

Appendix C.

Air Quality Emission Calculations

Table C-1. POLA Channel Deepening Project Construction Activities - Year 2004 - Pipeline Removal

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Remove 36" Oil Pipeline (No.3)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	35.2	168,960
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	35.2	126,720
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	35.2	15,206
Tug Boat	800	0.20	1	160	8	1,280	35.2	45,056
Remove 20" Water Pipeline (No.7)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	66.0	316,800
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	66.0	237,600
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	66.0	28,512
Tug Boat	800	0.20	1	160	8	1,280	66.0	84,480
Remove 20" Sewer Pipelines (No.8)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	8.8	42,240
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	8.8	31,680
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	8.8	3,802
Tug Boat	800	0.20	1	160	8	1,280	8.8	11,264
Remove 10" &16" Oil Pipelines (No.2)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	17.6	84,480
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	17.6	63,360
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	17.6	7,603
Tug Boat	800	0.20	1	160	8	1,280	17.6	22,528
Remove 30" Sewer Pipeline (No.9)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	11.0	52,800
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	11.0	39,600
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	11.0	4,752
Tug Boat	800	0.20	1	160	8	1,280	11.0	14,080
Remove Power Cables (No.11)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	4.4	21,120
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	4.4	15,840
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	4.4	1,901
Tug Boat	800	0.20	1	160	8	1,280	4.4	5,632
Remove 10" & 24" Oil Pipelines								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	17.6	84,480
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	17.6	63,360
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	17.6	7,603
Tug Boat	800	0.20	1	160	8	1,280	17.6	22,528
Remove 24" Water Pipeline (No.6)								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	8	4,800	66.0	316,800
Main Generator - Clamshell Dredge	900	0.50	1	450	8	3,600	66.0	237,600
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	66.0	28,512
Tug Boat	800	0.20	1	160	8	1,280	66.0	84,480

Table C-2. POLA Channel Deepening Project Construction Activities - Year 2004 - Dredging/Material Disposal

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Dredge Element D202 to Pier 400 SMSS								
Main Engine - Electric	N/A	N/A	1	N/A	24	N/A	13.9	N/A
Derrick Hoist - Hydraulic Dredge	240	0.70	1	168	4	672	13.9	9,365
Derrick Winch - Hydraulic Dredge	87	0.70	1	61	1	61	13.9	849
Anchor Barge Winch - Hydraulic Dredge	180	0.70	1	126	4	504	13.9	7,024
Generator - Hydraulic Dredge	350	0.60	1	210	4	840	13.9	11,706
Tug Boat - Hydraulic Dredge	850	0.33	1	281	18	5,049	13.9	70,363
Tug Boat - Hydraulic Dredge	700	0.33	1	231	18	4,158	13.9	57,946
Dredge Element 203/203A to Pier 300								
Main Engine - Electric	N/A	N/A	1	N/A	24	N/A	73.5	N/A
Derrick Hoist - Hydraulic Dredge	240	0.70	1	168	18	3,024	73.5	222,135
Derrick Winch - Hydraulic Dredge	87	0.70	1	61	18	1,096	73.5	80,524
Anchor Barge Winch - Hydraulic Dredge	180	0.70	1	126	18	2,268	73.5	166,601
Generator - Hydraulic Dredge	350	0.60	1	210	18	3,780	73.5	277,669
Tug Boat - Hydraulic Dredge	850	0.33	1	281	18	5,049	73.5	370,886
Tug Boat - Hydraulic Dredge	700	0.33	1	231	18	4,158	73.5	305,436
Dozer	335	0.50	2	335	18	6,030	73.5	442,948
Excavator	290	0.57	1	165	18	2,975	73.5	218,565
Water Truck	240	0.25	1	60	18	1,080	73.5	79,334
Pump Dredge Element 204 into D203A Pit								
Main Engine - Electric	N/A	N/A	1	N/A	24	N/A	5.2	N/A
Derrick Hoist - Hydraulic Dredge	240	0.70	1	168	18	3,024	5.2	15,756
Derrick Winch - Hydraulic Dredge	87	0.70	1	61	18	1,096	5.2	5,711
Anchor Barge Winch - Hydraulic Dredge	180	0.70	1	126	18	2,268	5.2	11,817
Generator - Hydraulic Dredge	350	0.60	1	210	18	3,780	5.2	19,694
Tug Boat - Hydraulic Dredge	850	0.33	1	281	18	5,049	5.2	26,306
Tug Boat - Hydraulic Dredge	700	0.33	1	231	18	4,158	5.2	21,664
Clamshell Dredging/Disposal to Pier 400 SMSS								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	10.0	72,000
Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	10.0	54,000
Deck Generator - Clamshell Dredge	240	0.60	1	144	4	576	10.0	5,760
Tug Boat	800	0.20	1	160	12	1,920	10.0	19,200
Tugboat - Transport Sediment	2,200	0.60	3	3,960	2	7,920	10.0	79,200

Note: Hydraulic dredge production rate = 32,000 cubic yards per day. Assumes hydraulic dredge is electrified and produces no emissions.

Table C-3. POLA Channel Deepening Project Construction Activities - Year 2004 - Wick Drain Installation

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Under Surcharge - 13.5M Feet								
Wick Drain Rig - Excavator Mounted	290	0.30	4	348	8	2,784	132.0	367,488

Table C-4. POLA Channel Deepening Project Construction Activities - Year 2004 - Move Surcharge from Area 2 to Area 1

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Move Surcharge								
Dozer	335	0.50	2	335	12	4,020	26.4	106,128
Excavator	290	0.57	2	331	12	3,967	26.4	104,734
Scraper	525	0.50	2	525	12	6,300	26.4	166,320
Water Truck	240	0.25	1	60	12	720	26.4	19,008

Table C-5. POLA Channel Deepening Project Construction Activities - Year 2004 - Install Surcharge Gravel Drainage Blanket

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Install Gravel								
Barge Equipment	195	0.50	2	195	12	2,340	23.9	55,982
Derrick Barge Crane	180	0.50	1	90	12	1,080	23.9	25,838
Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	23.9	57,417
Tugboat - Transport Gravel to Site	2,200	0.60	2	2,640	12	31,680	23.9	757,904
Dozer	335	0.50	2	335	12	4,020	88.0	353,760
Excavator	290	0.57	2	331	12	3,967	88.0	349,114
Scraper	525	0.50	2	525	12	6,300	88.0	554,400
Water Truck	240	0.25	1	60	12	720	88.0	63,360

Table C-6. POLA Channel Deepening Project Construction Activities - Year 2004 - Dike Construction Rock Placement

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Place Quarry Run								
Barge Equipment	195	0.50	2	195	12	2,340	27.9	65,199
Derrick Barge Crane	180	0.50	1	90	12	1,080	27.9	30,092
Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	27.9	66,871
Tugboat - Transport Quarry Run to Site	2,200	0.60	2	2,640	12	31,680	27.9	882,692
Place A-250								
Barge Equipment	195	0.50	2	195	12	2,340	3.2	7,570
Derrick Barge Crane	180	0.50	1	90	12	1,080	3.2	3,494
Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	3.2	7,765
Tugboat - Transport Rock to Site	2,200	0.60	2	2,640	12	31,680	3.2	102,493
Place A-500								
Barge Equipment	195	0.50	2	195	12	2,340	9.0	21,022
Derrick Barge Crane	180	0.50	1	90	12	1,080	9.0	9,702
Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	9.0	21,561
Tugboat - Transport Rock to Site	2,200	0.60	2	2,640	12	31,680	9.0	284,605

Table C-7. POLA Channel Deepening Project Construction Activities - Year 2004 - Demolition Activities

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Demo Dry Docks								
Main Hoist - Clamshell Dredge	1,200	0.50	2	1,200	12	14,400	88.0	1,267,200
Main Generator - Clamshell Dredge	900	0.50	2	900	12	10,800	88.0	950,400
Deck Generator - Clamshell Dredge	240	0.60	2	288	4	1,152	88.0	101,376
Tug Boat	800	0.20	1	160	12	1,920	88.0	168,960
Excavator	290	0.57	2	331	12	3,967	88.0	349,114
Demo Berth 240-Y								
Dump Truck - 16 CY	300	0.30	1	90	8	720	22.0	15,840
Excavator	290	0.57	2	331	8	2,645	22.0	58,186
Water Truck	240	0.25	1	60	8	480	22.0	10,560
Remove Vessel Stephanie Ann								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	11.0	79,200
Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	11.0	59,400
Deck Generator - Clamshell Dredge	240	0.60	1	144	4	576	11.0	6,336
Tug Boat	800	0.20	1	160	12	1,920	11.0	21,120

Table C-8. POLA Channel Deepening Project Construction Activities - Year 2004 - Road Work

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
GATX Access Road								
Dozer	335	0.50	1	168	8	1,340	11.0	14,740
Excavator	140	0.57	1	80	8	638	11.0	7,022
Paving Machine	200	0.50	1	100	8	800	11.0	8,800
Roller	165	0.50	1	83	8	660	11.0	7,260
CMB Road								
Dozer	335	0.50	1	168	8	1,340	22.0	29,480
Excavator	140	0.57	1	80	8	638	22.0	14,045
Roller	165	0.50	1	83	8	660	22.0	14,520

Table C-9. POLA Channel Deepening Project Construction Activities - Year 2004 - Cap Area 1

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Install Cap								
Dozer	335	0.50	5	838	10	8,375	176.0	1,474,000
Dump Truck - 16 CY	300	0.30	4	360	10	3,600	176.0	633,600
Excavator	290	0.57	2	331	10	3,306	176.0	581,856
Loader - 938G	160	0.50	2	160	10	1,600	176.0	281,600
Water Truck	240	0.25	1	60	10	600	176.0	105,600

Table C-10. Air Emission Factors for the Channel Deepening Project Alternatives Construction Activities - Year 2004.

Project Year/Source Type	Fuel Type	Emission Factors (Grams/Horsepower-Hour)							References
		ROG	CO	NOx	SOx	PM	PM10	PM2.5	
Year 2004									
Off-Road Equipment - 25-50 Hp	D	2.06	5.92	5.94	0.18	0.70	0.70	0.64	(1)
Off-Road Equipment - 51-120 Hp	D	1.11	3.77	7.56	0.18	0.77	0.77	0.71	(1)
Off-Road Equipment - 121-175 Hp	D	0.71	3.04	6.94	0.18	0.42	0.42	0.38	(1)
Off-Road Equipment - 176-250 Hp	D	0.46	1.48	6.66	0.18	0.23	0.23	0.21	(1)
Off-Road Equipment - 251-500 Hp	D	0.37	1.73	5.51	0.18	0.20	0.20	0.18	(1)
Off-Road Equipment - 501-750 Hp	D	0.46	1.99	6.66	0.18	0.24	0.24	0.22	(1)
Off-Road Equipment - >750 Hp	D	0.47	2.02	6.48	0.18	0.20	0.20	0.18	(1)
On-road Truck - Idle (Gms/Hr)	D	10.73	46.68	69.84	0.36	1.76	1.76	1.38	(2)
On-road Truck - 5 mph (Gms/Mi)	D	8.48	38.80	30.63	0.19	2.33	2.33	1.90	(2)
On-road Truck - 25 mph (Gms/Mi)	D	1.29	12.03	14.43	0.12	0.71	0.71	0.55	(2)
On-road Truck - 55 mph (Gms/Mi)	D	0.70	7.49	15.79	0.11	0.50	0.50	0.42	(2)
Dredge Materials Haul Truck - Composite (Gms/Mi)	D	2.01	14.71	16.05	0.13	0.87	0.87	0.68	(3)
Other On-Road Trucks - Composite (Gms/Mi)	D	1.21	9.96	16.26	0.12	0.64	0.64	0.52	(4)
All Years									
Tugboat (Gm/Hp-Hr)	D	0.20	1.87	8.94	0.81	0.22	0.22	0.21	(5)
Fugitive Dust (Lbs/acre-day)	---	---	---	---	---	27.50	13.45	2.81	(6)
Building Demolition (Lbs/1000 cf)	---	---	---	---	---	0.84	0.41	0.09	(7)
Small Harbor Craft	D	0.16	1.27	7.46	0.47	0.30	0.30	0.28	(8)

- Notes: (1) Composite emission factors developed from ARB OFFROAD emissions model (1999) and based on average Statewide equipment fleet age distributions for year 2005. Factors developed by averaging hourly emissions for different diesel construction equipment types within the same Hp category.
- (2) Heavy duty diesel truck running emission factors developed from EMFAC2007 (ARB 2006). Units in grams/mile for project year 2004. Based on annual average conditions at 60 degrees and 50% humidity with the average fleet found in the South Coast Air Basin. PM emission factors include combustive and tire/brake wear contributions.
- (3) Composite factors based on a round trip of 90% at 25 mph and 10% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.
- (4) For on-road trucks other than dredge material haul trucks, composite factor based on a round trip of 75% at 55 mph, 20% at 25 mph, and 5% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.
- (5) Composite EFs for category 1/2 diesel engines for year 2004 (Starcrest 2006).
- (6) Units in lbs/acre-day from section 11.2.3 of AP-42 (EPA 1995). Emissions reduced by 75% from uncontrolled levels to represent compliance with SCAQMD Rule 403 - Fugitive Dust.
- (7) CEQA Air Quality Handbook, Table C-A9-9-H (SCAQMD 1993). Units in lbs/1000 cubic feet (cf) of demolished building.
- (8) EPA (2006)

Table C-11. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Pipeline Removal

Activity/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Remove 36" Oil Pipeline (No.3)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove 20" Water Pipeline (No.7)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove 20" Sewer Pipelines (No.8)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove 10" & 16" Oil Pipelines (No.2)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove 30" Sewer Pipeline (No.9)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove Power Cables (No.11)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove 10" & 24" Oil Pipelines							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14
Remove 24" Water Pipeline (No.6)							
Main Hoist - Clamshell Dredge	5.02	21.42	68.56	1.90	2.08	2.08	1.91
Main Generator - Clamshell Dredge	3.76	16.06	51.42	1.43	1.56	1.56	1.43
Deck Generator - Clamshell Dredge	0.43	1.41	6.34	0.17	0.22	0.22	0.20
Tug Boat	0.57	5.26	25.22	2.29	0.63	0.63	0.59
Subtotal	9.78	44.16	151.55	5.79	4.49	4.49	4.14

Table C-12. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Dredging/Material Disposal

Activity/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Dredge Element D202 to Pier 400 SMSS							
Main Engine - Electric	-	-	-	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.68	2.20	9.87	0.27	0.35	0.35	0.32
Derrick Winch - Hydraulic Dredge	0.15	0.51	1.01	0.02	0.10	0.10	0.10
Anchor Barge Winch - Hydraulic Dredge	0.51	1.65	7.40	0.20	0.26	0.26	0.24
Generator - Hydraulic Dredge	0.69	3.20	10.21	0.33	0.37	0.37	0.34
Tug Boat - Hydraulic Dredge	2.24	20.77	99.47	9.02	2.49	2.49	2.34
Tug Boat - Hydraulic Dredge	1.85	17.10	81.92	7.43	2.05	2.05	1.92
Subtotal	6.11	45.43	209.88	17.27	5.62	5.62	5.25
Dredge Element 203/203A to Pier 300							
Main Engine - Electric	-	-	-	-	-	-	-
Derrick Hoist - Hydraulic Dredge	3.04	9.90	44.41	1.20	1.55	1.55	1.43
Derrick Winch - Hydraulic Dredge	2.69	9.11	18.27	0.44	1.86	1.86	1.71
Anchor Barge Winch - Hydraulic Dredge	2.28	7.42	33.31	0.90	1.16	1.16	1.07
Generator - Hydraulic Dredge	3.10	14.42	45.92	1.50	1.66	1.66	1.52
Tug Boat - Hydraulic Dredge	2.24	20.77	99.47	9.02	2.49	2.49	2.34
Tug Boat - Hydraulic Dredge	1.85	17.10	81.92	7.43	2.05	2.05	1.92
Dozer	4.94	23.00	73.26	2.39	2.64	2.64	2.43
Excavator	2.44	11.35	36.15	1.18	1.30	1.30	1.20
Water Truck	1.09	3.54	15.86	0.43	0.55	0.55	0.51
Subtotal	23.67	116.61	448.57	24.48	15.28	15.28	14.14
Pump Dredge Element 204 into D203A Pit							
Main Engine - Electric	-	-	-	-	-	-	-
Derrick Hoist - Hydraulic Dredge	3.04	9.90	44.41	1.20	1.55	1.55	1.43
Derrick Winch - Hydraulic Dredge	2.69	9.11	18.27	0.44	1.86	1.86	1.71
Anchor Barge Winch - Hydraulic Dredge	2.28	7.42	33.31	0.90	1.16	1.16	1.07
Generator - Hydraulic Dredge	3.10	14.42	45.92	1.50	1.66	1.66	1.52
Tug Boat - Hydraulic Dredge	2.24	20.77	99.47	9.02	2.49	2.49	2.34
Tug Boat - Hydraulic Dredge	1.85	17.10	81.92	7.43	2.05	2.05	1.92
Subtotal	15.20	78.72	323.30	20.48	10.78	10.78	10.00
Clamshell Dredging/Disposal to Pier 400 SMSS							
Main Hoist - Clamshell Dredge	7.53	32.13	102.84	2.86	3.12	3.12	2.87
Main Generator - Clamshell Dredge	5.64	24.10	77.13	2.14	2.34	2.34	2.15
Deck Generator - Clamshell Dredge	0.58	1.89	8.46	0.23	0.30	0.30	0.27
Tug Boat	0.85	7.90	37.83	3.43	0.95	0.95	0.89
Tugboat - Transport Sediment	3.52	32.58	156.04	14.14	3.91	3.91	3.66
Subtotal	18.12	98.58	382.30	22.80	10.61	10.61	9.84

Table C-13. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Wick Drain Installation

Activity/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Under Surcharge - 13.5M Feet							
Wick Drain Rig - Excavator Mounted	2.28	10.62	33.82	1.10	1.22	1.22	1.12
Subtotal	2.28	10.62	33.82	1.10	1.22	1.22	1.12

Table C-14. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Move Surcharge from Area 2 to Area 1

Activity/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Move Surcharge							
Dozer	3.29	15.33	48.84	1.60	1.76	1.76	1.62
Excavator	3.25	15.13	48.20	1.57	1.74	1.74	1.60
Scraper	6.40	27.58	92.47	2.50	3.37	3.37	3.10
Water Truck	0.72	2.36	10.57	0.29	0.37	0.37	0.34
Subtotal	13.67	60.40	200.08	5.96	7.24	7.24	6.66

Table C-15 - Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Install Surcharge Gravel Drainage

Activity/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Install Gravel							
Barge Equipment	2.36	7.66	34.37	0.93	1.20	1.20	1.11
Derrick Barge Crane	1.09	3.54	15.86	0.43	0.55	0.55	0.51
Tugboat - Derrick Barge Crane	1.07	9.87	47.28	4.29	1.18	1.18	1.11
Tugboat - Transport Gravel to Site	14.07	130.30	624.14	56.57	15.64	15.64	14.65
Dozer	3.29	15.33	48.84	1.60	1.76	1.76	1.62
Excavator	3.25	15.13	48.20	1.57	1.74	1.74	1.60
Scraper	6.40	27.58	92.47	2.50	3.37	3.37	3.10
Water Truck	0.72	2.36	10.57	0.29	0.37	0.37	0.34
Subtotal	32.25	211.77	921.74	68.17	25.82	25.82	24.04

Table C-16. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Dike Construction Rock Placement

Activity/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Place Quarry Run							
Barge Equipment	2.36	7.66	34.37	0.93	1.20	1.20	1.11
Derrick Barge Crane	1.09	3.54	15.86	0.43	0.55	0.55	0.51
Tugboat - Derrick Barge Crane	1.07	9.87	47.28	4.29	1.18	1.18	1.11
Tugboat - Transport Gravel to Site	14.07	130.30	624.14	56.57	15.64	15.64	14.65
Subtotal	18.58	151.37	721.65	62.21	18.58	18.58	17.38
Place A-250							
Barge Equipment	2.36	7.66	34.37	0.93	1.20	1.20	1.11
Derrick Barge Crane	1.09	3.54	15.86	0.43	0.55	0.55	0.51
Tugboat - Derrick Barge Crane	1.07	9.87	47.28	4.29	1.18	1.18	1.11
Tugboat - Transport Gravel to Site	14.07	130.30	624.14	56.57	15.64	15.64	14.65
Subtotal	18.58	151.37	721.65	62.21	18.58	18.58	17.38
Place A-500							
Barge Equipment	2.36	7.66	34.37	0.93	1.20	1.20	1.11
Derrick Barge Crane	1.09	3.54	15.86	0.43	0.55	0.55	0.51
Tugboat - Derrick Barge Crane	1.07	9.87	47.28	4.29	1.18	1.18	1.11
Tugboat - Transport Gravel to Site	14.07	130.30	624.14	56.57	15.64	15.64	14.65
Subtotal	18.58	151.37	721.65	62.21	18.58	18.58	17.38

Table C-17. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Demolition Activities

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Demo Dry Docks							
Main Hoist - Clamshell Dredge	15.05	64.26	205.69	5.71	6.24	6.24	5.74
Main Generator - Clamshell Dredge	11.29	48.19	154.26	4.29	4.68	4.68	4.30
Deck Generator - Clamshell Dredge	1.16	3.77	16.92	0.46	0.59	0.59	0.54
Tug Boat	0.85	7.90	37.83	3.43	0.95	0.95	0.89
Excavator	3.25	15.13	48.20	1.57	1.74	1.74	1.60
Subtotal	31.60	139.25	462.89	15.46	14.19	14.19	13.07
Demo Berth 240-Y							
Dump Truck - 16 CY	0.59	2.75	8.75	0.29	0.32	0.32	0.29
Excavator	2.17	10.09	32.13	1.05	1.16	1.16	1.07
Water Truck	0.48	1.57	7.05	0.19	0.25	0.25	0.23
Subtotal	3.24	14.41	47.93	1.53	1.72	1.72	1.58
Remove Vessel Stephanie Ann							
Main Hoist - Clamshell Dredge	7.53	32.13	102.84	2.86	3.12	3.12	2.87
Main Generator - Clamshell Dredge	5.64	24.10	77.13	2.14	2.34	2.34	2.15
Deck Generator - Clamshell Dredge	0.58	1.89	8.46	0.23	0.30	0.30	0.27
Tug Boat	0.85	7.90	37.83	3.43	0.95	0.95	0.89
Subtotal	14.60	66.01	226.26	8.66	6.70	6.70	6.18

Table C-18. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Road Work

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
GATX Access Road							
Dozer	1.10	5.11	16.28	0.53	0.59	0.59	0.54
Excavator	1.00	4.28	9.76	0.25	0.58	0.58	0.54
Paving Machine	0.81	2.62	11.75	0.32	0.41	0.41	0.38
Roller	1.03	4.42	10.09	0.26	0.60	0.60	0.56
Subtotal	3.94	16.43	47.89	1.36	2.19	2.19	2.01
CMB Road							
Dozer	1.10	5.11	16.28	0.53	0.59	0.59	0.54
Excavator	1.00	4.28	9.76	0.25	0.58	0.58	0.54
Roller	1.03	4.42	10.09	0.26	0.60	0.60	0.56
Subtotal	3.13	13.81	36.14	1.05	1.78	1.78	1.63

Table C-19 - Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Cap Area 1

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Install Cap							
Dozer	6.86	31.95	101.75	3.32	3.67	3.67	3.38
Dump Truck - 16 CY	2.95	13.73	43.74	1.43	1.58	1.58	1.45
Excavator	2.71	12.61	40.16	1.31	1.45	1.45	1.33
Loader - 938G	2.51	10.72	24.47	0.63	1.46	1.46	1.35
Water Truck	0.60	1.96	8.81	0.24	0.31	0.31	0.28
Subtotal	15.63	70.98	218.93	6.94	8.47	8.47	7.79

Table C-20. Daily Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Pipeline Removal							
Remove 36" Oil Pipeline (No.3)	10	44	152	6	4	4	4
Remove 20" Water Pipeline (No.7)	10	44	152	6	4	4	4
Remove 20" Sewer Pipelines (No.8)	10	44	152	6	4	4	4
Remove 10" & 16" Oil Pipelines (No.2)	10	44	152	6	4	4	4
Remove 30" Sewer Pipeline (No.9)	10	44	152	6	4	4	4
Remove Power Cables (No.11)	10	44	152	6	4	4	4
Remove 10" & 24" Oil Pipelines	10	44	152	6	4	4	4
Remove 24" Water Pipeline (No.6)	10	44	152	6	4	4	4
Dredging/Material Disposal							
Dredge Element D202 to Pier 400 SMSS	6	45	210	17	6	6	5
Dredge Element 203/203A to Pier 300	24	117	449	24	15	15	14
Pump Dredge Element 204 into D203A Pit	15	79	323	20	11	11	10
Clamshell Dredging/Disposal to Pier 400 SMSS	18	99	382	23	11	11	10
Wick Drain Installation							
Under Surcharge - 13.5M Feet	2	11	34	1	1	1	1
Move Surcharge from Area 2 to Area 1							
Move Surcharge	14	60	200	6	7	7	7
Install Surcharge Gravel Drainage Blanket							
Install Gravel	32	212	922	68	26	26	24
Dike Construction Rock Placement							
Place Quarry Run	19	151	722	62	19	19	17
Place A-250	19	151	722	62	19	19	17
Place A-500	19	151	722	62	19	19	17
Demolition Activities							
Demo Dry Docks	32	139	463	15	14	14	13
Demo Berth 240-Y	3	14	48	2	2	2	2
Remove Vessel Stephanie Ann	15	66	226	9	7	7	6
Road Work							
GATX Access Road	4	16	48	1	2	2	2
CMB Road	3	14	36	1	2	2	2
Cap Area 1							
Install Cap	16	71	219	7	8	8	8
Total Daily Emissions	317	1,750	6,937	428	203	203	189
Peak Daily Emissions (1)	68	383	1,556	100	47	47	43

Notes: (1) Peak daily emissions would occur from the following simultaneous activities: (a) Remove 20" Water Pipeline (No.7), (b) Dredge Element 203/203A to Pier 300, (c) Wick Drain Installation, and (d) Install Gravel.

