.0055781	0.2292242	0.2108862						
Concrete Trucks (1)	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Cast-in-Place Abutments													
Pre-Cast Bridge Girders													
Crane - 300 ton	g/Hp-hr	0.7256103	2.2507149	6.0665864	0.0057142	0.2316838	0.2131307						
Haul Trucks - Girder Deliveries	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Pre-Cast Bridge Girders													
Cast-in-Place Deck													
Supply Trucks	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Concrete Trucks (2)	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Cast-in-Place Deck													
Side Abutments													
Boom Truck	g/Hp-hr	0.6489831	1.6908672	5.1790944	0.0055781	0.192951	0.1775149						
Concrete Trucks (3)	g/mile	1.9227	9.1209	18.3448	0.0185	0.8794	0.7715	12.55	46.95	103.59	0.06	1.89	1.734
Subtotal, Side Abutments													
Total - Construct Bridge 2 (4)													

Table E1.1-7e

Phase 2: Construct 17 of 45-acre Backland – Phase II (b)

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	g/Hp-hr	0.8366603	2.0275644	6.7939247	0.0063945	0.2751459	0.2531342						
Water Truck	g/Hp-hr	0.6215993	1.573798	4.8389904	0.0055781	0.1818986	0.1673468						
Compactive Roller	g/Hp-hr	0.9281034	3.2949431	6.3176527	0.0063945	0.3461686	0.3184751						
Scraper	g/Hp-hr	0.8490201	1.9990973	6.7333784	0.0063945	0.2729684	0.2511309						
Grader	g/Hp-hr	0.6948922	1.6292868	5.9117998	0.0063945	0.2187349	0.2012361						
Loader	g/Hp-hr	0.5179497	1.3999245	4.4894639	0.0063945	0.161475	0.148557						
Backhoe	g/Hp-hr	0.8149468	3.2964784	5.406831	0.0063945	0.31499	0.2897908						
Bulldozer - D6	g/Hp-hr	1.2578742	3.8126645	7.8484193	0.0063945	0.4547754	0.4183933						
Haul Truck - Paving	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Haul Truck - Base	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Semi Truck	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Fugitive Dust (2)	lb/acre/day	0	0	0	0	13.4475	2.805						
Total, 17 Acre Backland Improvements at Berth 100													

Table E1.1-7f

Phase 2: Construct 10 of 45-acre Backlands (Behind Rear B102) – Phase II(b)

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	g/Hp-hr	0.8366603	2.0275644	6.7939247	0.0063945	0.2751459	0.2531342						
Water Truck	g/Hp-hr	0.6215993	1.573798	4.8389904	0.0055781	0.1818986	0.1673468						
Compactive Roller	g/Hp-hr	0.9281034	3.2949431	6.3176527	0.0063945	0.3461686	0.3184751						
Scraper	g/Hp-hr	0.8490201	1.9990973	6.7333784	0.0063945	0.2729684	0.2511309						
Grader	g/Hp-hr	0.6948922	1.6292868	5.9117998	0.0063945	0.2187349	0.2012361						
Loader	g/Hp-hr	0.5179497	1.3999245	4.4894639	0.0063945	0.161475	0.148557						
Backhoe	g/Hp-hr	0.8149468	3.2964784	5.406831	0.0063945	0.31499	0.2897908						
Bulldozer - D6	g/Hp-hr	1.2578742	3.8126645	7.8484193	0.0063945	0.4547754	0.4183933						
Haul Truck - Paving	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Haul Truck - Base	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Semi Truck	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Fugitive Dust (2)	lb/acre/day	0	0	0	0	13.4475	2.805						
Total, 10 Acre Backland Improvements at Berth 100													

Table E1.1-7g

Phase 2: Crane Delivery and Installation

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton	g/Hp-hr	0.6868916	2.0904225	5.5923203	0.0055781	0.2161468	0.198855						
Winch	g/Hp-hr	0.5943398	1.7740798	5.3948303	0.0055781	0.1935069	0.1780263						
General Cargo Ship - Transit (1)	lb/transit	33.920579	83.232476	959.50017	876.15759	103.59836	83.295325						
General Cargo Ship - Hoteling	lb/day/ship	8.8300529	23.862011	315.67111	576.3021	49.033164	39.226531						
Total, Crane Delivery and Installation													

Table E1.1-7c

Phase 2: Construct 18 of 45-acre Backlands – Phase II(a)

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	1.6	3.8	12.6	0.0	0.5	0.5
Water Truck	1.9	4.8	14.8	0.0	0.6	0.5
Compactive Roller	1.4	4.8	9.7	0.0	0.5	0.5
Scraper	1.5	3.6	12.2	0.0	0.5	0.5
Grader	1.2	2.7	10.0	0.0	0.4	0.3
Loader	1.0	2.8	9.1	0.0	0.3	0.3
Backhoe	1.2	4.7	8.2	0.0	0.5	0.4
Bulldozer - D6	1.9	5.6	11.9	0.0	0.7	0.6
Haul Truck - Paving	2.3	10.5	21.3	0.0	1.0	0.9
Haul Truck - Base	1.1	5.1	10.3	0.0	0.5	0.4
Semi Truck	2.8	13.1	26.5	0.0	1.3	1.1
Fugitive Dust (2)	0.0	0.0	0.0	0.0	48.4	10.1
Total, 18 Acre Backland Improvements at Berth 100	**17.8**	**61.6**	**146.7**	**0.1**	**55.1**	**16.1**

Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Tier 2 with PM control	44.5%	0.0%	38.2%	0.0%	74.3%	74.3%
Tier 2 with PM control	26.0%	0.0%	16.6%	0.0%	61.1%	61.1%
Tier 2 with PM control	50.1%	0.0%	34.0%	0.0%	69.5%	69.5%
Tier 2 with PM control	45.0%	0.0%	37.9%	0.0%	74.0%	74.0%
Tier 2 with PM control	33.1%	0.0%	29.8%	0.0%	67.8%	67.8%
Tier 2 with PM control	9.6%	0.0%	8.4%	0.0%	56.1%	56.1%
Tier 2 with PM control	44.0%	0.0%	24.3%	0.0%	67.1%	67.1%
Tier 2 with PM control	62.6%	3.9%	46.3%	0.0%	76.7%	76.7%
2004 std with PM control	54.8%	63.7%	24.2%	-4.7%	82.2%	86.2%
2004 std with PM control	54.8%	63.7%	24.2%	-4.7%	82.2%	86.2%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dust Control	0.0%	0.0%	0.0%	0.0%	60.0%	60.0%

Table E1.1-7d

Phase 2: Construct Bridge 2

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Abutments						
Crane - 100 ton	0.6	1.7	4.6	0.0	0.2	0.2
Pile Hammer	0.5	1.5	4.8	0.0	0.2	0.1
Haul Trucks - Pile Deliveries	0.6	2.6	5.3	0.0	0.3	0.2
Subtotal, Piledriving - Abutments	***1.6***	***5.8***	***14.6***	***0.0***	***0.6***	***0.5***
Cast-In-Place Abutments						
Crane - 100 ton	0.8	2.6	6.9	0.0	0.3	0.2
Concrete Trucks (1)	1.4	6.4	12.9	0.0	0.6	0.5
Subtotal, Cast-In-Place Abutments	***2.2***	***9.0***	***19.8***	***0.0***	***0.8***	***0.8***
Pre-Cast Bridge Girders						
Crane - 300 ton	3.6	11.2	30.2	0.0	1.2	1.1
Haul Trucks - Girder Deliveries	2.2	10.5	21.2	0.0	1.0	0.9
Subtotal, Pre-Cast Bridge Girders	***5.8***	***21.7***	***51.4***	***0.0***	***2.2***	***1.9***
Cast-In-Place Deck						
Supply Trucks	0.5	2.5	5.0	0.0	0.2	0.2
Concrete Trucks (2)	2.3	10.8	21.8	0.0	1.0	0.9
Subtotal, Cast-In-Place Deck	***2.9***	***13.2***	***26.8***	***0.0***	***1.2***	***1.1***
Side Abutments						
Boom Truck	1.9	4.8	14.6	0.0	0.6	0.5
Concrete Trucks (3)	0.2	1.0	2.0	0.0	0.1	0.1
Subtotal, Side Abutments	***2.1***	***5.9***	***16.9***	***0.0***	***0.6***	***0.6***
Total - Construct Bridge 2 (4)	**5.8**	**21.7**	**51.4**	**0.0**	**2.2**	**1.9**

Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Tier 2 with PM control	33.5%	0.0%	27.1%	0.0%	67.3%	67.3%
Tier 2 with PM control	0.0%	0.0%	7.0%	0.0%	53.5%	53.5%
2004 std with PM control	55.8%	66.3%	26.6%	-4.9%	82.0%	86.0%
Tier 2 with PM control	33.5%	0.0%	27.1%	0.0%	67.3%	67.3%
2004 std with PM control	53.8%	61.0%	21.7%	-4.6%	82.4%	86.3%
Tier 2 with PM control	33.8%	0.0%	28.8%	0.0%	67.6%	67.6%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2004 std with PM control	53.8%	61.0%	21.7%	-4.6%	82.4%	86.3%
Tier 2 with PM control	26.0%	0.0%	16.6%	0.0%	61.1%	61.1%
2004 std with PM control	53.8%	61.0%	21.7%	-4.6%	82.4%	86.3%

Table E1.1-7e

Phase 2: Construct 17 of 45-acre Backland – Phase II (b)

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	1.5	3.6	12.0	0.0	0.5	0.4
Water Truck	1.8	4.5	13.9	0.0	0.5	0.5
Compactive Roller	1.4	4.8	9.2	0.0	0.5	0.5
Scraper	1.5	3.4	11.6	0.0	0.5	0.4
Grader	1.1	2.6	9.4	0.0	0.3	0.3
Loader	1.0	2.7	8.5	0.0	0.3	0.3
Backhoe	1.1	4.7	7.6	0.0	0.4	0.4
Bulldozer - D6	1.8	5.5	11.4	0.0	0.7	0.6
Haul Truck - Paving	2.1	9.7	19.6	0.0	0.9	0.8
Haul Truck - Base	1.0	4.7	9.5	0.0	0.4	0.4
Semi Truck	2.6	12.0	24.3	0.0	1.1	1.0
Fugitive Dust (2)	0.0	0.0	0.0	0.0	45.7	9.5
Total, 17 Acre Backland Improvements at Berth 100	**16.8**	**58.1**	**137.0**	**0.1**	**51.9**	**15.1**

Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Tier 2 with PM control	41.4%	0.0%	35.1%	0.0%	72.7%	72.7%
Tier 2 with PM control	22.8%	0.0%	10.7%	0.0%	58.8%	58.8%
Tier 2 with PM control	47.2%	0.0%	30.2%	0.0%	68.2%	68.2%
Tier 2 with PM control	42.3%	0.0%	34.5%	0.0%	72.5%	72.5%
Tier 2 with PM control	29.5%	0.0%	25.4%	0.0%	65.7%	65.7%
Tier 2 with PM control	5.4%	0.0%	1.8%	0.0%	53.6%	53.6%
Tier 2 with PM control	39.9%	0.0%	18.4%	0.0%	65.1%	65.1%
Tier 2 with PM control	61.0%	3.0%	43.8%	0.0%	75.8%	75.8%
2004 std with PM control	46.9%	56.9%	15.4%	-4.8%	79.6%	83.9%
2004 std with PM control	46.9%	56.9%	15.4%	-4.8%	79.6%	83.9%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dust Control	0.0%	0.0%	0.0%	0.0%	60.0%	60.0%

Table E1.1-7f

Phase 2: Construct 10 of 45-acre Backlands (Behind Rear B102) – Phase II(b)

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	1.5	3.6	12.0	0.0	0.5	0.4
Water Truck	1.8	4.5	13.9	0.0	0.5	0.5
Compactive Roller	1.4	4.8	9.2	0.0	0.5	0.5
Scraper	1.5	3.4	11.6	0.0	0.5	0.4
Grader	1.1	2.6	9.4	0.0	0.3	0.3
Loader	1.0	2.7	8.5	0.0	0.3	0.3
Backhoe	1.1	4.7	7.6	0.0	0.4	0.4
Bulldozer - D6	1.8	5.5	11.4	0.0	0.7	0.6
Haul Truck - Paving	2.1	9.7	19.6	0.0	0.9	0.8
Haul Truck - Base	1.0	4.7	9.5	0.0	0.4	0.4
Semi Truck	2.6	12.0	24.3	0.0	1.1	1.0
Fugitive Dust (2)	0.0	0.0	0.0	0.0	26.9	5.6
Total, 10 Acre Backland Improvements at Berth 100	**16.8**	**58.1**	**137.0**	**0.1**	**33.1**	**11.2**

Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Tier 2 with PM control	41.4%	0.0%	35.1%	0.0%	72.7%	72.7%
Tier 2 with PM control	22.8%	0.0%	10.7%	0.0%	58.8%	58.8%
Tier 2 with PM control	47.2%	0.0%	30.2%	0.0%	68.2%	68.2%
Tier 2 with PM control	42.3%	0.0%	34.5%	0.0%	72.5%	72.5%
Tier 2 with PM control	29.5%	0.0%	25.4%	0.0%	65.7%	65.7%
Tier 2 with PM control	5.4%	0.0%	1.8%	0.0%	53.6%	53.6%
Tier 2 with PM control	39.9%	0.0%	18.4%	0.0%	65.1%	65.1%
Tier 2 with PM control	61.0%	3.0%	43.8%	0.0%	75.8%	75.8%
2004 std with PM control	46.9%	56.9%	15.4%	-4.8%	79.6%	83.9%
2004 std with PM control	46.9%	56.9%	15.4%	-4.8%	79.6%	83.9%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dust Control	0.0%	0.0%	0.0%	0.0%	60.0%	60.0%

Table E1.1-7g

Phase 2: Crane Delivery and Installation

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton	2.4	7.3	19.5	0.0	0.8	0.7
Winch	0.8	2.4	7.3	0.0	0.3	0.2
General Cargo Ship - Transit (1)	33.9	83.2	959.5	876.2	103.6	83.3
General Cargo Ship - Hoteling	8.8	23.9	315.7	576.3	49.0	39.2
Total, Crane Delivery and Installation	**45.9**	**116.8**	**1,302.0**	**1,452.5**	**153.6**	**123.5**

Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Tier 2 with PM control	30.1%	0.0%	22.8%	0.0%	65.3%	65.3%
Tier 2 with PM control	19.2%	0.0%	19.9%	0.0%	61.2%	61.2%
VSR	25.4%	23.5%	26.8%	27.9%	26.9%	26.8%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table E1.1-7c

Phase 2: Construct 18 of 45-acre Backlands – Phase II(a)

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine													0.9	3.8	7.8	0.0	0.1	0.1
Water Truck													1.4	4.8	12.4	0.0	0.2	0.2
Compactive Roller													0.7	4.8	6.4	0.0	0.2	0.1
Scraper													0.8	3.6	7.6	0.0	0.1	0.1
Grader													0.8	2.7	7.0	0.0	0.1	0.1
Loader													0.9	2.8	8.4	0.0	0.1	0.1
Backhoe													0.7	4.7	6.2	0.0	0.2	0.1
Bulldozer - D6													0.7	5.4	6.4	0.0	0.2	0.1
Haul Truck - Paving	0.85	3.04	13.41	0.02	0.16	0.11	7.65	41.43	123.52	0.06	0.15	0.14	1.0	3.8	16.1	0.0	0.2	0.1
Haul Truck - Base	0.85	3.04	13.41	0.02	0.16	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.5	1.9	7.8	0.0	0.1	0.1
Semi Truck													2.8	13.1	26.5	0.0	1.3	1.1
Fugitive Dust (2)													0.0	0.0	0.0	0.0	19.4	4.0
Total, 18 Acre Backland Improvements at Berth 100													**11.2**	**51.4**	**112.6**	**0.1**	**22.1**	**6.4**

Table E1.1-7d

Phase 2: Construct Bridge 2

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Abutments																		
Crane - 100 ton													0.4	1.7	3.3	0.0	0.1	0.1
Pile Hammer													0.5	1.5	4.4	0.0	0.1	0.1
Haul Trucks - Pile Deliveries	0.85	3.04	13.41	0.02	0.16	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.2	0.9	3.9	0.0	0.0	0.0
Subtotal, Piledriving - Abutments													***1.1***	***4.1***	***11.7***	***0.0***	***0.2***	***0.2***
Cast-in-Place Abutments																		
Crane - 100 ton													0.6	2.6	5.0	0.0	0.1	0.1
Concrete Trucks (1)	0.85	3.04	13.41	0.02	0.16	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.6	2.5	10.1	0.0	0.1	0.1
Subtotal, Cast-In-Place Abutments													***1.2***	***5.1***	***15.1***	***0.0***	***0.2***	***0.1***
Pre-Cast Bridge Girders																		
Crane - 300 ton													2.4	11.2	21.5	0.0	0.4	0.3
Haul Trucks - Girder Deliveries													2.2	10.5	21.2	0.0	1.0	0.9
Subtotal, Pre-Cast Bridge Girders													***4.6***	***21.7***	***42.7***	***0.0***	***1.4***	***1.2***
Cast-in-Place Deck																		
Supply Trucks													0.5	2.5	5.0	0.0	0.2	0.2
Concrete Trucks (2)	0.85	3.04	13.41	0.02	0.16	0.11	7.65	41.43	123.52	0.06	0.15	0.14	1.1	4.2	17.1	0.0	0.2	0.1
Subtotal, Cast-In-Place Deck													***1.6***	***6.7***	***22.1***	***0.0***	***0.4***	***0.3***
Side Abutments																		
Boom Truck													1.4	4.8	12.4	0.0	0.2	0.2
Concrete Trucks (3)	0.85	3.04	13.41	0.02	0.16	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.1	0.4	1.6	0.0	0.0	0.0
Subtotal, Side Abutments													***1.5***	***5.2***	***14.0***	***0.0***	***0.2***	***0.2***
Total - Construct Bridge 2 (4)													**4.6**	**21.7**	**42.7**	**0.0**	**1.4**	**1.2**

Table E1.1-7e

Phase 2: Construct 17 of 45-acre Backland – Phase II (b)

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine													0.9	3.6	7.8	0.0	0.1	0.1
Water Truck													1.4	4.5	12.4	0.0	0.2	0.2
Compactive Roller													0.7	4.8	6.4	0.0	0.2	0.1
Scraper													0.8	3.4	7.6	0.0	0.1	0.1
Grader													0.8	2.6	7.0	0.0	0.1	0.1
Loader													0.9	2.7	8.4	0.0	0.1	0.1
Backhoe													0.7	4.7	6.2	0.0	0.2	0.1
Bulldozer - D6													0.7	5.4	6.4	0.0	0.2	0.1
Haul Truck - Paving	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	1.1	4.2	16.6	0.0	0.2	0.1
Haul Truck - Base	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.5	2.0	8.0	0.0	0.1	0.1
Semi Truck													2.6	12.0	24.3	0.0	1.1	1.0
Fugitive Dust (2)													0.0	0.0	0.0	0.0	18.3	3.8
Total, 17 Acre Backland Improvements at Berth 100													**11.1**	**49.8**	**111.1**	**0.1**	**20.9**	**6.1**

Table E1.1-7f

Phase 2: Construct 10 of 45-acre Backlands (Behind Rear B102) – Phase II(b)

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine													0.9	3.6	7.8	0.0	0.1	0.1
Water Truck													1.4	4.5	12.4	0.0	0.2	0.2
Compactive Roller													0.7	4.8	6.4	0.0	0.2	0.1
Scraper													0.8	3.4	7.6	0.0	0.1	0.1
Grader													0.8	2.6	7.0	0.0	0.1	0.1
Loader													0.9	2.7	8.4	0.0	0.1	0.1
Backhoe													0.7	4.7	6.2	0.0	0.2	0.1
Bulldozer - D6													0.7	5.4	6.4	0.0	0.2	0.1
Haul Truck - Paving	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	1.1	4.2	16.6	0.0	0.2	0.1
Haul Truck - Base	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.5	2.0	8.0	0.0	0.1	0.1
Semi Truck													2.6	12.0	24.3	0.0	1.1	1.0
Fugitive Dust (2)													0.0	0.0	0.0	0.0	10.8	2.2
Total, 10 Acre Backland Improvements at Berth 100													**11.1**	**49.8**	**111.1**	**0.1**	**13.4**	**4.5**

Table E1.1-7g

Phase 2: Crane Delivery and Installation

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton													1.7	7.3	15.1	0.0	0.3	0.2
Winch													0.6	2.4	5.8	0.0	0.1	0.1
General Cargo Ship - Transit (1)													25.3	63.6	702.6	631.9	75.7	60.9
General Cargo Ship - Hoteling													8.8	23.9	315.7	576.3	49.0	39.2
Total, Crane Delivery and Installation													**36.5**	**97.2**	**1,039.1**	**1,208.2**	**125.1**	**100.5**

