Appendix M.

Conformity Determination

Appendix M

Channel Deepening Project

Draft General Conformity Determination

The Port of Los Angeles, California

March 2009

Prepared for:

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Section 1
Introduction

Section 176 (c) of the Clean Air Act (42 U.S.C. § 7506(c)) requires any entity of the Federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the Clean Air Act (42 U.S.C. § 7410(a)) before the action is otherwise approved. In this context, conformity means that such Federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of national ambient air quality standards (NAAQS) and achieving expeditious attainment of those standards. Each Federal agency (including the U.S. Army Corps of Engineers [USACE]) must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable SIP before the action is taken.

At issue for the Port of Los Angeles Channel Deepening Project (hereinafter the Project) is the issuance of a USACE permit, pursuant to Section 404 of the Clean Water Act, Section 10 of the River and Harbor Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act, for completion of the Project as authorized by Congress in Water Resources Development Act (WRDA) 2000. This action includes the construction/demolition of in-water structures and the disposal of up to three million cubic yards (mcy) of remaining dredge material[1] associated with the Project into inner and outer harbor areas and into ocean waters at ocean disposal sites LA-2 and LA-3. This draft general conformity determination documents the evaluation of the Federal action with Section 176 (c) requirements of the Clean Air Act. The remainder of Section 1 discusses the background of the regulatory requirements. Section 2 discusses the USACE's Federal action. Section 3 discusses the regulatory procedures for the conformity evaluation. Section 4 describes how applicability of the conformity requirements to the Federal action was analyzed. Section 5 presents the methods and criteria that were used to evaluate the conformity of the Federal action. Section 6 discusses the concepts of mitigation required under conformity regulations. Section 7 presents the reporting process to be followed to formalize the conformity determination. Section 8 offers the USACE's findings and conclusions. Section 9 provides references for the evaluation. Attachment A provides a discussion and results of the emission calculation methods applied in the general conformity evaluation. Attachment B presents the USACE general conformity guidance document.

[1] The 3.0 mcy of remaining dredge material that requires disposal includes material within the Main Channel and berths that has not yet been dredged, as well as approximately 0.815 mcy of material that was previously dredged and now exists as surcharge on the Southwest Slip at Berth 100 (Table 2-1).

1.1 General Conformity Requirements

On November 30, 1993, the U.S. Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 C.F.R. Part 93 Subpart B for all Federal activities except those covered under transportation conformity. On September 14, 1994, South Coast Air Quality Management District (SCAQMD) adopted these regulations by reference as part of Rule 1901. The general conformity regulations apply to a Federal action in a nonattainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants caused by the Federal action equal or exceed certain de minimis rates, thus requiring the Federal agency to make a determination of general conformity. Even if the total direct and indirect emissions of any pollutant from a Federal action does not equal or exceed the de minimis rates, but represents ten percent or more of a nonattainment or maintenance area's total emissions of that pollutant, the action is considered regionally significant and the Federal agency must make a determination of general conformity. By requiring an analysis of direct and indirect emissions, EPA intended the regulating Federal agency to make sure that only those emissions that are reasonably foreseeable and that the Federal agency can practicably control subject to that agency's continuing program responsibility will be addressed.

The general conformity regulations incorporate a stepwise process, beginning with an applicability analysis. According to EPA guidance (EPA 1994), before any approval is given for a Federal action to go forward, the regulating Federal agency must apply the applicability requirements found at 40 C.F.R. § 93.153(b) to the Federal action and/or determine the regional significance of the Federal action to evaluate whether, on a pollutant-by-pollutant basis, a determination of general conformity is required. The guidance states that the applicability analysis can be (but is not required to be) completed concurrently with any analysis required under the National Environmental Policy Act (NEPA). If the regulating Federal agency determines that the general conformity regulations do not apply to the Federal action, no further analysis or documentation is required. If the general conformity regulations do apply to the Federal action, the regulating Federal agency must next conduct a conformity evaluation in accord with the criteria and procedures in the implementing regulations, publish a draft determination of general conformity for public review, and then publish the final determination of general conformity.

Section 2
Description of the Federal Action

In accordance with applicable general conformity regulations and guidance, including USACE guidance dated April 20, 1994 (see Attachment B), when a general conformity determination is necessary, the USACE is only required to conduct a general conformity evaluation for a specific Federal action associated with the selected alternative for a project or program (EPA 1994), and the USACE must issue a positive conformity determination before the Federal action is approved. Each Federal agency is responsible for determining conformity of those proposed actions over which it has jurisdiction. This draft general conformity determination is related only to those activities included in the USACE's Federal action pertaining to the Project, which is more fully described in Section 2.1.

The general conformity requirements only apply to Federal actions proposed in nonattainment areas (i.e., areas where one or more NAAQS are not being achieved at the time of the proposed action and requiring SIP provisions to demonstrate how attainment will be achieved) and in maintenance areas (i.e., areas recently reclassified from nonattainment to attainment and requiring SIP provisions pursuant to Section 175A of the Clean Air Act to demonstrate how attainment will be maintained). The attainment status in the vicinity of POLA is discussed in Section 4.1.

2.1 Channel Deepening Project

To complete the Project, additional capacity for disposal of dredged material is needed. The Final SEIS/SEIR is a supplement to the 2000 SEIS/SEIR that was prepared for the Project, which was a supplement to the 1998 Project EIR and the 1992 Deep Draft Navigation Improvements Project EIS/EIR. This SEIS/SEIR addresses impacts related to the modifications required to complete disposal of dredged material from the authorized Project (proposed action).

The purpose of the proposed action is to complete the Project by providing approximately 3.0 million cubic yards (mcy) of additional disposal capacity and optimizing beneficial use of the dredged material within the Port of Los Angeles. Additional disposal sites are needed because disposal sites developed for dredge material identified in the 2000 SEIS/SEIR have been found to be inadequate for the total volume of sediments that require removal from the Main Channel and adjacent berth areas to complete the Project (see details in Chapter 2 of the Final SEIS/SEIR).

The USACE and LAHD are undertaking the proposed action to provide disposal capacity to complete the Project. The proposed action includes two action alternatives: (1) Alternative 1, Port Development and Environmental Enhancement and (2) Alternative 2, Environmental Enhancement and Ocean Disposal. Alternative 1 has been preliminarily identified as the environmentally superior/preferred alternative and the Least Environmentally Damaging and Practicable Alternative (LEDPA) by the USACE.

Since the LEDPA determination in the Project Final SEIS/SEIR is preliminary and it will be finalized in the ROD, the USACE provides the following conformity determinations for both alternatives.

The alternatives are comprised of different combinations of the dredge material disposal options. Table 2-1 summarizes the disposal site locations and associated proposed dredge material disposal volumes for each alternative. It is expected that implementation of either alternative would begin in October 2009 and activities would be completed by 2012. Further details of the proposed dredge and disposal activities are provided in Section 2.0 of the Project Final SEIS/SEIR.

The Federal action includes construction/demolition of in-water structures and the disposal of dredge material at various disposal sites within the inner and outer harbors as well as the open ocean. As part of the environmental review of the proposed action, the USACE, in coordination with the LAHD, has prepared this draft general conformity determination to demonstrate compliance with the general conformity requirements in support of the USACE's Federal action associated with the Project.

Table 2-1. Disposal Sites/Volumes - Proposed Action Alternatives (mcy)

Disposal sites	Alternative 1 Port Development and Environmental Enhancement (mcy)	Alternative 2 Environmental Enhancement and Ocean Disposal (mcy)
Berths 243-245 (a)	0.368 (b)	NA
Northwest Slip	0.128 (b)	NA
CSWH Expansion (c)	1.700 (b)	1.700 (b)
ARSSS (d)	NA	0.080
Ocean Disposal Site LA-2	0. 804	0. 804
Ocean Disposal Site LA-3	NA	0.416
Total Volume	**3.000**	**3.000**

(a) Site would be used for material unsuitable for open water disposal.
(b) Additional dredging of 0.090 mcy for Berths 243-245, 0.050 mcy for Northwest Slip, and 0.040 mcy for CSWH is required for trenching dike foundations and is not included in the volumes presented in this table. These volumes of material would be disposed in their respective disposal sites, thereby decreasing the amount of Channel Deepening Project material able to be accommodated by each disposal site. Therefore, a total of approximately 0.18 mcy would be available to be placed as surcharge on Berths 243-245.
(c) CSWH: Cabrillo Shallow Water Habitat
(d) ARSSS: Anchorage Road Soil Storage Site. This site would be used for material unsuitable for open water disposal.