Table C-21. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Pipeline Removal

Activity/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Remove 36" Oil Pipeline (No.3)							
Main Hoist - Clamshell Dredge	0.09	0.38	1.21	0.03	0.04	0.04	0.03
Main Generator - Clamshell Dredge	0.07	0.28	0.91	0.03	0.03	0.03	0.03
Deck Generator - Clamshell Dredge	0.01	0.02	0.11	0.00	0.00	0.00	0.00
Tug Boat	0.01	0.09	0.44	0.04	0.01	0.01	0.01
Subtotal	0.17	0.78	2.67	0.10	0.08	0.08	0.07
Remove 20" Water Pipeline (No.7)							
Main Hoist - Clamshell Dredge	0.17	0.71	2.26	0.06	0.07	0.07	0.06
Main Generator - Clamshell Dredge	0.12	0.53	1.70	0.05	0.05	0.05	0.05
Deck Generator - Clamshell Dredge	0.01	0.05	0.21	0.01	0.01	0.01	0.01
Tug Boat	0.02	0.17	0.83	0.08	0.02	0.02	0.02
Subtotal	0.32	1.46	5.00	0.19	0.15	0.15	0.14
Remove 20" Sewer Pipelines (No.8)							
Main Hoist - Clamshell Dredge	0.02	0.09	0.30	0.01	0.01	0.01	0.01
Main Generator - Clamshell Dredge	0.02	0.07	0.23	0.01	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.00	0.01	0.03	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.02	0.11	0.01	0.00	0.00	0.00
Subtotal	0.04	0.19	0.67	0.03	0.02	0.02	0.02
Remove 10" & 16" Oil Pipelines (No.2)							
Main Hoist - Clamshell Dredge	0.04	0.19	0.60	0.02	0.02	0.02	0.02
Main Generator - Clamshell Dredge	0.03	0.14	0.45	0.01	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Tug Boat	0.01	0.05	0.22	0.02	0.01	0.01	0.01
Subtotal	0.09	0.39	1.33	0.05	0.04	0.04	0.04
Remove 30" Sewer Pipeline (No.9)							
Main Hoist - Clamshell Dredge	0.03	0.12	0.38	0.01	0.01	0.01	0.01
Main Generator - Clamshell Dredge	0.02	0.09	0.28	0.01	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.00	0.01	0.03	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.03	0.14	0.01	0.00	0.00	0.00
Subtotal	0.05	0.24	0.83	0.03	0.02	0.02	0.02
Remove Power Cables (No.11)							
Main Hoist - Clamshell Dredge	0.01	0.05	0.15	0.00	0.00	0.00	0.00
Main Generator - Clamshell Dredge	0.01	0.04	0.11	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.01	0.06	0.01	0.00	0.00	0.00
Subtotal	0.02	0.10	0.33	0.01	0.01	0.01	0.01
Remove 10" & 24" Oil Pipelines							
Main Hoist - Clamshell Dredge	0.04	0.19	0.60	0.02	0.02	0.02	0.02
Main Generator - Clamshell Dredge	0.03	0.14	0.45	0.01	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Tug Boat	0.01	0.05	0.22	0.02	0.01	0.01	0.01
Subtotal	0.09	0.39	1.33	0.05	0.04	0.04	0.04
Remove 24" Water Pipeline (No.6)							
Main Hoist - Clamshell Dredge	0.17	0.71	2.26	0.06	0.07	0.07	0.06
Main Generator - Clamshell Dredge	0.12	0.53	1.70	0.05	0.05	0.05	0.05
Deck Generator - Clamshell Dredge	0.01	0.05	0.21	0.01	0.01	0.01	0.01
Tug Boat	0.02	0.17	0.83	0.08	0.02	0.02	0.02
Subtotal	0.32	1.46	5.00	0.19	0.15	0.15	0.14

Table C-22. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Dredging/Material Disposal

Activity/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Dredge Element D202 to Pier 400 SMSS							
Main Engine - Electric	-	-	-	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.00	0.02	0.07	0.00	0.00	0.00	0.00
Derrick Winch - Hydraulic Dredge	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Anchor Barge Winch - Hydraulic Dredge	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Generator - Hydraulic Dredge	0.00	0.02	0.07	0.00	0.00	0.00	0.00
Tug Boat - Hydraulic Dredge	0.02	0.14	0.69	0.06	0.02	0.02	0.02
Tug Boat - Hydraulic Dredge	0.01	0.12	0.57	0.05	0.01	0.01	0.01
Subtotal	0.04	0.32	1.46	0.12	0.04	0.04	0.04
Dredge Element 203/203A to Pier 300							
Main Engine - Electric	-	-	-	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.11	0.36	1.63	0.04	0.06	0.06	0.05
Derrick Winch - Hydraulic Dredge	0.10	0.33	0.67	0.02	0.07	0.07	0.06
Anchor Barge Winch - Hydraulic Dredge	0.08	0.27	1.22	0.03	0.04	0.04	0.04
Generator - Hydraulic Dredge	0.11	0.53	1.69	0.06	0.06	0.06	0.06
Tug Boat - Hydraulic Dredge	0.08	0.76	3.65	0.33	0.09	0.09	0.09
Tug Boat - Hydraulic Dredge	0.07	0.63	3.01	0.27	0.08	0.08	0.07
Dozer	0.18	0.84	2.69	0.09	0.10	0.10	0.09
Excavator	0.09	0.42	1.33	0.04	0.05	0.05	0.04
Water Truck	0.04	0.13	0.58	0.02	0.02	0.02	0.02
Subtotal	0.87	4.28	16.48	0.90	0.56	0.56	0.52
Pump Dredge Element 204 into D203A Pit							
Main Engine - Electric	-	-	-	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.01	0.03	0.12	0.00	0.00	0.00	0.00
Derrick Winch - Hydraulic Dredge	0.01	0.02	0.05	0.00	0.00	0.00	0.00
Anchor Barge Winch - Hydraulic Dredge	0.01	0.02	0.09	0.00	0.00	0.00	0.00
Generator - Hydraulic Dredge	0.01	0.04	0.12	0.00	0.00	0.00	0.00
Tug Boat - Hydraulic Dredge	0.01	0.05	0.26	0.02	0.01	0.01	0.01
Tug Boat - Hydraulic Dredge	0.00	0.04	0.21	0.02	0.01	0.01	0.01
Subtotal	0.04	0.21	0.84	0.05	0.03	0.03	0.03
Clamshell Dredging/Disposal to Pier 400 SMSS							
Main Hoist - Clamshell Dredge	0.04	0.16	0.51	0.01	0.02	0.02	0.01
Main Generator - Clamshell Dredge	0.03	0.12	0.39	0.01	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.00	0.01	0.04	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.04	0.19	0.02	0.00	0.00	0.00
Tugboat - Transport Sediment	0.02	0.16	0.78	0.07	0.02	0.02	0.02
Subtotal	0.09	0.49	1.91	0.11	0.05	0.05	0.05

Table C-23. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Wick Drain Installation

Activity/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Under Surcharge - 13.5M Feet							
Wick Drain Rig - Excavator Mounted	0.15	0.70	2.23	0.07	0.08	0.08	0.07
Subtotal	0.15	0.70	2.23	0.07	0.08	0.08	0.07

Table C-24. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Move Surcharge from Area 2 to Area 3

Activity/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Move Surcharge							
Dozer	0.04	0.20	0.64	0.02	0.02	0.02	0.02
Excavator	0.04	0.20	0.64	0.02	0.02	0.02	0.02
Scraper	0.08	0.36	1.22	0.03	0.04	0.04	0.04
Water Truck	0.01	0.03	0.14	0.00	0.00	0.00	0.00
Subtotal	0.18	0.80	2.64	0.08	0.10	0.10	0.09

Table C-25 - Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Install Surcharge Gravel Drainage B

Activity/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Install Gravel							
Barge Equipment	0.03	0.09	0.41	0.01	0.01	0.01	0.01
Derrick Barge Crane	0.01	0.04	0.19	0.01	0.01	0.01	0.01
Tugboat - Derrick Barge Crane	0.01	0.12	0.57	0.05	0.01	0.01	0.01
Tugboat - Transport Gravel to Site	0.17	1.56	7.47	0.68	0.19	0.19	0.18
Dozer	0.14	0.67	2.15	0.07	0.08	0.08	0.07
Excavator	0.14	0.67	2.12	0.07	0.08	0.08	0.07
Scraper	0.28	1.21	4.07	0.11	0.15	0.15	0.14
Water Truck	0.03	0.10	0.47	0.01	0.02	0.02	0.01
Subtotal	0.82	4.47	17.44	1.01	0.54	0.54	0.50

Table C-26. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Dike Construction Rock Placement

Activity/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Place Quarry Run							
Barge Equipment	0.03	0.11	0.48	0.01	0.02	0.02	0.02
Derrick Barge Crane	0.02	0.05	0.22	0.01	0.01	0.01	0.01
Tugboat - Derrick Barge Crane	0.01	0.14	0.66	0.06	0.02	0.02	0.02
Tugboat - Transport Gravel to Site	0.20	1.82	8.70	0.79	0.22	0.22	0.20
Subtotal	0.26	2.11	10.05	0.87	0.26	0.26	0.24
Place A-250							
Barge Equipment	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.00	0.01	0.03	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.00	0.02	0.08	0.01	0.00	0.00	0.00
Tugboat - Transport Gravel to Site	0.02	0.21	1.01	0.09	0.03	0.03	0.02
Subtotal	0.03	0.24	1.17	0.10	0.03	0.03	0.03
Place A-500							
Barge Equipment	0.01	0.03	0.15	0.00	0.01	0.01	0.00
Derrick Barge Crane	0.00	0.02	0.07	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.00	0.04	0.21	0.02	0.01	0.01	0.00
Tugboat - Transport Gravel to Site	0.06	0.59	2.80	0.25	0.07	0.07	0.07
Subtotal	0.08	0.68	3.24	0.28	0.08	0.08	0.08

Table C-27. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Demolition Activities

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Demo Dry Docks							
Main Hoist - Clamshell Dredge	0.66	2.83	9.05	0.25	0.27	0.27	0.25
Main Generator - Clamshell Dredge	0.50	2.12	6.79	0.19	0.21	0.21	0.19
Deck Generator - Clamshell Dredge	0.05	0.17	0.74	0.02	0.03	0.03	0.02
Tug Boat	0.04	0.35	1.66	0.15	0.04	0.04	0.04
Excavator	0.14	0.67	2.12	0.07	0.08	0.08	0.07
Subtotal	1.39	6.13	20.37	0.68	0.62	0.62	0.58
Demo Berth 240-Y							
Dump Truck - 16 CY	0.01	0.03	0.10	0.00	0.00	0.00	0.00
Excavator	0.02	0.11	0.35	0.01	0.01	0.01	0.01
Water Truck	0.01	0.02	0.08	0.00	0.00	0.00	0.00
Subtotal	0.04	0.16	0.53	0.02	0.02	0.02	0.02
Remove Vessel Stephanie Ann							
Main Hoist - Clamshell Dredge	0.04	0.18	0.57	0.02	0.02	0.02	0.02
Main Generator - Clamshell Dredge	0.03	0.13	0.42	0.01	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.04	0.21	0.02	0.01	0.01	0.00
Subtotal	0.08	0.36	1.24	0.05	0.04	0.04	0.03

Table C-28. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Road Work

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
GATX Access Road							
Dozer	0.01	0.03	0.09	0.00	0.00	0.00	0.00
Excavator	0.01	0.02	0.05	0.00	0.00	0.00	0.00
Paving Machine	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Roller	0.01	0.02	0.06	0.00	0.00	0.00	0.00
Subtotal	0.02	0.09	0.26	0.01	0.01	0.01	0.01
CMB Road							
Dozer	0.01	0.06	0.18	0.01	0.01	0.01	0.01
Excavator	0.01	0.05	0.11	0.00	0.01	0.01	0.01
Roller	0.01	0.05	0.11	0.00	0.01	0.01	0.01
Subtotal	0.03	0.15	0.40	0.01	0.02	0.02	0.02

Table C-29 - Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004 - Cap Area 1

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Install Cap							
Dozer	0.60	2.81	8.95	0.29	0.32	0.32	0.30
Dump Truck - 16 CY	0.26	1.21	3.85	0.13	0.14	0.14	0.13
Excavator	0.24	1.11	3.53	0.12	0.13	0.13	0.12
Loader - 938G	0.22	0.94	2.15	0.06	0.13	0.13	0.12
Water Truck	0.05	0.17	0.78	0.02	0.03	0.03	0.02
Subtotal	1.38	6.25	19.27	0.61	0.75	0.75	0.69

Table C-30. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Pipeline Removal							
Remove 36" Oil Pipeline (No.3)	0.17	0.78	2.67	0.10	0.08	0.08	0.07
Remove 20" Water Pipeline (No.7)	0.32	1.46	5.00	0.19	0.15	0.15	0.14
Remove 20" Sewer Pipelines (No.8)	0.04	0.19	0.67	0.03	0.02	0.02	0.02
Remove 10" & 16" Oil Pipelines (No.2)	0.09	0.39	1.33	0.05	0.04	0.04	0.04
Remove 30" Sewer Pipeline (No.9)	0.05	0.24	0.83	0.03	0.02	0.02	0.02
Remove Power Cables (No.11)	0.02	0.10	0.33	0.01	0.01	0.01	0.01
Remove 10" & 24" Oil Pipelines	0.09	0.39	1.33	0.05	0.04	0.04	0.04
Remove 24" Water Pipeline (No.6)	0.32	1.46	5.00	0.19	0.15	0.15	0.14
Dredging/Material Disposal							
Dredge Element D202 to Pier 400 SMSS	0.04	0.32	1.46	0.12	0.04	0.04	0.04
Dredge Element 203/203A to Pier 300	0.87	4.28	16.48	0.90	0.56	0.56	0.52
Pump Dredge Element 204 into D203A Pit	0.04	0.21	0.84	0.05	0.03	0.03	0.03
Clamshell Dredging/Disposal to Pier 400 SMSS	0.09	0.49	1.91	0.11	0.05	0.05	0.05
Wick Drain Installation							
Under Surcharge - 13.5M Feet	0.15	0.70	2.23	0.07	0.08	0.08	0.07
Move Surcharge from Area 2 to Area 1							
Move Surcharge	0.18	0.80	2.64	0.08	0.10	0.10	0.09
Install Surcharge Gravel Drainage Blanket							
Install Gravel	0.82	4.47	17.44	1.01	0.54	0.54	0.50
Dike Construction Rock Placement							
Place Quarry Run	0.26	2.11	10.05	0.87	0.26	0.26	0.24
Place A-250	0.03	0.24	1.17	0.10	0.03	0.03	0.03
Place A-500	0.08	0.68	3.24	0.28	0.08	0.08	0.08
Demolition Activities							
Demo Dry Docks	1.39	6.13	20.37	0.68	0.62	0.62	0.58
Demo Berth 240-Y	0.04	0.16	0.53	0.02	0.02	0.02	0.02
Remove Vessel Stephanie Ann	0.08	0.36	1.24	0.05	0.04	0.04	0.03
Road Work							
GATX Access Road	0.02	0.09	0.26	0.01	0.01	0.01	0.01
CMB Road	0.03	0.15	0.40	0.01	0.02	0.02	0.02
Cap Area 1							
Install Cap	1.38	6.25	19.27	0.61	0.75	0.75	0.69
Total Emissions	6.62	32.44	116.70	5.62	3.74	3.74	3.45
Annual Average Daily Pounds per Day	36.25	177.74	639.45	30.80	20.48	20.48	18.92

Table C-31. Total Emissions for the POLA Channel Deepening Project Construction Activities - Year 2004

Project Year/Activity	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
2004							
Pipeline Removal	1.11	5.00	17.17	0.66	0.51	0.51	0.47
Dredging/Material Disposal	1.04	5.30	20.69	1.19	0.68	0.68	0.63
Wick Drain Installation	0.15	0.70	2.23	0.07	0.08	0.08	0.07
Move Surcharge from Area 2 to Area 1	0.18	0.80	2.64	0.08	0.10	0.10	0.09
Install Surcharge Gravel Drainage Blanket	0.82	4.47	17.44	1.01	0.54	0.54	0.50
Dike Construction Rock Placement	0.37	3.03	14.46	1.25	0.37	0.37	0.35
Demolition Activities	1.51	6.65	22.14	0.74	0.68	0.68	0.63
Road Work	0.06	0.24	0.66	0.02	0.03	0.03	0.03
Cap Area 1	1.38	6.25	19.27	0.61	0.75	0.75	0.69
Total Emissions	6.62	32.44	116.70	5.62	3.74	3.74	3.45

Table C-32. GHG Emission Factors for the Channel Deepening Project - Year 2004

Project Year/Source Type	Fuel Type	Emission Factors (Gm/Hp-Hr)			References
		CO2	CH4	N2O	
Year 2004					
Off-Road Equipment - 25-50 Hp	D	568	0.11	0.01	(1)
Off-Road Equipment - 51-120 Hp	D	568	0.10	0.01	(1)
Off-Road Equipment - 121-175 Hp	D	568	0.09	0.01	(1)
Off-Road Equipment - 176-250 Hp	D	568	0.09	0.01	(1)
Off-Road Equipment - 251-500 Hp	D	568	0.08	0.01	(1)
Off-Road Equipment - 501-750 Hp	D	568	0.08	0.01	(1)
Off-Road Equipment - >750 Hp	D	568	0.08	0.01	(1)
On-road Truck - Idle (Gms/Hr)	D	4,808	0.50	0.25	(2)
On-road Truck - 5 mph (Gms/Mi)	D	2,704	0.10	0.05	(2)
On-road Truck - 25 mph (Gms/Mi)	D	1,574	0.10	0.05	(2)
On-road Truck - 55 mph (Gms/Mi)	D	1,376	0.10	0.05	(2)
Dredge Materials Haul Truck - Composite (Gms/Mi)	D	1,687	0.10	0.05	(3)
Other On-Road Trucks - Composite (Gms/Mi)	D	1,482	0.10	0.05	(4)
All Years					
Tugboat (Gm/Hp-Hr)	D	481.34	0.07	0.005	(5)
Small Harbor Craft	D	481.34	0.07	0.00	(5)

- Notes: (1) OFFROAD 2007 Emissions Model for CO2 factors (ARB 2006). CH4 and N2O factors calculated from the California Climate Action Registry (CCAR) General Reporting Protocol, Tables C.4 and C.5 (CCAR 2008).
- (2) EMFAC2007 for CO2 factor for project year 2004 (ARB 2006). CH4 and N2O factors obtained from the CCAR General Reporting Protocol, Table C.5 (CCAR 2008). The highest emission factor from all model year categories was conservatively selected.
- (3) Composite factors based on a round trip of 90% at 25 mph and 10% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.
- (4) For on-road trucks other than dredge material haul trucks, composite factor based on a round trip of 75% at 55 mph, 20% at 25 mph, and 5% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.
- (5) CO2 factor from Quantification of Ship Emissions, Table 2.8 (Entec 2002). CH4 and N2O factors calculated from the General Reporting Protocol, Table C.5 (CCAR 2008).

Table C-33. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Pipeline Removal

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Remove 36" Oil Pipeline (No.3)				
Main Hoist - Clamshell Dredge	105.84	0.02	0.00	106.51
Main Generator - Clamshell Dredge	79.38	0.01	0.00	79.89
Deck Generator - Clamshell Dredge	9.53	0.00	0.00	9.59
Tug Boat	23.91	0.00	0.00	24.05
Subtotal	218.66	0.03	0.00	220.04
Remove 20" Water Pipeline (No.7)				
Main Hoist - Clamshell Dredge	198.45	0.03	0.00	199.71
Main Generator - Clamshell Dredge	148.84	0.02	0.00	149.78
Deck Generator - Clamshell Dredge	17.86	0.00	0.00	17.99
Tug Boat	44.82	0.01	0.00	45.09
Subtotal	409.98	0.06	0.00	412.58
Remove 20" Sewer Pipelines (No.8)				
Main Hoist - Clamshell Dredge	26.46	0.00	0.00	26.63
Main Generator - Clamshell Dredge	19.85	0.00	0.00	19.97
Deck Generator - Clamshell Dredge	2.38	0.00	0.00	2.40
Tug Boat	5.98	0.00	0.00	6.01
Subtotal	54.66	0.01	0.00	55.01
Remove 10" & 16" Oil Pipelines (No.2)				
Main Hoist - Clamshell Dredge	52.92	0.01	0.00	53.26
Main Generator - Clamshell Dredge	39.69	0.01	0.00	39.94
Deck Generator - Clamshell Dredge	4.76	0.00	0.00	4.80
Tug Boat	11.95	0.00	0.00	12.02
Subtotal	109.33	0.02	0.00	110.02
Remove 30" Sewer Pipeline (No.9)				
Main Hoist - Clamshell Dredge	33.08	0.00	0.00	33.29
Main Generator - Clamshell Dredge	24.81	0.00	0.00	24.96
Deck Generator - Clamshell Dredge	2.98	0.00	0.00	3.00
Tug Boat	7.47	0.00	0.00	7.52
Subtotal	68.33	0.01	0.00	68.76
Remove Power Cables (No.11)				
Main Hoist - Clamshell Dredge	13.23	0.00	0.00	13.31
Main Generator - Clamshell Dredge	9.92	0.00	0.00	9.99
Deck Generator - Clamshell Dredge	1.19	0.00	0.00	1.20
Tug Boat	2.99	0.00	0.00	3.01
Subtotal	27.33	0.00	0.00	27.51
Remove 10" & 24" Oil Pipelines				
Main Hoist - Clamshell Dredge	52.92	0.01	0.00	53.26
Main Generator - Clamshell Dredge	39.69	0.01	0.00	39.94
Deck Generator - Clamshell Dredge	4.76	0.00	0.00	4.80
Tug Boat	11.95	0.00	0.00	12.02
Subtotal	109.33	0.02	0.00	110.02
Remove 24" Water Pipeline (No.6)				
Main Hoist - Clamshell Dredge	198.45	0.03	0.00	199.71
Main Generator - Clamshell Dredge	148.84	0.02	0.00	149.78
Deck Generator - Clamshell Dredge	17.86	0.00	0.00	17.99
Tug Boat	44.82	0.01	0.00	45.09
Subtotal	409.98	0.06	0.00	412.58

Table C-34. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Dredging/Material Disposal

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Dredge Element D202 to Pier 400 SMSS				
Main Engine - Electric	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.00	0.00	0.00	0.00
Derrick Winch - Hydraulic Dredge	0.00	0.00	0.00	0.00
Anchor Barge Winch - Hydraulic Dredge	0.00	0.00	0.00	0.00
Generator - Hydraulic Dredge	0.00	0.00	0.00	0.00
Tug Boat - Hydraulic Dredge	37.33	0.01	0.00	37.56
Tug Boat - Hydraulic Dredge	30.75	0.00	0.00	30.93
Subtotal	68.08	0.01	0.00	68.48
Dredge Element 203/203A to Pier 300				
Main Engine - Electric	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.00	0.00	0.00	0.00
Derrick Winch - Hydraulic Dredge	0.00	0.00	0.00	0.00
Anchor Barge Winch - Hydraulic Dredge	0.00	0.00	0.00	0.00
Generator - Hydraulic Dredge	0.00	0.00	0.00	0.00
Tug Boat - Hydraulic Dredge	196.79	0.03	0.00	197.96
Tug Boat - Hydraulic Dredge	162.06	0.02	0.00	163.02
Dozer	277.48	0.04	0.00	279.20
Excavator	136.92	0.02	0.00	137.76
Water Truck	49.70	0.01	0.00	50.05
Subtotal	822.93	0.12	0.01	827.99
Pump Dredge Element 204 into D203A Pit				
Main Engine - Electric	-	-	-	-
Derrick Hoist - Hydraulic Dredge	0.00	0.00	0.00	0.00
Derrick Winch - Hydraulic Dredge	0.00	0.00	0.00	0.00
Anchor Barge Winch - Hydraulic Dredge	0.00	0.00	0.00	0.00
Generator - Hydraulic Dredge	0.00	0.00	0.00	0.00
Tug Boat - Hydraulic Dredge	13.96	0.00	0.00	14.04
Tug Boat - Hydraulic Dredge	11.49	0.00	0.00	11.56
Subtotal	25.45	0.00	0.00	25.60
Clamshell Dredging/Disposal to Pier 400 SMSS				
Main Hoist - Clamshell Dredge	45.10	0.01	0.00	45.39
Main Generator - Clamshell Dredge	33.83	0.00	0.00	34.04
Deck Generator - Clamshell Dredge	3.61	0.00	0.00	3.63
Tug Boat	10.19	0.00	0.00	10.25
Tugboat - Transport Sediment	42.02	0.01	0.00	42.27
Subtotal	134.75	0.02	0.00	135.59

Table C-35. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Wick Drain Installation

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Under Surcharge - 13.5M Feet				
Wick Drain Rig - Excavator Mounted	230.21	0.03	0.00	231.63
Subtotal	230.21	0.03	0.00	231.63

Table C-36. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Move Surcharge from Area 2 to Area 1

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Move Surcharge				
Dozer	66.48	0.01	0.00	0.00
Excavator	65.61	0.01	0.00	66.89
Scraper	104.19	0.02	0.00	66.02
Water Truck	11.91	0.00	0.00	104.85
Subtotal	248.19	0.04	0.00	237.76

Table C-37. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Install Surcharge Gravel Drainage Blanket

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Install Gravel				
Barge Equipment	35.07	0.01	0.00	35.32
Derrick Barge Crane	16.19	0.00	0.00	16.30
Tugboat - Derrick Barge Crane	30.46	0.00	0.00	30.65
Tugboat - Transport Gravel to Site	402.13	0.06	0.00	404.52
Dozer	221.61	0.03	0.00	222.98
Excavator	218.70	0.03	0.00	220.05
Scraper	347.29	0.05	0.00	349.50
Water Truck	39.69	0.01	0.00	39.97
Subtotal	1,311.14	0.19	0.01	1,319.29

Table C-38. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Dike Construction Rock Placement

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Place Quarry Run				
Barge Equipment	40.84	0.01	0.00	41.13
Derrick Barge Crane	18.85	0.00	0.00	18.98
Tugboat - Derrick Barge Crane	35.48	0.00	0.00	35.69
Tugboat - Transport Gravel to Site	468.34	0.06	0.00	471.13
Subtotal	563.51	0.08	0.01	566.94
Place A-250				
Barge Equipment	4.74	0.00	0.00	4.78
Derrick Barge Crane	2.19	0.00	0.00	2.20
Tugboat - Derrick Barge Crane	4.12	0.00	0.00	4.14
Tugboat - Transport Gravel to Site	54.38	0.01	0.00	54.70
Subtotal	65.43	0.01	0.00	65.83
Place A-500				
Barge Equipment	13.17	0.00	0.00	13.26
Derrick Barge Crane	6.08	0.00	0.00	6.12
Tugboat - Derrick Barge Crane	11.44	0.00	0.00	11.51
Tugboat - Transport Gravel to Site	151.01	0.02	0.00	151.91
Subtotal	181.69	0.03	0.00	182.80

Table C-39. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Demolition Activities

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Demo Dry Docks				
Main Hoist - Clamshell Dredge	793.82	0.12	0.01	798.85
Main Generator - Clamshell Dredge	595.36	0.09	0.01	599.14
Deck Generator - Clamshell Dredge	63.51	0.01	0.00	63.96
Tug Boat	89.65	0.01	0.00	90.18
Excavator	218.70	0.03	0.00	220.05
Subtotal	1,761.03	0.26	0.02	1,772.18
Demo Berth 240-Y				
Dump Truck - 16 CY	9.92	0.00	0.00	9.98
Excavator	36.45	0.01	0.00	36.68
Water Truck	6.62	0.00	0.00	6.66
Subtotal	52.99	0.01	0.00	53.32
Remove Vessel Stephanie Ann				
Main Hoist - Clamshell Dredge	49.61	0.01	0.00	49.93
Main Generator - Clamshell Dredge	37.21	0.01	0.00	37.45
Deck Generator - Clamshell Dredge	3.97	0.00	0.00	4.00
Tug Boat	11.21	0.00	0.00	11.27
Subtotal	102.00	0.01	0.00	102.64

Table C-40. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Road Work

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
GATX Access Road				
Dozer	9.23	0.00	0.00	9.29
Excavator	4.40	0.00	0.00	4.43
Paving Machine	5.51	0.00	0.00	5.55
Roller	4.55	0.00	0.00	4.58
Subtotal	23.69	0.00	0.00	23.85
CMB Road				
Dozer	18.47	0.00	0.00	18.58
Excavator	8.80	0.00	0.00	8.86
Roller	9.10	0.00	0.00	9.16
Subtotal	36.36	0.01	0.00	36.60

Table C-41. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004 - Cap Area 1

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Install Cap				
Dozer	923.36	0.13	0.01	929.08
Dump Truck - 16 CY	396.91	0.06	0.00	399.37
Excavator	364.49	0.05	0.00	366.75
Loader - 938G	176.40	0.03	0.00	177.66
Water Truck	66.15	0.01	0.00	66.62
Subtotal	1,927.32	0.28	0.02	1,939.47

Table C-42. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Pipeline Removal				
Remove 36" Oil Pipeline (No.3)	219	0.03	0.00	220
Remove 20" Water Pipeline (No.7)	410	0.06	0.00	413
Remove 20" Sewer Pipelines (No.8)	55	0.01	0.00	55
Remove 10" & 16" Oil Pipelines (No.2)	109	0.02	0.00	110
Remove 30" Sewer Pipeline (No.9)	68	0.01	0.00	69
Remove Power Cables (No.11)	27	0.00	0.00	28
Remove 10" & 24" Oil Pipelines	109	0.02	0.00	110
Remove 24" Water Pipeline (No.6)	410	0.06	0.00	413
Dredging/Material Disposal				
Dredge Element D202 to Pier 400 SMSS	68	0.01	0.00	68
Dredge Element 203/203A to Pier 300	823	0.12	0.01	828
Pump Dredge Element 204 into D203A Pit	25	0.00	0.00	26
Clamshell Dredging/Disposal to Pier 400 SMSS	135	0.02	0.00	136
Wick Drain Installation				
Under Surcharge - 13.5M Feet	230	0.03	0.00	232
Move Surcharge from Area 2 to Area 1				
Move Surcharge	248	0.04	0.00	238
Install Surcharge Gravel Drainage Blanket				
Install Gravel	1,311	0.19	0.01	1,319
Dike Construction Rock Placement				
Place Quarry Run	564	0.08	0.01	567
Place A-250	65	0.01	0.00	66
Place A-500	182	0.03	0.00	183
Demolition Activities				
Demo Dry Docks	1,761	0.26	0.02	1,772
Demo Berth 240-Y	53	0.01	0.00	53
Remove Vessel Stephanie Ann	102	0.01	0.00	103
Road Work				
GATX Access Road	24	0.00	0.00	24
CMB Road	36	0.01	0.00	37
Cap Area 1				
Install Cap	1,927	0.28	0.02	1,939
Total GHG Emissions	8,962	1.30	0.09	9,006

Table C-43. Total GHG Emissions for the POLA Channel Deepening Project - Year 2004

Project Year/Activity	Metric Tons			
	CO2	CH4	N2O	CO2e
2004				
Pipeline Removal	1,280	0.19	0.01	1,288
Dredging/Material Disposal	956	0.14	0.01	962
Wick Drain Installation	209	0.03	0.00	211
Move Surcharge from Area 2 to Area 1	226	0.03	0.00	216
Install Surcharge Gravel Drainage Blanket	1,192	0.17	0.01	1,199
Dike Construction Rock Placement	737	0.10	0.01	741
Demolition Activities	1,742	0.26	0.02	1,753
Road Work	55	0.01	0.00	55
Cap Area 1	1,752	0.26	0.02	1,763
Hydraulic Dredging - Electrical Generation	5,631	0.04	0.02	5,639
Total GHG Emissions	13,778	1.23	0.11	13,827

Table 43a - POLA Channel Deepening Project Construction Activities - Year 2004 -
Electrical Demand

<i>Activity/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Dredge Element D202 to Pier 400 SMSS								
Electric - Hydraulic Dredge Main Engine	17,000	0.50	1	8,500	24	204,000	13.9	2,842,970
Derrick Hoist - Hydraulic Dredge	240	0.70	1	168	18	3,024		-
Derrick Winch - Hydraulic Dredge	87	0.70	1	61	18	1,096		-
Anchor Barge Winch - Hydraulic Dredge	180	0.70	1	126	18	2,268		-
Generator - Hydraulic Dredge	350	0.60	1	210	18	3,780		-
Tug Boat - Hydraulic Dredge	850	0.33	1	281	18	5,049		-
Tug Boat - Hydraulic Dredge	700	0.33	1	231	18	4,158		-
Dredge Element 203/203A to Pier 300								
Electric - Hydraulic Dredge Main Engine	17,000	0.50	1	8,500	24	204,000	73.5	14,985,298
Derrick Hoist - Hydraulic Dredge	240	0.70	1	168	18	3,024		-
Derrick Winch - Hydraulic Dredge	87	0.70	1	61	18	1,096		-
Anchor Barge Winch - Hydraulic Dredge	180	0.70	1	126	18	2,268		-
Generator - Hydraulic Dredge	350	0.60	1	210	18	3,780		-
Tug Boat - Hydraulic Dredge	850	0.33	1	281	18	5,049		-
Tug Boat - Hydraulic Dredge	700	0.33	1	231	18	4,158		-
Dozer	335	0.50	2	335	18	6,030		-
Excavator	290	0.57	1	165	18	2,975		-
Water Truck	240	0.25	1	60	18	1,080		-
Pump Dredge Element 204 into D203A Pit								
Electric - Hydraulic Dredge Main Engine	17,000	0.50	1	8,500	24	204,000	5.2	1,062,872
Derrick Hoist - Hydraulic Dredge	240	0.70	1	168	18	3,024		-
Derrick Winch - Hydraulic Dredge	87	0.70	1	61	18	1,096		-
Anchor Barge Winch - Hydraulic Dredge	180	0.70	1	126	18	2,268		-
Generator - Hydraulic Dredge	350	0.60	1	210	18	3,780		-
Tug Boat - Hydraulic Dredge	850	0.33	1	281	18	5,049		-
Tug Boat - Hydraulic Dredge	700	0.33	1	231	18	4,158		-

Table C-43b. GHG Emission Factors for the Channel Deepening Project - Year 2004

<i>Project Year/Source Type</i>	<i>Fuel Type</i>	<i>Emission Factors (Gm/Hp-Hr)</i>			<i>References</i>
		<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	
Electrical Consumption - Electric Dredges	---	878.7	0.0067	0.0037	(9)

Notes: (9) CCAR General Reporting Protocol, Tables C.2 and C.3 (CCAR 2008).