Table E1.1-8a

Phase 3: South Extension of Berth 100

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Piledriving - Pinpiles/Indicators (1)														
Derrick Barge Crane Hoist	Offroad	564	0.25	2010	1	4	564	18						
Deck Winch	Offroad	238	0.50	2010	2	2	476	18						
Generator	Offroad	432	0.60	2010	1	8	2,074	18						
Generator	Offroad	135	0.60	2010	1	2	162	18						
Pile Hammer	Offroad	190	0.60	2010	1	8	912	18						
Jet Pump	Offroad	290	0.60	2010	1	8	1,392	18						
Haul Trucks - Pile Deliveries	truckother			2010				9		130	12	10	1,560	
Subtotal, Piledriving - Pinpiles/Indicators														
Rip-Rap Placement (2)														
Main Hoist	Offroad	335	0.50	2010	1	10	1,675	70						
Generator	Offroad	90	0.60	2010	1	10	540	70						
Generator	Offroad	229	0.60	2010	1	10	1,374	70						
Deck Winch	Offroad	120	0.50	2010	1	10	600	70						
Tracked Loader - Cat 973	Offroad	210	0.50	2010	1	10	1,050	70						
Tugboat	tug	2,420	0.43	2010	1	8	8,325	70						
Genset	Offroad	89	0.60	2010	1	9	481	70						
Tugboat	tug	2,420	0.43	2010	1	8	8,325	70						
Genset	Offroad	68	0.60	2010	1	9	356	70						
Subtotal, Rip-Rap Placement														
Piledriving - Production Pile (1)														
Main Hoist	Offroad	700	0.25	2010	1	4	700	20						
Main Generator	Offroad	485	0.60	2010	1	8	2,328	20						
Boom Hoist	Offroad	700	0.25	2010	1	8	1,400	20						
Anchor Winch	Offroad	305	0.50	2010	1	2	305	20						
Breasting Winch	Offroad	210	0.60	2010	1	2	252	20						
Emergency Generator	Offroad	210	0.60	2010	1	2	252	20						
Pile Hammer	Offroad	190	0.60	2010	1	8	912	20						
Jet Pump	Offroad	290	0.60	2010	1	8	1,392	20						
Pile Handler	Offroad	456	0.50	2010	1	2	456	20						
Haul Trucks - Pile Deliveries	truckother			2010				20		130	10	10	1,300	
Subtotal, Piledriving - Production Pile														
Dike Filling														
Loader - 950G	Offroad	180	0.50	2010	2	8	1,440	16						
Haul Trucks - Fill (3)	truckother			2010				16		12	75	10	900	
Subtotal, Dike Filling														
Wharf Construction (1)														
Crane - 888	Offroad	330	0.30	2010	1	8	792	38						
Crane - 4000	Offroad	350	0.50	2010	1	8	1,400	38						
Air Compressor - 100 CFM	Offroad	49	0.60	2010	2	4	235	38						
Air Compressor - 185 CFM	Offroad	62	0.60	2010	2	4	298	38						
Welder - 300 Amp.	Offroad	33	0.60	2010	1	4	79	38						
Welder - 400 Amp.	Offroad	35	0.60	2010	1	4	84	38						
Haul Trucks	truckother			2010				13		40	5	10	200	
Concrete Trucks	truckother			2010				26		15	25	20	375	
Subtotal, Wharf Construction														
Total - South Extension of Wharf at Berth 100 (4)														

Notes: (1) Total work days obtained by multiplying total work days from construction of a 1000' wharf at Berth 100 by 376/1000.

(2) Total work days obtained by multiplying total work days from construction of a 200' wharf extension at Berth 100 by 376/200.

(3) Based on a total fill volume of 24,000 cy, assuming a truck capacity of 20 cy.

(4) The five sub-activities are assumed not to occur simultaneously.

Table E1.1-8b

Phase 3: Construct 25-acre Backlands (Behind B100)

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Paving Machine	Offroad	200	0.50	2011	1	8	800	9						
Water Truck	Offroad	325	0.50	2011	1	8	1,300	188						
Compactive Roller	Offroad	165	0.50	2011	1	8	660	77						
Scraper	Offroad	195	0.50	2011	1	8	780	77						
Grader	Offroad	180	0.50	2011	1	8	720	89						
Loader	Offroad	215	0.50	2011	1	8	860	89						
Backhoe	Offroad	160	0.50	2011	1	8	640	61						
Bulldozer - D6	Offroad	165	0.50	2011	1	8	660	61						
Haul Truck - Paving	truckother			2011				16		15	33	10	495	
Haul Truck - Base	truckother			2011				16		15	16	10	240	
Semi Truck	truckother			2011				16		40	16	10	640	
Fugitive Dust (2)	dust			2011				34						5
Total, 25 Acres of Backland Improvements at Berth 100														

Notes: (1) Total work days for paving and truck trips were scaled from the West Basin FEIR Appendix E Table E.2-18 (LAHD 1997) by multiplying by 24/15.4, as these factors represent the backland construction acreages associated with the proposed Berth 100/Berth 147 terminals. Other equipment is scaled to fill an assumed construction time of 9 months.

(2) Assume 20% of the total backland area is disturbed at any one time.

Table E1.1-8c

Phase 3: Crane Delivery and Installation

Construction Activity/Equipment Type	EF ID	Hp Rating	Load Factor	Construction Start Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Total CF of Bldgs.	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Miles per Day	Acres Disturbed At One Time
Crane - 50 ton	Offroad	330	0.30	2011	2	8	1,584	2						
Winch	Offroad	305	0.50	2011	1	4	610	1						
General Cargo Ship - Transit (1)	transit			2011	1			2						
General Cargo Ship - Hoteling	hotel			2011	1			2						
Total, Crane Delivery and Installation														

Notes: (1) One new shore-side A-Frame crane will delivered via one ship. Arrival and departure on separate days. Emissions include tugboat assists.

Table E1.1-8a

Phase 3: South Extension of Berth 100

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)													
Derrick Barge Crane Hoist	g/Hp-hr	0.6028912	1.7740801	5.5329533	0.0055781	0.1960856	0.1803988						
Deck Winch	g/Hp-hr	0.6598223	1.5667835	6.0403978	0.0063945	0.2112174	0.19432						
Generator	g/Hp-hr	0.6111569	1.7849494	5.4337379	0.0055781	0.196609	0.1808803						
Generator	g/Hp-hr	0.6759934	1.5812956	6.1004447	0.0063945	0.2145674	0.197402						
Pile Hammer	g/Hp-hr	0.4555371	1.3562947	4.4307289	0.0055781	0.1516129	0.1394839						
Jet Pump	g/Hp-hr	0.4820193	1.5494116	5.116771	0.0055781	0.1601727	0.1473589						
Haul Trucks - Pile Deliveries	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Subtotal, Piledriving - Pinpiles/Indicators													
Rip-Rap Placement (2)													
Main Hoist	g/Hp-hr	0.5943398	1.7740798	5.3948303	0.0055781	0.1935069	0.1780263						
Generator	g/Hp-hr	1.4733732	4.1156724	7.2620814	0.0066666	0.668339	0.6148718						
Generator	g/Hp-hr	0.6759934	1.5812956	6.1004447	0.0063945	0.2145674	0.197402						
Deck Winch	g/Hp-hr	0.9628153	3.3026332	6.4041959	0.0063945	0.3608532	0.331985						
Tracked Loader - Cat 973	g/Hp-hr	0.560847	1.3359121	5.1268487	0.0063945	0.1732136	0.1593565						
Tugboat	g/kW-hr	0.38844	1.1869	13.245804	0.0069596	0.5593536	0.5146053						
Genset	g/Hp-hr	1.2152641	3.6850708	6.6165459	0.0066666	0.5206618	0.4790088						
Tugboat	g/kW-hr	0.38844	1.1869	13.245804	0.0069596	0.5593536	0.5146053						
Genset	g/Hp-hr	1.2152641	3.6850708	6.6165459	0.0066666	0.5206618	0.4790088						
Subtotal, Rip-Rap Placement													
Piledriving - Production Pile (1)													
Main Hoist	g/Hp-hr	0.6028912	1.7740801	5.5329533	0.0055781	0.1960856	0.1803988						
Main Generator	g/Hp-hr	0.4646816	1.4944408	5.0569332	0.0055781	0.1547642	0.142383						
Boom Hoist	g/Hp-hr	0.6028912	1.7740801	5.5329533	0.0055781	0.1960856	0.1803988						
Anchor Winch	g/Hp-hr	0.5943398	1.7740798	5.3948303	0.0055781	0.1935069	0.1780263						
Breasting Winch	g/Hp-hr	0.6598223	1.5667835	6.0403978	0.0063945	0.2112174	0.19432						
Emergency Generator	g/Hp-hr	0.6759934	1.5812956	6.1004447	0.0063945	0.2145674	0.197402						
Pile Hammer	g/Hp-hr	0.4555371	1.3562947	4.4307289	0.0055781	0.1516129	0.1394839						
Jet Pump	g/Hp-hr	0.4820193	1.5494116	5.116771	0.0055781	0.1601727	0.1473589						
Pile Handler	g/Hp-hr	0.4555371	1.3562947	4.4307289	0.0055781	0.1516129	0.1394839						
Haul Trucks - Pile Deliveries	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Subtotal, Piledriving - Production Pile													
Dike Filling													
Loader - 950G	g/Hp-hr	0.560847	1.3359121	5.1268487	0.0063945	0.1732136	0.1593565						
Haul Trucks - Fill (3)	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Subtotal, Dike Filling													
Wharf Construction (1)													
Crane - 988	g/Hp-hr	0.6868916	2.0904225	5.5923203	0.0055781	0.2161468	0.198855						
Crane - 4000	g/Hp-hr	0.6868916	2.0904225	5.5923203	0.0055781	0.2161468	0.198855						
Air Compressor - 100 CFM	g/Hp-hr	3.5482345	7.1785115	6.0874414	0.0073468	0.6753064	0.6212819						
Air Compressor - 185 CFM	g/Hp-hr	1.4665953	4.0557671	7.2345907	0.0066666	0.6597255	0.6069475						
Welder - 300 Amp.	g/Hp-hr	3.2199825	6.6231843	5.9636359	0.0073468	0.6291832	0.5788486						
Welder - 400 Amp.	g/Hp-hr	3.2199825	6.6231843	5.9636359	0.0073468	0.6291832	0.5788486						
Haul Trucks	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Concrete Trucks	g/mile	1.7839	8.3363	16.7803	0.0185	0.8	0.6988	11.97	46.32	105.77	0.06	1.72	1.58
Subtotal, Wharf Construction													
Total - South Extension of Wharf at Berth 100 (4)													