The LAHD has prepared an extensive list of mitigation measures that it proposes to implement as part of the proposed action to satisfy requirements of the California Environmental Quality Act (CEQA), and for the general conformity evaluation, the construction measures are considered part of project construction as designed. These mitigation measures were developed from reviews of mitigation measures and plans used at other seaports, extensions of ongoing LAHD environmental policies (including implementation of the Sustainable Construction Guidelines (POLA 2007)), and public

comments received on the Draft SEIS/SEIR. The mitigation measures related to construction include the following general approaches to reduce air quality impacts:

MM AQ-2.1: Construction Equipment Standards.

1. Idling shall be restricted to a maximum of 5 minutes when not in use.
2. The following emission standards shall be met:

Prior to and including December 31, 2011: All on-site mobile diesel-powered construction equipment greater than 50 Hp, except derrick barges and marine vessels shall meet the Tier 2 emission standards as defined in the USEPA Nonroad Diesel Engine Rule. In addition, all construction equipment greater than 50 Hp shall be retrofitted with a CARB-certified Level 3 diesel emissions control device.

From January 1, 2012 through December 31, 2014: All off-road diesel-powered construction equipment greater than 50 Hp shall meet Tier-3 emission nonroad emission standards, at a minimum and shall be retrofitted with a CARB-certified Level 3 diesel emissions control device.

This mitigation measure shall be met, unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form within the State of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-2.2: Fleet Modernization for On-Road Trucks.

Prior to and including December 31, 2011: All on -road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on-site or to transport materials to and from the site shall comply with USEPA 2004 on road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr PM_{10} and 2.0 g/bhp-hr NO_x).

From January 1, 2012 on: All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Port of Los Angeles shall comply with EPA 2007 on-road emission standards for PM_{10} and NO_x (0.01 g/bhp-hr and 0.20 g/bhp-hr).

All years: Trucks hauling materials such as debris or fill shall be fully covered while in operation off Port property.

In addition, all on-road heavy heavy-duty trucks with a GVWR of 19,500 pounds or greater used at the Port of Los Angeles shall be equipped with a CARB verified Level 3 device.

This mitigation measure shall be met unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form, within the State of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-2.3: Electrify Dredge Equipment. All dredging equipment shall be electric where available.

MM AQ-2.4: Engine Standards for Harbor Craft Used In Construction.

Prior to December 31, 2010, all harbor craft with category 1 or 2 (C1 or C2) marine engines shall achieve a minimum emission reduction equivalent to a USEPA Tier-2 2004 level nonroad marine engine. Subsequent to January 1, 2011, all harbor craft with C1 or C2 marine engines shall utilize USEPA Tier 3 or cleaner engines.

This mitigation measure shall be met unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the

application process is not yet approved, or the application has been approved, but funds are not yet available.

- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-2.5: Additional Fugitive Dust Control. The construction contractor shall further reduce fugitive dust emissions to 90 percent from uncontrolled levels. The proposed action construction contractor shall specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan. Their duties shall include holiday and weekend periods when work may not be in progress. Measures to reduce fugitive dust include, but are not limited to, the following:

- Active grading sites shall be watered one additional time per day beyond that required by Rule 403
- Contractors shall apply approved non-toxic chemical soil stabilizers according to manufacturer's specifications to all inactive construction areas or replace groundcover in disturbed areas (previously graded areas) inactive for ten days or more.
- Construction contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code. ("Spilling Loads on Highways").
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- Pave road and road shoulders.
- Require the use of clean-fueled sweepers pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on-site or roads adjacent to the site to reduce fugitive dust emissions.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation.
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.

- Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
- Require the use of electrified truck spaces for all truck parking or queuing areas if feasible. Alternatively, trucks could be required to turn off if parked or stopped in idle for more than 15 minutes.

The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.

MM AQ-2.6: Additional Best Management Practices (BMPs). The following types of measures are required on construction equipment (including on-road trucks), where feasible:

1. Use of diesel oxidation catalysts and catalyzed diesel particulate traps.
2. Maintain equipment according to manufacturers' specifications.
3. Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use.
4. Install high-pressure fuel injectors on construction equipment vehicles.
5. Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors
6. Improve traffic flow by signal synchronization
7. Enforce truck parking restrictions
8. Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc.
9. Re-route construction trucks away from congested streets or sensitive receptor areas.
10. Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.
11. Use electric power in favor of diesel power where available.

LAHD shall coordinate with USACE to implement a process by which to select additional BMPs to further reduce air emissions during construction. The LAHD, in coordination with USACE, shall determine the BMPs once the contractor identifies and secures a final equipment list. The final BMPs shall be implemented by including mitigation measures in the Plan and Specifications and in the project stormwater pollution prevention plan (SWPPP). All BMPs shall be incorporated into the plan and specifications that the construction contractor will follow will be monitored by USACE's Environmental Resources Branch to ensure that mitigation measures are

implemented during construction. The final construction equipment list can be determined after selection of the construction contractor. This mitigation is not quantified in this study. The final BMPs shall be monitored by Environmental Resources Branch and implemented through USACE's Engineering Division in the construction contract.

All of the mitigation measures that the USACE has relied upon in this draft general conformity determination will become construction specifications via modifications to the Plan and Specifications. These provisions ensure that the measures will be properly implemented through incorporating mitigation measures into all construction specifications for the proposed action .

2.2 Relationship to Other Environmental Analyses

A joint Draft SEIS/SEIR was published for public review and comment in August 2008 (USACE/LAHD 2008) providing an analysis of two proposed alternatives (Alternatives 1 and 2). The USACE is the lead agency for the NEPA analysis documented in the Supplemental Environmental Impact Statement (SEIS). The LAHD is the lead agency for the CEQA analysis documented in the Supplemental Environmental Impact Report (SEIR).

Both NEPA and CEQA require that the air quality impacts of the proposed action implementation be analyzed and disclosed. Regulatory guidance implementing these statutes requires that the air quality impacts from the project and its alternatives be determined by identifying the associated project incremental emissions and air pollutant concentrations and comparing them respectively to emissions thresholds and state and national ambient air quality standards. For CEQA purposes, the air quality impacts of the proposed action alternatives were compared to the impacts of the environmental baseline to determine environmental significance and develop appropriate mitigation measures. The air quality impacts of the two action alternatives were also compared to the NEPA Baseline for NEPA purposes. This draft general conformity determination is being published with the Final SEIS/SEIR.

Section 3
Regulatory Procedures

The general conformity regulations establish certain procedural requirements that must be followed when preparing a general conformity evaluation. This section addresses the major procedural issues and specifies how these requirements are met for the evaluation of the Federal action. The procedures required for the general conformity evaluation are similar but not identical to those for conducting an air quality impact analysis under NEPA regulations.

3.1 Use of Latest Planning Assumptions

The general conformity regulations require the use of the latest planning assumptions for the area encompassing the Federal action, derived from the estimates of population, employment, travel, and congestion most recently approved by the MPO (40 C.F.R. § 93.159(a)). It should be noted that the latest planning assumptions available from the MPO at the time of this evaluation may differ from the planning assumptions used in establishing the applicable SIP emissions budgets. The approved 1997/1999 AQMP was developed with data similar to that used in the 1998 Regional Transportation Plan (RTP), which was contemporaneous with the 1997/1999 AQMP. See TraPac final conformity determination for more information. The approved 2008 RTP, which supersedes earlier RTPs, predicts an increase of goods movement in the SCAG region out to at least 2035, which partly reflects activities at POLA.

As noted previously, SCAG is the MPO for the region encompassing POLA. The SCAG region covers an area of over 38,000 square miles and includes the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. SCAG adopted the 2008 RTP on May 8, 2008 (SCAG 2008). On June 5, 2008, the Federal Highway Administration issued a finding that the 2008 RTP conforms to the applicable state implementation plan (i.e., transportation conformity determination). The growth forecast for the 2008 RTP estimated a region-wide population growth of approximately 30 percent between 2005 and 2035 and a nearly equivalent region-wide employment growth for the same period. The growth rates for population and employment in Los Angeles County are among the lowest for counties in the SCAG region.