Table C-43c. Total GHG Emissions for the POLA Channel Deepening Project -
Year 2004 - Dredging/Material Disposal - Electrical Generation

Activity/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Dredge Element D202 to Pier 400 SMSS				
Electric - Hydraulic Dredge Main Engine	932	0.01	0.00	933
Derrick Hoist - Hydraulic Dredge				
Derrick Winch - Hydraulic Dredge				
Anchor Barge Winch - Hydraulic Dredge				
Generator - Hydraulic Dredge				
Tug Boat - Hydraulic Dredge				
Tug Boat - Hydraulic Dredge				
Subtotal	932.13	0.01	0.00	933
Dredge Element 203/203A to Pier 300				
Electric - Hydraulic Dredge Main Engine	4,913	0.04	0.02	4,920
Derrick Hoist - Hydraulic Dredge				
Derrick Winch - Hydraulic Dredge				
Anchor Barge Winch - Hydraulic Dredge				
Generator - Hydraulic Dredge				
Tug Boat - Hydraulic Dredge				
Tug Boat - Hydraulic Dredge				
Dozer				
Excavator				
Water Truck				
Subtotal	4,913	0.04	0.02	4,920
Pump Dredge Element 204 into D203A Pit				
Electric - Hydraulic Dredge Main Engine	348	0.00	0.00	349
Derrick Hoist - Hydraulic Dredge				
Derrick Winch - Hydraulic Dredge				
Anchor Barge Winch - Hydraulic Dredge				
Generator - Hydraulic Dredge				
Tug Boat - Hydraulic Dredge				
Tug Boat - Hydraulic Dredge				
Subtotal	348	0.00	0.00	349

Table C-43d. Total GHG Emissions for the POLA Channel Deepening Project
Year 2004 - Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Pipeline Removal				
Remove 36" Oil Pipeline (No.3)				
Remove 20" Water Pipeline (No.7)				
Remove 20" Sewer Pipelines (No.8)				
Remove 10" & 16" Oil Pipelines (No.2)				
Remove 30" Sewer Pipeline (No.9)				
Remove Power Cables (No.11)				
Remove 10" & 24" Oil Pipelines				
Remove 24" Water Pipeline (No.6)				
Dredging/Material Disposal				
Dredge Element D202 to Pier 400 SMSS	932	0.01	0.00	933
Dredge Element 203/203A to Pier 300	4,913	0.04	0.02	4,920
Pump Dredge Element 204 into D203A Pit	348	0.00	0.00	349
Clamshell Dredging/Disposal to Pier 400 SMSS				
Wick Drain Installation				
Under Surcharge - 13.5M Feet				
Move Surcharge from Area 2 to Area 1				
Move Surcharge				
Install Surcharge Gravel Drainage Blanket				
Install Gravel				
Dike Construction Rock Placement				
Place Quarry Run				
Place A-250				
Place A-500				
Demolition Activities				
Demo Dry Docks				
Demo Berth 240-Y				
Remove Vessel Stephanie Ann				
Road Work				
GATX Access Road				
CMB Road				
Cap Area 1				
Install Cap				
Total GHG Emissions	6,194	0.05	0.03	6,203

CONSTRUCTION EMISSION CALCULATIONS
Alternative 1 - Unmitigated

ALTERNATIVE 1 UNMITIGATED EMISSIONS DATA

- Table C-44. Construction Activities for the POLA Channel Deepening Proposed Project - Demolition
- Table C-45. Construction Activities for the POLA Channel Deepening Proposed Project - Dike
Construction Quarry Run Placement
- Table C-46. Construction Activities for the POLA Channel Deepening Proposed Project - Dike
Construction Armor Stone Placement
- Table C-47. Construction Activities for the POLA Channel Deepening Proposed Project -
Trench Excavation
- Table C-48. Construction Activities for the POLA Channel Deepening Proposed Project -
Surcharge Removal
- Table C-49. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.
- Table C-50. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material
- Table C-51. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.
- Table C-52. Unmitigated Air Emission Factors for the Channel Deepening Project Alternatives Construction Activities.
- Table C-53. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition
- Table C-54. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Quarry Run Placement
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Construction Armor Stone Placement
- Table C-56. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation
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Surcharge Removal
- Table C-58. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.
- Table C-59. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material
- Table C-60. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.
- Table C-61. Peak Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project
- Table C-62. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition
- Table C-63. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Quarry Run Placement
- Table C-64. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Armor Stone Placement
- Table C-65. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation
- Table C-66. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal
- Table C-67. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.
- Table C-68. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material
- Table C-69. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.
- Table C-70. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project
- Table C-71. Yearly Unmitigated Emissions for the POLA Channel Deepening Proposed Project
- Table C-72. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Demolition
- Table C-73. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Dike

Construction Quarry Run Placement

Table C-74. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Dike

Construction Armor Stone Placement

Table C-75. Total GHG Emissions for the POLA Channel Deepening Proposed Project -

Trench Excavation

Table C-76. Total GHG Emissions for the POLA Channel Deepening Proposed Project -

Surcharge Removal

Table C-77. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Contaminated Material.

Table C-78. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Fine Grain Material

Table C-79. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Coarse Grain Material.

Table C-80. Total Direct GHG Emissions for the POLA Channel Deepening Proposed Project

Table C-81. Yearly GHG Emissions for the POLA Channel Deepening Proposed Project - Alternative 1.

Table 82. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Fine Grain Material - Electrical Demand

Table 83. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Fine Grain Material - GHG Emissions from Electrical Generation

Table 84. Total GHG Emissions for the POLA Channel Deepening Proposed Project

Due to Electrical Generation

Table 85. POLA Channel Deepening Proposed Project Annual GHG Emissions

due to Electrical Generation

Table C-86. Construction Activities for the POLA Channel Deepening Proposed Project - Dike

Construction Quarry Run Placement

Table C-87. Construction Activities for the POLA Channel Deepening Proposed Project - Dike

Construction Armor Stone Placement

Table C-88. Construction Activities for the POLA Channel Deepening Proposed Project -

Surcharge Removal

Table C-89. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Contaminated Material.

Table C-90. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Fine Grain Material

Table C-91. Construction Activities for the POLA Channel Deepening Proposed Project -

Dredging of Coarse Grain Material.

	A	B	C	D	E	F	G	H	I
1	Table C-44. Construction Activities for the POLA Channel Deepening Proposed Project - Demolition								
2		<i>Power</i>	<i>Load</i>	<i>#</i>	<i>Hourly</i>	<i>Hours</i>	<i>Daily</i>	<i>Work</i>	<i>Total</i>
3	<i>Location/Equipment Type</i>	<i>Rating (Hp)</i>	<i>Factor</i>	<i>Active</i>	<i>Hp-Hrs</i>	<i>Per Day</i>	<i>Hp-Hrs</i>	<i>Days</i>	<i>Hp-Hrs</i>
4	NW Slip Sliver - Wharf								
5	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	35.0	252,000
6	Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	35.0	189,000
7	Deck Generator - Clamshell Dredge	240	0.60	1	144	4	576	35.0	20,160
8	Backhoe	80	0.50	3	120	12	1,440	35.0	50,400
9	Front End Loader	80	0.50	2	80	16	1,280	35.0	44,800
10	Haul Truck (1)	NA	NA	12	NA	10	120	35.0	4,200
11	Tug Boat	800	0.20	1	160	12	1,920	35.0	67,200
12	Berths 243-245								
13	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	77.0	554,400
14	Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	77.0	415,800
15	Deck Generator - Clamshell Dredge	240	0.60	1	144	4	576	77.0	44,352
16	Backhoe	80	0.50	3	120	12	1,440	77.0	110,880
17	Front End Loader	80	0.50	2	80	16	1,280	77.0	98,560
18	Haul Truck (1)	NA	NA	12	NA	5	60	77.0	4,620
19	Tug Boat	800	0.20	1	160	12	1,920	77.0	147,840
20	Notes: (1) Number Active = miles/roundtrip, Hours/Day = daily truck trips, Daily Hp-Hrs = daily miles, and Total Hp-Hrs = total miles.								
21									
22									
23									
24	Table C-45. Construction Activities for the POLA Channel Deepening Proposed Project - Dike								
25	Construction Quarry Run Placement								
26		<i>Power</i>	<i>Load</i>	<i>#</i>	<i>Hourly</i>	<i>Hours</i>	<i>Daily</i>	<i>Work</i>	<i>Total</i>
27	<i>Location/Equipment Type</i>	<i>Rating (Hp)</i>	<i>Factor</i>	<i>Active</i>	<i>Hp-Hrs</i>	<i>Per Day</i>	<i>Hp-Hrs</i>	<i>Days</i>	<i>Hp-Hrs</i>
28	NW Slip Sliver								
29	Barge Equipment	195	0.50	2	195	12	2,340	131.2	306,972
30	Derrick Barge Crane	180	0.50	1	90	12	1,080	131.2	141,679
31	Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	131.2	314,843
32	Tugboat - Transport Quarry Run to Site	2,200	0.50	2	2,200	12	26,400	131.2	3,463,268
33	Berths 243-245								
34	Barge Equipment	195	0.50	2	195	12	2,340	101.2	236,807
35	Derrick Barge Crane	180	0.50	1	90	12	1,080	101.2	109,295
36	Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	101.2	242,879
37	Tugboat - Transport Quarry Run to Site	2,200	0.50	2	2,200	11	24,200	101.2	2,449,025
38	Cabrillo SWH								
39	Barge Equipment	195	0.50	2	195	12	2,340	206.1	482,384
40	Derrick Barge Crane	180	0.50	1	90	12	1,080	206.1	222,639
41	Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	206.1	494,753
42	Tugboat - Transport Quarry Run to Site	2,200	0.50	2	2,200	10.5	23,100	206.1	4,761,994

	A	B	C	D	E	F	G	H	I
51	Table C-46. Construction Activities for the POLA Channel Deepening Proposed Project - Dike								
52	Construction Armor Stone Placement								
53									
54	<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
55	NW Slip Sliver								
56	Barge Equipment	195	0.50	2	195	12	2,340	12.5	29,250
57	Derrick Barge Crane	180	0.50	1	90	12	1,080	12.5	13,500
58	Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	12.5	30,000
59	Tugboat - Transport Armor Stone to Site	2,200	0.50	2	2,200	12	26,400	12.5	330,000
60	Berths 243-245								
61	Barge Equipment	195	0.50	2	195	12	2,340	10.0	23,400
62	Derrick Barge Crane	180	0.50	1	90	12	1,080	10.0	10,800
63	Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	10.0	24,000
64	Tugboat - Transport Armor Stone to Site	2,200	0.50	2	2,200	11	24,200	10.0	242,000
65	Eelgrass								
66	Barge Equipment	195	0.50			12	-		-
67	Derrick Barge Crane	180	0.50			12	-		-
68	Tugboat - Derrick Barge Crane	800	0.25			12	-		-
69	Tugboat - Transport Armor Stone to Site	2,200	0.50			10.5	-		-
70									
71									
72									
73	Table C-47. Construction Activities for the POLA Channel Deepening Proposed Project -								
74	Trench Excavation								
75									
76	<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
77	NW Slip Sliver								
78	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	24	14,400	7.1	102,857
79	Main Generator - Clamshell Dredge	900	0.50	1	450	24	10,800	7.1	77,143
80	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	7.1	5,143
81	Tug Boat	800	0.20	1	160	4	640	7.1	4,571
82	Berths 243-245								
83	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	24	14,400	12.9	185,143
84	Main Generator - Clamshell Dredge	900	0.50	1	450	24	10,800	12.9	138,857
85	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	12.9	9,257
86	Tug Boat	800	0.20	1	160	4	640	12.9	8,229
87	Cabrillo SWH								
88	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	24	14,400	5.7	82,286
89	Main Generator - Clamshell Dredge	900	0.50	1	450	24	10,800	5.7	61,714
90	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	5.7	4,114
91	Tug Boat	800	0.20	1	160	4	640	5.7	3,657

	A	B	C	D	E	F	G	H	I
95	Table C-48. Construction Activities for the POLA Channel Deepening Proposed Project -								
96	Surcharge Removal								
97		<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
98	<i>Location/Equipment Type</i>								
99	SW Slip A#1 Surcharge Removal - Loading								
100	Scraper	225	0.40	5	450	12	5,400	116.5	629,100
101	Backhoe	80	0.50	2	80	12	960	116.5	111,840
102	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	116.5	838,800
103	Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	116.5	629,100
104	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	116.5	83,880
105	Dozer	335	0.50	2	335	12	4,020	116.5	468,330
106	Off-Road Truck	350	0.25	4	350	12	4,200	116.5	489,300
107	Water Truck	325	0.50	1	163	12	1,950	116.5	227,175
108	Grader	180	0.50	1	90	8	720	116.5	83,880
109	SW Slip A#1 Surcharge Removal - Transport								
110	Scows	N/A	N/A	2	N/A	12	N/A	116.5	N/A
111	Tug Boat	800	0.20	1	160	4	640	116.5	74,560
112	SW Slip A#1 Surcharge Removal - Unload NW Slip								
113	Main Hoist - Clamshell Dredge	1,200	0.50	1		16	-		-
114	Main Generator - Clamshell Dredge	900	0.50	1		16	-		-
115	Deck Generator - Clamshell Dredge	240	0.60	1		5	-		-
116	Electric Conveyor	N/A	N/A	1		16	N/A		N/A
117	Dozer	335	0.50	1		16	-		-
118	SW Slip A#1 Surcharge Removal - Unload CSWH								
119	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	16	9,600	116.5	1,118,400
120	Main Generator - Clamshell Dredge	900	0.50	1	450	16	7,200	116.5	838,800
121	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	116.5	83,880
122	Scows	N/A	N/A	2	N/A	12	N/A	116.5	N/A
123	SW Slip A#1 Surcharge Removal - Transport/Unload LA-2								
124	Main Hoist - Clamshell Dredge	1,200	0.50			16	-		-
125	Main Generator - Clamshell Dredge	900	0.50			16	-		-
126	Deck Generator - Clamshell Dredge	240	0.60			5	-		-
127	Electric Conveyor	N/A	N/A			16	N/A		N/A
128	Dozer	335	0.5			16	-		-
129	Tug Boat (1)	2,200	0.6			4.0	-		-
130	Notes: (1) = 7,000/525,000 daily/total cy dry. Barge capacity = 2,333 cy. 1-way distance = 10 nm, speed = 5 knots, each round trip would take 4 hours.								
131									
132	Table C-49. Construction Activities for the POLA Channel Deepening Proposed Project -								
133	Dredging of Contaminated Material.								
134		<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
135	<i>Location/Equipment Type</i>								
136	Contaminated Dredge								
137	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	29.8	214,211
138	Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	29.8	160,658
139	Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	29.8	12,853
140	Scows	N/A	N/A	1	N/A	12	N/A	29.8	N/A
141	Tug Boat	800	0.20	1	160	4	640	29.8	19,041
142	Electric Pump	N/A	N/A	1	N/A	12	N/A	29.8	N/A
143	Skiff	125	0.20	1	25	2	50	29.8	1,488

	A	B	C	D	E	F	G	H	I
147	Table C-50. Construction Activities for the POLA Channel Deepening Proposed Project -								
148	Dredging of Fine Grain Material								
149									
150	<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
151	Clamshell Dredging - Fine Grain Material CSWH								
152	Main Hoist - Clamshell Dredge	1,200	0.50	1		24	-	45.3	-
153	Main Generator - Clamshell Dredge	900	0.50	1		24	-	45.3	-
154	Deck Generator - Clamshell Dredge	240	0.6	1		5	-	45.3	-
155	Reel Barge	N/A	N/A	N/A		N/A	N/A	45.3	N/A
156	Survey Boat	250	0.2	1		5	-	45.3	-
157	Crew Boat	125	0.2	1		5	-	45.3	-
158	Scows	N/A	N/A	2		24	N/A	45.3	N/A
159	Tug Boat	800	0.2	1		8	-	45.3	-
160	Electric Pump	N/A	N/A	1		24	N/A	45.3	N/A
161	Hydraulic Dredging - Fine Grain Material CSWH								
162	Main Engine - Electric	N/A	N/A	1	N/A	24	N/A	43.8	N/A
163	Derrick Hoist	240	0.7	1	168	4	672	43.8	29,443
164	Derrick Winch	87	0.7	1	61	1	61	43.8	2,668
165	Anchor Barge Winch	180	0.7	1	126	4	504	43.8	22,082
166	Generator	350	0.6	1	210	4	840	43.8	36,804
167	Survey Boat	250	0.2	1	50	5	250	43.8	10,954
168	Crew Boat	125	0.2	1	25	5	125	43.8	5,477
169	Tug Boat	850	0.5	1	425	18	7,650	43.8	335,178
170	Electric Pump	N/A	N/A	1	N/A	24	N/A	43.8	N/A
171	Hydraulic Dredging - Fine Grain Material to LA-2								
172	Main Engine - Electric	N/A	N/A			24	N/A		N/A
173	Derrick Hoist	240	0.7			4	-		-
174	Derrick Winch	87	0.7			1	-		-
175	Anchor Barge Winch	180	0.7			4	-		-
176	Generator	350	0.6			4	-		-
177	Survey Boat	250	0.2			5	-		-
178	Crew Boat	125	0.2			5	-		-
179	Tug Boat	850	0.5			18	-		-
180	Electric Pump	N/A	N/A			24	N/A		N/A
181	Tug Boat ()	2,200	0.6			10	-		-
182	Clamshell Dredging - Fine/Coarse Grain Material to LA 2								
183	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	15	8,964	200	1,792,717
184	Main Generator - Clamshell Dredge	900	0.50	1	450	15	6,723	200	1,344,538
185	Deck Generator - Clamshell Dredge	240	0.6	1	144	3	448	200	89,636
186	Tug Boat (1)	2,200	0.6	2	2,640	4.0	10,560	200	2,112,000
187	Notes: (1) Based upon a daily disposal volume to LA-2 of 4,000 cy and a barge capacity of 2,000 cy.								
188									
189									
190									
191	Table C-51. Construction Activities for the POLA Channel Deepening Proposed Project -								
192	Dredging of Coarse Grain Material.								
193									
194	<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
195	Clamshell Dredging - Coarse Grain Material Berth 243/245								
196	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	24	14,400	30.0	432,493
197	Main Generator - Clamshell Dredge	900	0.50	1	450	24	10,800	30.0	324,370
198	Deck Generator - Clamshell Dredge	240	0.6	1	144	5	720	30.0	21,625
199	Reel Barge	N/A	N/A	N/A	N/A	N/A	N/A	30.0	N/A
200	Survey Boat	250	0.2	1	50	5	250	30.0	7,509
201	Crew Boat	125	0.2	1	25	5	125	30.0	3,754
202	Scows	N/A	N/A	2	N/A	24	N/A	30.0	N/A
203	Tug Boat	800	0.2	1	160	8	1,280	30.0	38,444
204	Electric Pump	N/A	N/A	1	N/A	24	N/A	30.0	N/A
205	Clamshell Dredging - Coarse Grain Material NW Slip								
206	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	24	14,400	12.1	174,790
207	Main Generator - Clamshell Dredge	900	0.50	1	450	24	10,800	12.1	131,092
208	Deck Generator - Clamshell Dredge	240	0.6	1	144	5	720	12.1	8,739
209	Reel Barge	N/A	N/A	N/A	N/A	N/A	N/A	12.1	N/A
210	Survey Boat	250	0.2	1	50	5	250	12.1	3,035
211	Crew Boat	125	0.2	1	25	5	125	12.1	1,517
212	Scows	N/A	N/A	2	N/A	24	N/A	12.1	N/A
213	Tug Boat	800	0.2	1	160	8	1,280	12.1	15,537
214	Electric Pump	N/A	N/A	1	N/A	24	N/A	12.1	N/A

	K	L	M	N	O	P	Q	R	S	T
1	Table C-52. Unmitigated Air Emission Factors for the Channel Deepening Project Alternatives Construction Activities.									
2		<i>Fuel</i>	<i>Emission Factors (Grams/Horsepower-Hour)</i>							
3	<i>Project Year/Source Type</i>	<i>Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>	<i>References</i>
4	Year 2007									
5	Off-Road Equipment - 25-50 Hp	D	2.99	7.23	6.31	0.008	0.71	0.71	0.66	(1)
6	Off-Road Equipment - 51-120 Hp	D	1.26	3.85	7.39	0.006	0.66	0.66	0.61	(1)
7	Off-Road Equipment - 121-175 Hp	D	0.92	3.36	7.17	0.006	0.40	0.40	0.37	(1)
8	Off-Road Equipment - 176-250 Hp	D	0.70	1.93	7.07	0.006	0.27	0.27	0.25	(1)
9	Off-Road Equipment - 251-500 Hp	D	0.57	2.25	5.70	0.005	0.22	0.22	0.20	(1)
10	Off-Road Equipment - 501-750 Hp	D	0.66	2.69	6.63	0.006	0.25	0.25	0.23	(1)
11	Off-Road Equipment - >750 Hp	D	0.56	2.09	6.27	0.005	0.19	0.19	0.18	(1)
12	On-road Truck - Idle (Gms/Hr)	D	10.06	45.12	76.69	0.048	1.50	1.50	1.38	(2)
13	On-road Truck - 5 mph (Gms/Mi)	D	8.30	29.67	29.82	0.027	2.10	2.10	1.90	(2)
14	On-road Truck - 25 mph (Gms/Mi)	D	1.15	9.25	13.52	0.016	0.63	0.63	0.55	(2)
15	On-road Truck - 55 mph (Gms/Mi)	D	0.65	5.59	14.21	0.014	0.48	0.48	0.42	(2)
16	Dredge Materials Haul Truck - Composite (Gms/Mi)	D	1.87	11.29	15.15	0.017	0.77	0.77	0.68	(3)
17	Other On-Road Trucks - Composite (Gms/Mi)	D	1.13	7.53	14.85	0.015	0.59	0.59	0.52	(4)
18	All Years									
19	Tugboat (Gm/Hp-Hr)	D	0.20	1.87	8.11	0.004	0.21	0.21	0.20	(5)
20	Fugitive Dust (Lbs/acre-day)	---	---	---	---	---	27.50	13.45	2.81	(6)
21	Building Demolition (Lbs/1000 cf)	---	---	---	---	---	0.84	0.41	0.09	(7)
22	Small Harbor Craft	D	0.16	1.27	7.46	0.47	0.30	0.30	0.28	(8)
23	Notes: (1) Composite emission factors developed from ARBs OFFROAD2007 emissions model (2006) and based on average South Coast Air Basin equipment fleet age distributions for project year 2007. Factors developed by averaging hourly emissions for different diesel construction equipment types within the same Hp category.									
24										
25										
26	(2) Heavy duty diesel truck running emission factors developed from EMFAC2007 (ARB 2006). Units in grams/mile for project year 2007. Based on annual average conditions at 60 degrees and 50% humidity with the average fleet found in the South Coast Air Basin.									
27										
28	PM emission factors include combustive and tire/brake wear contributions.									
29	(3) Composite factors based on a round trip of 90% at 25 mph and 10% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.									
30										
31	(4) For on-road trucks other than dredge material haul trucks, composite factor based on a round trip of 75% at 55 mph, 20% at 25 mph, and 5% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.									
32										
33										
34	(5) Interpolated category 1 diesel engine factors for POLA fleet year 2009 (Starcrest 2006). Average sulfur (S) content = 15 ppm in year 2007+.									
35										
36	(6) Units in lbs/acre-day from section 11.2.3 of AP-42 (EPA 1995). Emissions reduced by 75% from uncontrolled levels to represent compliance with SCAQMD Rule 403 - Fugitive Dust.									
37	(7) CEQA Air Quality Handbook, Table A9-9-H (SCAQMD 1993). Units in lbs/1000 cubic feet (cf) of demolished building.									
38	(8) EPA (2006)									

	V	W	X	Y	Z	AA	AB	AC
1	Table C-53. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition							
2		<i>Pounds per Day</i>						
3	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
4	NW Slip Sliver - Wharf							
5	Main Hoist - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
6	Main Generator - Clamshell Dredge	6.65	24.84	74.61	0.06	2.30	2.30	2.11
7	Deck Generator - Clamshell Dredge	0.89	2.46	8.97	0.01	0.34	0.34	0.31
8	Backhoe	3.99	12.21	23.45	0.02	2.10	2.10	1.93
9	Front End Loader	3.55	10.86	20.85	0.02	1.87	1.87	1.72
10	Haul Truck (1)	0.32	2.07	4.07	0.00	0.16	0.16	0.14
11	Tug Boat	0.85	7.90	34.34	0.02	0.90	0.90	0.85
12	Subtotal	25.12	93.45	265.78	0.20	10.73	10.73	9.88
13	Berths 243-245							
14	Main Hoist - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
15	Main Generator - Clamshell Dredge	6.65	24.84	74.61	0.06	2.30	2.30	2.11
16	Deck Generator - Clamshell Dredge	0.89	2.46	8.97	0.01	0.34	0.34	0.31
17	Backhoe	3.99	12.21	23.45	0.02	2.10	2.10	1.93
18	Front End Loader	3.55	10.86	20.85	0.02	1.87	1.87	1.72
19	Haul Truck (1)	0.16	1.04	2.03	0.00	0.08	0.08	0.07
20	Tug Boat	0.85	7.90	34.34	0.02	0.90	0.90	0.85
21	Subtotal	24.96	92.42	263.74	0.20	10.65	10.65	9.81
22	Notes: (1) Includes 5 minutes of idling time per round trip.							
23								
24								
25								
26	Table C-54. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike							
27	Construction Quarry Run Placement							
28		<i>Pounds per Day</i>						
29	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
30	NW Slip Sliver							
31	Barge Equipment	3.60	9.98	36.45	0.03	1.38	1.38	1.27
32	Derrick Barge Crane	1.66	4.60	16.82	0.01	0.64	0.64	0.59
33	Tugboat - Derrick Barge Crane	1.07	9.87	42.93	0.02	1.13	1.13	1.06
34	Tugboat - Transport Quarry Run to Site (1)	11.73	108.58	472.21	0.26	12.42	12.42	11.64
35	Subtotal	18.05	133.03	568.42	0.33	15.57	15.57	14.55
36	Berths 243-245							
37	Barge Equipment	3.60	9.98	36.45	0.03	1.38	1.38	1.27
38	Derrick Barge Crane	1.66	4.60	16.82	0.01	0.64	0.64	0.59
39	Tugboat - Derrick Barge Crane	1.07	9.87	42.93	0.02	1.13	1.13	1.06
40	Tugboat - Transport Quarry Run to Site (1)	10.75	99.54	432.86	0.23	11.39	11.39	10.67
41	Subtotal	17.08	123.99	529.07	0.31	14.53	14.53	13.58
42	Cabrillo SWH							
43	Barge Equipment	3.60	9.98	36.45	0.03	1.38	1.38	1.27
44	Derrick Barge Crane	1.66	4.60	16.82	0.01	0.64	0.64	0.59
45	Tugboat - Derrick Barge Crane	1.07	9.87	42.93	0.02	1.13	1.13	1.06
46	Tugboat - Transport Quarry Run to Site (1)	10.26	95.01	413.18	0.22	10.87	10.87	10.18
47	Subtotal	16.59	119.46	509.39	0.29	14.02	14.02	13.10