Table E1.1-8b

Phase 3: Construct 25-acre Backlands (Behind B100)

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	g/Hp-hr	0.7914104	1.9266546	6.4035779	0.0063945	0.2548432	0.2344557						
Water Truck	g/Hp-hr	0.5915773	1.4728691	4.4322868	0.0055781	0.1636948	0.1507833						
Compactive Roller	g/Hp-hr	0.8778401	3.2807063	5.9746302	0.0063945	0.3323825	0.3057919						
Scraper	g/Hp-hr	0.8071626	1.9042935	6.3200761	0.0063945	0.2525267	0.2323245						
Grader	g/Hp-hr	0.6568371	1.5548191	5.4765597	0.0063945	0.1990677	0.1831422						
Loader	g/Hp-hr	0.492402	1.329075	4.0891589	0.0063945	0.1446019	0.1330338						
Backhoe	g/Hp-hr	0.7602952	3.2919073	5.019672	0.0063945	0.2971506	0.2733786						
Bulldozer - D6	g/Hp-hr	1.2077824	3.7766757	7.4995289	0.0063945	0.4378381	0.4028111						
Haul Truck - Paving	g/mile	1.6354	7.5238	15.1615	0.0185	0.7202	0.6257	11.43	45.71	107.82	0.06	1.56	1.432
Haul Truck - Base	g/mile	1.6354	7.5238	15.1615	0.0185	0.7202	0.6257	11.43	45.71	107.82	0.06	1.56	1.432
Semi Truck	g/mile	1.6354	7.5238	15.1615	0.0185	0.7202	0.6257	11.43	45.71	107.82	0.06	1.56	1.432
Fugitive Dust (2)	lb/acre/day	0	0	0	0	13.4475	2.805						
Total, 25 Acres of Backland Improvements at Berth 100													

Table E1.1-8c

Phase 3: Crane Delivery and Installation

Construction Activity/Equipment Type	E.F. Units	Emission Factors						Truck Idle Emission Factors (g/hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton	g/Hp-hr	0.6508117	1.9366266	5.2044105	0.0055781	0.1977877	0.1819647						
Winch	g/Hp-hr	0.5508025	1.6029524	4.9944577	0.0055781	0.1741365	0.1602074						
General Cargo Ship - Transit (1)	lb/transit	33.920579	83.232476	959.50017	876.15759	103.59836	83.295325						
General Cargo Ship - Hoteling	lb/day/ship	8.8300529	23.862011	315.67111	576.3021	49.033164	39.226531						
Total, Crane Delivery and Installation													

Table E1.1-8a

Phase 3: South Extension of Berth 100

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)													
Derrick Barge Crane Hoist	0.7	2.2	6.9	0.0	0.2	0.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Deck Winch	0.7	1.6	6.3	0.0	0.2	0.2	Tier 2 with PM control	25.7%	0.0%	27.0%	0.0%	64.5%	64.5%
Generator	2.8	8.2	24.8	0.0	0.9	0.8	Tier 2 with PM control	21.5%	0.0%	20.5%	0.0%	61.9%	61.9%
Generator	0.2	0.6	2.2	0.0	0.1	0.1	Tier 2 with PM control	27.5%	0.0%	27.7%	0.0%	65.0%	65.0%
Pile Hammer	0.9	2.7	8.9	0.0	0.3	0.3	Tier 2 with PM control	0.0%	0.0%	0.5%	0.0%	50.5%	50.5%
Jet Pump	1.5	4.8	15.7	0.0	0.5	0.5	Tier 2 with PM control	0.0%	0.0%	13.8%	0.0%	53.2%	53.2%
Haul Trucks - Pile Deliveries	6.2	28.9	58.2	0.1	2.8	2.4	2004 std with PM control	47.6%	59.4%	17.4%	-4.9%	79.4%	83.7%
Subtotal, Piledriving - Pinpiles/Indicators	*13.1*	*48.9*	*123.0*	*0.1*	*5.0*	*4.5*							
Rip-Rap Placement (2)													
Main Hoist	2.2	6.6	19.9	0.0	0.7	0.7	Tier 2 with PM control	19.2%	0.0%	19.9%	0.0%	61.2%	61.2%
Generator	1.8	4.9	8.6	0.0	0.8	0.7	Tier 2 with PM control	62.0%	10.1%	30.6%	0.0%	77.6%	77.6%
Generator	2.0	4.8	18.5	0.0	0.6	0.6	Tier 2 with PM control	27.5%	0.0%	27.7%	0.0%	65.0%	65.0%
Deck Winch	1.3	4.4	8.5	0.0	0.5	0.4	Tier 2 with PM control	49.1%	0.0%	31.1%	0.0%	69.5%	69.5%
Tracked Loader - Cat 973	1.3	3.1	11.9	0.0	0.4	0.4	Tier 2 with PM control	12.6%	0.0%	14.0%	0.0%	56.7%	56.7%
Tugboat	5.3	16.3	181.4	0.1	7.7	7.0	Tier 2 Tug	0.0%	0.0%	33.3%	0.0%	5.0%	5.0%
Genset	1.3	3.9	7.0	0.0	0.6	0.5	Tier 2 with PM control	53.9%	0.0%	23.8%	0.0%	71.2%	71.2%
Tugboat	5.3	16.3	181.4	0.1	7.7	7.0	Tier 2 Tug	0.0%	0.0%	33.3%	0.0%	5.0%	5.0%
Genset	1.0	2.9	5.2	0.0	0.4	0.4	Tier 2 with PM control	53.9%	0.0%	23.8%	0.0%	71.2%	71.2%
Subtotal, Rip-Rap Placement	*21.4*	*63.0*	*442.3*	*0.3*	*19.3*	*17.8*							
Piledriving - Production Pile (1)													
Main Hoist	0.9	2.7	8.5	0.0	0.3	0.3	Tier 2 with PM control	20.4%	0.0%	21.9%	0.0%	61.8%	61.8%
Main Generator	2.4	7.7	26.0	0.0	0.8	0.7	Tier 2 with PM control	0.0%	0.0%	14.6%	0.0%	51.5%	51.5%
Boom Hoist	1.9	5.5	17.1	0.0	0.6	0.6	Tier 2 with PM control	20.4%	0.0%	21.9%	0.0%	61.8%	61.8%
Anchor Winch	0.4	1.2	3.6	0.0	0.1	0.1	Tier 2 with PM control	19.2%	0.0%	19.9%	0.0%	61.2%	61.2%
Breasting Winch	0.4	0.9	3.4	0.0	0.1	0.1	Tier 2 with PM control	25.7%	0.0%	27.0%	0.0%	64.5%	64.5%
Emergency Generator	0.4	0.9	3.4	0.0	0.1	0.1	Tier 2 with PM control	27.5%	0.0%	27.7%	0.0%	65.0%	65.0%
Pile Hammer	0.9	2.7	8.9	0.0	0.3	0.3	Tier 2 with PM control	0.0%	0.0%	0.5%	0.0%	50.5%	50.5%
Jet Pump	1.5	4.8	15.7	0.0	0.5	0.5	Tier 2 with PM control	0.0%	0.0%	13.8%	0.0%	53.2%	53.2%
Pile Handler	0.5	1.4	4.5	0.0	0.2	0.1	Tier 2 with PM control	0.0%	0.0%	0.5%	0.0%	50.5%	50.5%
Haul Trucks - Pile Deliveries	5.2	24.1	48.5	0.1	2.3	2.0	2004 std with PM control	47.6%	59.4%	17.4%	-4.9%	79.4%	83.7%
Subtotal, Piledriving - Production Pile	*14.3*	*51.7*	*139.5*	*0.2*	*5.3*	*4.8*							
Dike Filling													
Loader - 950G	1.8	4.2	16.3	0.0	0.5	0.5	Tier 2 with PM control	12.6%	0.0%	14.0%	0.0%	56.7%	56.7%
Haul Trucks - Fill (3)	3.9	17.8	36.2	0.0	1.6	1.4	2004 std with PM control	46.7%	56.3%	14.9%	-4.8%	79.7%	83.9%
Subtotal, Dike Filling	*5.6*	*22.1*	*52.5*	*0.1*	*2.2*	*1.9*							
Wharf Construction (1)													
Crane - 888	1.2	3.6	9.8	0.0	0.4	0.3	Tier 2 with PM control	30.1%	0.0%	22.8%	0.0%	65.3%	65.3%
Crane - 4000	2.1	6.5	17.3	0.0	0.7	0.6	Tier 2 with PM control	30.1%	0.0%	22.8%	0.0%	65.3%	65.3%
Air Compressor - 100 CFM	1.8	3.7	3.2	0.0	0.4	0.3	Tier 2 with PM control	84.2%	42.9%	17.2%	0.0%	66.7%	66.7%
Air Compressor - 185 CFM	1.0	2.7	4.7	0.0	0.4	0.4	Tier 2 with PM control	61.8%	8.8%	30.3%	0.0%	77.3%	77.3%
Welder - 300 Amp.	0.6	1.2	1.0	0.0	0.1	0.1	Tier 2 with PM control	82.6%	38.1%	15.5%	0.0%	64.2%	64.2%
Welder - 400 Amp.	0.6	1.2	1.1	0.0	0.1	0.1	Tier 2 with PM control	82.6%	38.1%	15.5%	0.0%	64.2%	64.2%
Haul Trucks	0.8	3.8	7.6	0.0	0.4	0.3	2004 std with PM control	47.4%	58.7%	16.8%	-4.8%	79.5%	83.8%
Concrete Trucks	1.7	7.7	15.8	0.0	0.7	0.6	2004 std with PM control	46.2%	54.4%	13.5%	-4.8%	79.9%	84.0%
Subtotal, Wharf Construction	*9.8*	*30.4*	*60.5*	*0.1*	*3.1*	*2.8*							
Total - South Extension of Wharf at Berth 100 (4)	**21.4**	**63.0**	**442.3**	**0.3**	**19.3**	**17.8**							

Table E1.1-8b

Phase 3: Construct 25-acre Backlands (Behind B100)