The 2008 RTP indicates that container volume processed by the San Pedro Bay ports (Port of Los Angeles and Port of Long Beach) grew by almost 60 percent between 2000 and 2006, and it is expected to nearly triple by 2035. While the 2008 RTP focuses on the land transport aspects of goods movement (e.g., freight rail, high-speed regional transport, and highway), it recognizes the huge contribution and potential to goods movement from maritime transport and other marine activities in the ports.

3.2 Use of Latest Emission Estimation Techniques

The general conformity regulations require the use of the latest and most accurate emission estimation techniques available, unless such techniques are inappropriate (40

C.F.R. § 93.159(b)). Prior written approval from SCAQMD or EPA is required to modify or substitute emission estimation techniques. It should be noted that the latest and most accurate emission estimation techniques available at the time of this evaluation may differ from the emission estimation techniques used in establishing the applicable SIP emissions budgets. The details of emissions estimating are described in Attachment A. The emission estimation techniques used in this evaluation are consistent with those used in preparing the Final SEIS/SEIR (USACE/LAHD 2009).

3.3 Emission Scenarios

The general conformity regulations require that the evaluation must reflect certain emission scenarios (40 C.F.R. §93.159(d)). Specifically, these scenarios must include emissions from the Federal action for the following years: (1) for nonattainment areas, the year mandated in the Clean Air Act for attainment and for maintenance areas, the farthest year for which emissions are projected in the approved maintenance plan; (2) the year during which the total of direct and indirect emissions for the Federal action are projected to be the greatest on an annual basis; and (3) any year for which the applicable SIP specifies an emissions budget. These emission scenarios will be described in more detail in Section 5. **Table 3-1** specifies the years for which the general conformity evaluation was performed for comparison to the approved SIP. **Table 3-2** specifies the years for which the general conformity evaluation was performed for comparison to the proposed SIP revisions.

Table 3-1
Emission Scenario Years for General Conformity Evaluation based on 1997/99 SIP

Pollutant	Attainment/ Maintenance	Greatest Emission Year	Emissions Budget Years
Ozone (VOC or NO_x)	2010	2010	2002[a.],,2003[a.],,2005[a.],2006[a.],2007[a.], 2008[a.],2010,2020[b.]

Source: Camp Dresser & McKee Inc., 2008.

a. No project construction estimated to occur in 2002, 2003, 2005, 2006, 2007 or 2008; therefore, no comparisons to budgets for these years are necessary.

b. Federal action construction does not extend to 2020; therefore, no comparisons to 2020 budgets are included.

Table 3-2
Emission Scenario Years for General Conformity Evaluation based on 2007 AQMP

Pollutant	Attainment/ Maintenance	Greatest Emission Year	Emissions Budget Years
Ozone (VOC or NO_X)	2023[a,b]	2010	2002[c], 2005[c.],2008[c.],2010,2011, 2014[a.],2017[a.],2020[a.],2023[a.],2030[a.].

Source: Camp Dresser & McKee Inc., 2008.

a Federal action construction does not extend beyond 2011; therefore, no comparisons to budgets for years beyond 2011 are included.

b. The current designation of the region is Severe-17, which indicates an attainment year of 2021. However, the 2007 AQMP requests a re-designation to Extreme non-attainment, which has an attainment date in June 2024. Since the ozone season extends into the Autumn, attainment must be demonstrated by the end of the ozone season in 2023.

c. No project construction estimated to occur in 2002, 2005 or 2008; therefore, no comparisons to budgets for these years are necessary.

Section 4
Applicability Analysis

As stated previously, the first step in a general conformity evaluation is an analysis of whether the requirements apply to a Federal action proposed to be taken in a nonattainment or a maintenance area. Unless exempted by the regulations or otherwise presumed to conform, a Federal action requires a general conformity determination for each pollutant where the total of direct and indirect emissions caused by the Federal action would equal or exceed an annual de minimis emission rate. Notwithstanding the de minimis emission rate, if a Federal action is identified to be regionally significant, the Federal agency must make a general conformity determination.

4.1 Attainment Status of South Coast Air Basin

POLA is located within Los Angeles County in the SCAB of southern California. The regulatory agencies with primary responsibility for air quality management in the SCAB include SCAQMD and CARB, with oversight by EPA. Pursuant to the Clean Air Act, EPA established primary NAAQS to protect the public health with an adequate margin of safety and secondary NAAQS to protect the public welfare for seven air pollutants. These pollutants are known as criteria pollutants: particulate matter with an equivalent aerodynamic diameter less than or equal to ten micrometers (µm) in diameter (PM_{10}), particulate matter with an equivalent aerodynamic diameter less than or equal to 2.5 µm in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). EPA has delegated authority to SCAQMD to implement and enforce the NAAQS in the SCAB.

That portion of the SCAB encompassing POLA is in an area that is designated as being in nonattainment of the NAAQS for O_3 (eight-hour average), PM_{10}, and $PM_{2.5}$. In addition, the severity of the nonattainment status for this area has been classified as "severe" for O_3 and "serious" for PM_{10} and it is unclassified for $PM_{2.5}$. On July 24, 1998, this area was re-designated from nonattainment to attainment/maintenance status for NO_2 by EPA (63 FR 39747). More recently, the area was re-designated by EPA from nonattainment to attainment/maintenance for CO (72 FR 26718), effective June 11, 2007. The area is in attainment of the NAAQS for SO_2 and Pb. Thus, for purposes of the general conformity requirements, this evaluation addresses NO_2, O_3 (eight-hour average), CO, PM_{10}, and $PM_{2.5}$.

4.2 Exemptions from General Conformity Requirements

As noted previously, the general conformity requirements apply to a Federal action if the net project emissions equal or exceed certain de minimis emission rates. The only exceptions to this applicability criterion are the topical exemptions summarized below. However, the emissions caused by the Federal action do not meet any of these exempt categories (except maintenance dredging and associated debris disposal pursuant to 40 CFR 93.153(c)(2)(ix)).

- Actions which would result in no emissions increase or an increase in emissions that is clearly below the de minimis levels (40 C.F.R. § 93.153(c)(2)). Examples include administrative actions and routine maintenance and repair.
- Actions where the emissions are not reasonably foreseeable (40 C.F.R. § 93.153(c)(3)).
- Actions which implement a decision to conduct or carry out a conforming program (40 C.F.R. § 93.153 (c)(4)).
- Actions which include major new or modified sources requiring a permit under the New Source Review (NSR) program (40 C.F.R. § 93.153(d)(1)).
- Actions in response to emergencies or natural disasters (40 C.F.R. § 93.153(d)(2)).
- Actions which include air quality research not harming the environment (40 C.F.R. § 93.153(d)(3)).
- Actions which include modifications to existing sources to enable compliance with applicable environmental requirements (40 C.F.R. § 93.153(d)(4)).
- Actions which include emissions from remedial measures carried out under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) that comply with other applicable requirements (40 C.F.R. § 93.153(d)(5)).

In addition to these topical exemptions, the general conformity regulations allow each Federal agency to establish a list of activities that are presumed to conform (40 C.F.R. § 93.153(f)). The USACE has not established a presumed-to-conform list of activities at the time of this evaluation.

4.3 De Minimis Emission Rates

The general conformity requirements will apply to a Federal action for each pollutant for which the total of direct and indirect emissions caused by the Federal action equal or exceed the de minimis emission rates shown in **Table 4-1**. These emission rates are expressed in units of tons per year (tpy) and are compared to the total of direct and indirect emissions caused by Federal action for the calendar year during which the net emissions are expected to be the greatest. It should be noted that, because O_3 is a secondary pollutant (i.e., it is not emitted directly into the atmosphere but is formed in

the atmosphere from the photochemical reactions of volatile organic compounds, VOC, and oxides of nitrogen, NO_x, in the presence of sunlight), its de minimis emission rate is based on primary emissions of its precursor pollutants - VOC and NO_x. If the net emissions of either VOC or NO_x exceed the de minimis emission rate for O_3 (EPA 1994), then the Federal action is subject to a general conformity evaluation for O_3.