	V	W	X	Y	Z	AA	AB	AC
57	Table C-55. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike							
58	Construction Armor Stone Placement							
59		<i>Pounds per Day</i>						
60	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
61	NW Slip Sliver							
62	Barge Equipment	3.60	9.98	36.45	0.03	1.38	1.38	1.27
63	Derrick Barge Crane	1.66	4.60	16.82	0.01	0.64	0.64	0.59
64	Tugboat - Derrick Barge Crane	1.07	9.87	42.93	0.02	1.13	1.13	1.06
65	Tugboat - Transport Armor Stone to Site (1)	11.73	108.58	472.21	0.26	12.42	12.42	11.64
66	Subtotal	18.05	133.03	568.42	0.33	15.57	15.57	14.55
67	Berths 243-245							
68	Barge Equipment	3.60	9.98	36.45	0.03	1.38	1.38	1.27
69	Derrick Barge Crane	1.66	4.60	16.82	0.01	0.64	0.64	0.59
70	Tugboat - Derrick Barge Crane	1.07	9.87	42.93	0.02	1.13	1.13	1.06
71	Tugboat - Transport Armor Stone to Site	10.75	99.54	432.86	0.23	11.39	11.39	10.67
72	Subtotal	17.08	123.99	529.07	0.31	14.53	14.53	13.58
73	Eelgrass							
74	Barge Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	Tugboat - Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	Tugboat - Transport Armor Stone to Site (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79								
80								
81								
82	Table C-56. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project -							
83	Trench Excavation							
84		<i>Pounds per Day</i>						
85	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
86	NW Slip Sliver							
87	Main Hoist - Clamshell Dredge	17.74	66.24	198.96	0.15	6.13	6.13	5.64
88	Main Generator - Clamshell Dredge	13.30	49.68	149.22	0.11	4.60	4.60	4.23
89	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
90	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
91	Subtotal	32.44	121.62	370.84	0.28	11.45	11.45	10.54
92	Berths 243-245							
93	Main Hoist - Clamshell Dredge	17.74	66.24	198.96	0.15	6.13	6.13	5.64
94	Main Generator - Clamshell Dredge	13.30	49.68	149.22	0.11	4.60	4.60	4.23
95	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
96	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
97	Subtotal	32.44	121.62	370.84	0.28	11.45	11.45	10.54
98	Cabrillo SWH							
99	Main Hoist - Clamshell Dredge	17.74	66.24	198.96	0.15	6.13	6.13	5.64
100	Main Generator - Clamshell Dredge	13.30	49.68	149.22	0.11	4.60	4.60	4.23
101	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
102	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
103	Subtotal	32.44	121.62	370.84	0.28	11.45	11.45	10.54

	V	W	X	Y	Z	AA	AB	AC
107	Table C-57. Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project -							
108	Surcharge Removal							
109		<i>Pounds per Day</i>						
110	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
111	SW Slip A#1 Surcharge Removal - Loading							
112	Scraper	8.31	23.02	84.12	0.07	3.18	3.18	2.93
113	Backhoe	2.66	8.14	15.64	0.01	1.40	1.40	1.29
114	Main Hoist - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
115	Main Generator - Clamshell Dredge	6.65	24.84	74.61	0.06	2.30	2.30	2.11
116	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
117	Dozer	5.01	19.98	50.48	0.05	1.91	1.91	1.76
118	Off-Road Truck	5.23	20.87	52.74	0.05	2.00	2.00	1.84
119	Water Truck	2.43	9.69	24.49	0.02	0.93	0.93	0.85
120	Grader	1.11	3.07	11.22	0.01	0.42	0.42	0.39
121	Subtotal	41.38	145.80	423.98	0.36	15.64	15.64	14.39
122	SW Slip A#1 Surcharge Removal - Transport							
123	Scows	---	---	---	---	---	---	---
124	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
125	Subtotal	0.28	2.63	11.45	0.01	0.30	0.30	0.28
126	SW Slip A#1 Surcharge Removal - Unload NW Slip							
127	Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
128	Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
129	Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	Electric Conveyor	---	---	---	---	---	---	---
131	Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
133	SW Slip A#1 Surcharge Removal - Unload CSWH							
134	Main Hoist - Clamshell Dredge	11.83	44.16	132.64	0.10	4.09	4.09	3.76
135	Main Generator - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
136	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
137	Scows	---	---	---	---	---	---	---
138	Subtotal	21.80	80.35	243.34	0.19	7.58	7.58	6.97
139	SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
140	Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
142	Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	Electric Conveyor	---	---	---	---	---	---	---
144	Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
147								
148								
149	Table C-58. Construction Activities for the POLA Channel Deepening Proposed Project -							
150	Dredging of Contaminated Material.							
151		<i>Pounds per Day</i>						
152	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
153	Contaminated Dredge							
154	Main Hoist - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
155	Main Generator - Clamshell Dredge	6.65	24.84	74.61	0.06	2.30	2.30	2.11
156	Deck Generator - Clamshell Dredge	0.66	1.84	6.73	0.01	0.25	0.25	0.23
157	Scows	---	---	---	---	---	---	---
158	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
159	Electric Pump	---	---	---	---	---	---	---
160	Skiff	0.02	0.14	0.82	0.05	0.03	0.03	0.03
161	Subtotal	16.49	62.57	193.09	0.20	5.95	5.95	5.48

	V	W	X	Y	Z	AA	AB	AC
165	Table C-59. Construction Activities for the POLA Channel Deepening Proposed Project -							
166	Dredging of Fine Grain Material							
167		<i>Pounds per Day</i>						
168	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
169	Clamshell Dredging - Fine Grain Material CSWH							
170	Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
171	Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
172	Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
173	Reel Barge	---	---	---	---	---	---	---
174	Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	Scows	---	---	---	---	---	---	---
177	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
178	Electric Pump	---	---	---	---	---	---	---
179	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	Hydraulic Dredging - Fine Grain Material CSWH							
181	Electric - Hydraulic Dredge	---	---	---	---	---	---	---
182	Derrick Hoist	1.03	2.86	10.47	0.01	0.40	0.40	0.36
183	Derrick Winch	0.17	0.52	0.99	0.00	0.09	0.09	0.08
184	Anchor Barge Winch	0.78	2.15	7.85	0.01	0.30	0.30	0.27
185	Generator	1.05	4.17	10.55	0.01	0.40	0.40	0.37
186	Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
187	Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
188	Tug Boat	3.40	31.46	136.83	0.07	3.60	3.60	3.37
189	Electric Pump	---	---	---	---	---	---	---
190	Subtotal	6.56	42.22	172.86	0.49	5.03	5.03	4.69
191	Hydraulic Dredging - Fine Grain Material to LA-2							
192	Electric - Hydraulic Dredge	---	---	---	---	---	---	---
193	Derrick Hoist	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	Derrick Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
195	Anchor Barge Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196	Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
197	Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198	Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200	Electric Pump	---	---	---	---	---	---	---
201	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
203	Clamshell Dredging - Fine Grain Material to LA 2							
204	Main Hoist - Clamshell Dredge	11.04	41.23	123.85	0.10	3.82	3.82	3.51
205	Main Generator - Clamshell Dredge	8.28	30.92	92.89	0.07	2.86	2.86	2.63
206	Deck Generator - Clamshell Dredge	0.69	1.91	6.98	0.01	0.26	0.26	0.24
207	Tug Boat (1)	4.69	43.43	188.88	0.10	4.97	4.97	4.66
208	Subtotal	24.70	117.50	412.60	0.27	11.91	11.91	11.04

	V	W	X	Y	Z	AA	AB	AC
212	Table C-60. Construction Activities for the POLA Channel Deepening Proposed Project -							
213	Dredging of Coarse Grain Material.							
214		<i>Pounds per Day</i>						
215	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
216	Clamshell Dredging - Coarse Grain Material Berth 243/245							
217	Main Hoist - Clamshell Dredge	17.74	66.24	198.96	0.15	6.13	6.13	5.64
218	Main Generator - Clamshell Dredge	13.30	49.68	149.22	0.11	4.60	4.60	4.23
219	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
220	Reel Barge	---	---	---	---	---	---	---
221	Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
222	Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
223	Scows	---	---	---	---	---	---	---
224	Tug Boat	0.57	5.26	22.90	0.01	0.60	0.60	0.56
225	Electric Pump	---	---	---	---	---	---	---
226	Subtotal	32.85	125.30	388.46	0.68	12.00	12.00	11.06
227	Clamshell Dredging - Coarse Grain Material NW Slip							
228	Main Hoist - Clamshell Dredge	17.74	66.24	198.96	0.15	6.13	6.13	5.64
229	Main Generator - Clamshell Dredge	13.30	49.68	149.22	0.11	4.60	4.60	4.23
230	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
231	Reel Barge	---	---	---	---	---	---	---
232	Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
233	Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
234	Scows	---	---	---	---	---	---	---
235	Tug Boat	0.57	5.26	22.90	0.01	0.60	0.60	0.56
236	Electric Pump	---	---	---	---	---	---	---
237	Subtotal	32.85	125.30	388.46	0.68	12.00	12.00	11.06

	V	W	X	Y	Z	AA	AB	AC
240	Table C-61. Peak Daily Unmitigated Emissions for the POLA Channel Deepening Proposed Project							
241	<i>Location/Activity</i>	<i>Pounds per Day</i>						
242		<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
243	Demolition							
244	NW Slip Sliver	25	93	266	0	11	11	10
245	Berths 243-245	25	92	264	0	11	11	10
246	Dike Const. Quarry Run Placement							
247	NW Slip Sliver	18	133	568	0	16	16	15
248	Berths 243-245	17	124	529	0	15	15	14
249	Cabrillo SWH	17	119	509	0	14	14	13
250								
251	Dike Construction Armor Stone Placement							
252	NW Slip Sliver	18	133	568	0	16	16	15
253	Berths 243-245	17	124	529	0	15	15	14
254								
255	Trench Excavation							
256	NW Slip Sliver	32	122	371	0	11	11	11
257	Berths 243-245	32	122	371	0	11	11	11
258	Cabrillo SWH	32	122	371	0	11	11	11
259	Surcharge Removal							
260	Loading	41	146	424	0	16	16	14
261	Transport	0	3	11	0	0	0	0
262								
263	Unload Cabrillo SWH	22	80	243	0	8	8	7
264								
265	Dredging of Contaminated Material							
266	Contaminated Dredge	16	63	193	0	6	6	5
267	Dredging of Fine Material							
268								
269	Hydraulic - Cabrillo SWH	7	42	173	0	5	5	5
270								
271	Clamshell - To LA 2	25	117	413	0	12	12	11
272	Dredging of Coarse Material							
273	Clamshell - Berths 243-245	33	125	388	1	12	12	11
274	Clamshell - NW Slip Sliver	33	125	388	1	12	12	11
275	Peak Daily Unmitigated Emissions	66	365	1,409	1	40	40	37
276	2004 CEQA Baseline - Peak Daily Emissions	(68)	(383)	(1,556)	(100)	(47)	(47)	(43)
277	Net Peak Daily Unmitigated Emissions	(2)	(18)	(146)	(99)	(7)	(7)	(6)
278	SCAQMD Daily Significance Thresholds	75	550	100	150	NA	150	55
279	Notes: (1) Peak daily unmitigated emissions would occur from the simultaneous occurrence of (1) dike construction quarry run placement at							
280	the CSWH, (2) dike construction quarry run placement at Berths 243-245, and (3) trench excavation at the NW Slip Sliver.							

	AE	AF	AG	AH	AI	AJ	AK	AL
1	Table C-62. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition							
2		<i>Tons</i>						
3	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
4	NW Slip Sliver - Wharf							
5	Main Hoist - Clamshell Dredge	0.16	0.58	1.74	0.00	0.05	0.05	0.05
6	Main Generator - Clamshell Dredge	0.12	0.43	1.31	0.00	0.04	0.04	0.04
7	Deck Generator - Clamshell Dredge	0.02	0.04	0.16	0.00	0.01	0.01	0.01
8	Backhoe	0.07	0.21	0.41	0.00	0.04	0.04	0.03
9	Front End Loader	0.06	0.19	0.36	0.00	0.03	0.03	0.03
10	Haul Truck (1)	0.01	0.04	0.07	0.00	0.00	0.00	0.00
11	Tug Boat	0.01	0.14	0.60	0.00	0.02	0.02	0.01
12	Subtotal	0.44	1.64	4.65	0.00	0.19	0.19	0.17
13	Berths 243-245							
14	Main Hoist - Clamshell Dredge	0.34	1.28	3.83	0.00	0.12	0.12	0.11
15	Main Generator - Clamshell Dredge	0.26	0.96	2.87	0.00	0.09	0.09	0.08
16	Deck Generator - Clamshell Dredge	0.03	0.09	0.35	0.00	0.01	0.01	0.01
17	Backhoe	0.15	0.47	0.90	0.00	0.08	0.08	0.07
18	Front End Loader	0.14	0.42	0.80	0.00	0.07	0.07	0.07
19	Haul Truck (1)	0.01	0.04	0.08	0.00	0.00	0.00	0.00
20	Tug Boat	0.03	0.30	1.32	0.00	0.03	0.03	0.03
21	Subtotal	0.96	3.56	10.15	0.01	0.41	0.41	0.38
22								
23								
24								
25								
26	Table C-63. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement							
27		<i>Tons</i>						
28	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
29	NW Slip Sliver							
30	Barge Equipment	0.24	0.65	2.39	0.00	0.09	0.09	0.08
31	Derrick Barge Crane	0.11	0.30	1.10	0.00	0.04	0.04	0.04
32	Tugboat - Derrick Barge Crane	0.07	0.65	2.82	0.00	0.07	0.07	0.07
33	Tugboat - Transport Quarry Run to Site (1)	0.77	7.12	30.97	0.02	0.81	0.81	0.76
34	Subtotal	1.18	8.73	37.28	0.02	1.02	1.02	0.95
35	Berths 243-245							
36	Barge Equipment	0.18	0.50	1.84	0.00	0.07	0.07	0.06
37	Derrick Barge Crane	0.08	0.23	0.85	0.00	0.03	0.03	0.03
38	Tugboat - Derrick Barge Crane	0.05	0.50	2.17	0.00	0.06	0.06	0.05
39	Tugboat - Transport Quarry Run to Site (1)	0.54	5.04	21.90	0.01	0.58	0.58	0.54
40	Subtotal	0.86	6.27	26.77	0.02	0.74	0.74	0.69
41	Cabrillo SWH							
42	Barge Equipment	0.37	1.03	3.76	0.00	0.14	0.14	0.13
43	Derrick Barge Crane	0.17	0.47	1.73	0.00	0.07	0.07	0.06
44	Tugboat - Derrick Barge Crane	0.11	1.02	4.42	0.00	0.12	0.12	0.11
45	Tugboat - Transport Quarry Run to Site (1)	1.06	9.79	42.59	0.02	1.12	1.12	1.05
46	Subtotal	1.71	12.31	52.50	0.03	1.44	1.44	1.35

	AE	AF	AG	AH	AI	AJ	AK	AL
57	Table C-64. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project - Dike							
58	Construction Armor Stone Placement							
59		<i>Tons</i>						
60	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
61	NW Slip Sliver							
62	Barge Equipment	0.02	0.06	0.23	0.00	0.01	0.01	0.01
63	Derrick Barge Crane	0.01	0.03	0.11	0.00	0.00	0.00	0.00
64	Tugboat - Derrick Barge Crane	0.01	0.06	0.27	0.00	0.01	0.01	0.01
65	Tugboat - Transport Armor Stone to Site (1)	0.07	0.68	2.95	0.00	0.08	0.08	0.07
66	Subtotal	0.11	0.83	3.55	0.00	0.10	0.10	0.09
67	Berths 243-245							
68	Barge Equipment	0.02	0.05	0.18	0.00	0.01	0.01	0.01
69	Derrick Barge Crane	0.01	0.02	0.08	0.00	0.00	0.00	0.00
70	Tugboat - Derrick Barge Crane	0.01	0.05	0.21	0.00	0.01	0.01	0.01
71	Tugboat - Transport Armor Stone to Site	0.05	0.50	2.16	0.00	0.06	0.06	0.05
72	Subtotal	0.09	0.62	2.65	0.00	0.07	0.07	0.07
73	Eelgrass							
74	Barge Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	Tugboat - Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	Tugboat - Transport Armor Stone to Site (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79								
80								
81								
82	Table C-65. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project -							
83	Trench Excavation							
84		<i>Tons</i>						
85	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
86	NW Slip Sliver							
87	Main Hoist - Clamshell Dredge	0.06	0.24	0.71	0.00	0.02	0.02	0.02
88	Main Generator - Clamshell Dredge	0.05	0.18	0.53	0.00	0.02	0.02	0.02
89	Deck Generator - Clamshell Dredge	0.00	0.01	0.04	0.00	0.00	0.00	0.00
90	Tug Boat	0.00	0.01	0.04	0.00	0.00	0.00	0.00
91	Subtotal	0.12	0.43	1.32	0.00	0.04	0.04	0.04
92	Berths 243-245							
93	Main Hoist - Clamshell Dredge	0.11	0.43	1.28	0.00	0.04	0.04	0.04
94	Main Generator - Clamshell Dredge	0.09	0.32	0.96	0.00	0.03	0.03	0.03
95	Deck Generator - Clamshell Dredge	0.01	0.02	0.07	0.00	0.00	0.00	0.00
96	Tug Boat	0.00	0.02	0.07	0.00	0.00	0.00	0.00
97	Subtotal	0.21	0.78	2.38	0.00	0.07	0.07	0.07
98	Cabrillo SWH							
99	Main Hoist - Clamshell Dredge	0.05	0.19	0.57	0.00	0.02	0.02	0.02
100	Main Generator - Clamshell Dredge	0.04	0.14	0.43	0.00	0.01	0.01	0.01
101	Deck Generator - Clamshell Dredge	0.00	0.01	0.03	0.00	0.00	0.00	0.00
102	Tug Boat	0.00	0.01	0.03	0.00	0.00	0.00	0.00
103	Subtotal	0.09	0.35	1.06	0.00	0.03	0.03	0.03

	AE	AF	AG	AH	AI	AJ	AK	AL
107	Table C-66. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project -							
108	Surcharge Removal							
109		<i>Tons</i>						
110	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
111	SW Slip A#1 Surcharge Removal - Loading							
112	Scraper	0.48	1.34	4.90	0.00	0.19	0.19	0.17
113	Backhoe	0.16	0.47	0.91	0.00	0.08	0.08	0.08
114	Main Hoist - Clamshell Dredge	0.52	1.93	5.79	0.00	0.18	0.18	0.16
115	Main Generator - Clamshell Dredge	0.39	1.45	4.35	0.00	0.13	0.13	0.12
116	Deck Generator - Clamshell Dredge	0.06	0.18	0.65	0.00	0.02	0.02	0.02
117	Dozer	0.29	1.16	2.94	0.00	0.11	0.11	0.10
118	Off-Road Truck	0.30	1.22	3.07	0.00	0.12	0.12	0.11
119	Water Truck	0.14	0.56	1.43	0.00	0.05	0.05	0.05
120	Grader	0.06	0.18	0.65	0.00	0.02	0.02	0.02
121	Subtotal	2.41	8.49	24.70	0.02	0.91	0.91	0.84
122	SW Slip A#1 Surcharge Removal - Transport							
123	Scows	---	---	---	---	---	---	---
124	Tug Boat	0.02	0.15	0.67	0.00	0.02	0.02	0.02
125	Subtotal	0.02	0.15	0.67	0.00	0.02	0.02	0.02
126	SW Slip A#1 Surcharge Removal - Unload NW Slip							
127	Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
128	Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
129	Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	Electric Conveyor	---	---	---	---	---	---	---
131	Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
133	SW Slip A#1 Surcharge Removal - Unload CSWH							
134	Main Hoist - Clamshell Dredge	0.69	2.57	7.73	0.01	0.24	0.24	0.22
135	Main Generator - Clamshell Dredge	0.52	1.93	5.79	0.00	0.18	0.18	0.16
136	Deck Generator - Clamshell Dredge	0.06	0.18	0.65	0.00	0.02	0.02	0.02
137	Scows	---	---	---	---	---	---	---
138	Subtotal	1.27	4.68	14.17	0.01	0.44	0.44	0.41
139	SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
140	Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
142	Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	Electric Conveyor	---	---	---	---	---	---	---
144	Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
147								
148								
149	Table C-67. Construction Activities for the POLA Channel Deepening Proposed Project -							
150	Dredging of Contaminated Material.							
151		<i>Tons</i>						
152	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
153	Contaminated Dredge							
154	Main Hoist - Clamshell Dredge	0.13	0.49	1.48	0.00	0.05	0.05	0.04
155	Main Generator - Clamshell Dredge	0.10	0.37	1.11	0.00	0.03	0.03	0.03
156	Deck Generator - Clamshell Dredge	0.01	0.03	0.10	0.00	0.00	0.00	0.00
157	Scows	---	---	---	---	---	---	---
158	Tug Boat	0.00	0.04	0.17	0.00	0.00	0.00	0.00
159	Electric Pump	---	---	---	---	---	---	---
160	Skiff	0.00	0.00	0.01	0.00	0.00	0.00	0.00
161	Subtotal	0.25	0.93	2.87	0.00	0.09	0.09	0.08

	AE	AF	AG	AH	AI	AJ	AK	AL
165	Table C-68. Construction Activities for the POLA Channel Deepening Proposed Project -							
166	Dredging of Fine Grain Material							
167		<i>Tons</i>						
168	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
169	Clamshell Dredging - Fine Grain Material CSWH							
170	Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
171	Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
172	Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
173	Reel Barge	---	---	---	---	---	---	---
174	Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	Scows	---	---	---	---	---	---	---
177	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
178	Electric Pump	---	---	---	---	---	---	---
179	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	Hydraulic Dredging - Fine Grain Material CSWH							
181	Electric - Hydraulic Dredge	---	---	---	---	---	---	---
182	Derrick Hoist	0.02	0.06	0.23	0.00	0.01	0.01	0.01
183	Derrick Winch	0.00	0.01	0.02	0.00	0.00	0.00	0.00
184	Anchor Barge Winch	0.02	0.05	0.17	0.00	0.01	0.01	0.01
185	Generator	0.02	0.09	0.23	0.00	0.01	0.01	0.01
186	Survey Boat	0.00	0.02	0.09	0.01	0.00	0.00	0.00
187	Crew Boat	0.00	0.01	0.05	0.00	0.00	0.00	0.00
188	Tug Boat	0.07	0.69	3.00	0.00	0.08	0.08	0.07
189	Electric Pump	---	---	---	---	---	---	---
190	Subtotal	0.14	0.92	3.79	0.01	0.11	0.11	0.10
191	Hydraulic Dredging - Fine Grain Material to LA-2							
192	Electric - Hydraulic Dredge	---	---	---	---	---	---	---
193	Derrick Hoist	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	Derrick Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
195	Anchor Barge Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196	Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
197	Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198	Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200	Electric Pump	---	---	---	---	---	---	---
201	Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
203	Clamshell Dredging - Fine Grain Material to LA 2							
204	Main Hoist - Clamshell Dredge	1.10	4.12	12.38	0.01	0.38	0.38	0.35
205	Main Generator - Clamshell Dredge	0.83	3.09	9.29	0.01	0.29	0.29	0.26
206	Deck Generator - Clamshell Dredge	0.07	0.19	0.70	0.00	0.03	0.03	0.02
207	Tug Boat (1)	0.47	4.34	18.89	0.01	0.50	0.50	0.47
208	Subtotal	2.47	11.75	41.26	0.03	1.19	1.19	1.10

	AE	AF	AG	AH	AI	AJ	AK	AL
212	Table C-69. Construction Activities for the POLA Channel Deepening Proposed Project -							
213	Dredging of Coarse Grain Material.							
214		<i>Tons</i>						
215	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
216	Clamshell Dredging - Coarse Grain Material Berth 243/245							
217	Main Hoist - Clamshell Dredge	0.27	0.99	2.99	0.00	0.09	0.09	0.08
218	Main Generator - Clamshell Dredge	0.20	0.75	2.24	0.00	0.07	0.07	0.06
219	Deck Generator - Clamshell Dredge	0.02	0.05	0.17	0.00	0.01	0.01	0.01
220	Reel Barge	---	---	---	---	---	---	---
221	Survey Boat	0.00	0.01	0.06	0.00	0.00	0.00	0.00
222	Crew Boat	0.00	0.01	0.03	0.00	0.00	0.00	0.00
223	Scows	---	---	---	---	---	---	---
224	Tug Boat	0.01	0.08	0.34	0.00	0.01	0.01	0.01
225	Electric Pump	---	---	---	---	---	---	---
226	Subtotal	0.49	1.88	5.83	0.01	0.18	0.18	0.17
227	Clamshell Dredging - Coarse Grain Material NW Slip							
228	Main Hoist - Clamshell Dredge	0.11	0.40	1.21	0.00	0.04	0.04	0.03
229	Main Generator - Clamshell Dredge	0.08	0.30	0.91	0.00	0.03	0.03	0.03
230	Deck Generator - Clamshell Dredge	0.01	0.02	0.07	0.00	0.00	0.00	0.00
231	Reel Barge	---	---	---	---	---	---	---
232	Survey Boat	0.00	0.00	0.02	0.00	0.00	0.00	0.00
233	Crew Boat	0.00	0.00	0.01	0.00	0.00	0.00	0.00
234	Scows	---	---	---	---	---	---	---
235	Tug Boat	0.00	0.03	0.14	0.00	0.00	0.00	0.00
236	Electric Pump	---	---	---	---	---	---	---
237	Subtotal	0.20	0.76	2.36	0.00	0.07	0.07	0.07

	AE	AF	AG	AH	AI	AJ	AK	AL
240	Table C-70. Total Unmitigated Emissions for the POLA Channel Deepening Proposed Project							
241		<i>Tons</i>						
242	<i>Location/Activity</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
243	Demolition							
244	NW Slip Sliver	0.44	1.64	4.65	0.00	0.19	0.19	0.17
245	Berths 243-245	0.96	3.56	10.15	0.01	0.41	0.41	0.38
246	Dike Const. Quarry Run Placement							
247	NW Slip Sliver	1.18	8.73	37.28	0.02	1.02	1.02	0.95
248	Berths 243-245	0.86	6.27	26.77	0.02	0.74	0.74	0.69
249	Cabrillo SWH	1.71	12.31	52.50	0.03	1.44	1.44	1.35
250								
251	Dike Construction Armor Stone Placement							
252	NW Slip Sliver	0.11	0.83	3.55	0.00	0.10	0.10	0.09
253	Berths 243-245	0.09	0.62	2.65	0.00	0.07	0.07	0.07
254								
255	Trench Excavation							
256	NW Slip Sliver	0.12	0.43	1.32	0.00	0.04	0.04	0.04
257	Berths 243-245	0.21	0.78	2.38	0.00	0.07	0.07	0.07
258	Cabrillo SWH	0.09	0.35	1.06	0.00	0.03	0.03	0.03
259	Surcharge Removal							
260	Loading	2.41	8.49	24.70	0.02	0.91	0.91	0.84
261	Transport	0.02	0.15	0.67	0.00	0.02	0.02	0.02
262								
263	Unload Cabrillo SWH	1.27	4.68	14.17	0.01	0.44	0.44	0.41
264								
265	Dredging of Contaminated Material							
266	Contaminated Dredge	0.25	0.93	2.87	0.00	0.09	0.09	0.08
267	Dredging of Fine Material							
268								
269	Hydraulic - Cabrillo SWH	0.14	0.92	3.79	0.01	0.11	0.11	0.10
270								
271	Clamshell - To LA 2	2.47	11.75	41.26	0.03	1.19	1.19	1.10
272	Dredging of Coarse Material							
273	Clamshell - Berths 243-245	0.49	1.88	5.83	0.01	0.18	0.18	0.17
274	Clamshell - NW Slip Sliver	0.20	0.76	2.36	0.00	0.07	0.07	0.07
275	Total Unmitigated Emissions	13.02	65.09	237.98	0.17	7.13	7.13	6.62
276								
277								
278								
279	Table C-71. Yearly Unmitigated Emissions for the POLA Channel Deepening Proposed Project							
280		<i>Tons (1)</i>						
281	<i>Project Scenario</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
282	Alternative 1 - 2009	1.7	8.7	31.7	0.0	1.0	1.0	0.9
283	CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
284	Alternative 1 Net Annual Unmitigated Emissions - 2009	(4.9)	(23.7)	(85.0)	(5.6)	(2.7)	(2.7)	(2.5)
285	Alternative 1 - 2010	6.0	35.6	140.7	0.1	4.0	4.0	3.7
286	CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
287	Alternative 1 Net Annual Unmitigated Emissions - 2010	(0.6)	3.2	24.0	(5.5)	0.3	0.3	0.3
288	Alternative 1 - 2011	5.3	20.8	65.6	0.0	2.1	2.1	2.0
289	CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
290	Alternative 1 Net Annual Unmitigated Emissions - 2011	(1.3)	(11.7)	(51.1)	(5.6)	(1.6)	(1.6)	(1.5)
291	Conformity de minimis Thresholds	10	100	10	NA	NA	70	100
292	Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.							