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine	1.4	3.4	11.3	0.0	0.4	0.4	Tier 2 with PM control	38.1%	0.0%	31.1%	0.0%	70.6%	70.6%
Water Truck	1.7	4.2	12.7	0.0	0.5	0.4	Tier 2 with PM control	18.9%	0.0%	2.5%	0.0%	54.2%	54.2%
Compactive Roller	1.3	4.8	8.7	0.0	0.5	0.4	Tier 2 with PM control	44.2%	0.0%	26.2%	0.0%	66.9%	66.9%
Scraper	1.4	3.3	10.9	0.0	0.4	0.4	Tier 2 with PM control	39.3%	0.0%	30.2%	0.0%	70.3%	70.3%
Grader	1.0	2.5	8.7	0.0	0.3	0.3	Tier 2 with PM control	25.4%	0.0%	19.5%	0.0%	62.3%	62.3%
Loader	0.9	2.5	7.8	0.0	0.3	0.3	Tier 2 with PM control	0.5%	0.0%	0.0%	0.0%	48.1%	48.1%
Backhoe	1.1	4.6	7.1	0.0	0.4	0.4	Tier 2 with PM control	35.6%	0.0%	12.1%	0.0%	63.0%	63.0%
Bulldozer - D6	1.8	5.5	10.9	0.0	0.6	0.6	Tier 2 with PM control	59.4%	2.0%	41.2%	0.0%	74.9%	74.9%
Haul Truck - Paving	1.9	8.8	17.9	0.0	0.8	0.7	2004 std with PM control	37.8%	49.0%	4.9%	-4.8%	76.5%	81.1%
Haul Truck - Base	0.9	4.2	8.7	0.0	0.4	0.3	2004 std with PM control	37.8%	49.0%	4.9%	-4.8%	76.5%	81.1%
Semi Truck	2.4	10.9	22.0	0.0	1.0	0.9		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fugitive Dust (2)	0.0	0.0	0.0	0.0	67.2	14.0	Dust Control	0.0%	0.0%	0.0%	0.0%	60.0%	60.0%
Total, 25 Acres of Backland Improvements at Berth 100	**15.8**	**54.7**	**126.5**	**0.1**	**72.9**	**19.2**							

Table E1.1-8c

Phase 3: Crane Delivery and Installation

Construction Activity/Equipment Type	Daily Emissions Before Mitigation (lb/day)						Mitigation Measure	Mitigation Effectiveness (% Reduction)					
	VOC	CO	NOx	SOx	PM10	PM2.5		VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton	2.3	6.8	18.2	0.0	0.7	0.6	Tier 2 with PM control	26.2%	0.0%	17.0%	0.0%	62.1%	62.1%
Winch	0.7	2.2	6.7	0.0	0.2	0.2	Tier 2 with PM control	12.9%	0.0%	13.5%	0.0%	56.9%	56.9%
General Cargo Ship - Transit (1)	33.9	83.2	959.5	876.2	103.6	83.3	VSR	25.4%	23.5%	26.8%	27.9%	26.9%	26.8%
General Cargo Ship - Hoteling	8.8	23.9	315.7	576.3	49.0	39.2		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total, Crane Delivery and Installation	**45.8**	**116.0**	**1,300.1**	**1,452.5**	**153.6**	**123.4**							

Table E1.1-8a

Phase 3: South Extension of Berth 100

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Piledriving - Pinpiles/Indicators (1)																		
Derrick Barge Crane Hoist													0.7	2.2	6.9	0.0	0.2	0.2
Deck Winch													0.5	1.6	4.6	0.0	0.1	0.1
Generator													2.2	8.2	19.7	0.0	0.3	0.3
Generator													0.2	0.6	1.6	0.0	0.0	0.0
Pile Hammer													0.9	2.7	8.9	0.0	0.2	0.1
Jet Pump													1.5	4.8	13.5	0.0	0.2	0.2
Haul Trucks - Pile Deliveries	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	3.2	11.7	48.0	0.1	0.6	0.4
Subtotal, Piledriving - Pinpiles/Indicators													***9.3***	***31.8***	***103.3***	***0.1***	***1.5***	***1.4***
Rip-Rap Placement (2)																		
Main Hoist													1.8	6.6	16.0	0.0	0.3	0.3
Generator													0.7	4.4	6.0	0.0	0.2	0.2
Generator													1.5	4.8	13.4	0.0	0.2	0.2
Deck Winch													0.6	4.4	5.8	0.0	0.1	0.1
Tracked Loader - Cat 973													1.1	3.1	10.2	0.0	0.2	0.2
Tugboat													5.3	16.3	121.0	0.1	7.3	6.7
Genset													0.6	3.9	5.3	0.0	0.2	0.1
Tugboat													5.3	16.3	121.0	0.1	7.3	6.7
Genset													0.4	2.9	4.0	0.0	0.1	0.1
Subtotal, Rip-Rap Placement													***17.4***	***62.5***	***302.6***	***0.3***	***15.8***	***14.6***
Piledriving - Production Pile (1)																		
Main Hoist													0.7	2.7	6.1	0.0	0.1	0.1
Main Generator													2.4	7.7	22.2	0.0	0.4	0.4
Boom Hoist													1.5	5.5	13.3	0.0	0.2	0.2
Anchor Winch													0.3	1.2	2.9	0.0	0.1	0.0
Breasting Winch													0.3	0.9	2.5	0.0	0.0	0.0
Emergency Generator													0.3	0.9	2.5	0.0	0.0	0.0
Pile Hammer													0.9	2.7	8.9	0.0	0.2	0.1
Jet Pump													1.5	4.8	13.5	0.0	0.2	0.2
Pile Handler													0.5	1.4	4.4	0.0	0.1	0.1
Haul Trucks - Pile Deliveries	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	2.7	9.8	40.0	0.1	0.5	0.3
Subtotal, Piledriving - Production Pile													***11.0***	***37.4***	***116.8***	***0.2***	***1.8***	***1.5***
Dike Filling																		
Loader - 950G													1.8	4.2	14.0	0.0	0.2	0.2
Haul Trucks - Fill (3)	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	2.1	7.8	30.8	0.0	0.3	0.2
Subtotal, Dike Filling													***3.6***	***12.0***	***44.8***	***0.1***	***0.6***	***0.4***
Wharf Construction (1)																		
Crane - 888													0.8	3.6	7.5	0.0	0.1	0.1
Crane - 4000													1.5	6.5	13.3	0.0	0.2	0.2
Air Compressor - 100 CFM													0.3	2.1	2.6	0.0	0.1	0.1
Air Compressor - 185 CFM													0.4	2.4	3.3	0.0	0.1	0.1
Welder - 300 Amp.													0.1	0.7	0.9	0.0	0.0	0.0
Welder - 400 Amp.													0.1	0.8	0.9	0.0	0.0	0.0
Haul Trucks	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.4	1.6	6.3	0.0	0.1	0.1
Concrete Trucks	0.93	3.35	13.81	0.02	0.17	0.11	7.65	41.43	123.52	0.06	0.15	0.14	0.9	3.5	13.7	0.0	0.1	0.1
Subtotal, Wharf Construction													***4.5***	***21.2***	***48.6***	***0.1***	***0.9***	***0.8***
Total - South Extension of Wharf at Berth 100 (4)													**17.4**	**62.5**	**302.6**	**0.3**	**15.8**	**14.6**

Table E1.1-8b

Phase 3: Construct 25-acre Backlands (Behind B100)

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Paving Machine													0.9	3.4	7.8	0.0	0.1	0.1
Water Truck													1.4	4.2	12.4	0.0	0.2	0.2
Compactive Roller													0.7	4.8	6.4	0.0	0.2	0.1
Scraper													0.8	3.3	7.6	0.0	0.1	0.1
Grader													0.8	2.5	7.0	0.0	0.1	0.1
Loader													0.9	2.5	7.8	0.0	0.1	0.1
Backhoe													0.7	4.6	6.2	0.0	0.2	0.1
Bulldozer - D6													0.7	5.4	6.4	0.0	0.2	0.1
Haul Truck - Paving	1.01	3.64	14.18	0.02	0.17	0.12	7.65	41.43	123.52	0.06	0.15	0.14	1.2	4.5	17.0	0.0	0.2	0.1
Haul Truck - Base	1.01	3.64	14.18	0.02	0.17	0.12	7.65	41.43	123.52	0.06	0.15	0.14	0.6	2.2	8.2	0.0	0.1	0.1
Semi Truck													2.4	10.9	22.0	0.0	1.0	0.9
Fugitive Dust (2)													0.0	0.0	0.0	0.0	26.9	5.6
Total, 25 Acres of Backland Improvements at Berth 100													**11.1**	**48.2**	**108.8**	**0.1**	**29.4**	**7.8**

Table E1.1-8c

Phase 3: Crane Delivery and Installation

Construction Activity/Equipment Type	Mitigated Truck Emission Factors (g/mile)						Mitigated Truck Idle Emission Factors (g/hr)						Daily Emissions After Mitigation (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5	VOC	CO	NOx	SOx	PM10	PM2.5
Crane - 50 ton													1.7	6.8	15.1	0.0	0.3	0.2
Winch													0.6	2.2	5.8	0.0	0.1	0.1
General Cargo Ship - Transit (1)													25.3	63.6	702.6	631.9	75.7	60.9
General Cargo Ship - Hoteling													8.8	23.9	315.7	576.3	49.0	39.2
Total, Crane Delivery and Installation													**36.5**	**96.4**	**1,039.1**	**1,208.2**	**125.1**	**100.5**

Table E1.1-9. Summary of Maximum Daily Construction Emissions without Mitigation - Proposed Project

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0.42	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0.14	1	1
1g. Workers Commute	20	264	34	0.26	20	2
Total - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2a. Construct Berth 102 - Phase II(a)	15	57	149	0.15	6	5
2b.Construct Berth 100-109 Buildings - Phase II(a)	7	25	56	0.06	3	3
2c. Construct 18 of 45-acre Backlands – *Phase II(a)*	18	62	147	0.15	55	16
2d. Construct Bridge 2	6	22	51	0.05	2	2
2e. Construct 17 of 45-acre Backland – Phase II (b)	17	58	137	0.15	52	15
2f. Construct 10 of 45-acre Backlands (Behind Rear B102) – Ph	17	58	137	0.15	33	11
2g. Crane Delivery and Installation	46	117	1,302	1,452	154	123
2h. Workers commute	2.15	27	4	0	5	1
Total - Phase 2 (2)	**88**	**287**	**1,657**	**1,453**	**222**	**148**
Phase 3						
3a. South Extension of Berth 100	21	63	442	0	19	18
3b.Construct 25-acre Backlands (Behind B100)	16	55	127	0	73	19
3c. Crane Delivery and Installation	46	116	1,300	1,452	154	123
3d. Workers commute	2	25	3	0.02	5	1
Total - Phase 3 (3)	**85**	**259**	**1,872**	**1,453**	**250**	**161**
Total - Phases 2 and 3 Combined (4)	**88**	**287**	**1,872**	**1,453**	**250**	**161**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2a, 2b, 2c, 2g, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3a, 3b, 3c, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2a, 2b, 2c, 2g and 2h for VOC and CO, and simultaneous occurrence of 3a, 3b, 3c, 3d for NOx, PM10 and PM2.5