The region in which the project is located has been designated as a "severe" non-attainment area for the 8-hour O_3 NAAQS, which carries a 25 tpy de minimis emission rate for NO_x and VOC. However, the currently approved SIP (1997 AQMP, as amended in 1999) was developed to demonstrate attainment of the revoked 1-hour O_3 NAAQS by 2010. At that time the region had been designated as an "extreme" nonattainment area for O_3, which carries a 10 tpy de minimis emission rate for NO_x and VOC. In addition, SCAQMD has requested re-designation (bump up) to "extreme" nonattainment for the 8-hour O_3 NAAQS in the 2007 AQMP. Therefore, the applicability analysis will use 10 tpy as the most stringent de minimis emission rate that might be applied to the Federal action for NO_x and VOC emissions.

Further, the pollutant $PM_{2.5}$ consists of primary particulate matter (directly emitted) and secondary particulate matter (formed in the atmosphere from precursor compounds) and may ultimately be composed of many separate chemical compounds. Generally, the main precursors of secondary $PM_{2.5}$ include oxides of nitrogen (NO_x), oxides of sulfur (SO_x), and ammonia, although organic carbon compounds (VOC) also contribute to the formation of $PM_{2.5}$. Dynamic reactions between these precursor compounds emitted into the atmosphere by the sources of interest will affect the amount of $PM_{2.5}$ attributable to the Federal action. Based on studies conducted by SCAQMD in the SCAB, in general, the total mass of $PM_{2.5}$ is more associated with combustion-related sources and secondary particles formed there from, and primary particles represent a relative small proportion of total $PM_{2.5}$ mass. In fact, ammonium nitrates and ammonium sulfates represent a dominant fraction of $PM_{2.5}$ components in the SCAB. If the net emissions of any of these precursor compounds exceed the de minimis emission rate for $PM_{2.5}$, then the Federal action is subject to a general conformity evaluation for $PM_{2.5}$.

Table 4-1
De Minimis Emission Rates for Determining Applicability of General Conformity Requirements to the Federal Action

Pollutant	SCAB Attainment Status Designations	De Minimis Emission Rate (tpy)
Nitrogen Dioxide	Attainment/Maintenance	100
Ozone (VOC or NO_x)	Nonattainment/Extreme [a]	10 [a]
Carbon Monoxide	Attainment/Maintenance	100
Particulate Matter PM_{10}	Nonattainment/Serious	70
Particulate Matter $PM_{2.5}$ (and each precursor) [b]	Nonattainment	100

Source: Camp Dresser & McKee Inc., 2008.

a. The region in which POLA resides has been designated as a "severe" nonattainment area for the 8-hour O_3 NAAQS, which carries a 25 tpy de minimis emission rate for NO_x and VOC. However, the currently approved SIP (1997 AQMP, as amended in 1999) was developed to demonstrate attainment of the revoked 1-hour O_3 NAAQS by 2010. At that time the region had been designated as an "extreme" nonattainment area for O_3, which carries a 10 tpy de minimis emission rate for NO_x and VOC. In addition, SCAQMD has requested re-designation to "extreme" nonattainment for the 8-hour O_3 NAAQS in the 2007 AQMP. Therefore, the applicability analysis will use 10 tpy as the de minimis emission rate for Federal action NO_x and VOC emissions.

b. The $PM_{2.5}$ precursors in the region include SO_x, NO_x, VOC, and ammonia.

4.4 Regional Significance

Even if a Federal action is less than the applicable de minimis emission rate for a given pollutant, the general conformity requirements state that a regionally significant action must undergo a conformity evaluation. A regionally significant action is one for which the total of direct and indirect emissions represent ten percent or more of the nonattainment or maintenance area's emissions inventories for all sources (as identified in the applicable SIP for stationary point, mobile, and area sources) for that pollutant. EPA guidance also indicates that any milestone emissions inventory in the applicable SIP should also be considered when evaluating regional significance (EPA 1994).

4.5 Applicability for Federal Action

The applicability of the general conformity requirements to the Federal action was evaluated by comparing the total of direct and indirect emissions (calculated as presented in Attachment A) for the calendar year of greatest emissions to the de minimis emission rates specified in Table 4-1. Where the total of direct and indirect emissions attributable to the Federal action were found to be excluded from the general conformity requirements because they are below the de minimis emission rates for a pollutant, the total of direct and indirect emissions for that pollutant were compared to the nonattainment or maintenance area's emission inventory for that pollutant to determine whether it is regionally significant. Those pollutants that could not be excluded from applicability by both of these mechanisms underwent a complete general conformity evaluation consistent with the procedures in Section 3 above using the methods in Attachment A and the criteria in Section 5 below.

4.5.1 Methodology

Attachment A presents the calculations used to estimate emissions associated with the proposed Federal actions. Equipment parameters and construction activities have been described in the Final SEIS/SEIR (USACE/LAHD2009). This information has been incorporated into the emission calculations presented in Attachment A, and summarized below.

4.5.2 Estimated Emissions and Comparison to De Minimis

Emissions were calculated for VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ (including precursors) for construction activities associated with the Federal action. For purposes of this evaluation, emissions of NO_2 are assumed to equal emissions of NO_x. These emissions are associated with mobile and area sources expected to be used for on-site construction-related purposes. Off-site construction-related emission sources (e.g., construction worker commute trips, material delivery hauling trips, debris/spoils disposal hauling trips) are assumed to be accounted for in the conforming 2008 RTP, and they are therefore excluded from consideration of general conformity herein (40 C.F.R. § 93.158(a)(5)(ii))..

The emissions associated with each Federal action are summarized in **Table 4-2** for each year of construction. These data show that annual emissions from Alternatives 1 and 2 would exceed the conformity de minimis emission rates for NOx during each year of construction. The Federal action emissions of CO, SO_x, VOC, PM_{10}, or $PM_{2.5}$ are compared to the regional emissions in Section 4.5.3 to verify that project emissions do not represent ten percent or more of the regional budgets.

Alternative 1 would produce peak annual NO_x emissions of 76.4 tons in 2010. Alternative 2 would produce peak annual NO_x emissions of 49.1 tons in 2010. Therefore, a general conformity determination is required for proposed NO_x emissions from Alternatives 1 and 2.

Table 4-2
Federal Action Emission Rates and Comparison to
De Minimis Emission Rates

	Emission Rates (Tons)					
Alternative/Construction Year	**VOC**	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Alternative 1						
2009	1.0	6.6	20.8		0.4	0.4
2010	3.2	26.2	76.4		2.0	1.8
2011	1.5	7.4	30.7		0.3	0.3
General Conformity de minimis emission rate (tpy)	**10**	**100**	**10**	**100**	**70**	**100**
Are de minimis emission rates exceeded?	**No**	**No**	**Yes**	**No**	**No**	**No**
Alternative 2						
2009	0.7	6.2	17.7		0.5	0.4
2010	2.0	17.2	49.1		1.3	1.2
2011	1.2	4.6	23.1		0.1	0.1
General Conformity de minimis emission rate (tpy)	**10**	**100**	**10**	**100**	**70**	**100**
Are de minimis emission rates exceeded?	**No**	**No**	**Yes**	**No**	**No**	**No**

4.5.3 Regional Significance

The peak annual direct and indirect emissions of VOC, CO, SO_x, PM_{10}, and $PM_{2.5}$ for each Federal action are compared to the regional emissions inventories of these pollutants prepared by SCAQMD for the SCAB. Two comparisons are presented, using data taken from the 1997 Air Quality Management Plan (AQMP) (SCAQMD 1996), which contains the currently approved SIP budgets, and from the 2007 AQMP (SCAQMD 2007). The lowest annual emissions from each of these documents between 2002 and 2011 are used for this calculation. The results of this comparison are summarized in **Table 4-3**. As one can see, the peak annual emissions from Alternatives 1 and 2 are much less than ten percent of the SCAB annual emissions inventories. Therefore, the Federal action is not regionally significant for emissions of VOC, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Table 4-3
Comparison of Federal Actions Emissions for Regional Significance

Pollutant	Peak Annual Federal Action Emissions (tons)[a.]	Approved SIP Emissions (tpy)[b.]	Percent of Approved SIP	2007 AQMP Emissions (tpy)[c.]	Percent of 2007 AQMP
Alternative 1					
VOC	3.2	150,955	0.002%	153,300	0.002%
CO	26.2	885,301	0.003%	744,235	0.004%
SO_x	0.1	25,769	0.0004%	6,935	0.001%
PM_{10}	2.0	120,687	0.002%	[d.]	[d.]
$PM_{2.5}$	1.8	[d.]	[d.]	31,755	0.006%
Alternative 2					
VOC	2.0	150,955	0.001%	153,300	0.001%
CO	17.2	885,301	0.002%	744,235	0.002%
SO_x	49.1	25,769	0.19%	6,935	0.71%
PM_{10}	1.3	120,687	0.001%	[d.]	[d.]
$PM_{2.5}$	1.2	[d.]	[d.]	31,755	0.004%

Source: Camp Dresser & McKee Inc., 2008.

a. Peak annual emissions from each Federal action. Therefore, the Federal action emissions are the most conservative (high) that could be used for this comparison.

b. Based on data in 1997 AQMP Appendix V (controlled inventories in 2010).

c. Based on data in 2007 AQMP Appendix V (carrying capacities in 2015 for $PM_{2.5}$ and SO_x, and in 2023 for VOC and CO).

d. No budgets were developed in the currently approved SIP for $PM_{2.5}$ or in the 2007 AQMP for controlled PM_{10}.