Table C-72. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Demolition

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
NW Slip Sliver - Wharf				
Main Hoist - Clamshell Dredge	158	0.02	0.00	159
Main Generator - Clamshell Dredge	118	0.02	0.00	119
Deck Generator - Clamshell Dredge	13	0.00	0.00	13
Backhoe	32	0.01	0.00	32
Front End Loader	28	0.00	0.00	28
Haul Truck (1)	9	0.00	0.00	9
Tug Boat	36	0.00	0.00	36
Subtotal	393	0.06	0.00	396
Berths 243-245				
Main Hoist - Clamshell Dredge	347	0.05	0.00	349
Main Generator - Clamshell Dredge	260	0.04	0.00	262
Deck Generator - Clamshell Dredge	28	0.00	0.00	28
Backhoe	69	0.01	0.00	70
Front End Loader	62	0.01	0.00	62
Haul Truck (1)	10	0.00	0.00	10
Tug Boat	78	0.01	0.00	79
Subtotal	855	0.13	0.01	860

Table C-73. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
NW Slip Sliver				
Barge Equipment	192	0.03	0.00	194
Derrick Barge Crane	89	0.01	0.00	89
Tugboat - Derrick Barge Crane	167	0.02	0.00	168
Tugboat - Transport Quarry Run to Site (1)	1,838	0.25	0.02	1,848
Subtotal	2,286	0.32	0.02	2,300
Berths 243-245				
Barge Equipment	148	0.02	0.00	149
Derrick Barge Crane	68	0.01	0.00	69
Tugboat - Derrick Barge Crane	129	0.02	0.00	130
Tugboat - Transport Quarry Run to Site (1)	1,299	0.18	0.01	1,307
Subtotal	1,645	0.23	0.02	1,655
Cabrillo SWH				
Barge Equipment	302	0.05	0.00	304
Derrick Barge Crane	139	0.02	0.00	140
Tugboat - Derrick Barge Crane	263	0.04	0.00	264
Tugboat - Transport Quarry Run to Site (1)	2,527	0.35	0.02	2,542
Subtotal	3,231	0.46	0.03	3,251
Eelgrass Restoration				
Barge Equipment	0	0.00	0.00	0
Derrick Barge Crane	0	0.00	0.00	0
Tugboat - Derrick Barge Crane	0	0.00	0.00	0
Tugboat - Transport Quarry Run to Site (1)	0	0.00	0.00	0
Subtotal	0	0.00	0.00	0

Table C-74. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Armor Stone Placement

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
NW Slip Sliver				
Barge Equipment	18	0.00	0.00	18
Derrick Barge Crane	8	0.00	0.00	9
Tugboat - Derrick Barge Crane	16	0.00	0.00	16
Tugboat - Transport Armor Stone to Site (1)	175	0.02	0.00	176
Subtotal	218	0.03	0.00	219
Berths 243-245				
Barge Equipment	15	0.00	0.00	15
Derrick Barge Crane	7	0.00	0.00	7
Tugboat - Derrick Barge Crane	13	0.00	0.00	13
Tugboat - Transport Armor Stone to Site (1)	128	0.02	0.00	129
Subtotal	163	0.02	0.00	164
Eelgrass				
Barge Equipment	0	0.00	0.00	0
Derrick Barge Crane	0	0.00	0.00	0
Tugboat - Derrick Barge Crane	0	0.00	0.00	0
Tugboat - Transport Armor Stone to Site (1)	0	0.00	0.00	0
Subtotal	0	0.00	0.00	0

Table C-75. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Trench Excavation

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
NW Slip Sliver				
Main Hoist - Clamshell Dredge	64	0.01	0.00	65
Main Generator - Clamshell Dredge	48	0.01	0.00	49
Deck Generator - Clamshell Dredge	3	0.00	0.00	3
Tug Boat	2	0.00	0.00	2
Subtotal	118	0.02	0.00	119
Berths 243-245				
Main Hoist - Clamshell Dredge	116	0.02	0.00	117
Main Generator - Clamshell Dredge	87	0.01	0.00	88
Deck Generator - Clamshell Dredge	6	0.00	0.00	6
Tug Boat	4	0.00	0.00	4
Subtotal	213	0.03	0.00	214.64
CSWH				
Main Hoist - Clamshell Dredge	52	0.01	0.00	52
Main Generator - Clamshell Dredge	39	0.01	0.00	39
Deck Generator - Clamshell Dredge	3	0.00	0.00	3
Tug Boat	2	0.00	0.00	2
Subtotal	95	0.02	0.00	95.39

**Table C-76. Total GHG Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal**

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
SW Slip A#1 Surcharge Removal - Loading				
Scraper	394	0.06	0.00	397
Backhoe	70	0.01	0.00	71
Main Hoist - Clamshell Dredge	525	0.09	0.01	529
Main Generator - Clamshell Dredge	394	0.07	0.00	397
Deck Generator - Clamshell Dredge	53	0.01	0.00	53
Dozer	293	0.04	0.00	295
Off-Road Truck	307	0.04	0.00	308
Water Truck	142	0.02	0.00	143
Grader	53	0.01	0.00	53
Subtotal	2,231	0.36	0.03	2,246
SW Slip A#1 Surcharge Removal - Transport				
Scows				
Tug Boat	40	0.01	0.00	40
Subtotal	40	0.01	0.00	40
SW Slip A#1 Surcharge Removal - Unload NW Slip				
Main Hoist - Clamshell Dredge	0	0.00	0.00	0
Main Generator - Clamshell Dredge	0	0.00	0.00	0
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Electric Conveyor				
Dozer	0	0.00	0.00	0
Subtotal	0	0.00	0.00	0
SW Slip A#1 Surcharge Removal - Unload CSWH				
Main Hoist - Clamshell Dredge	701	0.10	0.01	705
Main Generator - Clamshell Dredge	525	0.08	0.01	529
Deck Generator - Clamshell Dredge	53	0.01	0.00	53
Scows				
Subtotal	1,279	0.19	0.01	1,287
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2				
Main Hoist - Clamshell Dredge	0	0.00	0.00	0
Main Generator - Clamshell Dredge	0	0.00	0.00	0
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Electric Conveyor				
Dozer	0	0.00	0.00	0
Tug Boat	0	0	0	0
Subtotal	0	0	0	0

**Table C-77. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.**

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Contaminated Dredge				
Main Hoist - Clamshell Dredge	134	0.02	0.00	135
Main Generator - Clamshell Dredge	101	0.02	0.00	101
Deck Generator - Clamshell Dredge	8	0.00	0.00	8
Scows				
Tug Boat	10	0.00	0.00	10
Electric Pump				
Skiff	1	0.00	0.00	1
Subtotal	254	0.04	0.00	256

**Table C-78. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material**

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Clamshell Dredging - Fine Grain Material CSWH				
Main Hoist - Clamshell Dredge	0	0.00	0.00	0
Main Generator - Clamshell Dredge	0	0.00	0.00	0
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Reel Barge				
Survey Boat	0	0.00	0.00	0
Crew Boat	0	0.00	0.00	0
Scows				
Tug Boat	0	0.00	0.00	0
Electric Pump				
Subtotal	0	0.00	0.00	0
Hydraulic Dredging - Fine Grain Material CSWH				
Electric - Hydraulic Dredge				
Derrick Hoist	18	0.00	0.00	19
Derrick Winch	2	0.00	0.00	2
Anchor Barge Winch	14	0.00	0.00	14
Generator	23	0.00	0.00	23
Survey Boat	6	0.00	0.00	6
Crew Boat	3	0.00	0.00	3
Tug Boat	178	0.02	0.00	179
Electric Pump				
Subtotal	244	0.03	0.00	245
Hydraulic Dredging - Fine Grain Material to LA-2				
Electric - Hydraulic Dredge				
Derrick Hoist	0	0.00	0.00	0
Derrick Winch	0	0.00	0.00	0
Anchor Barge Winch	0	0.00	0.00	0
Generator	0	0.00	0.00	0
Survey Boat	0	0.00	0.00	0
Crew Boat	0	0.00	0.00	0
Tug Boat	0	0.00	0.00	0
Electric Pump				
Tug Boat	0	-	-	0
Subtotal	0	-	-	0
Clamshell Dredging - Fine Grain Material to LA 2				
Main Hoist - Clamshell Dredge	1,123	0.18	0.01	1,131
Main Generator - Clamshell Dredge	842	0.14	0.01	848
Deck Generator - Clamshell Dredge	56	0.01	0.00	57
Tug Boat (1)	1,121	0.15	0.01	1,127
Subtotal	3,142	0.49	0.03	3,163

Table C-79. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Coarse Grain Material Berth 243/245				
Main Hoist - Clamshell Dredge	271	0.04	0.00	273
Main Generator - Clamshell Dredge	203	0.03	0.00	205
Deck Generator - Clamshell Dredge	14	0.00	0.00	14
Reel Barge				
Survey Boat	4	0.00	0.00	4
Crew Boat	2	0.00	0.00	2
Scows				
Tug Boat	20	0.00	0.00	21
Electric Pump				
Subtotal	514	0.08	0.01	518
Clamshell Dredging - Coarse Grain Material Berth 243/245				
Main Hoist - Clamshell Dredge	109	0.02	0.00	110
Main Generator - Clamshell Dredge	82	0.01	0.00	83
Deck Generator - Clamshell Dredge	5	0.00	0.00	6
Reel Barge				
Survey Boat	2	0.00	0.00	2
Crew Boat	1	0.00	0.00	1
Scows				
Tug Boat	8	0.00	0.00	8
Electric Pump				
Subtotal	208	0.03	0.00	209

Table C-80. Total Direct GHG Emissions for the POLA Channel Deepening Proposed Project

Location/Activity	Tons			
	CO2	CH4	N2O	CO2e
Demolition				
NW Slip Sliver	393	0.06	0.00	396
Berths 243-245	855	0.13	0.01	860
Dike Const. Quarry Run Placement				
NW Slip Sliver	2,286	0.32	0.02	2,300
Berths 243-245	1,645	0.23	0.02	1,655
Cabrillo SWH	3,231	0.46	0.03	3,251
Dike Construction Armor Stone Placement				
NW Slip Sliver	218	0.03	0.00	219
Berths 243-245	163	0.02	0.00	164
Trench Excavation				
NW Slip Sliver	118	0.02	0.00	119
Berths 243-245	213	0.03	0.00	215
Cabrillo SWH	95	0.02	0.00	95
Surcharge Removal				
Loading	2,231	0.36	0.03	2,246
Transport	40	0.01	0.00	40
Unload NW Slip	0	-	-	0
Unload Cabrillo SWH	1,279	0.19	0.01	1,287
Transport/Unload LA-2	0	-	-	0
Dredging of Contaminated Material				
Contaminated Dredge	254	0.04	0.00	256
Dredging of Fine Material				
Clamshell - Cabrillo SWH	0	-	-	0
Hydraulic - Cabrillo SWH	244	0.03	0.00	245
Hydraulic - To LA-2	0	-	-	0
Clamshell - Fine Grain Material to LA 2	3,142	0.49	0.03	3,163
Dredging of Coarse Material				
Clamshell - Berths 243-245	514	0.08	0.01	518
Clamshell - NW Slip Sliver	208	0.03	0.00	209
Total GHG Emissions	17,126	2.56	0.18	17,237

Table C-81. Yearly GHG Emissions for the POLA Channel Deepening Proposed Project - Alternative 1.

Project Scenario	Metric Tons (1)			
	CO2	CH4	N2O	CO2e
Alternative 1 Direct Sources - 2009	2,015	0.29	0.02	2,028
Alternative 1 Electrical Generation - 2009	-	-	-	-
Alternative 1 Total Unmitigated Emissions - 2009	2,015	0.29	0.02	2,028
Alternative 1 Direct Sources - 2010	8,520	1.25	0.09	8,574
Alternative 1 Electrical Generation - 2010	2,664	0.02	0.01	2,668
Alternative 1 Total Unmitigated Emissions - 2010	11,185	1.27	0.10	11,242
Alternative 1 Direct Sources - 2011	5,034	0.78	0.06	5,067
Alternative 1 Electrical Generation - 2011	-	-	-	-
Alternative 1 Total Unmitigated Emissions - 2011	5,034	0.78	0.06	5,067

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

**Table 82. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material - Electrical Demand**

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Clamshell Dredging - Fine Grain Material CSWH								
Main Hoist - Clamshell Dredge	1,200	0.50	1	600	24	14,400		-
Main Generator - Clamshell Dredge	900	0.50	1	450	24	10,800		-
Deck Generator - Clamshell Dredge	240	0.6	1	144	5	720		
Reel Barge	N/A	N/A	N/A	N/A	N/A	N/A		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Scows	N/A	N/A	2	N/A	24	N/A		
Tug Boat	800	0.2	1	160	8	1,280		
Electric Pump	N/A	N/A	1	N/A	24	N/A		
Hydraulic Dredging - Fine Grain Material CSWH								
Electric - Hydraulic Dredge	17,000	1	1	8,500	24	204,000	43.8	8,938,090
Derrick Hoist	240	0.7	1	168	4	672		
Derrick Winch	87	0.7	1	61	1	61		
Anchor Barge Winch	180	0.7	1	126	4	504		
Generator	350	0.6	1	210	4	840		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Tug Boat	850	0.5	1	425	18	7,650		
Electric Pump	N/A	N/A	1	N/A	24	N/A		

Table 83. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material - GHG Emissions from Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Fine Grain Material CSWH				
Main Hoist - Clamshell Dredge	-	-	-	0
Main Generator - Clamshell Dredge	-	-	-	0
Deck Generator - Clamshell Dredge				
Reel Barge				
Survey Boat				
Crew Boat				
Scows				
Tug Boat				
Electric Pump				
Subtotal	0	0.00	0.00	0
Hydraulic Dredging - Fine Grain Material CSWH				
Electric - Hydraulic Dredge	2,930.56	0.02	0.01	2,935
Derrick Hoist				
Derrick Winch				
Anchor Barge Winch				
Generator				
Survey Boat				
Crew Boat				
Tug Boat				
Electric Pump				
Subtotal	2,931	0.02	0.01	2,935

**Table 84. Total GHG Emissions for the POLA Channel Deepening Proposed Project
Due to Electrical Generation**

<i>Location/Activity</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Demolition				
NW Slip Sliver				
Berths 243-245				
Dike Const. Quarry Run Placement				
NW Slip Sliver				
Berths 243-245				
Cabrillo SWH				
Eelgrass Restoration				
Dike Construction Armor Stone Placement				
NW Slip Sliver				
Eelgrass Restoration				
Trench Excavation				
NW Slip Sliver				
Berths 243-245				
Surcharge Removal				
Loading				
Transport				
Unload NW Slip				
Unload Cabrillo SWH				
Unload Eelgrass				
Dredging of Contaminated Material				
Contaminated Dredge				
Dredging of Fine Material				
Clamshell - Cabrillo SWH				
Hydraulic - Cabrillo SWH	2,931	0.02	0.01	2,935
Hydraulic - Eelgrass				
Clamshell - Fine Grain Material to LA 2				
Dredging of Coarse Material				
Clamshell - Berths 243-245				
Clamshell - NW Slip Sliver				
Total Emissions	2,931	0.02	0.01	2,935

**Table 85. POLA Channel Deepening Proposed Project Annual GHG Emissions
due to Electrical Generation**

<i>Year</i>	<i>Metric Tons (1)</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
2009	0	0	0	0
2010	2,664	0	0	2,668
2011	0	0	0	0

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

	A	B	C	D
1	Table C-86. Construction Activities for the POLA Channel Deepening Proposed Project - Dike			
2	Construction Quarry Run Placement			
3		<i>Total</i>	<i>Tons/</i>	<i>Total</i>
4	<i>Location/Equipment Type</i>	<i>Tons</i>	<i>Barge</i>	<i>Tug Trips</i>
5	NW Slip Sliver			
6	Tugboat - Transport Quarry Run to Site	350,000	1,334	262
7	Berths 243-245			
8	Tugboat - Transport Quarry Run to Site	270,000	1,334	202
9	Cabrillo SWH			
10	Tugboat - Transport Quarry Run to Site	550,000	1,334	412
11				
12				
13	Table C-87. Construction Activities for the POLA Channel Deepening Proposed Project - Dike			
14	Construction Armor Stone Placement			
15		<i>Total</i>	<i>Tons/</i>	<i>Total</i>
16	<i>Location/Equipment Type</i>	<i>Tons</i>	<i>Barge</i>	<i>Tug Trips</i>
17	NW Slip Sliver			
18	Tugboat - Transport Armor Stone to Site	25,000	1,334	19
19	Berths 243-245			
20	Tugboat - Transport Armor Stone to Site	20,000	1,334	15
21				
22				
23	Table C-88. Construction Activities for the POLA Channel Deepening Proposed Project -			
24	Surcharge Removal			
25		<i>Total</i>	<i>CY/</i>	<i>Total</i>
26	<i>Location/Equipment Type</i>	<i>CY</i>	<i>Barge</i>	<i>Tug Trips</i>
27	SW Slip A#1 Surcharge Removal - Unload CSWH			
28	Scows	815,000	2,000	408
29				
30				
31	Table C-89. Construction Activities for the POLA Channel Deepening Proposed Project -			
32	Dredging of Contaminated Material.			
33		<i>Total</i>	<i>CY/</i>	<i>Total</i>
34	<i>Location/Equipment Type</i>	<i>CY</i>	<i>Barge</i>	<i>Tug Trips</i>
35	Contaminated Dredge			
36	Scows	85,000	2,000	43
37				
38				
39	Table C-90. Construction Activities for the POLA Channel Deepening Proposed Project -			
40	Dredging of Fine Grain Material			
41		<i>Total</i>	<i>CY/</i>	<i>Total</i>
42	<i>Location/Equipment Type</i>	<i>CY</i>	<i>Barge</i>	<i>Tug Trips</i>
43	Clamshell Dredging - Fine/Coarse Grain Material to LA 2			
44	Tug Boat (2)	800,000	2,000	400
45				
46				
47	Table C-91. Construction Activities for the POLA Channel Deepening Proposed Project -			
48	Dredging of Coarse Grain Material.			
49		<i>Total</i>	<i>CY/</i>	<i>Total</i>
50	<i>Location/Equipment Type</i>	<i>CY</i>	<i>Barge</i>	<i>Tug Trips</i>
51	Clamshell Dredging - Coarse Grain Material Berth 243/245			
52	Scows	193,000	2,000	97
53	Clamshell Dredging - Coarse Grain Material NW Slip			
54	Scows	78,000	2,000	39
55				
56				
57	Total Barge Trips			1,896

CONSTRUCTION EMISSION CALCULATIONS
Alternative 1 - Mitigated

ALTERNATIVE 1 MITIGATED EMISSIONS DATA

Table C-92. Mitigated Air Emission Factors for the Channel Deepening Project Alternatives Construction Activiti

Table C-93. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition

Table C-94. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike

Table C-95. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Armor Stone Placement

Table C-96. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation

Table C-97. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal

Table C-98. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.

Table C-99. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material

Table C-100. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

Table C-101. Peak Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project

Table C-102. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition

Table C-103. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Quarry Run Placement

Table C-104. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Armor Stone Placement

Table C-105. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation

Table C-106. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal

Table C-107. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.

Table C-108. Construction Activities for the POLA Channel Deepening Proposed Project -
0

Table C-109. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

Table C-110. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project

Table C-111. Yearly Mitigated Emissions for the POLA Channel Deepening Proposed Project

Table C-112. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Demolition

Table C-113. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Quarry Run Placement

Table C-114. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Armor Stone Placement

Table C-115. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation

Table C-116. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal

Table C-117. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.

Table C-118. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material

Table C-119. Total Direct Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project
Dredging of Coarse Grain Material.

Table C-120. Total Direct Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project

Table C-121. Yearly Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project

Table 122 - Construction Activities for the POLA Channel Deepening Proposed Project -

Trench Excavation - Electrical Demand

Table 123 - Construction Activities for the POLA Channel Deepening Proposed Project -
Surcharge Removal - Electrical Demand

Table 124 - Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material - Electrical Demand

Table 125 - Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material - Electrical Demand

Table 126 - Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

Table 127 - Total Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation - Mitigated GHG Emissions from Electrical Generation

Table 128. Total Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal - Mitigated GHG Emissions from Electrical Generation

Table 129. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material - Mitigated GHG Emissions from Electrical Generation

Table 130. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material - Mitigated GHG Emissions from Electrical Generation

Table 131. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material - Mitigated GHG Emissions from Electrical Generation

Table 132. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project
Due to Electrical Generation

Table 133. POLA Channel Deepening Proposed Project Annual Mitigated GHG Emissions
due to Electrical Generation

Table C-92. Mitigated Air Emission Factors for the Channel Deepening Project Alternatives Construction Activities.

Project Year/Source Type	Fuel Type	Emission Factors (Grams/Horsepower-Hour)							References
		ROG	CO	NOx	SOx	PM	PM10	PM2.5	
Year 2009/2010									
Off-Road Equipment - 25-50 Hp	D	0.56	2.34	4.57	0.004	0.06	0.06	0.05	(1)
Off-Road Equipment - 51-120 Hp	D	0.58	3.23	5.64	0.006	0.06	0.06	0.05	(1)
Off-Road Equipment - 121-175 Hp	D	0.42	2.70	5.26	0.006	0.04	0.04	0.03	(1)
Off-Road Equipment - 176-250 Hp	D	0.24	0.92	5.00	0.006	0.02	0.02	0.02	(1)
Off-Road Equipment - 251-500 Hp	D	0.24	0.92	4.95	0.005	0.02	0.02	0.02	(1)
Off-Road Equipment - 501-750 Hp	D	0.24	0.92	4.95	0.006	0.02	0.02	0.02	(1)
Off-Road Equipment - >750 Hp	D	0.24	0.92	4.95	0.005	0.02	0.02	0.02	(1)
On-road Truck - Idle (Gms/Hr)	D	6.88	41.18	92.19	0.051	0.13	0.13	0.12	(2)
On-road Truck - 5 mph (Gms/Mi)	D	4.22	16.28	23.77	0.028	0.14	0.14	0.13	(2)
On-road Truck - 25 mph (Gms/Mi)	D	0.66	4.17	10.84	0.016	0.11	0.11	0.10	(2)
On-road Truck - 55 mph (Gms/Mi)	D	0.32	3.55	9.24	0.014	0.13	0.13	0.12	(2)
Dredge Materials Haul Truck - Composite (Gms/Mi)	D	1.02	5.38	12.13	0.017	0.11	0.11	0.10	(3)
Other On-Road Trucks - Composite (Gms/Mi)	D	0.58	4.31	10.29	0.015	0.13	0.13	0.12	(4)
All Years									
Tugboat (Gm/Hp-Hr)	D	0.20	1.87	5.07	0.004	0.15	0.15	0.14	(5)
Fugitive Dust (Lbs/acre-day)	---	---	---	---	---	27.50	13.45	2.81	(6)
Building Demolition (Lbs/1000 cf)	---	---	---	---	---	0.84	0.41	0.09	(7)
Small Harbor Craft	D	0.16	1.27	7.46	0.47	0.30	0.30	0.28	(8)

Notes: (1) From ARB OFFROAD2007 emissions model (2006) for each Hp category Tier 2 implementation year. Assuming ROG = THC*1.27.

PM emissions also reduced by 85% to simulate use of an ARB Level 3 PM control device.

(2) Heavy duty diesel truck running emission factors developed from EMFAC2007 (ARB 2006). Units in grams/mile for project year 2007.

Assume entire fleet complies with 2004 EPA standards and based on annual average conditions at 60 degrees and 50% humidity.

PM running emission factors include combustive and tire/brake wear contributions. PM combustive emissions also reduced by 85% to simulate use of an ARB level 3 PM control device.

(3) Composite factors based on a round trip of 90% at 25 mph and 10% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.

(4) For on-road trucks other than dredge material haul trucks, composite factor based on a round trip of 75% at 55 mph, 20% at 25 mph, and 5% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.

(5) = Tier 2 Marine diesel engine standards (Starcrest 2006). Average sulfur (S) content = 15 ppm in year 2007+.

(6) Units in lbs/acre-day from section 11.2.3 of AP-42 (EPA 1995). Emissions reduced by 75% from uncontrolled levels to represent compliance with SCAQMD Rule 403 - Fugitive Dust.

(7) CEQA Air Quality Handbook, Table A9-9-H (SCAQMD 1993). Units in lbs/1000 cubic feet (cf) of demolished building.

(8) EPA (2006)

Table C-93. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
NW Slip Sliver - Wharf							
Main Hoist - Clamshell Dredge	3.81	14.60	78.57	0.08	0.29	0.29	0.26
Main Generator - Clamshell Dredge	2.86	10.95	58.93	0.06	0.21	0.21	0.20
Deck Generator - Clamshell Dredge	0.30	1.17	6.35	0.01	0.02	0.02	0.02
Backhoe	1.84	10.25	17.90	0.02	0.19	0.19	0.17
Front End Loader	1.64	9.11	15.92	0.02	0.17	0.17	0.15
Haul Truck (1)	0.17	1.22	2.89	0.00	0.03	0.03	0.03
Tug Boat	0.85	7.90	21.48	0.02	0.63	0.63	0.59
Subtotal	11.47	55.21	202.04	0.20	1.54	1.54	1.43
Berths 243-245							
Main Hoist - Clamshell Dredge	3.81	14.60	78.57	0.08	0.29	0.29	0.26
Main Generator - Clamshell Dredge	2.86	10.95	58.93	0.06	0.21	0.21	0.20
Deck Generator - Clamshell Dredge	0.30	1.17	6.35	0.01	0.02	0.02	0.02
Backhoe	1.84	10.25	17.90	0.02	0.19	0.19	0.17
Front End Loader	1.64	9.11	15.92	0.02	0.17	0.17	0.15
Haul Truck (1)	0.08	0.61	1.45	0.00	0.02	0.02	0.02
Tug Boat	0.85	7.90	21.48	0.02	0.63	0.63	0.59
Subtotal	11.39	54.60	200.59	0.20	1.52	1.52	1.41

Notes: (1) Includes 5 minutes of idling time per round trip.

Table C-95. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike
Construction Armor Stone Placement

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
NW Slip Sliver							
Barge Equipment	1.24	4.75	25.79	0.03	0.09	0.09	0.09
Derrick Barge Crane	0.57	2.19	11.90	0.01	0.04	0.04	0.04
Tugboat - Derrick Barge Crane	1.07	9.87	26.85	0.02	0.79	0.79	0.74
Tugboat - Transport Armor Stone to Site (1)	11.73	108.58	295.35	0.26	8.69	8.69	8.14
Subtotal	14.60	125.39	359.90	0.33	9.61	9.61	9.00
Berths 243-245							
Barge Equipment	1.24	4.75	25.79	0.03	0.09	0.09	0.09
Derrick Barge Crane	0.57	2.19	11.90	0.01	0.04	0.04	0.04
Tugboat - Derrick Barge Crane	1.07	9.87	26.85	0.02	0.79	0.79	0.74
Tugboat - Transport Armor Stone to Site (1)	10.75	99.54	270.74	0.23	7.96	7.96	7.46
Subtotal	13.63	116.34	335.28	0.31	8.89	8.89	8.33
Eelgrass							
Barge Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tugboat - Transport Armor Stone to Site (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-96. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
NW Slip Sliver							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Subtotal	0.67	4.09	15.10	0.02	0.24	0.24	0.22
Berths 243-245							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Subtotal	0.67	4.09	15.10	0.02	0.24	0.24	0.22
CSWH							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Subtotal	0.67	4.09	15.10	0.02	0.24	0.24	0.22

Table C-97. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
SW Slip A#1 Surcharge Removal - Loading							
Scraper	2.86	10.95	59.52	0.07	0.21	0.21	0.20
Backhoe	1.23	6.84	11.94	0.01	0.12	0.12	0.11
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Dozer	2.13	8.15	43.87	0.05	0.16	0.16	0.15
Off-Road Truck	2.22	8.52	45.83	0.05	0.17	0.17	0.15
Water Truck	1.03	3.96	21.28	0.02	0.08	0.08	0.07
Grader	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Subtotal	10.23	41.34	198.32	0.22	0.80	0.80	0.73
SW Slip A#1 Surcharge Removal - Transport							
Scows	---	---	---	---	---	---	---
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Subtotal	0.28	2.63	7.16	0.01	0.21	0.21	0.20
SW Slip A#1 Surcharge Removal - Unload NW Slip							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Conveyor	---	---	---	---	---	---	---
Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW Slip A#1 Surcharge Removal - Unload CSWH							
Main Hoist - Clamshell Dredge	5.08	19.47	104.76	0.10	0.38	0.38	0.35
Main Generator - Clamshell Dredge	3.81	14.60	78.57	0.08	0.29	0.29	0.26
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Scows	---	---	---	---	---	---	---
Subtotal	9.27	35.53	191.27	0.19	0.70	0.70	0.64
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Conveyor	---	---	---	---	---	---	---
Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-98. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Contaminated Dredge							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.23	0.88	4.76	0.01	0.02	0.02	0.02
Scows	---	---	---	---	---	---	---
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Electric Pump	---	---	---	---	---	---	---
Skiff	0.02	0.14	0.82	0.05	0.03	0.03	0.03
Subtotal	0.53	3.65	12.74	0.06	0.26	0.26	0.24

Table C-99. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Clamshell Dredging - Fine Grain Material CSWH							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydraulic Dredging - Fine Grain Material CSWH							
Main Engine - Electric	---	---	---	---	---	---	---
Derrick Hoist	0.36	1.36	7.41	0.01	0.03	0.03	0.02
Derrick Winch	0.08	0.43	0.76	0.00	0.01	0.01	0.01
Anchor Barge Winch	0.27	1.02	5.56	0.01	0.02	0.02	0.02
Generator	0.44	1.70	9.17	0.01	0.03	0.03	0.03
Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
Tug Boat	3.40	31.46	85.58	0.07	2.52	2.52	2.36
Electric Pump	---	---	---	---	---	---	---
Subtotal	4.67	37.04	114.64	0.49	2.85	2.85	2.67
Hydraulic Dredging - Fine Grain Material to LA-2							
Main Engine - Electric	---	---	---	---	---	---	---
Derrick Hoist	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Derrick Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchor Barge Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clamshell Dredging - Fine Grain Material to LA 2							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.24	0.91	4.94	0.01	0.02	0.02	0.02
Tug Boat (1)	4.69	43.43	118.14	0.10	3.47	3.47	3.26
Subtotal	4.93	44.34	123.08	0.11	3.49	3.49	3.27

Table C-100. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

Location/Equipment Type	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Clamshell Dredging - Coarse Grain Material Berth 243/245							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
Scows	---	---	---	---	---	---	---
Tug Boat	0.57	5.26	14.32	0.01	0.42	0.42	0.39
Electric Pump	---	---	---	---	---	---	---
Subtotal	1.08	7.77	28.42	0.41	0.70	0.70	0.65
Clamshell Dredging - Coarse Grain Material NW Slip							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
Scows	---	---	---	---	---	---	---
Tug Boat	0.57	5.26	14.32	0.01	0.42	0.42	0.39
Electric Pump	---	---	---	---	---	---	---
Subtotal	1.08	7.77	28.42	0.41	0.70	0.70	0.65

Table C-101. Peak Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project

Location/Activity	Pounds per Day						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Demolition							
NW Slip Sliver	11	55	202	0	2	2	1
Berths 243-245	11	55	201	0	2	2	1
Dike Const. Quarry Run Placement							
NW Slip Sliver	15	125	360	0	10	10	9
Berths 243-245	14	116	335	0	9	9	8
Cabrillo SWH	13	112	323	0	9	9	8
Dike Construction Armor Stone Placement							
NW Slip Sliver	15	125	360	0	10	10	9
Berths 243-245	14	116	335	0	9	9	8
Trench Excavation							
NW Slip Sliver	1	4	15	0	0	0	0
Berths 243-245	1	4	15	0	0	0	0
Cabrillo SWH	1	4	15	0	0	0	0
Surcharge Removal							
Loading	10	41	198	0	1	1	1
Transport	0	3	7	0	0	0	0
Unload Cabrillo SWH	9	36	191	0	1	1	1
Dredging of Contaminated Material							
Contaminated Dredge	1	4	13	0	0	0	0
Dredging of Fine Material							
Hydraulic - Cabrillo SWH	5	37	115	0	3	3	3
Clamshell - To LA 2	5	44	123	0	3	3	3
Dredging of Coarse Material							
Clamshell - Berths 243-245	1	8	28	0	1	1	1
Clamshell - NW Slip Sliver	1	8	28	0	1	1	1
Peak Daily Mitigated Emissions	33	279	810	1	21	21	20
2004 CEQA Baseline - Peak Daily Emissions	(68)	(383)	(1,556)	(100)	(47)	(47)	(43)
Net Peak Daily Mitigated Emissions	(35)	(104)	(746)	(98)	(25)	(25)	(23)
SCAQMD Daily Significance Thresholds	75	550	100	150	NA	150	55

Notes: (1) Peak daily unmitigated emissions would occur from the simultaneous occurrence of (1) dike construction quarry run placement at the (1) NW Slip, (2) dike construction quarry run placement at Berths 243-245 landfill, and (3) disposal of hydraulic sediments at the CSWH.