Table E1.1-10. Summary of Maximum Daily Construction Emissions with Mitigation - Proposed Project

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	*32*	*100*	*506*	*5*	*27*	*25*
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	*48*	*128*	*1,316*	*1,453*	*154*	*124*
1d. Develop 72-acre Backlands at Berth 100	*29*	*102*	*226*	*1.4*	*205*	*51*
1e. Construct Bridge 1	8	39	69	0.4	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0.1	1	1
1g. Workers Commute	20	264	34	0	20	2
Total - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2a. Construct Berth 102 - Phase II(a)	*11*	*39*	*116*	*0.16*	*2*	*2*
2b.Construct Berth 100-109 Buildings - Phase II(a)	*5*	*22*	*47*	*0.06*	*1*	*1*
2c. Construct 18 of 45-acre Backlands – Phase II(a)	*11*	*51*	*113*	*0.15*	*22*	*6*
2d. Construct Bridge 2	*5*	*22*	*43*	*0.05*	*1*	*1*
2e. Construct 17 of 45-acre Backland – Phase II (b)	*11*	*50*	*111*	*0.15*	*21*	*6*
2f. Construct 10 of 45-acre Backlands (Behind Rear B102) – P	*11*	*50*	*111*	*0.15*	*13*	*5*
2g. Crane Delivery and Installation	*36*	*97*	*1,039*	*1,208*	*125*	*101*
2h. Workers commute	*2*	*27*	*4*	*0.02*	*5*	*1*
Total - Phase 2 (2)	**66**	**237**	**1,318**	**1,209**	**155**	**111**
Phase 3						
3a. South Extension of Berth 100	*17*	*63*	*303*	*0*	*16*	*15*
3b.Construct 25-acre Backlands (Behind B100)	*11*	*48*	*109*	*0*	*29*	*8*
3c. Crane Delivery and Installation	36	96	1,039	1,208	125	101
3d. Workers commute	2	25	3	0	5	1
Total - Phase 3 (3)	**67**	**232**	**1,454**	**1,209**	**175**	**124**
Total - Phases 2 and 3 Combined (4)	**67**	**237**	**1,454**	**1,209**	**175**	**124**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, and 1d.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2a, 2b, 2c, 2g.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3a, 3b, and 3c.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2a, 2b, 2c, 2g and 2h for VOC and CO, and simultaneous occurrence of 3a, 3b, 3c, 3d for NOx, PM10 and PM2.5

Table E1.1-11. Mitigation Effectiveness for Maximum Daily Construction Emissions - Proposed Project

Project Scenario/Activity	*Mitigation Effectiveness*					
	VOC	*CO*	*NOx*	*SOx*	*PM10*	*PM2.5*
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	0%	0%	0%	0%	0%	0%
1b. Construct 200-foot Wharf at Berth 100	0%	0%	0%	0%	0%	0%
1c. Crane Delivery and Installation	0%	0%	0%	0%	0%	0%
1d. Develop 72-acre Backlands at Berth 100	0%	0%	0%	0%	0%	0%
1e. Construct Bridge 1	0%	0%	0%	0%	0%	0%
1f. Construct Berth 121 Gate Modifications	0%	0%	0%	0%	0%	0%
1g. Workers Commute	0%	0%	0%	0%	0%	0%
Total - Phase 1 (1)	0%	0%	0%	0%	0%	0%
Phase 2						
2a. Construct Berth 102 - Phase II(a)	29%	31%	23%	-2%	69%	71%
2b.Construct Berth 100-109 Buildings - Phase II(a)	33%	13%	16%	-1%	53%	54%
2c. Construct 18 of 45-acre Backlands – Phase II(a)	37%	16%	23%	-1%	60%	60%
2d. Construct Bridge 2	21%	0%	17%	0%	36%	37%
2e. Construct 17 of 45-acre Backland – Phase II (b)	34%	14%	19%	-1%	60%	60%
2f. Construct 10 of 45-acre Backlands (Behind Rear B102) – P	34%	14%	19%	-1%	60%	59%
2g. Crane Delivery and Installation	21%	17%	20%	17%	19%	19%
2h. Workers commute	0%	0%	0%	0%	0%	0%
Total - Phase 2 (2)	26%	18%	20%	17%	30%	25%
Phase 3						
3a. South Extension of Berth 100	19%	1%	32%	0%	18%	18%
3b.Construct 25-acre Backlands (Behind B100)	30%	12%	14%	-1%	60%	59%
3c. Crane Delivery and Installation	20%	17%	20%	17%	19%	19%
3d. Workers commute	0%	0%	0%	0%	0%	0%
Total - Phase 3 (3)	21%	10%	22%	17%	30%	23%
Total - Phases 2 and 3 Combined	**24%**	**18%**	**22%**	**17%**	**30%**	**23%**

Table E1.1-12. Summary of Maximum Daily Construction Emissions without Mitigation - Alternative 1

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5.2	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5.2	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1.4	205	51
1e. Construct Bridge 1	8.3	39	69	0.42	3.4	3.1
1f. Construct Berth 121 Gate Modifications	3.3	9.0	21	0.14	1.2	1.1
1g. Workers Commute	20	21	22	23	24	25
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2g. Crane Delivery and Installation	46	117	1,302	1,452	154	123
2h. Workers commute	2.15	27	3.6	0.020	4.6	0.90
Maximum - Phase 2 (2)	**48**	**144**	**1,306**	**1,453**	**158**	**124**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2g, 2h.

Table E1.1-13. Summary of Maximum Daily Construction Emissions with Mitigation - Alternative 1

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	21	22	23	24	25
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2g. Crane Delivery and Installation	36.46	97	1,039	1,208	125	101
2h. Workers commute	2.15	27	4	0.02	5	1
Maximum - Phase 2 (2)	**39**	**124**	**1,043**	**1,208**	**130**	**101**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2g, 2h.

Table E1.1-14. Summary of Maximum Daily Construction Emissions without Mitigation - Alternative 2

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0.26	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2c. Construct 18 of 45-acre Backlands	18	62	147	0	55	16
2e. Construct 17 of 45-acre Backland	17	58	137	0	52	15
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	17	58	137	0	33	11
2g. Crane Delivery and Installation	46	117	1,302	1,452	154	123
2h. Workers commute	2.15	27	4	0	5	1
Maximum - Phase 2 (2)	**66**	**205**	**1,452**	**1,453**	**213**	**140**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2c, 2g, 2h.

Table E1.1-15. Summary of Maximum Daily Construction Emissions with Mitigation - Alternative 2

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2c. Construct 18 of 45-acre Backlands	11	51	113	0	22	6
2e. Construct 17 of 45-acre Backland	11	50	111	0	21	6
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	11	50	111	0	13	5
2g. Crane Delivery and Installation	36	97	1,039	1,208	125	101
2h. Workers commute	2	27	4	0.02	5	1
Maximum - Phase 2 (2)	**50**	**176**	**1,155**	**1,208**	**152**	**108**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2c, 2g, 2h.

Table E1.1-16. Summary of Maximum Daily Construction Emissions without Mitigation - Alternative 3

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0.26	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2b.Construct Berth 100-109 Buildings	7	25	56	0	3	3
2c. Construct 18 of 45-acre Backlands	18	62	147	0	55	16
2d. Construct Bridge 2	6	22	51	0	2	2
2e. Construct 17 of 45-acre Backland	17	58	137	0	52	15
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	17	58	137	0	33	11
2h. Workers commute	2.15	27	4	0	5	1
Maximum - Phase 2 (2)	**36**	**143**	**277**	**0**	**90**	**27**
Phase 3						
3a. South Extension of Berth 100	21	63	442	0	19	18
3b.Construct 25-acre Backlands (Behind B100)	16	55	127	0	73	19
3c. Crane Delivery and Installation	46	116	1,300	1,452	154	123
3d. Workers commute	2	25	3	0.02	5	1
Maximum - Phase 3 (3)	**85**	**259**	**1,872**	**1,453**	**250**	**161**
Maximum - Phases 2 and 3 Combined (4)	**85**	**259**	**1,872**	**1,453**	**250**	**161**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2b, 2c, 2d, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3a, 3b, 3c, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2a, 2b, 2c, 2g and 2h

Table E1.1-17. Summary of Maximum Daily Construction Emissions with Mitigation - Alternative 3

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2b.Construct Berth 100-109 Buildings	5	22	47	0	1	1
2c. Construct 18 of 45-acre Backlands	11	51	113	0	22	6
2d. Construct Bridge 2	5	22	43	0	1	1
2e. Construct 17 of 45-acre Backland	11	50	111	0	21	6
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	11	50	111	0	13	5
2h. Workers commute	2	27	4	0.02	5	1
Maximum - Phase 2 (2)	**24**	**127**	**226**	**0**	**39**	**12**
Phase 3						
3a. South Extension of Berth 100	17	63	303	0	16	15
3b.Construct 25-acre Backlands (Behind B100)	11	48	109	0	29	8
3c. Crane Delivery and Installation	36	96	1,039	1,208	125	101
3d. Workers commute	2	25	3	0	5	1
Maximum - Phase 3 (3)	**67**	**232**	**1,454**	**1,209**	**175**	**124**
Maximum - Phases 2 and 3 Combined (4)	**67**	**232**	**1,454**	**1,209**	**175**	**124**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2b, 2c, 2d, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3a, 3b, 3c, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2a, 2b, 2c, 2g and 2h

Table E1.1-18. Summary of Maximum Daily Construction Emissions without Mitigation - Alternative 4