4.5.4 Applicability Determination

The total of direct and indirect emissions of VOC, CO, SO_x, PM_{10}, and $PM_{2.5}$ from Alternatives 1 and 2 are less than the general conformity de minimis threshold emission rates and the Federal actions are not regionally significant for any of these pollutants. Therefore, the general conformity requirements do not apply to these pollutants, and there will be no further evaluation of these pollutants herein.

Because the total of direct and indirect emissions of NO_x from Alternatives 1 and 2 exceeds the "extreme" O_3 non-attainment area conformity de minimis emission rate, the general conformity requirements apply to NO_x emissions from each action. Subsequent sections of this document will address the general conformity evaluation of NO_x as applicable to the Federal action.

Section 5
General Conformity Evaluation

For Federal actions subject to a general conformity evaluation, the regulations delineate several criteria that can be used to demonstrate conformity (40 C.F.R. § 93.158). In fact, a combination of these criteria may be used to support a positive general conformity determination (EPA 1994). The approach to be taken to evaluate the Federal action relies on a combination of these available criteria, and the remainder of this section summarizes the findings to make the draft determination.

5.1 Designation of Applicable SIP

Section 110(a) of the Clean Air Act (42 U.S.C. § 7410(a)) requires each state to adopt and submit to EPA a plan which provides for the implementation, maintenance, and enforcement of each NAAQS. This plan is known as the SIP. Over time, states have made and continue to make many such submittals to EPA to address issues as they arise related to the various NAAQS. As EPA reviews these submittals, it can either approve or disapprove them in whole or in part. The compilation of a state's approved submittals constitutes that state's applicable SIP. In California, the state agency responsible for preparing and maintaining the SIP is CARB.

5.1.1 SIP Process in the South Coast Air Basin

CARB designates both air quality management districts and air pollution control districts within California for the purpose of implementing and enforcing ambient air quality standards on a regional or air shed basis. These district agencies must prepare regional plans (Air Quality Management Plans [AQMPs]) to support the broader SIP, as well as to meet the goals of the California Clean Air Act.

Every three years, SCAQMD must prepare and submit to CARB an AQMP to demonstrate how the SCAB will attain and maintain the NAAQS and the California ambient air quality standards. The AQMP contains extensive emissions inventories of all emission sources in the SCAB as well as various control measures applicable to most of these sources. Once CARB approves the AQMP, it is submitted to EPA for approval into the SIP. The approved SIP for the SCAB is based on the AQMP which SCAQMD submitted to CARB in 1997 (SCAQMD 1996) and supplemental information as discussed in Section 5.1.2. In August 2003, SCAQMD submitted to CARB the final 2003 AQMP (SCAQMD 2003), and this formed the basis of a proposed SIP revision submitted by CARB to EPA on January 9, 2004; EPA has acted on that proposed SIP revision, however it is not yet applicable. In June 2007, SCAQMD submitted to CARB the final 2007 AQMP (SCAQMD 2007), and this formed the basis of a proposed SIP revision submitted by CARB to EPA on November 16, 2007; EPA has not yet acted on that proposed SIP revision.

5.1.2 Status of Applicable SIP and Emissions Budgets by Pollutant

The Clean Air Act requires attainment of the NAAQS as expeditiously as practicable, but no later than the statutory dates for those criteria pollutants for which the SCAB is designated nonattainment and for which a finding of general conformity must be determined for the Federal actions. Upon re-designation of an area from nonattainment to attainment for each standard, the area will be considered to be a maintenance area for that standard (pursuant to Section 175A of the Clean Air Act), and as such, must meet all applicable requirements to maintain the standard.

To support the general conformity determination, the USACE demonstrates herein that the emissions of NO_x (as an O_3 precursor) caused by the Federal actions either will result in a level of emissions which, together with all other emissions in the nonattainment area, will not exceed the emissions budgets specified in the approved SIP (criterion at 40 C.F.R. § 93.158(a)(5)(i)(A)) or, in the alternative, will not exceed the emissions budgets specified in the 2007 AQMP, see Section 5.2 below. The currently approved SIPs for the SCAB are summarized below.

- O_3: SIP approved by EPA on April 10, 2000 (65 FR 18903), based on the 1997 AQMP and a 1999 amendment to the 1997 AQMP.

- CO: SIP approved by EPA on May 11, 2007 (72 FR 26718), based on 2005 re-designation request and maintenance plan. In this SIP approval, EPA also re-designated the SCAB from nonattainment to attainment/maintenance for CO.

- PM_{10}: SIP approved by EPA on April 18, 2003 (68 FR 19315), based on the 1997 AQMP, amendments to the 1997 AQMP submitted in 1998 and 1999, and further modifications to the 1997 AQMP submitted in a status report to EPA in 2002.

- $PM_{2.5}$: No EPA-approved SIP.

- NO_2: SIP approved by EPA on July 24, 1998 (63 FR 39747), based on the 1997 AQMP. In this SIP approval, EPA also re-designated the SCAB from nonattainment to attainment/maintenance for NO_2.

SCAQMD released the Final 2007 AQMP on June 1, 2007, and as noted above that AQMP formed the basis of a proposed SIP revision submitted to EPA. This evaluation will make comparisons both to applicable emissions inventories in the current EPA-approved SIP and to applicable emissions inventories contained in the 2007 AQMP. For purposes of the general conformity determination, the applicable SIP will be the most recent EPA-approved SIP at the time of the release of the final general conformity determination.

5.2 Comparison to SIP Emissions Inventories

As noted in the preceding section, the most recent EPA-approved SIP at the time of the release of the final general conformity determination must be used for emission budget analyses. The 1997 AQMP together with supplemental information form the basis for the current, EPA-approved O_3 SIP. However, the EPA may approve all or part of the 2007 AQMP for O_3 (or other pollutants) before the final general conformity determination is published. Therefore, to avoid revisions to and/or recirculation of the draft and final general conformity determination, emissions for the Federal actions presented in this section are compared to both the currently approved SIP emissions budgets and to the 2007 AQMP emissions budgets.

The emissions inventories developed by SCAQMD and fully documented in the AQMPs are delineated by source types. **Table 5-1** provides a concordance between the emission source categories that characterize the Federal actions and the emission source types in the AQMPs. In the following discussion, the term "NO_x" should be understood to represent both NO_x and NO_2 (see discussion in Section 4.3).

Table 5-1
Relationship of Federal Actions Source Categories and AQMP Source Types

Federal Action Source Category	1997 AQMP Source Type	2007 AQMP Source Type
Construction	Heavy Duty Diesel Trucks	Heavy-Heavy Duty Diesel Truck
	Mobile Equipment	Off-Road Equipment
	Commercial Boats/Ships	Ships and Commercial Boats

Source: Camp Dresser & McKee Inc., 2008.

The source type "Commercial Boats/Ships" in the 1997 AQMP represents two separate subcategories of off-road equipment in the inventory, whereas the source type "Ships and Commercial Boats" in the 2007 AQMP represents a single combined sub-category of off-road equipment in the inventory. “Ships” are considered ocean-going marine vessels (e.g., container ships), and “commercial boats” are considered commercial harbor craft (e.g., tugboats).