Table C-102. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Demolition

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
NW Slip Sliver - Wharf							
Main Hoist - Clamshell Dredge	0.07	0.26	1.38	0.00	0.01	0.01	0.00
Main Generator - Clamshell Dredge	0.05	0.19	1.03	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.01	0.02	0.11	0.00	0.00	0.00	0.00
Backhoe	0.03	0.18	0.31	0.00	0.00	0.00	0.00
Front End Loader	0.03	0.16	0.28	0.00	0.00	0.00	0.00
Haul Truck (1)	0.00	0.02	0.05	0.00	0.00	0.00	0.00
Tug Boat	0.01	0.14	0.38	0.00	0.01	0.01	0.01
Subtotal	0.20	0.97	3.54	0.00	0.03	0.03	0.02
Berths 243-245							
Main Hoist - Clamshell Dredge	0.15	0.56	3.03	0.00	0.01	0.01	0.01
Main Generator - Clamshell Dredge	0.11	0.42	2.27	0.00	0.01	0.01	0.01
Deck Generator - Clamshell Dredge	0.01	0.04	0.24	0.00	0.00	0.00	0.00
Backhoe	0.07	0.39	0.69	0.00	0.01	0.01	0.01
Front End Loader	0.06	0.35	0.61	0.00	0.01	0.01	0.01
Haul Truck (1)	0.00	0.02	0.06	0.00	0.00	0.00	0.00
Tug Boat	0.03	0.30	0.83	0.00	0.02	0.02	0.02
Subtotal	0.44	2.10	7.72	0.01	0.06	0.06	0.05

Table C-104. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Armor Stone Placement

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
NW Slip Sliver							
Barge Equipment	0.01	0.03	0.16	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.00	0.01	0.07	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.01	0.06	0.17	0.00	0.00	0.00	0.00
Tugboat - Transport Armor Stone to Site (1)	0.07	0.68	1.85	0.00	0.05	0.05	0.05
Subtotal	0.09	0.78	2.25	0.00	0.06	0.06	0.06
Berths 243-245							
Barge Equipment	0.01	0.02	0.13	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.01	0.05	0.13	0.00	0.00	0.00	0.00
Tugboat - Transport Armor Stone to Site (1)	0.05	0.50	1.35	0.00	0.04	0.04	0.04
Subtotal	0.07	0.58	1.68	0.00	0.04	0.04	0.04
Eelgrass							
Barge Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tugboat - Transport Armor Stone to Site (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-105. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Trench Excavation

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
NW Slip Sliver							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.01	0.03	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.01	0.03	0.00	0.00	0.00	0.00
Subtotal	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Berths 243-245							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.02	0.05	0.00	0.00	0.00	0.00
Subtotal	0.00	0.03	0.10	0.00	0.00	0.00	0.00
CSWH							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.01	0.02	0.00	0.00	0.00	0.00
Subtotal	0.00	0.01	0.04	0.00	0.00	0.00	0.00

Table C-106. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
SW Slip A#1 Surcharge Removal - Loading							
Scraper	0.17	0.64	3.47	0.00	0.01	0.01	0.01
Backhoe	0.07	0.40	0.70	0.00	0.01	0.01	0.01
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.02	0.09	0.46	0.00	0.00	0.00	0.00
Dozer	0.12	0.47	2.56	0.00	0.01	0.01	0.01
Off-Road Truck	0.13	0.50	2.67	0.00	0.01	0.01	0.01
Water Truck	0.06	0.23	1.24	0.00	0.00	0.00	0.00
Grader	0.02	0.09	0.46	0.00	0.00	0.00	0.00
Subtotal	0.60	2.41	11.55	0.01	0.05	0.05	0.04
SW Slip A#1 Surcharge Removal - Transport							
Scows	---	---	---	---	---	---	---
Tug Boat	0.02	0.15	0.42	0.00	0.01	0.01	0.01
Subtotal	0.02	0.15	0.42	0.00	0.01	0.01	0.01
SW Slip A#1 Surcharge Removal - Unload NW Slip							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Conveyor	---	---	---	---	---	---	---
Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW Slip A#1 Surcharge Removal - Unload CSWH							
Main Hoist - Clamshell Dredge	0.30	1.13	6.10	0.01	0.02	0.02	0.02
Main Generator - Clamshell Dredge	0.22	0.85	4.58	0.00	0.02	0.02	0.02
Deck Generator - Clamshell Dredge	0.02	0.09	0.46	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Subtotal	0.54	2.07	11.14	0.01	0.04	0.04	0.04
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Conveyor	---	---	---	---	---	---	---
Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-107. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material.

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Contaminated Dredge							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.01	0.07	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Tug Boat	0.00	0.04	0.11	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Skiff	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Subtotal	0.01	0.05	0.19	0.00	0.00	0.00	0.00

Table C-108. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Clamshell Dredging - Fine Grain Material CSWH							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydraulic Dredging - Fine Grain Material CSWH							
Main Engine - Electric	---	---	---	---	---	---	---
Derrick Hoist	0.01	0.03	0.16	0.00	0.00	0.00	0.00
Derrick Winch	0.00	0.01	0.02	0.00	0.00	0.00	0.00
Anchor Barge Winch	0.01	0.02	0.12	0.00	0.00	0.00	0.00
Generator	0.01	0.04	0.20	0.00	0.00	0.00	0.00
Survey Boat	0.00	0.02	0.09	0.01	0.00	0.00	0.00
Crew Boat	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Tug Boat	0.07	0.69	1.87	0.00	0.06	0.06	0.05
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.10	0.81	2.51	0.01	0.06	0.06	0.06
Hydraulic Dredging - Fine Grain Material to LA-2							
Main Engine - Electric	---	---	---	---	---	---	---
Derrick Hoist	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Derrick Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Anchor Barge Winch	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Survey Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crew Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clamshell Dredging - Fine Grain Material to LA 2							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.02	0.09	0.49	0.00	0.00	0.00	0.00
Tug Boat (1)	0.47	4.34	11.81	0.01	0.35	0.35	0.33
Subtotal	0.49	4.43	12.31	0.01	0.35	0.35	0.33

Table C-109. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Clamshell Dredging - Coarse Grain Material Berth 243/245							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.01	0.02	0.12	0.00	0.00	0.00	0.00
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Crew Boat	0.00	0.01	0.03	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Tug Boat	0.01	0.08	0.22	0.00	0.01	0.01	0.01
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.02	0.12	0.43	0.01	0.01	0.01	0.01
Clamshell Dredging - Coarse Grain Material NW Slip							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Crew Boat	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Tug Boat	0.00	0.03	0.09	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.01	0.05	0.17	0.00	0.00	0.00	0.00

Table C-110. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project

Location/Activity	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Demolition							
NW Slip Sliver	0.20	0.97	3.54	0.00	0.03	0.03	0.02
Berths 243-245	0.44	2.10	7.72	0.01	0.06	0.06	0.05
Dike Const. Quarry Run Placement							
NW Slip Sliver	0.96	8.22	23.61	0.02	0.63	0.63	0.59
Berths 243-245	0.69	5.89	16.97	0.02	0.45	0.45	0.42
Cabrillo SWH	1.35	11.53	33.29	0.03	0.88	0.88	0.82
Dike Construction Armor Stone Placement							
NW Slip Sliver	0.09	0.78	2.25	0.00	0.06	0.06	0.06
Berths 243-245	0.07	0.58	1.68	0.00	0.04	0.04	0.04
Trench Excavation							
NW Slip Sliver	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Berths 243-245	0.00	0.03	0.10	0.00	0.00	0.00	0.00
Cabrillo SWH	0.00	0.01	0.04	0.00	0.00	0.00	0.00
Surcharge Removal							
Loading	0.60	2.41	11.55	0.01	0.05	0.05	0.04
Transport	0.02	0.15	0.42	0.00	0.01	0.01	0.01
Unload Cabrillo SWH							
	0.54	2.07	11.14	0.01	0.04	0.04	0.04
Dredging of Contaminated Material							
Contaminated Dredge	0.01	0.05	0.19	0.00	0.00	0.00	0.00
Dredging of Fine Material							
Hydraulic - Cabrillo SWH	0.10	0.81	2.51	0.01	0.06	0.06	0.06
Clamshell - To LA 2	0.49	4.43	12.31	0.01	0.35	0.35	0.33
Dredging of Coarse Material							
Clamshell - Berths 243-245	0.02	0.12	0.43	0.01	0.01	0.01	0.01
Clamshell - NW Slip Sliver	0.01	0.05	0.17	0.00	0.00	0.00	0.00
Total Mitigated Emissions	5.59	40.22	127.96	0.14	2.68	2.68	2.51

Table C-111. Yearly Mitigated Emissions for the POLA Channel Deepening Proposed Project

Project Scenario	Tons (1)						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Alternative 1 - 2009	1.0	6.6	20.8	0.0	0.4	0.4	0.4
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 Net Annual Unmitigated Emissions - 2009	(5.6)	(25.8)	(95.9)	(5.6)	(3.3)	(3.3)	(3.1)
Alternative 1 - 2010	3.2	26.2	76.4	0.1	2.0	2.0	1.8
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 Net Annual Unmitigated Emissions - 2010	(3.5)	(6.2)	(40.3)	(5.5)	(1.8)	(1.8)	(1.6)
Alternative 1 - 2011	1.5	7.4	30.7	0.0	0.3	0.3	0.3
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 Net Annual Unmitigated Emissions - 2011	(5.2)	(25.1)	(85.9)	(5.6)	(3.4)	(3.4)	(3.2)
Conformity de minimis Thresholds	10	100	10	NA	NA	70	100

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

Table C-112. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Der

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
NW Slip Sliver - Wharf				
Main Hoist - Clamshell Dredge	158	0.02	0.00	159
Main Generator - Clamshell Dredge	118	0.02	0.00	119
Deck Generator - Clamshell Dredge	13	0.00	0.00	13
Backhoe	32	0.01	0.00	32
Front End Loader	28	0.00	0.00	28
Haul Truck (1)	9	0.00	0.00	9
Tug Boat	36	0.00	0.00	36
Subtotal	393	0.06	0.00	396
Berths 243-245				
Main Hoist - Clamshell Dredge	347	0.05	0.00	349
Main Generator - Clamshell Dredge	260	0.04	0.00	262
Deck Generator - Clamshell Dredge	28	0.00	0.00	28
Backhoe	69	0.01	0.00	70
Front End Loader	62	0.01	0.00	62
Haul Truck (1)	10	0.00	0.00	10
Tug Boat	78	0.01	0.00	79
Subtotal	855	0.13	0.01	860

Table C-113. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
NW Slip Sliver				
Barge Equipment	192	0.03	0.00	194
Derrick Barge Crane	89	0.01	0.00	89
Tugboat - Derrick Barge Crane	167	0.02	0.00	168
Tugboat - Transport Quarry Run to Site (1)	1,838	0.25	0.02	1,848
Subtotal	2,286	0.32	0.02	2,300
Berths 243-245				
Barge Equipment	148	0.02	0.00	149
Derrick Barge Crane	68	0.01	0.00	69
Tugboat - Derrick Barge Crane	129	0.02	0.00	130
Tugboat - Transport Quarry Run to Site (1)	1,299	0.18	0.01	1,307
Subtotal	1,645	0.23	0.02	1,655
Cabrillo SWH				
Barge Equipment	302	0.05	0.00	304
Derrick Barge Crane	139	0.02	0.00	140
Tugboat - Derrick Barge Crane	263	0.04	0.00	264
Tugboat - Transport Quarry Run to Site (1)	2,527	0.35	0.02	2,542
Subtotal	3,231	0.46	0.03	3,251
Eelgrass Restoration				
Barge Equipment				
Derrick Barge Crane				
Tugboat - Derrick Barge Crane				
Tugboat - Transport Quarry Run to Site (1)				
Subtotal	0	0.00	0.00	0

Table C-114. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Dik Construction Armor Stone Placement

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
NW Slip Sliver				
Barge Equipment	18	0.00	0.00	18
Derrick Barge Crane	8	0.00	0.00	9
Tugboat - Derrick Barge Crane	16	0.00	0.00	16
Tugboat - Transport Armor Stone to Site (1)	175	0.02	0.00	176
Subtotal	218	0.03	0.00	219
Berths 243-245				
Barge Equipment	15	0.00	0.00	15
Derrick Barge Crane	7	0.00	0.00	7
Tugboat - Derrick Barge Crane	13	0.00	0.00	13
Tugboat - Transport Armor Stone to Site (1)	128	0.02	0.00	129
Subtotal	163	0.02	0.00	164
Eelgrass				
Barge Equipment				
Derrick Barge Crane				
Tugboat - Derrick Barge Crane				
Tugboat - Transport Armor Stone to Site (1)				
Subtotal	0	0.00	0.00	0

Table C-115. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Trench Excavation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
NW Slip Sliver				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	3	0.00	0.00	3
Tug Boat	2	0.00	0.00	2
Subtotal	6	0.00	0.00	6
Berths 243-245				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	6	0.00	0.00	6
Tug Boat	4	0.00	0.00	4
Subtotal	10	0.00	0.00	10.23
CSWH				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	3	0.00	0.00	3
Tug Boat	2	0.00	0.00	2
Subtotal	5	0.00	0.00	4.55

Table C-116. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Surcharge Removal

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
SW Slip A#1 Surcharge Removal - Loading				
Scraper	394	0.06	0.00	397
Backhoe	70	0.01	0.00	71
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	53	0.01	0.00	53
Dozer	293	0.04	0.00	295
Off-Road Truck	307	0.04	0.00	308
Water Truck	142	0.02	0.00	143
Grader	53	0.01	0.00	53
Subtotal	1,311	0.20	0.01	1,320
SW Slip A#1 Surcharge Removal - Transport				
Scows				
Tug Boat	40	0.01	0.00	40
Subtotal	40	0.01	0.00	40
SW Slip A#1 Surcharge Removal - Unload NW Slip				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Electric Conveyor				
Dozer	0	0.00	0.00	0
Subtotal	0	0.00	0.00	0
SW Slip A#1 Surcharge Removal - Unload CSWH				
Main Hoist - Clamshell Dredge	701	0.10	0.01	705
Main Generator - Clamshell Dredge	525	0.08	0.01	529
Deck Generator - Clamshell Dredge	53	0.01	0.00	53
Scows				
Subtotal	1,279	0.19	0.01	1,287
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2				
Main Hoist - Clamshell Dredge	0	0.00	0.00	0
Main Generator - Clamshell Dredge	0	0.00	0.00	0
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Electric Conveyor				
Dozer	0	0.00	0.00	0
Tug Boat				
Subtotal	0	0.00	0.00	0

Table C-117. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Dredging of Contaminated Material.

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Contaminated Dredge				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	8	0.00	0.00	8
Scows				
Tug Boat	10	0.00	0.00	10
Electric Pump				
Skiff	1	0.00	0.00	1
Subtotal	19	0.00	0.00	19

Table C-118. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Dredging of Fine Grain Material

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Fine Grain Material CSWH				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Reel Barge				
Survey Boat	0	0.00	0.00	0
Crew Boat	0	0.00	0.00	0
Scows				
Tug Boat	0	0.00	0.00	0
Electric Pump				
Subtotal	0	0.00	0.00	0
Hydraulic Dredging - Fine Grain Material CSWH				
Main Engine - Electric				
Derrick Hoist	18	0.00	0.00	19
Derrick Winch	2	0.00	0.00	2
Anchor Barge Winch	14	0.00	0.00	14
Generator	23	0.00	0.00	23
Survey Boat	6	0.00	0.00	6
Crew Boat	3	0.00	0.00	3
Tug Boat	178	0.02	0.00	179
Electric Pump				
Subtotal	244	0.03	0.00	245
Hydraulic Dredging - Fine Grain Material Eelgrass				
Main Engine - Electric				
Derrick Hoist				
Derrick Winch				
Anchor Barge Winch				
Generator				
Survey Boat				
Crew Boat				
Tug Boat				
Electric Pump				
Tug Boat				
Subtotal				
Clamshell Dredging - Fine Grain Material to LA 2				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	56	0.01	0.00	57
Tug Boat (1)	1,121	0.15	0.01	1,127
Subtotal	1,177	0.16	0.01	1,184

Table C-119. Total Direct Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project Dredging of Coarse Grain Material.

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Coarse Grain Material Berth 243/245				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	14	0.00	0.00	14
Reel Barge				
Survey Boat	4	0.00	0.00	4
Crew Boat	2	0.00	0.00	2
Scows				
Tug Boat	20	0.00	0.00	21
Electric Pump				
Subtotal	40	0.01	0.00	40
Clamshell Dredging - Coarse Grain Material Berth 243/245				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge	5	0.00	0.00	6
Reel Barge				
Survey Boat	2	0.00	0.00	2
Crew Boat	1	0.00	0.00	1
Scows				
Tug Boat	8	0.00	0.00	8
Electric Pump				
Subtotal	16	0.00	0.00	16

Table C-120. Total Direct Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project

Location/Activity	Tons			
	CO2	CH4	N2O	CO2e
Demolition				
NW Slip Sliver	393	0.06	0.00	396
Berths 243-245	855	0.13	0.01	860
Dike Const. Quarry Run Placement				
NW Slip Sliver	2,286	0.32	0.02	2,300
Berths 243-245	1,645	0.23	0.02	1,655
Cabrillo SWH	3,231	0.46	0.03	3,251
Dike Construction Armor Stone Placement				
NW Slip Sliver	218	0.03	0.00	219
Berths 243-245	163	0.02	0.00	164
Trench Excavation				
NW Slip Sliver	6	0.00	0.00	6
Berths 243-245	10	0.00	0.00	10
Cabrillo SWH	5	0.00	0.00	5
Surcharge Removal				
Loading	1,311	0.20	0.01	1,320
Transport	40	0.01	0.00	40
Unload Cabrillo SWH	1,279	0.19	0.01	1,287
Dredging of Contaminated Material				
Contaminated Dredge	19	0.00	0.00	19
Dredging of Fine Material				
Hydraulic - Cabrillo SWH	244	0.03	0.00	245
Clamshell - Fine Grain Material to LA 2	1,177	0.16	0.01	1,184
Dredging of Coarse Material				
Clamshell - Berths 243-245	40	0.01	0.00	40
Clamshell - NW Slip Sliver	16	0.00	0.00	16
Total Emissions	12,935	1.86	0.13	13,015

Table C-121. Yearly Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project

Year/Source Category	Metric Tons (1)			
	CO2	CH4	N2O	CO2e
Alternative 1 Direct Sources - 2009	1,933	0.28	0.02	1,945
Alternative 1 Electrical Generation - 2009	43	0.00	0.00	43
Alternative 1 Total Mitigated Emissions - 2009	1,976	0.28	0.02	1,988
Alternative 1 Direct Sources - 2010	6,771	0.96	0.07	6,813
Alternative 1 Electrical Generation - 2010	3,580	0.03	0.02	3,585
Alternative 1 Total Mitigated Emissions - 2010	10,351	0.99	0.08	10,398
Alternative 1 Direct Sources - 2011	3,054	0.45	0.03	3,074
Alternative 1 Electrical Generation - 2011	1,036	0.01	0.00	1,037
Alternative 1 Total Mitigated Emissions - 2011	4,090	0.46	0.04	4,111

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

Table 122 - Construction Activities for the POLA Channel Deepening Proposed Project -
Trench Excavation - Electrical Demand

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
NW Slip Sliver								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400	7.1	102,857
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800	7.1	77,143
Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720		
Tug Boat	800	0.20	1	160	4	640		
Berths 243-245								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400	12.9	185,143
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800	12.9	138,857
Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720		
Tug Boat	800	0.20	1	160	4	640		
CSWH								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400	5.7	82,286
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800	5.7	61,714
Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720		
Tug Boat	800	0.20	1	160	4	640		

Table 123 - Construction Activities for the POLA Channel Deepening Proposed Project -
Surcharge Removal - Electrical Demand

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
SW Slip A#1 Surcharge Removal - Loading								
Scraper	225	0.40	5	450	12	5,400		
Backhoe	80	0.50	2	80	12	960		
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	12	7,200	116.5	838,800
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	12	5,400	116.5	629,100
Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720		
Dozer	335	0.50	2	335	12	4,020		
Off-Road Truck			4					
Water Truck	325	0.50	1	163	12	1,950		
Grader	180	0.50	1	90	8	720		
SW Slip A#1 Surcharge Removal - Transport								
Scows	N/A	N/A	2	N/A	12	N/A		
Tug Boat	800	0.20	1	160	4	640		
SW Slip A#1 Surcharge Removal - Unload NW Slip								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400		
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800		
Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720		
Electric Conveyor	N/A	N/A	1	N/A	16	N/A		
Dozer	335	0.50	1	168	16	2,680		

Table 124 - Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material - Electrical Demand

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
Contaminated Dredge								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	12	7,200	29.8	214,211
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	12	5,400	29.8	160,658
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432		
Scows	N/A	N/A	1	N/A	12	N/A		
Tug Boat	800	0.20	1	160	4	640		
Electric Pump	N/A	N/A	1	N/A	12	N/A		
Skiff	125	0.20	1	25	2	50		

Table 125 - Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material - Electrical Demand

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
Clamshell Dredging - Fine Grain Material CSWH								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400	0.0	
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800	0.0	
Deck Generator - Clamshell Dredge	240	0.6	1	144	5	720		
Reel Barge	N/A	N/A	N/A	N/A	N/A	N/A		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Scows	N/A	N/A	2	N/A	24	N/A		
Tug Boat	800	0.2	1	160	8	1,280		
Electric Pump	N/A	N/A	1	N/A	24	N/A		
Hydraulic Dredging - Fine Grain Material CSWH								
Main Engine - Electric	17,000	1	1	8,500	24	204,000	43.8	8,938,090
Derrick Hoist	240	0.7	1	168	4	672		
Derrick Winch	87	0.7	1	61	1	61		
Anchor Barge Winch	180	0.7	1	126	4	504		
Generator	350	0.6	1	210	4	840		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Tug Boat	850	0.5	1	425	18	7,650		
Electric Pump	N/A	N/A	1	N/A	24	N/A		
Hydraulic Dredging - Fine Grain Material Eelgrass								
Main Engine - Electric	17,000	1	1	8,500	24	204,000	0.0	
Derrick Hoist	240	0.7	1	168	4	672		
Derrick Winch	87	0.7	1	61	1	61		
Anchor Barge Winch	180	0.7	1	126	4	504		
Generator	350	0.6	1	210	4	840		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Tug Boat	850	0.5	1	425	18	7,650		
Electric Pump	N/A	N/A	1	N/A	24	N/A		
Tug Boat								
Clamshell Dredging - Fine Grain Material to LA 2								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	15	8,964	200.0	1,792,717
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	15	6,723	200.0	1,344,538
Deck Generator - Clamshell Dredge	240	0.6	1	144	3	448		
Tug Boat (1)	2,200	0.6	3	3,960	4.0	15,840		

Notes: (1) Dredge slurry assumed to be 40% water, resulting in a daily water bulked disposal volume to LA-2 of 6,700 cy. At a barge capacity of 2,000 cy, this requires approximately 3 total barge trips. At a distance of 25 nm and a speed of 5 knots, each round trip would take 10 hours.

Table 126 - Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material.

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Clamshell Dredging - Coarse Grain Material Berth 243/245								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400	30.0	432,493
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800	30.0	324,370
Deck Generator - Clamshell Dredge	240	0.6	1	144	5	720		
Reel Barge	N/A	N/A	N/A	N/A	N/A	N/A		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Scows	N/A	N/A	2	N/A	24	N/A		
Tug Boat	800	0.2	1	160	8	1,280		
Electric Pump	N/A	N/A	1	N/A	24	N/A		
Clamshell Dredging - Coarse Grain Material NW Slip								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	24	14,400	12.1	174,790
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	24	10,800	12.1	131,092
Deck Generator - Clamshell Dredge	240	0.6	1	144	5	720		
Reel Barge	N/A	N/A	N/A	N/A	N/A	N/A		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Scows	N/A	N/A	2	N/A	24	N/A		
Tug Boat	800	0.2	1	160	8	1,280		
Electric Pump	N/A	N/A	1	N/A	24	N/A		

Table 127 - Total Emissions for the POLA Channel Deepening Proposed Project -
Trench Excavation - Mitigated GHG Emissions from Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
NW Slip Sliver				
Main Hoist - Clamshell Dredge (Electric)	33.72	0.00	0.00	34
Main Generator - Clamshell Dredge (Electric)	25.29	0.00	0.00	25
Deck Generator - Clamshell Dredge				
Tug Boat				
Subtotal	59	0.00	0.00	59
Berths 243-245				
Main Hoist - Clamshell Dredge (Electric)	60.70	0.00	0.00	61
Main Generator - Clamshell Dredge (Electric)	45.53	0.00	0.00	46
Deck Generator - Clamshell Dredge				
Tug Boat				
Subtotal	106	0.00	0.00	106
CSWH				
Main Hoist - Clamshell Dredge (Electric)	26.98	0.00	0.00	27
Main Generator - Clamshell Dredge (Electric)	20.23	0.00	0.00	20
Deck Generator - Clamshell Dredge				
Tug Boat				
Subtotal	47	0.00	0.00	47

Table 128. Total Emissions for the POLA Channel Deepening Proposed Project -
Surcharge Removal - Mitigated GHG Emissions from Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
SW Slip A#1 Surcharge Removal - Loading				
Scraper				
Backhoe				
Main Hoist - Clamshell Dredge (Electric)	275.02	0.00	0.00	275
Main Generator - Clamshell Dredge (Electric)	206.26	0.00	0.00	207
Deck Generator - Clamshell Dredge				
Dozer				
Off-Road Truck				
Water Truck				
Grader				
Subtotal	481	0.00	0.00	482
SW Slip A#1 Surcharge Removal - Transport				
Scows				
Tug Boat				
Subtotal				
SW Slip A#1 Surcharge Removal - Unload NW Slip				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge				
Electric Conveyor				
Dozer				
Subtotal				

Table 129. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Contaminated Material - Mitigated GHG Emissions from Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Contaminated Dredge				
Main Hoist - Clamshell Dredge (Electric)	70.23	0.00	0.00	70
Main Generator - Clamshell Dredge (Electric)	52.68	0.00	0.00	53
Deck Generator - Clamshell Dredge				
Scows				
Tug Boat				
Electric Pump				
Skiff				
Subtotal	123	0.00	0.00	123

Table 130. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Fine Grain Material - Mitigated GHG Emissions from Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Fine Grain Material CSWH				
Main Hoist - Clamshell Dredge (Electric)				
Main Generator - Clamshell Dredge (Electric)				
Deck Generator - Clamshell Dredge				
Reel Barge				
Survey Boat				
Crew Boat				
Scows				
Tug Boat				
Electric Pump				
Subtotal				
Hydraulic Dredging - Fine Grain Material CSWH				
Main Engine - Electric	2,930.56	0.02	0.01	2,935
Derrick Hoist				
Derrick Winch				
Anchor Barge Winch				
Generator				
Survey Boat				
Crew Boat				
Tug Boat				
Electric Pump				
Subtotal	2,931	0.02	0.01	2,935
Hydraulic Dredging - Fine Grain Material Eelgrass				
Main Engine - Electric				
Derrick Hoist				
Derrick Winch				
Anchor Barge Winch				
Generator				
Survey Boat				
Crew Boat				
Tug Boat				
Electric Pump				
Tug Boat				
Subtotal				
Clamshell Dredging - Fine Grain Material to LA 2				
Main Hoist - Clamshell Dredge (Electric)	587.78	0.00	0.00	589
Main Generator - Clamshell Dredge (Electric)	440.84	0.00	0.00	441
Deck Generator - Clamshell Dredge				
Tug Boat (1)				
Subtotal	1,029	0.01	0.00	1,030

Table 131. Construction Activities for the POLA Channel Deepening Proposed Project -
Dredging of Coarse Grain Material - Mitigated GHG Emissions from Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Coarse Grain Material Berth 243/245				
Main Hoist - Clamshell Dredge (Electric)	141.80	0.00	0.00	142
Main Generator - Clamshell Dredge (Electric)	106.35	0.00	0.00	107
Deck Generator - Clamshell Dredge				
Reel Barge				
Survey Boat				
Crew Boat				
Scows				
Tug Boat				
Electric Pump				
Subtotal	248	0.00	0.00	249
Clamshell Dredging - Coarse Grain Material Berth 243/245				
Main Hoist - Clamshell Dredge (Electric)	57.31	0.00	0.00	57
Main Generator - Clamshell Dredge (Electric)	42.98	0.00	0.00	43
Deck Generator - Clamshell Dredge				
Reel Barge				
Survey Boat				
Crew Boat				
Scows				
Tug Boat				
Electric Pump				
Subtotal	100	0.00	0.00	100