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0.26	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2a. Construct Berth 102	15	57	149	0	6	5
2b.Construct Berth 100-109 Buildings	7	25	56	0	3	3
2c. Construct 18 of 45-acre Backlands	18	62	147	0	55	16
2d. Construct Bridge 2	6	22	51	0	2	2
2e. Construct 17 of 45-acre Backland	17	58	137	0	52	15
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	17	58	137	0	33	11
2g. Crane Delivery and Installation	46	117	1,302	1,452	154	123
2h. Workers commute	2.15	27	4	0	5	1
Maximum - Phase 2 (2)	**88**	**287**	**1,657**	**1,453**	**222**	**148**
Phase 3						
3b.Construct 13-acre Backlands (Behind B100)	8	28	66	0	38	10
3d. Workers commute	2	25	3	0.02	5	1
Maximum - Phase 3 (3)	**10**	**54**	**69**	**0**	**43**	**11**
Maximum - Phases 2 and 3 Combined (4)	**88**	**287**	**1,657**	**1,453**	**222**	**148**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2a, 2b, 2c, 2g, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3b, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2a, 2b, 2c, 2g and 2h

Table E1.1-19. Summary of Maximum Daily Construction Emissions with Mitigation - Alternative 4

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2a. Construct Berth 102	11	39	116	0	2	2
2b.Construct Berth 100-109 Buildings	5	22	47	0	1	1
2c. Construct 18 of 45-acre Backlands	11	51	113	0	22	6
2d. Construct Bridge 2	5	22	43	0	1	1
2e. Construct 17 of 45-acre Backland	11	50	111	0	21	6
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	11	50	111	0	13	5
2g. Crane Delivery and Installation	36	97	1,039	1,208	125	101
2h. Workers commute	2	27	4	0.02	5	1
Maximum - Phase 2 (2)	**66**	**237**	**1,318**	**1,209**	**155**	**111**
Phase 3						
3b.Construct 13-acre Backlands (Behind B100)	6	25	57	0	15	4
3d. Workers commute	2	25	3	0	5	1
Maximum - Phase 3 (3)	**8**	**50**	**60**	**0**	**20**	**5**
Maximum - Phases 2 and 3 Combined (4)	**66**	**237**	**1,318**	**1,209**	**155**	**111**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2a, 2b, 2c, 2g, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3b, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2a, 2b, 2c, 2g and 2h

Table E1.1-20. Summary of Maximum Daily Construction Emissions without Mitigation - Alternative 5

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0.26	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

Table E1.1-21. Summary of Maximum Daily Construction Emissions with Mitigation - Alternative 5

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

Table E1.1-22. Summary of Maximum Daily Construction Emissions without Mitigation - Alternative 6

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0.26	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2a. Construct Berth 102	15	57	149	0	6	5
2b.Construct Berth 100-109 Buildings	7	25	56	0	3	3
2c. Construct 18 of 45-acre Backlands	18	62	147	0	55	16
2d. Construct Bridge 2	6	22	51	0	2	2
2e. Construct 17 of 45-acre Backland	17	58	137	0	52	15
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	17	58	137	0	33	11
2g. Crane Delivery and Installation	11	29	325	363	38	31
2h. Workers commute	2.15	27	4	0	5	1
Maximum - Phase 2 (2)	**54**	**200**	**681**	**363**	**107**	**56**
Phase 3						
3a. South Extension of Berth 100	21	63	442	0	19	18
3b.Construct 25-acre Backlands (Behind B100)	16	55	127	0	73	19
3d. Workers commute	2	3	4	5	6	7
Maximum - Phase 3 (3)	**39**	**143**	**572**	**0**	**97**	**38**
Maximum - Phases 2 and 3 Combined (4)	**57**	**206**	**720**	**363**	**109**	**56**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2a, 2b, 2c, 2g, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3a, 3b, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2e, 2f, 3a

(5) The emissions from construction of the additional terminal facilities were not included in the calculation.

Table E1.1-23. Summary of Maximum Daily Construction Emissions with Mitigation - Alternative 6

Project Scenario/Activity	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1						
1a. Construct 1,000-foot Wharf at Berth 100	32	100	506	5	27	25
1b. Construct 200-foot Wharf at Berth 100	42	139	502	5	27	25
1c. Crane Delivery and Installation	48	128	1,316	1,453	154	124
1d. Develop 72-acre Backlands at Berth 100	29	102	226	1	205	51
1e. Construct Bridge 1	8	39	69	0	3	3
1f. Construct Berth 121 Gate Modifications	3	9	21	0	1	1
1g. Workers Commute	20	264	34	0	20	2
Maximum - Phase 1 (1)	**129**	**594**	**2,082**	**1,460**	**407**	**202**
Phase 2						
2a. Construct Berth 102	11	39	116	0	2	2
2b.Construct Berth 100-109 Buildings	5	22	47	0	1	1
2c. Construct 18 of 45-acre Backlands	11	51	113	0	22	6
2d. Construct Bridge 2	5	22	43	0	1	1
2e. Construct 17 of 45-acre Backland	11	50	111	0	21	6
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	11	50	111	0	13	5
2g. Crane Delivery and Installation	9	24	260	302	31	25
2h. Workers commute	2	27	4	0.02	5	1
Maximum - Phase 2 (2)	**38**	**164**	**539**	**302**	**61**	**35**
Phase 3						
3a. South Extension of Berth 100	17	63	303	0	16	15
3b.Construct 25-acre Backlands (Behind B100)	11	48	109	0	29	8
3d. Workers commute	2	3	4	5	6	7
Maximum - Phase 3 (3)	**30**	**136**	**415**	**0**	**50**	**23**
Maximum - Phases 2 and 3 Combined (4)	**42**	**189**	**539**	**302**	**61**	**35**

Notes: (1) Maximum Phase 1 emissions assume simultaneous occurrence of 1a, 1c, 1d,1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2a, 2b, 2c, 2g, 2h.

(3) Maximum Phase 3 emissions assume simultaneous occurrence of 3a, 3b, 3d.

(4) Maximum emissions from Phases 2 and 3 combined assume simultaneous occurrence of 2e, 2f, 3a

(5) The emissions from construction of the additional terminal facilities were not included in the calculation.

Table E1.1-24. Summary of Maximum Daily Construction Emissions with Mitigation - NEPA Baseline

Project Scenario/Activity	*Pounds per Day*					
	VOC	*CO*	*NOx*	*SOx*	*PM10*	*PM2.5*
1d. Develop 72-acre Backlands at Berth 100	*29*	*102*	*226*	*1*	*205*	*51*
1g. Workers Commute	20	264	34	0.26	20	2
Maximum - Phase 1 (1)	49	365	260	2	225	53
Phase 2						
2c. Construct 18 of 45-acre Backlands	*11*	*51*	*113*	*0.15*	*22*	*6*
2e. Construct 17 of 45-acre Backland	*11*	*50*	*111*	*0.15*	*21*	*6*
2f. Construct 10 of 45-acre Backlands (Behind Rear B102)	*11*	*50*	*111*	*0.15*	*13*	*5*
2h. Workers commute	*2*	*27*	*4*	*0.02*	*5*	*1*
Maximum - Phase 2 (2)	**24**	**127**	**226**	**0.3**	**39**	**12**
Maximum - Phases 2 and 3 Combined (4)	**24**	**127**	**226**	**0**	**39**	**12**

Notes:

(1) Maximum Phase 1 emissions assume simultaneous occurrence of 1d, 1g.

(2) Maximum Phase 2 emissions assume simultaneous occurrence of 2e, 2f, 2h.

Appendix E1.1
Construction Emission Calculations (Alt. 7)

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Urbemis 2007 Version 9.2.2

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\awhite1\Application Data\Urbemis\Version9a\Projects\CS_alt7_cons.urb9

Project Name: CS Alt7 construction

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	9.94	82.99	43.62	0.00	424.81	4.22	429.03	88.72	3.88	92.60	7,496.41
2009 TOTALS (lbs/day mitigated)	9.94	49.86	43.62	0.00	26.61	2.11	28.73	5.56	1.94	7.50	7,496.41
2010 TOTALS (lbs/day unmitigated)	21.19	168.49	269.79	0.41	1.67	7.99	9.65	0.58	7.30	7.88	43,841.98
2010 TOTALS (lbs/day mitigated)	21.19	159.17	269.79	0.41	1.67	7.15	8.82	0.58	6.53	7.11	43,841.98
2011 TOTALS (lbs/day unmitigated)	1,982.67	153.17	251.55	0.41	1.67	7.27	8.93	0.58	6.63	7.22	43,838.09
2011 TOTALS (lbs/day mitigated)	1,982.67	144.43	251.55	0.41	1.67	6.48	8.14	0.58	5.91	6.49	43,838.09

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2009-7/31/2009 Active Days: 45	6.12	52.10	29.96	0.00	2.54	2.48	5.02	0.53	2.28	2.81	4,641.14
Demolition 06/01/2009-08/01/2009	6.12	52.10	29.96	0.00	2.54	2.48	5.02	0.53	2.28	2.81	4,641.14
Fugitive Dust	0.00	0.00	0.00	0.00	2.52	0.00	2.52	0.52	0.00	0.52	0.00
Demo Off Road Diesel	5.84	49.11	27.34	0.00	0.00	2.35	2.35	0.00	2.16	2.16	4,132.45
Demo On Road Diesel	0.23	2.90	1.17	0.00	0.01	0.13	0.14	0.00	0.12	0.12	353.20
Demo Worker Trips	0.05	0.09	1.45	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.48
Time Slice 8/6/2009-10/20/2009 Active Days: 54	9.94	82.99	43.62	0.00	**424.81**	4.22	**429.03**	**88.72**	3.88	**92.60**	7,496.41
Mass Grading 08/06/2009-10/20/2009	9.94	82.99	43.62	0.00	424.81	4.22	429.03	88.72	3.88	92.60	7,496.41
Mass Grading Dust	0.00	0.00	0.00	0.00	424.80	0.00	424.80	88.72	0.00	88.72	0.00
Mass Grading Off Road Diesel	9.86	82.84	41.01	0.00	0.00	4.21	4.21	0.00	3.88	3.88	7,216.54
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.09	0.16	2.61	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.87
Time Slice 10/23/2009-12/30/2009 Active Days: 49	9.94	82.99	43.62	0.00	**424.81**	4.22	**429.03**	**88.72**	3.88	**92.60**	7,496.41
Fine Grading 10/23/2009-12/30/2009	9.94	82.99	43.62	0.00	424.81	4.22	429.03	88.72	3.88	92.60	7,496.41
Fine Grading Dust	0.00	0.00	0.00	0.00	424.80	0.00	424.80	88.72	0.00	88.72	0.00
Fine Grading Off Road Diesel	9.86	82.84	41.01	0.00	0.00	4.21	4.21	0.00	3.88	3.88	7,216.54
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.16	2.61	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.87