5.2.1 NO_x Emissions from Construction Sources Under the Federal Action

At the time that SCAQMD prepared the 1997 AQMP, LAHD had not yet announced its intention to undertake the Federal action . For this reason, it is evident that the 1997 AQMP does not contain specific estimates of emissions for construction activities under Alternatives 1 or 2. The USACE had issued a Supplemental Notice of Intent to prepare the SEIS in October 2005. Therefore, the SCAQMD would have been aware of the Federal action when preparing the 2007 AQMP. For those reasons, as well as the rapid growth in goods movement - particularly at the ports — in the SCAB, it would be reasonable to assume that SCAQMD allowed for an accommodation for such a major construction program within the 2007 AQMP.

The general conformity regulations require evaluating the total of direct and indirect emissions for the Federal action for the mandated attainment year (2021), the year of maximum emissions (2010), and any years for which the SIP identifies an emissions budget (40 C.F.R. § 93.159(d)). Because the construction would finish well before 2021, there is no analysis of emissions for that year in this evaluation. For the years of construction planned under the Federal action, the applicable emissions budgets in the (1) approved SIP includes 2010 and (2) 2007 AQMP includes 2010 and 2011. For the year requiring a quantitative evaluation but for which an emissions budget does not exist in the approved SIP (2011), the budget chosen for the analysis was year 2010.

Tables 5-2 through **Table 5-5** summarize a comparison of estimated NO_x emissions from construction activities under Alternatives 1 and 2 to the applicable source types under both the approved SIP and the 2007 AQMP, for the years noted in Tables 3-1 and 3-2 above. It should be noted that the emissions for those source types taken from the approved SIP and the 2007 AQMP may represent more than construction-related emissions since these source types are not exclusive to construction equipment and activities. Because the SIP for the SCAB has to accommodate many planned and some unplanned construction projects, the construction-related emissions inventories included in the AQMPs are very substantial. Despite the fact that the Federal action would require a substantial program of construction, one can note that their emissions would be very small compared to the emissions inventories in the AQMPs (i.e., less than 0.35% relative contributions). For that reason, it is reasonable to assume that the emissions from construction activities under the Federal action can be accommodated in future emissions growth from the construction sector within the approved SIP or alternatively within the 2007 AQMP. Therefore, it can be inferred that the construction NO_x emissions for the Federal action, taken together with NO_x emissions for all other construction sources in the SCAB, would not exceed the NO_x emissions budgets for construction-related source types specified in the approved SIP, or alternatively in the 2007 AQMP (SCAQMD 2007).

Table 5-2
Comparison of Alternative 1 NO_x Emissions for Construction to Approved SIP Emission Budgets for Construction-Related Source Types

Year and Source Type	Alternative 1 NOx Emissions (tpy)	Approved SIP NOx Emissions (tpy)	Relative Contribution to NOx SIP Budgets
2010			
Heavy-Duty Diesel Trucks	0.05	55,874	0.0001%
Mobile Equipment	11.08	43,493	0.03%
Commercial Boats/Ships	65.30	19,002	0.34%
2011			
Heavy-Duty Diesel Trucks	3.91	55,874	0.01%
Mobile Equipment	19.10	43,493	0.04%
Commercial Boats/Ships	7.74	19,002	0.04%

Sources: Camp Dresser & McKee Inc., 2008, SCAQMD 1996.

Table 5-3
Comparison of Alternative 2 NO_x Emissions for Construction to Approved SIP Emission Budgets for Construction-Related Source Types

Year and Source Type	Alternative 2 NOx Emissions (tpy)	Approved SIP NOx Emissions (tpy)	Relative Contribution to NOx SIP Budgets
2010			
Heavy-Duty Diesel Trucks	0.16	55,874	0.0003%
Mobile Equipment	4.45	43,493	0.01%
Commercial Boats/Ships	44.55	19,002	0.23%
2011			
Heavy-Duty Diesel Trucks	3.91	55,874	0.01%
Mobile Equipment	18.83	43,493	0.04%
Commercial Boats/Ships	0.42	19,002	0.002%

Sources: Camp Dresser & McKee Inc., 2008, SCAQMD 1996.

Table 5-4
Comparison of Alternative 1 NO_x Emissions for Construction to 2007 AQMP Emission Budgets for Construction-Related Source Types

Year and Source Type	Alternative 1 NOx Emissions (tpy)	2007 AQMP Emissions (tpy)	Relative Contribution to 2007 AQMP Budgets
2010[a]			
Heavy-Heavy Duty Diesel Trucks	0.05	49,381	0.0001%
Off-Road Equipment	11.08	62,736	0.02%
Ships and Commercial Boats	65.30	29,536	0.22%
2011			
Heavy-Heavy Duty Diesel Trucks	3.91	46,381	0.01%
Off-Road Equipment	19.10	59,641	0.03%
Ships and Commercial Boats	7.74	30,029	0.03%

Source: Camp Dresser & McKee Inc., 2008; SCAQMD 2007.

Table 5-5
Comparison of Alternative 2 NO_x Emissions for Construction to 2007 AQMP Emission Budgets for Construction-Related Source Types

Year and Source Type	Alternative 2 NOx Emissions (tpy)	2007 AQMP Emissions (tpy)	Relative Contribution to 2007 AQMP Budgets
2010[a]			
Heavy-Heavy Duty Diesel Trucks	0.16	49,381	0.0003
Off-Road Equipment	4.45	62,736	0.01%
Ships and Commercial Boats	44.55	29,536	0.15%
2011			
Heavy-Heavy Duty Diesel Trucks	3.91	46,381	0.01%
Off-Road Equipment	18.83	59,641	0.03%
Ships and Commercial Boats	0.42	30,029	0.0001%

Source: Camp Dresser & McKee Inc., 2008; SCAQMD 2007.

5.2.2 NO_x Emissions from Other Sources at POLA

It is the determination of the USACE that any change in future emissions at POLA following the implementation of the Federal action are not subject to the continuing program responsibility of the USACE and therefore are not required to be addressed in this evaluation. However, these future emissions will remain subject to the continuing program responsibility of LAHD, as the local agency with development control over projects in the Port of Los Angeles, and all CEQA-related mitigation measures, will have to be implemented, maintained, and monitored pursuant to an MMRP for a certified Final EIR for these actions.

5.3 Consistency with Requirements and Milestones in Applicable SIP

The general conformity regulations state that notwithstanding the other requirements of the rule, a Federal action may not be determined to conform unless the total of direct and indirect emissions from the Federal action is in compliance or consistent with all relevant requirements and milestones in the applicable SIP (40 C.F.R. § 93.158(c)). This includes but is not limited to such issues as reasonable further progress schedules, assumptions specified in the attainment or maintenance demonstration, prohibitions, numerical emission limits, and work practice standards. This section briefly addresses how the Federal action was assessed for SIP consistency for this evaluation.

5.3.1 Applicable Requirements from EPA

EPA has already promulgated, and will continue to promulgate, numerous requirements to support the goals of the Clean Air Act with respect to the NAAQS. Typically, these requirements take the form of rules regulating emissions from significant new sources, including emission standards for major stationary point sources and classes of mobile sources as well as permitting requirements for new major stationary point sources. Since states have the primary responsibility for implementation and enforcement of requirements under the Clean Air Act and can impose stricter limitations than EPA, the EPA requirements often serve as guidance to the states in formulating their air quality management strategies.

5.3.2 Applicable Requirements from CARB

In California, to support the attainment and maintenance of the NAAQS, CARB is primarily responsible for regulating emissions from mobile sources. In fact, EPA has delegated authority to CARB to establish emission standards for on-road and some non-road vehicles separate from the EPA vehicle emission standards, although CARB is preempted by the Clean Air Act from regulating emissions from many non-road mobile sources, including marine craft. Emission standards for preempted equipment can only be set by EPA.

5.3.3 Applicable Requirements from SCAQMD

To support the attainment and maintenance of the NAAQS in the SCAB, SCAQMD is primarily responsible for regulating emissions from stationary sources. As noted above, SCAQMD develops and updates its AQMP regularly to support the California SIP. While the AQMP contains rules and regulations geared to attain and maintain the NAAQS, these rules and regulations also have the much more difficult goal of attaining and maintaining the California ambient air quality standards.