Table 132. Total Mitigated GHG Emissions for the POLA Channel Deepening Proposed Project
Due to Electrical Generation

Location/Activity	Tons			
	CO2	CH4	N2O	CO2e
Demolition				
NW Slip Sliver				
Berths 243-245				
Dike Const. Quarry Run Placement				
NW Slip Sliver				
Berths 243-245				
Cabrillo SWH				
Dike Construction Armor Stone Placement				
NW Slip Sliver				
Berths 243-245				
Trench Excavation				
NW Slip Sliver	59	0.00	0.00	59
Berths 243-245	106	0.00	0.00	106
Cabrillo SWH	47	0.00	0.00	47
Surcharge Removal				
Loading	481	0.00	0.00	482
Transport				
Unload Cabrillo SWH				
Dredging of Contaminated Material				
Contaminated Dredge	123	0.00	0.00	123
Dredging of Fine Material				
Hydraulic - Cabrillo SWH	2,931	0.02	0.01	2,935
Clamshell - Fine Grain Material to LA 2	1,029	0.01	0.00	1,030
Dredging of Coarse Material				
Clamshell - Berths 243-245	248	0.00	0.00	249
Clamshell - NW Slip Sliver	100	0.00	0.00	100
Total Emissions	5,124	0.04	0.02	5,132

Table 133. POLA Channel Deepening Proposed Project Annual Mitigated GHG Emissions
due to Electrical Generation

Year	Metric Tons (1)			
	CO2	CH4	N2O	CO2e
2009	43	0.00	0.00	43
2010	3,580	0.03	0.02	3,585
2011	1,036	0.01	0.00	1,037

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

CONSTRUCTION EMISSION CALCULATIONS
Alternative 2 - Unmitigated

ALTERNATIVE 2 UNMITIGATED EMISSIONS DATA

- Table C-134. Construction Activities for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement
- Table C-135. Construction Activities for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal
- Table C-136. Construction Activities for the POLA Channel Deepening Project Alternative 2 - Dredging of Contaminated Material.
- Table C-137. Construction Activities for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material
- Table C-138. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement
- Table C-139. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal
- Table C-140. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging of Contaminated Material.
- Table C-141. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material
- Table C-142. Peak Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2
- Table C-143. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement
- Table C-144. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal
- Table C-145. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging of Contaminated Material.
- Table C-146. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging of Fine Grain Material
- Table C-147. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2
- Table C-148. Yearly Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2
- Table C-149. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement
- Table C-150. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal
- Table C-151. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging of Contaminated Material.
- Table C-152. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material
- Table C-153. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2
- Table C-154. Yearly Unmitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Alternative 2.
- Table C-155. Construction Activities for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material - Electrical Demand
- Table C-156. Total Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material - GHG Emissions from Electrical Generation
- Table C-157. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 Due to Electrical Generation
- Table C-158. Construction Activities for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement
- Table C-159. Construction Activities for the POLA Channel Deepening Proposed Project - Surcharge Removal
- Table C-160. Construction Activities for the POLA Channel Deepening Proposed Project - Dredging of Contaminated Material.
- Table C-161. Construction Activities for the POLA Channel Deepening Proposed Project - Ocean Disposal of Dredging Material

	A	B	C	D	E	F	G	H	I
1	Table C-134. Construction Activities for the POLA Channel Deepening Project Alternative 2 - Dike								
2	Construction Quarry Run Placement								
3		<i>Power</i>	<i>Load</i>	<i>#</i>	<i>Hourly</i>	<i>Hours</i>	<i>Daily</i>	<i>Work</i>	<i>Total</i>
4	<i>Location/Equipment Type</i>	<i>Rating (Hp)</i>	<i>Factor</i>	<i>Active</i>	<i>Hp-Hrs</i>	<i>Per Day</i>	<i>Hp-Hrs</i>	<i>Days</i>	<i>Hp-Hrs</i>
5	Cabrillo SWH								
6	Barge Equipment	195	0.50	2	195	12	2,340	206.1	482,384
7	Derrick Barge Crane	180	0.50	1	90	12	1,080	206.1	222,639
8	Tugboat - Derrick Barge Crane	800	0.25	1	200	12	2,400	206.1	494,753
9	Tugboat - Transport Quarry Run to Site	2,200	0.50	2	2,200	10.5	23,100	206.1	4,761,994

	A	B	C	D	E	F	G	H	I
30	Table C-135. Construction Activities for the POLA Channel Deepening Project Alternative 2 -								
31	Surcharge Removal								
32									
33	<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
34	SW Slip A#1 Surcharge Removal - Loading								
35	Scraper	225	0.40	5	450	12	5,400	116.5	629,100
36	Backhoe	80	0.50	2	80	12	960	116.5	111,840
37	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	12	7,200	116.5	838,800
38	Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	116.5	629,100
39	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	116.5	83,880
40	Dozer	335	0.50	2	335	12	4,020	116.5	468,330
41	Off-Road Truck	350	0.25	4	350	12	4,200	116.5	489,300
42	Water Truck	325	0.50	1	163	12	1,950	116.5	227,175
43	Grader	180	0.50	1	90	8	720	116.5	83,880
44	SW Slip A#1 Surcharge Removal - Transport								
45	Scows	N/A	N/A	2	N/A	12	N/A	116.5	N/A
46	Tug Boat	800	0.20	1	160	4	640	116.5	74,560
47	SW Slip A#1 Surcharge Removal - Unload CSWH								
48	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	16	9,600	116.5	1,118,400
49	Main Generator - Clamshell Dredge	900	0.50	1	450	16	7,200	116.5	838,800
50	Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720	116.5	83,880
51	Scows	N/A	N/A	2	N/A	12	N/A	116.5	N/A
52	SW Slip A#1 Surcharge Removal - Transport/Unload LA-2								
53	Main Hoist - Clamshell Dredge								
54	Main Generator - Clamshell Dredge								
55	Deck Generator - Clamshell Dredge								
56	Electric Conveyor								
57	Dozer								
58	Tug Boat (1)								
59	Notes: (1) = 7,000/545,000 daily/total cy dry. Barge capacity = 2,333 cy. Distance = 25 nm, speed = 5 knots, each round trip would take 10 hours.								
60									
61	Table C-136. Construction Activities for the POLA Channel Deepening Project Alternative 2 -								
62	Dredging of Contaminated Material.								
63									
64	<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
65	Clamshell Dredging - Contaminated Material								
66	Main Hoist - Clamshell Dredge w/Environmental Bucket	1,200	0.50	1	600	12	7,200	29.8	214,211
67	Main Generator - Clamshell Dredge	900	0.50	1	450	12	5,400	29.8	160,658
68	Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432	29.8	12,853
69	Scows	N/A	N/A	2	N/A	12	N/A	29.8	N/A
70	Tug Boat	800	0.20	1	160	4	640	29.8	19,041
71	Electric Pump	N/A	N/A	1	N/A	12	N/A	29.8	N/A
72	Skiff	125	0.20	1	25	2	50	29.8	1,488
73	Dozer	335	0.50	2	335	8	2,680	29.8	79,734
74	Grader	180	0.50	2	180	8	1,440	29.8	42,842
75	Compactor	250	0.33	2	165	8	1,320	29.8	39,272
76	Water Truck	240	0.50	1	120	8	960	29.8	28,561

	A	B	C	D	E	F	G	H	I
80	Table C-137. Construction Activities for the POLA Channel Deepening Project Alternative 2 -								
81	Dredging and Disposal of Dredging Material								
82		<i>Power</i>	<i>Load</i>	<i>#</i>	<i>Hourly</i>	<i>Hours</i>	<i>Daily</i>	<i>Work</i>	<i>Total</i>
83	<i>Location/Equipment Type</i>	<i>Rating (Hp)</i>	<i>Factor</i>	<i>Active</i>	<i>Hp-Hrs</i>	<i>Per Day</i>	<i>Hp-Hrs</i>	<i>Days</i>	<i>Hp-Hrs</i>
84	Hydraulic Dredging - Fine Grain Material CSWH								
85	Main Engine - Electric	N/A	N/A	1	N/A	24	N/A	43.8	N/A
86	Derrick Hoist	240	0.7	1	168	4	672	43.8	29,443
87	Derrick Winch	87	0.7	1	61	1	61	43.8	2,668
88	Anchor Barge Winch	180	0.7	1	126	4	504	43.8	22,082
89	Generator	350	0.6	1	210	4	840	43.8	36,804
90	Survey Boat	250	0.2	1	50	5	250	43.8	10,954
91	Crew Boat	125	0.2	1	25	5	125	43.8	5,477
92	Tug Boat	850	0.5	1	425	18	7,650	43.8	335,178
93	Electric Pump	N/A	N/A	1	N/A	24	N/A	43.8	N/A
94	Clamshell Dredging - Fine/Coarse Grain Material to LA-2								
95	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	15	8,964	200	1,792,717
96	Main Generator - Clamshell Dredge	900	0.50	1	450	15	6,723	200	1,344,538
97	Deck Generator - Clamshell Dredge	240	0.6	1	144	3	448	200	89,636
98	Tug Boat (1)	2,200	0.6	2	2,640	4.0	10,560	200	2,112,000
99	Clamshell Dredging - Fine/Coarse Grain Material to LA-3								
100	Main Hoist - Clamshell Dredge	1,200	0.50	1	600	15	8,964	104	932,213
101	Main Generator - Clamshell Dredge	900	0.50	1	450	15	6,723	104	699,160
102	Deck Generator - Clamshell Dredge	240	0.6	1	144	3	448	104	46,611
103	Tug Boat (1)	2,200	0.6	2	2,640	11.2	29,568	104	3,075,072
104	Notes: (1) Based upon a daily disposal volume to LA-2 of 4,000 cy and a barge capacity of 2,000 cy.								

	V	W	X	Y	Z	AA	AB	AC
33	Table C-139. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 -							
34	Surcharge Removal							
35		<i>Pounds per Day</i>						
36	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
37	SW Slip A#1 Surcharge Removal - Loading							
38	Scraper	8.31	23.02	84.12	0.07	3.18	3.18	2.93
39	Backhoe	2.66	8.14	15.64	0.01	1.40	1.40	1.29
40	Main Hoist - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
41	Main Generator - Clamshell Dredge	6.65	24.84	74.61	0.06	2.30	2.30	2.11
42	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
43	Dozer	5.01	19.98	50.48	0.05	1.91	1.91	1.76
44	Off-Road Truck	5.23	20.87	52.74	0.05	2.00	2.00	1.84
45	Water Truck	2.43	9.69	24.49	0.02	0.93	0.93	0.85
46	Grader	1.11	3.07	11.22	0.01	0.42	0.42	0.39
47	Subtotal	41.38	145.80	423.98	0.36	15.64	15.64	14.39
48	SW Slip A#1 Surcharge Removal - Transport							
49	Scows	---	---	---	---	---	---	---
50	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
51	Subtotal	0.28	2.63	11.45	0.01	0.30	0.30	0.28
52	SW Slip A#1 Surcharge Removal - Unload CSWH							
53	Main Hoist - Clamshell Dredge	11.83	44.16	132.64	0.10	4.09	4.09	3.76
54	Main Generator - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
55	Deck Generator - Clamshell Dredge	1.11	3.07	11.22	0.01	0.42	0.42	0.39
56	Scows	---	---	---	---	---	---	---
57	Subtotal	21.80	80.35	243.34	0.19	7.58	7.58	6.97
58								
59								
60								
61								
62								
63								
64								
65								
66								
67								
68	Table C-140. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 -							
69	Dredging of Contaminated Material.							
70		<i>Pounds per Day</i>						
71	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
72	Clamshell Dredging - Contaminated Material							
73	Main Hoist - Clamshell Dredge	8.87	33.12	99.48	0.08	3.06	3.06	2.82
74	Main Generator - Clamshell Dredge	6.65	24.84	74.61	0.06	2.30	2.30	2.11
75	Deck Generator - Clamshell Dredge	0.66	1.84	6.73	0.01	0.25	0.25	0.23
76	Scows	---	---	---	---	---	---	---
77	Tug Boat	0.28	2.63	11.45	0.01	0.30	0.30	0.28
78	Electric Pump	---	---	---	---	---	---	---
79	Skiff	0.02	0.14	0.82	0.05	0.03	0.03	0.03
80	Dozer	3.34	13.32	33.65	0.03	1.28	1.28	1.17
81	Grader	2.22	6.14	22.43	0.02	0.85	0.85	0.78
82	Compactor	2.03	5.63	20.56	0.02	0.78	0.78	0.72
83	Water Truck	1.48	4.09	14.96	0.01	0.57	0.57	0.52
84	Subtotal	25.55	91.75	284.69	0.28	9.42	9.42	8.67

	V	W	X	Y	Z	AA	AB	AC
88	Table C-141. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 -							
89	Dredging and Disposal of Dredging Material							
90		<i>Pounds per Day</i>						
91	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
92	Hydraulic Dredging - Fine Grain Material CSWH							
93	Main Engine - Electric	---	---	---	---	---	---	---
94	Derrick Hoist	1.03	2.86	10.47	0.01	0.40	0.40	0.36
95	Derrick Winch	0.17	0.52	0.99	0.00	0.09	0.09	0.08
96	Anchor Barge Winch	0.78	2.15	7.85	0.01	0.30	0.30	0.27
97	Generator	1.05	4.17	10.55	0.01	0.40	0.40	0.37
98	Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
99	Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
100	Tug Boat	3.40	31.46	136.83	0.07	3.60	3.60	3.37
101	Electric Pump	---	---	---	---	---	---	---
102	Subtotal	6.56	42.22	172.86	0.49	5.03	5.03	4.69
103	Clamshell Dredging - Fine/Coarse Grain Material to LA-2							
104	Main Hoist - Clamshell Dredge	11.04	41.23	123.85	0.10	3.82	3.82	3.51
105	Main Generator - Clamshell Dredge	8.28	30.92	92.89	0.07	2.86	2.86	2.63
106	Deck Generator - Clamshell Dredge	0.69	1.91	6.98	0.01	0.26	0.26	0.24
107	Tug Boat	4.69	43.43	188.88	0.10	4.97	4.97	4.66
108	Subtotal	24.70	117.50	412.60	0.27	11.91	11.91	11.04
109	Clamshell Dredging - Fine/Coarse Grain Material to LA-3							
110	Main Hoist - Clamshell Dredge	11.04	41.23	123.85	0.10	3.82	3.82	3.51
111	Main Generator - Clamshell Dredge	8.28	30.92	92.89	0.07	2.86	2.86	2.63
112	Deck Generator - Clamshell Dredge	0.69	1.91	6.98	0.01	0.26	0.26	0.24
113	Tug Boat	13.13	121.61	528.88	0.29	13.91	13.91	13.04
114	Subtotal	33.15	195.68	752.59	0.46	20.85	20.85	19.42

	V	W	X	Y	Z	AA	AB	AC
117	Table C-142. Peak Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2							
118		<i>Pounds per Day</i>						
119	<i>Location/Activity</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
120	Dike Const. Quarry Run Placement							
121	Cabrillo SWH	17	119	509	0	14	14	13
122								
123	Dike Construction Armor Stone Placement							
124								
125	Trench Excavation							
126	Cabrillo SWH	32	122	371	0	11	11	11
127	Surcharge Removal							
128	Loading	41	146	424	0	16	16	14
129	Transport	0	3	11	0	0	0	0
130	Unload Cabrillo SWH	22	80	243	0	8	8	7
131								
132	Dredging of Contaminated Material							
133	Clamshell - Contaminated Material	26	92	285	0	9	9	9
134	Dredging and Disposal of Dredging Material							
135	Hydraulic - Cabrillo SWH	7	42	173	0	5	5	5
136	Clamshell - LA-2	25	117	413	0	12	12	11
137	Clamshell - LA-3	33	196	753	0	21	21	19
138	Peak Daily Unmitigated Emissions	74	433	1,675	1	47	47	44
139	2004 CEQA Baseline - Peak Daily Emissions	(68)	(383)	(1,556)	(100)	(47)	(47)	(43)
140	Net Peak Daily Unmitigated Emissions	6	49	119	(99)	(0)	(0)	0
141	SCAQMD Daily Significance Thresholds	75	550	100	150	NA	150	55
142	Notes: (1) Peak daily unmitigated emissions would occur from the following simultaneous activities: (1) dike construction quarry run placement at CSWH,							
143	(2) clamshell dredging and disposal to LA-2, and (3) clamshell dredging and disposal to LA-3.							

	AE	AF	AG	AH	AI	AJ	AK	AL
33	Table C-144. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 -							
34	Surcharge Removal							
35		<i>Tons</i>						
36	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
37	SW Slip A#1 Surcharge Removal - Loading							
38	Scraper	0.48	1.34	4.90	0.00	0.19	0.19	0.17
39	Backhoe	0.16	0.47	0.91	0.00	0.08	0.08	0.08
40	Main Hoist - Clamshell Dredge	0.52	1.93	5.79	0.00	0.18	0.18	0.16
41	Main Generator - Clamshell Dredge	0.39	1.45	4.35	0.00	0.13	0.13	0.12
42	Deck Generator - Clamshell Dredge	0.06	0.18	0.65	0.00	0.02	0.02	0.02
43	Dozer	0.29	1.16	2.94	0.00	0.11	0.11	0.10
44	Off-Road Truck	0.30	1.22	3.07	0.00	0.12	0.12	0.11
45	Water Truck	0.14	0.56	1.43	0.00	0.05	0.05	0.05
46	Grader	0.06	0.18	0.65	0.00	0.02	0.02	0.02
47	Subtotal	2.41	8.49	24.70	0.02	0.91	0.91	0.84
48	SW Slip A#1 Surcharge Removal - Transport							
49	Scows	---	---	---	---	---	---	---
50	Tug Boat	0.02	0.15	0.67	0.00	0.02	0.02	0.02
51	Subtotal	0.02	0.15	0.67	0.00	0.02	0.02	0.02
52	SW Slip A#1 Surcharge Removal - Unload CSWH							
53	Main Hoist - Clamshell Dredge	0.69	2.57	7.73	0.01	0.24	0.24	0.22
54	Main Generator - Clamshell Dredge	0.52	1.93	5.79	0.00	0.18	0.18	0.16
55	Deck Generator - Clamshell Dredge	0.06	0.18	0.65	0.00	0.02	0.02	0.02
56	Scows	---	---	---	---	---	---	---
57	Subtotal	1.27	4.68	14.17	0.01	0.44	0.44	0.41
58								
59								
60								
61								
62								
63								
64								
65								
66								
67								
68	Table C-145. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 -							
69	Dredging of Contaminated Material.							
70		<i>Tons</i>						
71	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
72	Clamshell Dredging - Contaminated Material							
73	Main Hoist - Clamshell Dredge	0.13	0.49	1.48	0.00	0.05	0.05	0.04
74	Main Generator - Clamshell Dredge	0.10	0.37	1.11	0.00	0.03	0.03	0.03
75	Deck Generator - Clamshell Dredge	0.01	0.03	0.10	0.00	0.00	0.00	0.00
76	Scows	---	---	---	---	---	---	---
77	Tug Boat	0.00	0.04	0.17	0.00	0.00	0.00	0.00
78	Electric Pump	---	---	---	---	---	---	---
79	Skiff	0.00	0.00	0.01	0.00	0.00	0.00	0.00
80	Dozer	0.05	0.20	0.50	0.00	0.02	0.02	0.02
81	Grader	0.03	0.09	0.33	0.00	0.01	0.01	0.01
82	Compactor	0.03	0.08	0.31	0.00	0.01	0.01	0.01
83	Water Truck	0.02	0.06	0.22	0.00	0.01	0.01	0.01
84	Subtotal	0.38	1.36	4.24	0.00	0.14	0.14	0.13

	AE	AF	AG	AH	AI	AJ	AK	AL
88	Table C-146. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 -							
89	Dredging of Fine Grain Material							
90		<i>Tons</i>						
91	<i>Location/Equipment Type</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
92	Hydraulic Dredging - Fine Grain Material CSWH							
93	Main Engine - Electric	---	---	---	---	---	---	---
94	Derrick Hoist	0.02	0.06	0.23	0.00	0.01	0.01	0.01
95	Derrick Winch	0.00	0.01	0.02	0.00	0.00	0.00	0.00
96	Anchor Barge Winch	0.02	0.05	0.17	0.00	0.01	0.01	0.01
97	Generator	0.02	0.09	0.23	0.00	0.01	0.01	0.01
98	Survey Boat	0.00	0.02	0.09	0.01	0.00	0.00	0.00
99	Crew Boat	0.00	0.01	0.05	0.00	0.00	0.00	0.00
100	Tug Boat	0.07	0.69	3.00	0.00	0.08	0.08	0.07
101	Electric Pump	---	---	---	---	---	---	---
102	Subtotal	0.14	0.92	3.79	0.01	0.11	0.11	0.10
103	Clamshell Dredging - Fine/Coarse Grain Material to LA-2							
104	Main Hoist - Clamshell Dredge	1.10	4.12	12.38	0.01	0.38	0.38	0.35
105	Main Generator - Clamshell Dredge	0.83	3.09	9.29	0.01	0.29	0.29	0.26
106	Deck Generator - Clamshell Dredge	0.07	0.19	0.70	0.00	0.03	0.03	0.02
107	Tug Boat	0.47	4.34	18.89	0.01	0.50	0.50	0.47
108	Subtotal	2.47	11.75	41.26	0.03	1.19	1.19	1.10
109	Clamshell Dredging - Fine/Coarse Grain Material to LA-3							
110	Main Hoist - Clamshell Dredge	0.57	2.14	6.44	0.00	0.20	0.20	0.18
111	Main Generator - Clamshell Dredge	0.43	1.61	4.83	0.00	0.15	0.15	0.14
112	Deck Generator - Clamshell Dredge	0.04	0.10	0.36	0.00	0.01	0.01	0.01
113	Tug Boat	0.68	6.32	27.50	0.01	0.72	0.72	0.68
114	Subtotal	1.72	10.18	39.13	0.02	1.08	1.08	1.01

	AE	AF	AG	AH	AI	AJ	AK	AL
117	Table C-147. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2							
118		<i>Tons</i>						
119	<i>Location/Activity</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
120	Dike Const. Quarry Run Placement							
121	Cabrillo SWH	1.71	12.31	52.50	0.03	1.44	1.44	1.35
122								
123	Dike Construction Armor Stone Placement							
124								
125	Trench Excavation							
126	Cabrillo SWH	0.09	0.35	1.06	0.00	0.03	0.03	0.03
127	Surcharge Removal							
128	Loading	2.41	8.49	24.70	0.02	0.91	0.91	0.84
129	Transport	0.02	0.15	0.67	0.00	0.02	0.02	0.02
130	Unload Cabrillo SWH	1.27	4.68	14.17	0.01	0.44	0.44	0.41
131								
132	Dredging of Contaminated Material							
133	Clamshell Dredge of Contaminated	0.38	1.36	4.24	0.00	0.14	0.14	0.13
134	Dredging and Disposal of Dredging Material							
135	Hydraulic - Cabrillo SWH	0.14	0.92	3.79	0.01	0.11	0.11	0.10
136	Clamshell - LA-2	2.47	11.75	41.26	0.03	1.19	1.19	1.10
137	Clamshell - LA-3	1.72	10.18	39.13	0.02	1.08	1.08	1.01
138	Total Unmitigated Emissions (1)	10.22	50.20	181.52	0.13	5.37	5.37	4.99
139								
140								
141								
142	Table C-148. Yearly Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2							
143		<i>Tons (1)</i>						
144	<i>Yearly Scenario</i>	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM</i>	<i>PM10</i>	<i>PM2.5</i>
145	Alternative 1 - 2009	1.7	9.8	37.7	0.0	1.1	1.1	1.0
146	CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
147	Net Annual Unmitigated Emissions - 2009	(4.9)	(22.7)	(79.0)	(5.6)	(2.7)	(2.7)	(2.5)
148	Alternative 1 - 2010	4.8	27.1	104.3	0.1	2.9	2.9	2.7
149	CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
150	Net Annual Unmitigated Emissions - 2010	(1.8)	(5.3)	(12.4)	(5.5)	(0.8)	(0.8)	(0.7)
151	Alternative 1 - 2011	3.7	13.3	39.5	0.0	1.4	1.4	1.3
152	CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
153	Net Annual Unmitigated Emissions - 2011	(2.9)	(19.1)	(77.2)	(5.6)	(2.4)	(2.4)	(2.2)
154	Conformity de minimis Thresholds	10	100	10	NA	NA	70	100
155	Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.							

Table C-149. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dike
Construction Quarry Run Placement

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Cabrillo SWH				
Barge Equipment	302.18	0.05	0.00	304
Derrick Barge Crane	139.47	0.02	0.00	140
Tugboat - Derrick Barge Crane	262.51	0.04	0.00	264
Tugboat - Transport Quarry Run to Site (1)	2,526.62	0.35	0.02	2,542
Subtotal	3,230.78	0.46	0.03	3,250.52

Table C-150. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 -
Surcharge Removal

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
SW Slip A#1 Surcharge Removal - Loading				
Scraper	394.09	0.06	0.00	397
Backhoe	70.06	0.01	0.00	71
Main Hoist - Clamshell Dredge (Electric)	525.45	0.09	0.01	529
Main Generator - Clamshell Dredge (Electric)	394.09	0.07	0.00	397
Deck Generator - Clamshell Dredge	52.55	0.01	0.00	53
Dozer	293.38	0.04	0.00	295
Off-Road Truck	306.51	0.04	0.00	308
Water Truck	142.31	0.02	0.00	143
Grader	52.55	0.01	0.00	53
Subtotal	2,230.98	0.36	0.03	2,246.45
SW Slip A#1 Surcharge Removal - Transport				
Scows	---	---	---	
Tug Boat	39.56	0.01	0.00	40
Subtotal	39.56	0.01	0.00	39.80
SW Slip A#1 Surcharge Removal - Unload CSWH				
Main Hoist - Clamshell Dredge	700.60	0.10	0.01	705
Main Generator - Clamshell Dredge	525.45	0.08	0.01	529
Deck Generator - Clamshell Dredge	52.55	0.01	0.00	53
Scows	---	---	---	
Subtotal	1,278.60	0.19	0.01	1,286.75

Table C-151. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging of Contaminated Material.