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Time Slice 1/4/2010-2/1/2010 Active Days: 21	2.09	17.75	9.30	0.00	0.01	0.88	0.89	0.00	0.81	0.81	1,838.98
Trenching 01/04/2010-02/01/2010	2.09	17.75	9.30	0.00	0.01	0.88	0.89	0.00	0.81	0.81	1,838.98
Trenching Off Road Diesel	2.06	17.69	8.22	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,714.64
Trenching Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34
Time Slice 2/2/2010-3/1/2010 Active Days: 20	8.98	37.72	19.28	0.02	0.09	2.47	2.56	0.03	2.27	2.30	4,038.98
Asphalt 02/02/2010-03/01/2010	8.98	37.72	19.28	0.02	0.09	2.47	2.56	0.03	2.27	2.30	4,038.98
Paving Off-Gas	4.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.20	19.17	10.47	0.00	0.00	1.68	1.68	0.00	1.55	1.55	1,418.81
Paving On Road Diesel	1.49	18.47	7.45	0.02	0.08	0.78	0.87	0.03	0.72	0.75	2,464.74
Paving Worker Trips	0.04	0.08	1.36	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.43
Time Slice 3/3/2010-12/31/2010 Active Days: 218	21.19	**168.49**	**269.79**	**0.41**	1.67	**7.99**	9.65	0.58	**7.30**	7.88	**43,841.98**
Building 03/03/2010-03/02/2011	21.19	168.49	269.79	0.41	1.67	7.99	9.65	0.58	7.30	7.88	43,841.98
Building Off Road Diesel	4.08	23.31	14.31	0.00	0.00	1.67	1.67	0.00	1.54	1.54	2,259.28
Building Vendor Trips	12.08	135.84	98.53	0.23	0.82	5.83	6.65	0.28	5.35	5.63	23,635.88
Building Worker Trips	5.03	9.35	156.94	0.19	0.85	0.49	1.33	0.31	0.41	0.72	17,946.82
Time Slice 1/3/2011-3/2/2011 Active Days: 43	19.51	153.17	251.55	**0.41**	1.67	7.27	8.93	0.58	6.63	7.22	43,838.09
Building 03/03/2010-03/02/2011	19.51	153.17	251.55	0.41	1.67	7.27	8.93	0.58	6.63	7.22	43,838.09
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45	2,259.28
Building Vendor Trips	11.15	122.76	91.21	0.23	0.82	5.20	6.02	0.28	4.77	5.05	23,635.85
Building Worker Trips	4.59	8.56	146.39	0.19	0.85	0.49	1.34	0.31	0.41	0.72	17,942.97

Time Slice 3/3/2011-3/30/2011 Active Days: 20	**1,982.67**	1.37	23.46	0.03	0.14	0.08	0.21	0.05	0.07	0.12	2,875.47
Coating 03/03/2011-03/30/2011	1,982.67	1.37	23.46	0.03	0.14	0.08	0.21	0.05	0.07	0.12	2,875.47
Architectural Coating	1,981.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.74	1.37	23.46	0.03	0.14	0.08	0.21	0.05	0.07	0.12	2,875.47

Phase Assumptions

Phase: Demolition 6/1/2009 - 8/1/2009 - Default Demolition Description

Building Volume Total (cubic feet): 66000

Building Volume Daily (cubic feet): 6000

On Road Truck Travel (VMT): 83.33

Off-Road Equipment:

3 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

Phase: Fine Grading 10/23/2009 - 12/30/2009 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 84.95

Maximum Daily Acreage Disturbed: 21.24

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Mass Grading 8/6/2009 - 10/20/2009 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 84.95

Maximum Daily Acreage Disturbed: 21.24

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 1/4/2010 - 2/1/2010 - Default Trenching Description

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 2/2/2010 - 3/1/2010 - Default Paving Description

Acres to be Paved: 32.4

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 3/3/2010 - 3/2/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 3/3/2011 - 3/30/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2009-7/31/2009 Active Days: 45	6.12	44.73	29.96	0.00	2.54	0.48	3.02	0.53	0.44	0.97	4,641.14
Demolition 06/01/2009-08/01/2009	6.12	44.73	29.96	0.00	2.54	0.48	3.02	0.53	0.44	0.97	4,641.14
Fugitive Dust	0.00	0.00	0.00	0.00	2.52	0.00	2.52	0.52	0.00	0.52	0.00
Demo Off Road Diesel	5.84	41.75	27.34	0.00	0.00	0.35	0.35	0.00	0.32	0.32	4,132.45
Demo On Road Diesel	0.23	2.90	1.17	0.00	0.01	0.13	0.14	0.00	0.12	0.12	353.20
Demo Worker Trips	0.05	0.09	1.45	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.48

Time Slice 8/6/2009-10/20/2009 Active Days: 54	9.94	49.86	43.62	0.00	25.66	2.11	27.78	5.36	1.94	7.31	7,496.41
Mass Grading 08/06/2009-10/20/2009	9.94	49.86	43.62	0.00	25.66	2.11	27.78	5.36	1.94	7.31	7,496.41
Mass Grading Dust	0.00	0.00	0.00	0.00	25.65	0.00	25.65	5.36	0.00	5.36	0.00
Mass Grading Off Road Diesel	9.86	49.70	41.01	0.00	0.00	2.11	2.11	0.00	1.94	1.94	7,216.54
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.09	0.16	2.61	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.87
Time Slice 10/23/2009-12/30/2009 Active Days: 49	9.94	49.86	43.62	0.00	26.61	2.11	28.73	5.56	1.94	7.50	7,496.41
Fine Grading 10/23/2009-12/30/2009	9.94	49.86	43.62	0.00	26.61	2.11	28.73	5.56	1.94	7.50	7,496.41
Fine Grading Dust	0.00	0.00	0.00	0.00	26.60	0.00	26.60	5.55	0.00	5.55	0.00
Fine Grading Off Road Diesel	9.86	49.70	41.01	0.00	0.00	2.11	2.11	0.00	1.94	1.94	7,216.54
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.16	2.61	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.87
Time Slice 1/4/2010-2/1/2010 Active Days: 21	2.09	10.68	9.30	0.00	0.01	0.44	0.45	0.00	0.41	0.41	1,838.98
Trenching 01/04/2010-02/01/2010	2.09	10.68	9.30	0.00	0.01	0.44	0.45	0.00	0.41	0.41	1,838.98
Trenching Off Road Diesel	2.06	10.61	8.22	0.00	0.00	0.44	0.44	0.00	0.40	0.40	1,714.64
Trenching Worker Trips	0.03	0.06	1.09	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.34
Time Slice 2/2/2010-3/1/2010 Active Days: 20	8.98	30.05	19.28	0.02	0.09	1.63	1.72	0.03	1.50	1.53	4,038.98
Asphalt 02/02/2010-03/01/2010	8.98	30.05	19.28	0.02	0.09	1.63	1.72	0.03	1.50	1.53	4,038.98
Paving Off-Gas	4.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.20	11.50	10.47	0.00	0.00	0.84	0.84	0.00	0.77	0.77	1,418.81
Paving On Road Diesel	1.49	18.47	7.45	0.02	0.08	0.78	0.87	0.03	0.72	0.75	2,464.74
Paving Worker Trips	0.04	0.08	1.36	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.43

Time Slice 3/3/2010-12/31/2010 Active Days: 218	21.19	159.17	**269.79**	**0.41**	1.67	7.15	8.82	0.58	6.53	7.11	**43,841.98**
Building 03/03/2010-03/02/2011	21.19	159.17	269.79	0.41	1.67	7.15	8.82	0.58	6.53	7.11	43,841.98
Building Off Road Diesel	4.08	13.99	14.31	0.00	0.00	0.83	0.83	0.00	0.77	0.77	2,259.28
Building Vendor Trips	12.08	135.84	98.53	0.23	0.82	5.83	6.65	0.28	5.35	5.63	23,635.88
Building Worker Trips	5.03	9.35	156.94	0.19	0.85	0.49	1.33	0.31	0.41	0.72	17,946.82
Time Slice 1/3/2011-3/2/2011 Active Days: 43	19.51	144.43	251.55	**0.41**	1.67	6.48	8.14	0.58	5.91	6.49	43,838.09
Building 03/03/2010-03/02/2011	19.51	144.43	251.55	0.41	1.67	6.48	8.14	0.58	5.91	6.49	43,838.09
Building Off Road Diesel	3.77	13.11	13.95	0.00	0.00	0.79	0.79	0.00	0.72	0.72	2,259.28
Building Vendor Trips	11.15	122.76	91.21	0.23	0.82	5.20	6.02	0.28	4.77	5.05	23,635.85
Building Worker Trips	4.59	8.56	146.39	0.19	0.85	0.49	1.34	0.31	0.41	0.72	17,942.97
Time Slice 3/3/2011-3/30/2011 Active Days: 20	**1,982.67**	1.37	23.46	0.03	0.14	0.08	0.21	0.05	0.07	0.12	2,875.47
Coating 03/03/2011-03/30/2011	1,982.67	1.37	23.46	0.03	0.14	0.08	0.21	0.05	0.07	0.12	2,875.47
Architectural Coating	1,981.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.74	1.37	23.46	0.03	0.14	0.08	0.21	0.05	0.07	0.12	2,875.47

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Demolition 6/1/2009 - 8/1/2009 - Default Demolition Description

For Excavators, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Excavators, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

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The following mitigation measures apply to Phase: Fine Grading 10/23/2009 - 12/30/2009 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Excavators, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Water Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Water Trucks, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

The following mitigation measures apply to Phase: Mass Grading 8/6/2009 - 10/20/2009 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Excavators, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Water Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Water Trucks, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

The following mitigation measures apply to Phase: Trenching 1/4/2010 - 2/1/2010 - Default Trenching Description

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Excavators, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Other General Industrial Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other General Industrial Equipment, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

The following mitigation measures apply to Phase: Paving 2/2/2010 - 3/1/2010 - Default Paving Description

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Paving Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Paving Equipment, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

The following mitigation measures apply to Phase: Building Construction 3/3/2010 - 3/2/2011 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Cranes, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Forklifts, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Generator Sets, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Generator Sets, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

NOX: 40%

For Welders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Welders, the Diesel Oxidation Catalyst 40% mitigation reduces emissions by:

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NOX: 40%