5.3.4 Consistency with Applicable Requirements

In operating POLA, LAHD already complies with, and will continue to comply with, a myriad of rules and regulations implemented and enforced by Federal, state, regional, and local agencies to protect and enhance ambient air quality in the SCAB. In particular, due to the long persistence of challenges to attain the ambient air quality standards in the SCAB, the rules and regulations promulgated by CARB and SCAQMD are among the most stringent in the U.S. LAHD will continue to comply with all existing applicable air quality regulatory requirements for activities over which it has direct control and will meet in a timely manner all regulatory requirements that become applicable in the future. Likewise, LAHD actively encourages all tenants and users of its facilities to comply with applicable air quality requirements.

The nature and extent of the requirements with which LAHD complies and will continue to comply include, but are not limited to, the following.

- EPA Rule 40 C.F.R. Part 89, Control of Emissions from New and In-Use Non-road Compression-Ignition Engines: requires stringent emission standards for mobile non-road diesel engines of almost all types using a tiered phase in of standards.

- CARB Rule 13 C.C.R. § 1956.8, California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles: requires significant reductions in emissions of NO_x, particulate matter, and non-methane organic compounds using exhaust treatment on heavy-duty diesel engines manufactured in model year 2007 and later years.

- SCAQMD Rule 403, Fugitive Dust: identifies the minimum particulate controls for construction-related fugitive dust. For example, Rule 403 requires twice daily watering of all active grading or construction sites. Haul trucks leaving the facility must be covered and maintain at least two feet of freeboard (C.V.C. § 23114). Low emission street sweepers must be used at the end of each construction day if visible soil is carried onto adjacent public paved roads, as required by SCAQMD Rule 1186.1, Less-Polluting-Sweepers. Wheel washers must be used to clean off the trucks, particularly the tires, prior to them entering the public roadways.

- SCAQMD Rule 431.2, Sulfur Content of Liquid Fuels: requires that, after January 1, 2005, only low sulfur diesel fuel (containing 15 parts per million by weight sulfur) will be permitted for sale in the SCAB for any stationary- or mobile-source application.

- SCAQMD Rule 2202, On-Road Motor Vehicle Mitigation Options: requires employers in the SCAB with more than 250 employees to implement an approved rideshare program and attain an average vehicle ridership of at least 1.5.

- City Council directive on diesel engine particulate traps, approved by the Mayor on December 2, 2002: requires that all existing City-owned and City-contracted diesel-fueled vehicles be retrofitted with particulate traps, which engines would henceforth be required to use ultra low sulfur diesel fuel (15 parts per million by weight or less); some exceptions include emergency vehicles and off-road vehicles.

Section 6
Mitigation

As part of a conformity evaluation, it may be necessary for the Federal agency to identify mitigation measures and mechanisms for their implementation and enforcement. For example, if a Federal action does not initially conform to the applicable SIP, mitigation measures could be pursued. If mitigation measures are used to support a positive conformity determination, the Federal agency must obtain a written commitment from the entity required to implement these measures and the Federal agency must include the mitigation measures as conditions in any permit or license granted for the Federal action (40 C.F.R. § 93.160). Mitigation measures may be used in combination with other criteria to demonstrate conformity. The Federal action, as evaluated herein, assume various air quality mitigation measures as described in the Final SEIS/SEIR (USACE/LAHD 2009) to meet CEQA/NEPA requirements are part of the proposed action . Based on NEPA/CEQA provisions that mitigation measures be required in, or incorporated into, the project (14 C.C.R. § 15091(a)(1)), the LAHD will implement, maintain, monitor, and enforce these CEQA-related air quality mitigation measures pursuant to the mitigation monitoring plan which will be included in the certified Final SEIS/SEIR for the proposed action; see Section 2.1 for more information on the NEPA/CEQA-related mitigation measures. Construction measures will become part of USACE construction contracts through contract modification and will be included in the final Plans and Specifications. LAHD, will implement, maintain, monitor, and enforce numerous mitigation measures, including many focused on limiting air emissions, as required by a certified Final SEIR.

Section 7
Reporting

To support a decision concerning the Federal action, the USACE is issuing this draft general conformity determination for public review and comment. The USACE will also make public its final general conformity determination for the proposed action.

7.1 Draft General Conformity Determination

At a minimum, the USACE is providing copies of this draft general conformity determination to the appropriate regional offices of EPA, any affected Federal land manager, as well as to CARB, SCAQMD, and SCAG, providing opportunity for a 30-day review. The USACE is also placing a notice in a daily newspaper of general circulation in the SCAB announcing the availability of this draft general conformity determination and requesting written public comments for a 30-day period. For any member of the public requesting a copy of this draft general conformity determination, the USACE will provide such party a copy.

7.2 Final General Conformity Determination

At a minimum, the USACE will provide copies of its final general conformity determination to the appropriate regional offices of EPA, any affected Federal land manager, as well as to CARB, SCAQMD, and SCAG, within 30 days of its promulgation. The USACE will also place a notice in a daily newspaper of general circulation in the SCAB announcing the availability of its final general conformity determination within 30 days of its promulgation. As part of the general conformity evaluation, the USACE will document its responses to all comments received on the draft general conformity determination and will make both the comments and responses available upon request by any person within 30 days of the promulgation of the final general conformity determination.

7.3 Frequency of General Conformity Determinations

The general conformity regulations state that the status of a specific conformity determination lapses five years after the date of public notification for the final general conformity determination, unless the action has been completed or a continuous program has been commenced to implement the action (40 C.F.R. § 93.157(a)). Because development of the Federal action would not extend beyond five years, the final general conformity determination will lapse upon completion of the action.

Section 8
Findings and Conclusions

As part of the environmental review of the Federal action, the USACE conducted a general conformity evaluation pursuant to 40 C.F.R. Part 93 Subpart B. The general conformity regulations apply at this time to any action at POLA requiring USACE approval because the SCAB where POLA is situated is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$; and a maintenance area for NO_2 and CO. The USACE conducted the general conformity evaluation following all regulatory criteria and procedures and in coordination with EPA. In addition, the EPA, ARB, and SCAQMD conducted a similar conformity review for another POLA project and concluded that (1) those construction emissions were included in the approved SIP, (2) the approved SIP used higher construction activity growth than more recent estimates, and (3) Port project construction emissions were within the estimated construction budget for the South Coast Air Basin (USACE 2009). The Channel Deepening Federal action emissions are slightly less than, but in the same order of magnitude as the emissions reviewed by the regulators. In addition, the USACE coordinated with the EPA, ARB, and SCAQMD to develop general conformity determinations and will continue to work with the agencies on this draft analysis. The USACE proposes that the Federal action as designed will conform to the approved SIP, based on the findings below:

- The Federal action is not subject to a general conformity determination for CO, VOC (as an O_3 and $PM_{2.5}$ precursor), PM_{10}, $PM_{2.5}$, or SO_x (as a $PM_{2.5}$ precursor) because the net emissions associated with the Federal action are less than the general conformity de minimis thresholds and they are not regionally significant.

- The Federal action conforms to the SIP for NO_x (as an O_3 precursor) because the net emissions associated with the Federal action, taken together with all other NO_x emissions in the SCAB, would not exceed the emissions budgets in the approved SIP for the years subject to the general conformity evaluation.

Therefore, USACE herewith concludes that the Federal action as designed conform to the purpose of the approved SIP and it is consistent with all applicable requirements.

Section 9
References

40 C.F.R. Part 93 Subpart A. *Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws.*

40 C.F.R. Part 93 Subpart B. *Determining Conformity of General Federal Actions to State or Federal Implementation Plans.*

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Attachment A
Port of Los Angeles Channel Deepening Federal Actions General Conformity Calculation Methodology and Results

Port of Los Angeles Channel Deepening Project General Conformity Calculation Methodology

The Federal action associated with the Port of Los Angeles (POLA) Channel Deepening Project requires a general conformity determination to comply with the requirements of the Clean Air Act general conformity regulations and to obtain a permit from the U.S. Army Corps of Engineers (USACE). This memo documents the methods and results used to calculate pollutant emissions from the Federal action for use in this general conformity determination. The draft determination will be published with the Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR). The analysis builds upon information presented in the Channel Deepening Project Final SEIS/SEIR, dated April 2009.