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Contaminated Material				
Main Hoist - Clamshell Dredge (Electric)	134.19	0.02	0.00	135
Main Generator - Clamshell Dredge (Electric)	100.64	0.02	0.00	101
Deck Generator - Clamshell Dredge	8.05	0.00	0.00	8
Scows	---	---	---	
Tug Boat	10.10	0.00	0.00	10
Electric Pump	---	---	---	
Skiff	0.79	0.00	0.00	1
Dozer	49.95	0.01	0.00	50
Grader	26.84	0.00	0.00	27
Compactor	24.60	0.00	0.00	25
Water Truck	17.89	0.00	0.00	18
Subtotal	373.05	0.06	0.00	375.64

Table C-152. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging and Disposal of Dredging Material

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Hydraulic Dredging - Fine Grain Material CSWH				
Main Engine - Electric	---	---	---	
Derrick Hoist	18.44	0.00	0.00	19
Derrick Winch	1.67	0.00	0.00	2
Anchor Barge Winch	13.83	0.00	0.00	14
Generator	23.06	0.00	0.00	23
Survey Boat	5.81	0.00	0.00	6
Crew Boat	2.91	0.00	0.00	3
Tug Boat	177.84	0.02	0.00	179
Electric Pump	---	---	---	
Subtotal	243.56	0.03	0.00	245.06
Clamshell Dredging - Fine Grain Material to LA 2				
Main Hoist - Clamshell Dredge	1,123.02	0.18	0.01	1,131
Main Generator - Clamshell Dredge	842.26	0.14	0.01	848
Deck Generator - Clamshell Dredge	56.15	0.01	0.00	57
Tug Boat	1,120.59	0.15	0.01	1,127
Subtotal	3,142.02	0.49	0.03	3,163.04
Clamshell Dredging - Fine/Coarse Grain Material to LA-3				
Main Hoist - Clamshell Dredge	583.97	0.10	0.01	0.00
Main Generator - Clamshell Dredge	437.98	0.07	0.01	0.00
Deck Generator - Clamshell Dredge	29.20	0.00	0.00	0.00
Tug Boat	1,631.58	0.23	0.02	0.00
Subtotal	2,682.72	0.40	0.03	0.00

Table C-153. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2

<i>Location/Activity</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Dike Const. Quarry Run Placement				
Cabrillo SWH	3,231	0.46	0.03	3,251
Dike Construction Armor Stone Placement				
Trench Excavation				
Cabrillo SWH	95	0.02	0.00	95
Surcharge Removal				
Loading	2,231	0.36	0.03	2,246
Transport	40	0.01	0.00	40
Unload Cabrillo SWH	1,279	0.19	0.01	1,287
Dredging of Contaminated Material				
Clamshell Dredge of Contaminated	373	0.06	0.00	376
Dredging and Disposal of Dredging Material				
Hydraulic - Cabrillo SWH	243.56	0.03	0.00	245.06
Clamshell - LA-2	3,142.02	0.49	0.03	3,163.04
Clamshell - LA-3	2,682.72	0.40	0.03	0.00
Total GHG Emissions	13,316.00	2.01	0.14	10,702.65

Table C-154. Yearly Unmitigated GHG Emissions for the POLA Channel Deepening Proposed Project - Alternative

<i>Project Scenario</i>	<i>Metric Tons (1)</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Alternative 1 Direct Sources - 2009	2,354.5	0.35	0.03	2,369.7
Alternative 1 Electrical Generation - 2009	-	-	-	-
Alternative 1 Total Unmitigated Emissions - 2009	2,355	0.35	0.03	2,370
Alternative 1 Direct Sources - 2010	6,524.4	0.97	0.07	4,111.8
Alternative 1 Electrical Generation - 2010	2,664	0.02	0.01	2,668
Alternative 1 Total Unmitigated Emissions - 2010	9,189	0.99	0.08	6,780
Alternative 1 Direct Sources - 2011	3,226.5	0.50	0.04	3,248.2
Alternative 1 Electrical Generation - 2011	-	-	-	-
Alternative 1 Total Unmitigated Emissions - 2011	3,226	0.50	0.04	3,248

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

Table C-155. Construction Activities for the POLA Channel Deepening Project Alternative 2 -
Dredging and Disposal of Dredging Material - Electrical Demand

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Hydraulic Dredging - Fine Grain Material CSWH								
Main Engine - Electric	17,000	1	1	8,500	24	204,000	43.8	8,938,090
Derrick Hoist	240	0.7	1	168	4	672		
Derrick Winch	87	0.7	1	61	1	61		
Anchor Barge Winch	180	0.7	1	126	4	504		
Generator	350	0.6	1	210	4	840		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Tug Boat	850	0.5	1	425	18	7,650		
Electric Pump	N/A	N/A	1	N/A	24	N/A		

Table C-156. Total Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging and Disposal of Dredging Material - GHG Emissions from Electrical Generation

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Hydraulic Dredging - Fine Grain Material CSHH				
Main Engine - Electric	2,931	0.02	0.01	2,935
Derrick Hoist	0	0.00	0.00	0
Derrick Winch	0	0.00	0.00	0
Anchor Barge Winch	0	0.00	0.00	0
Generator	0	0.00	0.00	0
Survey Boat	0	0.00	0.00	0
Crew Boat	0	0.00	0.00	0
Tug Boat	0	0.00	0.00	0
Electric Pump	---	---	---	
Subtotal	2,931	0.02	0.01	2,935

Table C-157. Total GHG Emissions for the POLA Channel Deepening Project Alternative 2
Due to Electrical Generation

Location/Activity	Tons			
	CO2	CH4	N2O	CO2e
Dike Const. Quarry Run Placement				
Cabrillo SWH	0	0.00	0.00	0
Eelgrass Restoration	0	0.00	0.00	0
Dike Construction Armor Stone Placement				
Eelgrass Restoration	0	0.00	0.00	0
Surcharge Removal				
Loading	0	0.00	0.00	0
Transport	0	0.00	0.00	0
Unload Cabrillo SWH	0	0.00	0.00	0
Unload Eelgrass	0	0.00	0.00	0
Dredging of Contaminated Material				
Clamshell Dredge of Contaminated	0	0.00	0.00	0
Dredging and Disposal of Dredging Material				
Hydraulic - Cabrillo SWH	2,931	0.02	0.01	2,935
Clamshell - LA-2	0	0.00	0.00	0
Clamshell - LA-3	0	0.00	0.00	0
Total Emissions (1)	2,931	0.02	0.01	2,935

Notes: (1) All activities would occur in one year

	A	B	C	D
1	Table C-158. Construction Activities for the POLA Channel Deepening Proposed Project - Dike			
2	Construction Quarry Run Placement			
3		<i>Total</i>	<i>Vol/Tons</i>	<i>Total</i>
4	<i>Location/Equipment Type</i>	<i>Vol/Tons</i>	<i>/Barge</i>	<i>Tug Trips</i>
5	Cabrillo SWH			
6	Tugboat - Transport Quarry Run to Site	550,000	1,334	412
7				
8				
9	Table C-159. Construction Activities for the POLA Channel Deepening Proposed Project -			
10	Surcharge Removal			
11		<i>Total</i>	<i>Vol/Tons</i>	<i>Total</i>
12	<i>Location/Equipment Type</i>	<i>Vol/Tons</i>	<i>/Barge</i>	<i>Tug Trips</i>
13	SW Slip A#1 Surcharge Removal - Unload CSWH			
14	Scows	815,000	2,000	408
15				
16				
17	Table C-160. Construction Activities for the POLA Channel Deepening Proposed Project -			
18	Dredging of Contaminated Material.			
19		<i>Total</i>	<i>Vol/Tons</i>	<i>Total</i>
20	<i>Location/Equipment Type</i>	<i>Vol/Tons</i>	<i>/Barge</i>	<i>Tug Trips</i>
21	Contaminated Dredge			
22	Scows	85,000	2,000	43
23				
24				
25	Table C-161. Construction Activities for the POLA Channel Deepening Proposed Project -			
26	Ocean Disposal of Dredging Material			
27		<i>Total</i>	<i>Vol/Tons</i>	<i>Total</i>
28	<i>Location/Equipment Type</i>	<i>Vol/Tons</i>	<i>/Barge</i>	<i>Tug Trips</i>
29	Clamshell Dredging - Fine Grain Material to LA-2			
30	Tug Boat	800,000	2,000	400
31	Clamshell Dredging - Fine Grain Material to LA-3			
32	Tug Boat	416,000	2,000	208
33				
34				
35	Total Barge Trips			1,470

CONSTRUCTION EMISSION CALCULATIONS
Alternative 2 - Mitigated

Table C-164. Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 -
Surcharge Removal

Location/Equipment Type	Pounds per Day						
	ROG	CC	NOx	SOx	PM	PM10	PM2.5
SW Slip A#1 Surcharge Removal - Loading							
Scraper	2.86	10.95	59.52	0.07	0.21	0.21	0.20
Backhoe	1.23	6.84	11.94	0.01	0.12	0.12	0.11
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Dozer	2.13	8.15	43.87	0.05	0.16	0.16	0.15
Off-Road Truck	2.22	8.52	45.83	0.05	0.17	0.17	0.15
Water Truck	1.03	3.96	21.28	0.02	0.08	0.08	0.07
Grader	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Subtotal	10.23	41.34	198.32	0.22	0.80	0.80	0.73
SW Slip A#1 Surcharge Removal - Transport							
Scows	---	---	---	---	---	---	---
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Subtotal	0.28	2.63	7.16	0.01	0.21	0.21	0.20
SW Slip A#1 Surcharge Removal - Unload CSWH							
Main Hoist - Clamshell Dredge	5.08	19.47	104.76	0.10	0.38	0.38	0.35
Main Generator - Clamshell Dredge	3.81	14.60	78.57	0.08	0.29	0.29	0.26
Deck Generator - Clamshell Dredge	0.38	1.46	7.94	0.01	0.03	0.03	0.03
Scows	---	---	---	---	---	---	---
Subtotal	9.27	35.53	191.27	0.19	0.70	0.70	0.64
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Conveyor	---	---	---	---	---	---	---
Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-165. Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging of Contaminated Material.

Location/Equipment Type	Pounds per Day						
	ROG	CC	NOx	SOx	PM	PM10	PM2.5
Clamshell Dredging - Contaminated Material							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.23	0.88	4.76	0.01	0.02	0.02	0.02
Scows	---	---	---	---	---	---	---
Tug Boat	0.28	2.63	7.16	0.01	0.21	0.21	0.20
Electric Pump	---	---	---	---	---	---	---
Skiff	0.02	0.14	0.82	0.05	0.03	0.03	0.03
Dozer	1.42	5.44	29.25	0.03	0.11	0.11	0.10
Grader	0.76	2.92	15.87	0.02	0.06	0.06	0.05
Compactor	0.70	2.68	14.55	0.02	0.05	0.05	0.05
Water Truck	0.51	1.95	10.58	0.01	0.04	0.04	0.04
Subtotal	3.92	16.63	83.00	0.15	0.51	0.51	0.48

Table C-166. Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging and Disposal of Dredging Material

Location/Equipment Type	Pounds per Day						
	ROG	CC	NOx	SOx	PM	PM10	PM2.5
Hydraulic Dredging - Fine Grain Material CSWH							
Main Engine - Electric	---	---	---	---	---	---	---
Derrick Hoist	0.36	1.36	7.41	0.01	0.03	0.03	0.02
Derrick Winch	0.08	0.43	0.76	0.00	0.01	0.01	0.01
Anchor Barge Winch	0.27	1.02	5.56	0.01	0.02	0.02	0.02
Generator	0.44	1.70	9.17	0.01	0.03	0.03	0.03
Survey Boat	0.09	0.70	4.11	0.26	0.17	0.17	0.15
Crew Boat	0.04	0.35	2.06	0.13	0.08	0.08	0.08
Tug Boat	3.40	31.46	85.58	0.07	2.52	2.52	2.36
Electric Pump	---	---	---	---	---	---	---
Subtotal	4.67	37.04	114.64	0.49	2.85	2.85	2.67
Clamshell Dredging - Fine Grain Material to LA 2							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.24	0.91	4.94	0.01	0.02	0.02	0.02
Tug Boat	4.69	43.43	118.14	0.10	3.47	3.47	3.26
Subtotal	4.93	44.34	123.08	0.11	3.49	3.49	3.27
Clamshell Dredging - Fine/Coarse Grain Material to LA-3							
Main Hoist - Clamshell Dredge	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.24	0.91	4.94	0.01	0.02	0.02	0.02
Tug Boat	13.13	121.61	330.79	0.29	9.73	9.73	9.12
Subtotal	13.37	122.52	335.73	0.29	9.75	9.75	9.13

Table C-167. Peak Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2

Location/Activity	Pounds per Day						
	ROG	CC	NOx	SOx	PM	PM10	PM2.5
Dike Const. Quarry Run Placement							
Cabrillo SWH	13	112	323	0	9	9	8
Dike Construction Armor Stone Placement							
Trench Excavation							
Cabrillo SWH	1	4	15	0	0	0	0
Surcharge Removal							
Loading	10	41	198	0	1	1	1
Transport	0	3	7	0	0	0	0
Unload Cabrillo SWH	9	36	191	0	1	1	1
Dredging of Contaminated Material							
Clamshell - Contaminated Material	4	17	83	0	1	1	0
Dredging and Disposal of Dredging Material							
Hydraulic - Cabrillo SWH	5	37	115	0	3	3	3
Clamshell - LA-2	5	44	123	0	3	3	3
Clamshell - LA-3	13	123	336	0	10	10	9
Peak Daily Mitigated Emissions (1)	31	279	782	1	22	22	20
2004 CEQA Baseline - Peak Daily Emissions	(68)	(383)	(1,556)	(100)	(47)	(47)	(43)
Net Daily Mitigated Emissions	(37)	(104)	(774)	(99)	(25)	(25)	(23)
SCAQMD Daily Significance Thresholds	75	550	100	150	NA	150	55

Notes: (1) Peak daily unmitigated emissions would occur from the following simultaneous activities: (1) dike construction quarry run placement at CSWH, (2) clamshell dredging and disposal to LA-2, and (3) clamshell dredging and disposal to LA-3.

Table C-170. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 -
Surcharge Removal

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
SW Slip A#1 Surcharge Removal - Loading							
Scraper	0.17	0.64	3.47	0.00	0.01	0.01	0.01
Backhoe	0.07	0.40	0.70	0.00	0.01	0.01	0.01
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.02	0.09	0.46	0.00	0.00	0.00	0.00
Dozer	0.12	0.47	2.56	0.00	0.01	0.01	0.01
Off-Road Truck	0.13	0.50	2.67	0.00	0.01	0.01	0.01
Water Truck	0.06	0.23	1.24	0.00	0.00	0.00	0.00
Grader	0.02	0.09	0.46	0.00	0.00	0.00	0.00
Subtotal	0.60	2.41	11.55	0.01	0.05	0.05	0.04
SW Slip A#1 Surcharge Removal - Transport							
Scows	---	---	---	---	---	---	---
Tug Boat	0.02	0.15	0.42	0.00	0.01	0.01	0.01
Subtotal	0.02	0.15	0.42	0.00	0.01	0.01	0.01
SW Slip A#1 Surcharge Removal - Unload CSWH							
Main Hoist - Clamshell Dredge	0.30	1.13	6.10	0.01	0.02	0.02	0.02
Main Generator - Clamshell Dredge	0.22	0.85	4.58	0.00	0.02	0.02	0.02
Deck Generator - Clamshell Dredge	0.02	0.09	0.46	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Subtotal	0.54	2.07	11.14	0.01	0.04	0.04	0.04
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
Main Hoist - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Main Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electric Conveyor	---	---	---	---	---	---	---
Dozer	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table C-171. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging of Contaminated Material.

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Clamshell Dredging - Contaminated Material							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.01	0.07	0.00	0.00	0.00	0.00
Scows	---	---	---	---	---	---	---
Tug Boat	0.00	0.04	0.11	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Skiff	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Dozer	0.02	0.08	0.44	0.00	0.00	0.00	0.00
Grader	0.01	0.04	0.24	0.00	0.00	0.00	0.00
Compactor	0.01	0.04	0.22	0.00	0.00	0.00	0.00
Water Truck	0.01	0.03	0.16	0.00	0.00	0.00	0.00
Subtotal	0.06	0.25	1.23	0.00	0.01	0.01	0.01

Table C-172. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material

Location/Equipment Type	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Hydraulic Dredging - Fine Grain Material CSWH							
Main Engine - Electric	---	---	---	---	---	---	---
Derrick Hoist	0.01	0.03	0.16	0.00	0.00	0.00	0.00
Derrick Winch	0.00	0.01	0.02	0.00	0.00	0.00	0.00
Anchor Barge Winch	0.01	0.02	0.12	0.00	0.00	0.00	0.00
Generator	0.01	0.04	0.20	0.00	0.00	0.00	0.00
Survey Boat	0.00	0.02	0.09	0.01	0.00	0.00	0.00
Crew Boat	0.00	0.01	0.05	0.00	0.00	0.00	0.00
Tug Boat	0.07	0.69	1.87	0.00	0.06	0.06	0.05
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.10	0.81	2.51	0.01	0.06	0.06	0.06
Clamshell Dredging - Fine Grain Material to LA 2							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.02	0.09	0.49	0.00	0.00	0.00	0.00
Tug Boat	0.47	4.34	11.81	0.01	0.35	0.35	0.33
Subtotal	0.49	4.43	12.31	0.01	0.35	0.35	0.33
Clamshell Dredging - Fine/Coarse Grain Material to LA-3							
Main Hoist - Clamshell Dredge	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.01	0.05	0.26	0.00	0.00	0.00	0.00
Tug Boat	0.68	6.32	17.20	0.01	0.51	0.51	0.47
Subtotal	0.70	6.37	17.46	0.02	0.51	0.51	0.47

Table C-173. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2

Location/Activity	Tons						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Dike Const. Quarry Run Placement							
Cabrillo SWH	1.35	11.53	33.29	0.03	0.88	0.88	0.82
Dike Construction Armor Stone Placement							
Trench Excavation							
Cabrillo SWH	0.00	0.01	0.04	0.00	0.00	0.00	0.00
Surcharge Removal							
Loading	0.60	2.41	11.55	0.01	0.05	0.05	0.04
Transport	0.02	0.15	0.42	0.00	0.01	0.01	0.01
Unload Cabrillo SWH	0.54	2.07	11.14	0.01	0.04	0.04	0.04
Dredging of Contaminated Material							
Clamshell - Contaminated Material	0.06	0.25	1.23	0.00	0.01	0.01	0.01
Dredging and Disposal of Dredging Material							
Hydraulic - Cabrillo SWH	0.10	0.81	2.51	0.01	0.06	0.06	0.06
Clamshell - LA-2	0.49	4.43	12.31	0.01	0.35	0.35	0.33
Clamshell - LA-3	0.70	6.37	17.46	0.02	0.51	0.51	0.47
Total Mitigated Emissions (1)	3.86	28.03	89.96	0.09	1.91	1.91	1.78

Table C-174. Yearly Mitigated Emissions for the POLA Channel Deepening Project Alternative 2

Yearly Scenario	Tons (1)						
	ROG	CO	NOx	SOx	PM	PM10	PM2.5
Alternative 1 - 2009	0.7	6.2	17.7	0.0	0.5	0.5	0.4
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Net Annual Mitigated Emissions - 2009	(5.9)	(26.2)	(99.0)	(5.6)	(3.3)	(3.3)	(3.0)
Alternative 1 - 2010	2.0	17.2	49.1	0.1	1.3	1.3	1.2
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Net Annual Mitigated Emissions - 2010	(4.6)	(15.2)	(67.6)	(5.6)	(2.4)	(2.4)	(2.2)
Alternative 1 - 2011	1.2	4.6	23.1	0.0	0.1	0.1	0.1
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Net Annual Mitigated Emissions - 2011	(5.5)	(27.8)	(93.6)	(5.6)	(3.6)	(3.6)	(3.4)
Conformity de minimis Thresholds	10	100	10	NA	NA	70	100

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.

Table C-175. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement

<i>Location/Equipment Type</i>	<i>Tons</i>			
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2e</i>
Cabrillo SWH				
Barge Equipment	302.18	0.05	0.00	304
Derrick Barge Crane	139.47	0.02	0.00	140
Tugboat - Derrick Barge Crane	262.51	0.04	0.00	264
Tugboat - Transport Quarry Run to Site (1)	2,526.62	0.35	0.02	2,542
Subtotal	3,230.78	0.46	0.03	3,250.52

Table C-176. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 -
Surcharge Removal

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
SW Slip A#1 Surcharge Removal - Loading				
Scraper	394.09	0.06	0.00	397
Backhoe	70.06	0.01	0.00	71
Main Hoist - Clamshell Dredge (Electric)	---	---	---	
Main Generator - Clamshell Dredge (Electric)	---	---	---	
Deck Generator - Clamshell Dredge	52.55	0.01	0.00	53
Dozer	293.38	0.04	0.00	295
Off-Road Truck	306.51	0.04	0.00	308
Water Truck	142.31	0.02	0.00	143
Grader	52.55	0.01	0.00	53
Subtotal	1,311.44	0.20	0.01	1,320.10
SW Slip A#1 Surcharge Removal - Transport				
Scows	---	---	---	
Tug Boat	39.56	0.01	0.00	40
Subtotal	39.56	0.01	0.00	39.80
SW Slip A#1 Surcharge Removal - Unload CSWH				
Main Hoist - Clamshell Dredge	700.60	0.10	0.01	705
Main Generator - Clamshell Dredge	525.45	0.08	0.01	529
Deck Generator - Clamshell Dredge	52.55	0.01	0.00	53
Scows	---	---	---	
Subtotal	1,278.60	0.19	0.01	1,286.75

Table C-177. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 -
Dredging of Contaminated Material.

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Contaminated Material				
Main Hoist - Clamshell Dredge (Electric)	---	---	---	
Main Generator - Clamshell Dredge (Electric)	---	---	---	
Deck Generator - Clamshell Dredge	8.05	0.00	0.00	8
Scows	---	---	---	
Tug Boat	10.10	0.00	0.00	10
Electric Pump	---	---	---	
Skiff	0.79	0.00	0.00	1
Dozer	49.95	0.01	0.00	50
Grader	26.84	0.00	0.00	27
Compactor	24.60	0.00	0.00	25
Water Truck	17.89	0.00	0.00	18
Subtotal	138.22	0.02	0.00	139.15

Table C-178. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Hydraulic Dredging - Fine Grain Material CSWH				
Main Engine - Electric	---	---	---	
Derrick Hoist	18.44	0.00	0.00	19
Derrick Winch	1.67	0.00	0.00	2
Anchor Barge Winch	13.83	0.00	0.00	14
Generator	23.06	0.00	0.00	23
Survey Boat	5.81	0.00	0.00	6
Crew Boat	2.91	0.00	0.00	3
Tug Boat	177.84	0.02	0.00	179
Electric Pump	---	---	---	
Subtotal	243.56	0.03	0.00	245.06
Clamshell Dredging - Fine Grain Material to LA 2				
Main Hoist - Clamshell Dredge (Electric)	---	---	---	
Main Generator - Clamshell Dredge (Electric)	---	---	---	
Deck Generator - Clamshell Dredge	56.15	0.01	0.00	57
Tug Boat	1,120.59	0.15	0.01	1,127
Subtotal	1,176.74	0.16	0.01	1,183.81
Clamshell Dredging - Fine/Coarse Grain Material to LA-3				
Main Hoist - Clamshell Dredge (Electric)	---	---	---	
Main Generator - Clamshell Dredge (Electric)	---	---	---	
Deck Generator - Clamshell Dredge	29.20	0.00	0.00	0.00
Tug Boat	1,631.58	0.23	0.02	0.00
Subtotal	1,660.77	0.23	0.02	0.00

Table C-179. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2

Location/Activity	Tons			
	CO2	CH4	N2O	CO2e
Dike Const. Quarry Run Placement				
Cabrillo SWH	3,231	0.46	0.03	3,251
Dike Construction Armor Stone Placement				
Trench Excavation				
Berths 243-245	10	0.00	0.00	10
Surcharge Removal				
Loading	1,311	0.20	0.01	1,320
Transport	40	0.01	0.00	40
Unload Cabrillo SWH	1,279	0.19	0.01	1,287
Dredging of Contaminated Material				
Clamshell Dredge of Contaminated	138	0.02	0.00	139
Dredging and Disposal of Dredging Material				
Hydraulic - Cabrillo SWH	243.56	0.03	0.00	245.06
Clamshell - LA-2	1,176.74	0.16	0.01	1,183.81
Clamshell - LA-3	1,660.77	0.23	0.02	0.00
Total GHG Emissions	9,089.84	1.30	0.09	7,475.41

Table C-180. Yearly Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2.

Year/Source Category	Metric Tons (t)			
	CO2	CH4	N2O	CO2e
Year 1 - Direct Sources	1,563.0	0.22	0.02	1,572.5
Year 1 - Electrical Generation	417	0.00	0.00	418
Year 1 - Total	1,980	0.22	0.02	1,990
Year 2 - Direct Sources	4,309.9	0.61	0.04	2,817.3
Year 2 - Electrical Generation	3,823	0.03	0.02	3,829
Year 2 - Total	8,133	0.64	0.06	6,646
Year 2 - Direct Sources	2,390.5	0.36	0.03	2,406.0
Year 2 - Electrical Generation	438	0.00	0.00	438
Year 2 - Total	2,828	0.36	0.03	2,844

Notes: (1) All activities would occur in 2009, except surcharge disposal would occur in 2010.

Table C-181. Construction Activities for the POLA Channel Deepening Project Alternative 2 -
Surcharge Removal - Electrical Demand

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
SW Slip A#1 Surcharge Removal - Loading								
Scraper	225	0.40	5	450	12	5,400		
Backhoe	80	0.50	2	80	12	960		
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	12	7,200	116.5	838,800
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	12	5,400	116.5	629,100
Deck Generator - Clamshell Dredge	240	0.60	1	144	5	720		
Dozer	335	0.50	2	335	12	4,020		
Off-Road Truck			4					
Water Truck	325	0.50	1	163	12	1,950		
Grader	180	0.50	1	90	8	720		

Table C-182. Construction Activities for the POLA Channel Deepening Project Alternative 2 -
Dredging of Contaminated Material - Electrical Demand

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Clamshell Dredging - Contaminated Material								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	12	7,200	29.8	214,211
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	12	5,400	29.8	160,658
Deck Generator - Clamshell Dredge	240	0.60	1	144	3	432		
Scows	N/A	N/A	2	N/A	12	N/A		
Tug Boat	800	0.20	1	160	4	640		
Electric Pump	N/A	N/A	1	N/A	12	N/A		
Skiff	125	0.20	1	25	2	50		
Dozer	335	0.50	2	335	8	2,680		
Grader	180	0.50	2	180	8	1,440		
Compactor	250	0.33	2	165	8	1,320		
Water Truck	240	0.50	1	120	8	960		

Table C-183. Construction Activities for the POLA Channel Deepening Project Alternative 2 -
Dredging and Disposal of Dredging Material - Electrical Demand

<i>Location/Equipment Type</i>	<i>Power Rating (Hp)</i>	<i>Load Factor</i>	<i># Active</i>	<i>Hourly Hp-Hrs</i>	<i>Hours Per Day</i>	<i>Daily Hp-Hrs</i>	<i>Work Days</i>	<i>Total Hp-Hrs</i>
Hydraulic Dredging - Fine Grain Material CSWH								
Main Engine - Electric	17,000	1	1	8,500	24	204,000	43.8	8,938,090
Derrick Hoist	240	0.7	1	168	4	672		
Derrick Winch	87	0.7	1	61	1	61		
Anchor Barge Winch	180	0.7	1	126	4	504		
Generator	350	0.6	1	210	4	840		
Survey Boat	250	0.2	1	50	5	250		
Crew Boat	125	0.2	1	25	5	125		
Tug Boat	850	0.5	1	425	18	7,650		
Electric Pump	N/A	N/A	1	N/A	24	N/A		
Clamshell Dredging - Fine Grain Material to LA 2								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	15	8,964	200.0	1,792,717
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	15	6,723	200.0	1,344,538
Deck Generator - Clamshell Dredge	240	0.6	1	144	3	448		
Tug Boat (1)	2,200	0.6	2	2,640	4.0	10,560		
Clamshell Dredging - Fine/Coarse Grain Material to LA-3								
Main Hoist - Clamshell Dredge (Electric)	1,200	0.50	1	600	15	8,964	104.0	932,213
Main Generator - Clamshell Dredge (Electric)	900	0.50	1	450	15	6,723	104.0	699,160
Deck Generator - Clamshell Dredge	240	0.6	1	144	3	448		-
Tug Boat (1)	2,200	0.6	2	2,640	11.2	29,568		-

Notes: (1) Based upon a daily disposal volume to LA-2 of 4,000 cy and a barge capacity of 2,000 cy.

Table C-184. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal Due to Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
SW Slip A#1 Surcharge Removal - Loading				
Scraper	0	0.00	0.00	0
Backhoe	0	0.00	0.00	0
Main Hoist - Clamshell Dredge (Electric)	275	0	0	275
Main Generator - Clamshell Dredge (Electric)	206	0	0	207
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Dozer	0	0.00	0.00	0
Off-Road Truck	0	0.00	0.00	0
Water Truck	0	0.00	0.00	0
Grader	0	0.00	0.00	0
Subtotal	481	0.00	0.00	482
SW Slip A#1 Surcharge Removal - Transport				
Scows				
Tug Boat				
Subtotal				
SW Slip A#1 Surcharge Removal - Unload CSWH				
Main Hoist - Clamshell Dredge				
Main Generator - Clamshell Dredge				
Deck Generator - Clamshell Dredge				
Scows				
Subtotal				

Table C-185. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging of Contaminated Material - Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Clamshell Dredging - Contaminated Material				
Main Hoist - Clamshell Dredge (Electric)	70	0	0	70
Main Generator - Clamshell Dredge (Electric)	53	0	0	53
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Scows	---	---	---	
Tug Boat	0	0.00	0.00	0
Electric Pump	---	---	---	
Skiff	0	0.00	0.00	0
Dozer	0	0.00	0.00	0
Grader	0	0.00	0.00	0
Compactor	0	0.00	0.00	0
Water Truck	0	0.00	0.00	0
Subtotal	123	0.00	0.00	123

Table C-186. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 - Dredging and Disposal of Dredging Material - Electrical Generation

Location/Equipment Type	Tons			
	CO2	CH4	N2O	CO2e
Hydraulic Dredging - Fine Grain Material CSWH				
Main Engine - Electric	2,931	0.02	0.01	2,935
Derrick Hoist	0	0.00	0.00	0
Derrick Winch	0	0.00	0.00	0
Anchor Barge Winch	0	0.00	0.00	0
Generator	0	0.00	0.00	0
Survey Boat	0	0.00	0.00	0
Crew Boat	0	0.00	0.00	0
Tug Boat	0	0.00	0.00	0
Electric Pump	---	---	---	
Subtotal	2,931	0.02	0.01	2,935
Clamshell Dredging - Fine Grain Material to LA 2				
Main Hoist - Clamshell Dredge (Electric)	588	0	0	589
Main Generator - Clamshell Dredge (Electric)	441	0	0	441
Deck Generator - Clamshell Dredge	0	0.00	0.00	0
Tug Boat	0	0.00	0.00	0
Subtotal	1,029	0.01	0.00	1,030
Clamshell Dredging - Fine/Coarse Grain Material to LA-3				
Main Hoist - Clamshell Dredge (Electric)	306	0	0	306
Main Generator - Clamshell Dredge (Electric)	229	0	0	230
Deck Generator - Clamshell Dredge	0.00	0.00	0.00	0.00
Tug Boat	0.00	0.00	0.00	0.00
Subtotal	535	0.00	0.00	536

Table C-187. Total Mitigated GHG Emissions for the POLA Channel Deepening Project Alternative 2 Due to Electrical Generation

Location/Activity	Tons			
	CO2	CH4	N2O	CO2e
Dike Const. Quarry Run Placement				
Cabrillo SWH				
Dike Construction Armor Stone Placement				
Trench Excavation				
Berths 243-245	47	0	0	47
Surcharge Removal				
Loading	481	0.00	0.00	482
Transport				
Unload Cabrillo SWH				
Dredging of Contaminated Material				
Clamshell Dredge of Contaminated	123	0.00	0.00	123
Dredging and Disposal of Dredging Material				
Hydraulic - Cabrillo SWH	2,931	0.02	0.01	2,935
Clamshell - LA-2	1,029	0.01	0.00	1,030
Clamshell - LA-3	535	0.00	0.00	536
Total Emissions	5,145	0	0	5,153

Table C-188. POLA Channel Deepening Project Alternative 2 Annual Mitigated GHG Emissions due to Electrical Generation

Year	Metric Tons (1)			
	CO2	CH4	N2O	CO2e
2009	417.0	0.00	0.00	417.6
2010	3,823.2	0.03	0.02	3,828.8
2011	437.53	0.00	0.00	438.17

Notes: (1) Emissions distributed into each calendar year according to proposed construction schedule.