General Conformity Evaluation

The first step in the general conformity evaluation is to determine if emissions of the pollutants of concern are above the de minimis emission rates defined in the general conformity regulations (40 CFR 93.153(b)). This step is referred to as the applicability analysis. The pollutants of concern in the South Coast Air Basin (SCAB) are ozone (O_3) and its precursors, nitrogen dioxide (NO_2) and its precursor, carbon monoxide (CO), particulate matter with an equivalent aerodynamic diameter of 10 micrometers (PM_{10}), and particulate matter with an equivalent aerodynamic diameter of 2.5 micrometers ($PM_{2.5}$) and its precursors. The precursors of O_3 include oxides of nitrogen (NOx) and volatile organic compounds (VOC); the precursor of NO_2 is NOx; and the precursors of $PM_{2.5}$ include NOx, oxides of sulfur (SOx), VOC, and ammonia. Due to the severity of the O_3 nonattainment designation, the de minimis emission rates for NOx and VOC as O_3precursors (10 tons per year, tpy) are much more stringent than the de minimis emission rates for NOx and VOC as $PM_{2.5}$ precursors (100 tpy) or for NOx as a NO_2 precursor (100 tpy). Therefore, the de minimis emission rates for NOx and VOC will be set at10 tpy of each as O_3 precursors for this evaluation.

Calculation Method

Analysis began with information presented in the Supplemental Final SEIS/SEIR. Appendix F of the Final SEIS/SEIR includes detailed equipment lists for each construction phase and activity included in the Federal action. In addition, Appendix C includes daily emissions for each piece of equipment used during construction. The total of direct and indirect emissions for the Federal action were calculated using the total work days per piece of equipment in the equipment lists in Appendix F to determine for which pollutants the de minimis emission rates for general conformity were exceeded. It was found that NOx was the only pollutant that exceeded this threshold when considering total emissions for the entire Federal action. Therefore, using the construction start years listed for each piece of equipment, NOx emissions were calculated for each year of the Federal action.

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
NW Slip Sliver - Wharf							
Main Hoist - Clamshell Dredge	0.06	0.24	1.27	0.00	0.00	0.00	0.00
Main Generator - Clamshell Dredge	0.05	0.18	0.96	0.00	0.00	0.00	0.00
Deck Generator - Clamshell Dredge	0.00	0.02	0.10	0.00	0.00	0.00	0.00
Backhoe	0.03	0.17	0.29	0.00	0.00	0.00	0.00
Front End Loader	0.03	0.15	0.26	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	0.13	0.35	0.00	0.01	0.01	0.01
Subtotal	0.19	0.90	3.28	0.00	0.02	0.02	0.02
Berths 243-245							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Backhoe							
Front End Loader							
Haul Truck (1)							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
NW Slip Sliver							
Barge Equipment	0.08	0.31	1.69	0.00	0.01	0.01	0.01
Derrick Barge Crane	0.04	0.14	0.78	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.07	0.65	1.76	0.00	0.05	0.05	0.05
Tugboat - Transport Quarry Run to Site (1)	0.77	7.12	19.37	0.02	0.57	0.57	0.53
Subtotal	0.96	8.22	23.61	0.02	0.63	0.63	0.59
Berths 243-245							
Barge Equipment	0.06	0.24	1.31	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.03	0.11	0.60	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.05	0.50	1.36	0.00	0.04	0.04	0.04
Tugboat - Transport Quarry Run to Site (1)	0.54	5.04	13.70	0.01	0.40	0.40	0.38
Subtotal	0.69	5.89	16.97	0.02	0.45	0.45	0.42
Cabrillo SWH							
Barge Equipment	0.08	0.30	1.64	0.00	0.01	0.01	0.01
Derrick Barge Crane	0.04	0.14	0.76	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.07	0.63	1.71	0.00	0.05	0.05	0.05
Tugboat - Transport Quarry Run to Site (1)	0.65	6.04	16.43	0.01	0.48	0.48	0.45
Subtotal	0.84	7.11	20.53	0.02	0.54	0.54	0.51
Eelgrass Restoration							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							

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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
SW Slip A#1 Surcharge Removal - Loading							
Scraper							
Backhoe							
Main Hoist - Clamshell Dredge (Electric)							
Main Generator - Clamshell Dredge (Electric)							
Deck Generator - Clamshell Dredge							
Dozer							
Off-Road Truck							
Water Truck							
Grader							
Subtotal							
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							
SW Slip A#1 Surcharge Removal - Unload CSWH							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Scows							
Subtotal							
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Electric Conveyor							
Dozer							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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	0.01	0.03	0.19	0.00	0.00	0.00	0.00
Tug Boat (1)	0.18	1.66	4.52	0.00	0.13	0.13	0.12
Subtotal	0.19	1.70	4.71	0.00	0.13	0.13	0.13

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

	Tons						
Location/Equipment Type	*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	0.04	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	0.02	0.07	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.01	0.04	0.13	0.00	0.00	0.00	0.00

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

	Tons						
Location/Activity	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Demolition							
NW Slip Sliver	0.19	0.90	3.28	0.00	0.02	0.02	0.02
Berths 243-245	-	-	-	-	-	-	-
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	0.84	7.11	20.53	0.02	0.54	0.54	0.51
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	-	-	-	-	-	-	-
Surcharge Removal							
Loading	-	-	-	-	-	-	-
Transport	-	-	-	-	-	-	-
Unload Cabrillo SWH	-	-	-	-	-	-	-
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	0.19	1.70	4.71	0.00	0.13	0.13	0.13
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	0.04	0.13	0.00	0.00	0.00	0.00
Total Mitigated Emissions	3.15	26.24	76.42	0.09	1.97	1.97	1.84

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
NW Slip Sliver - Wharf							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Backhoe							
Front End Loader							
Haul Truck (1)							
Tug Boat							
Subtotal							
Berths 243-245							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Backhoe							
Front End Loader							
Haul Truck (1)							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
NW Slip Sliver							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							
Berths 243-245							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							
Cabrillo SWH							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							
Eelgrass Restoration							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
NW Slip Sliver							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Armor Stone to Site (1)							
Subtotal							
Berths 243-245							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Armor Stone to Site (1)							
Subtotal							
Eelgrass							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Armor Stone to Site (1)							
Subtotal							

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

	Tons						
Location/Equipment Type	*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							
Tug Boat							
Subtotal							
Berths 243-245							
Main Hoist - Clamshell Dredge (Electric)							
Main Generator - Clamshell Dredge (Electric)							
Deck Generator - Clamshell Dredge							
Tug Boat							
Subtotal							
CSWH							
Main Hoist - Clamshell Dredge (Electric)							
Main Generator - Clamshell Dredge (Electric)							
Deck Generator - Clamshell Dredge							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*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							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Electric Conveyor							
Dozer							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Contaminated Dredge							
Main Hoist - Clamshell Dredge (Electric)							
Main Generator - Clamshell Dredge (Electric)							
Deck Generator - Clamshell Dredge							
Scows							
Tug Boat							
Electric Pump							
Skiff							
Subtotal							

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

	Tons						
Location/Equipment Type	*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							
Reel Barge							
Survey Boat							
Crew Boat							
Scows							
Tug Boat							
Electric Pump							
Subtotal							
Hydraulic Dredging - Fine Grain Material CSWH							
Main Engine - Electric							
Derrick Hoist							
Derrick Winch							
Anchor Barge Winch							
Generator							
Survey Boat							
Crew Boat							
Tug Boat							
Electric Pump							
Subtotal							
Hydraulic Dredging - Fine Grain Material to LA-2							
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	0.01	0.06	0.31	0.00	0.00	0.00	0.00
Tug Boat (1)	0.29	2.68	7.29	0.01	0.21	0.21	0.20
Subtotal	0.30	2.74	7.60	0.01	0.22	0.22	0.20

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

	Tons						
Location/Equipment Type	*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							
Reel Barge							
Survey Boat							
Crew Boat							
Scows							
Tug Boat							
Electric Pump							
Subtotal							
Clamshell Dredging - Coarse Grain Material NW Slip							
Main Hoist - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Main Generator - Clamshell Dredge (Electric)	---	---	---	---	---	---	---
Deck Generator - Clamshell Dredge	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Reel Barge	---	---	---	---	---	---	---
Survey Boat	0.00	0.00	0.01	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	0.01	0.02	0.00	0.00	0.00	0.00
Electric Pump	---	---	---	---	---	---	---
Subtotal	0.00	0.01	0.04	0.00	0.00	0.00	0.00

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

	Tons						
Location/Activity	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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	-	-	-	-	-	-	-
Berths 243-245	-	-	-	-	-	-	-
Cabrillo SWH	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-
Dredging of Fine Material							
Hydraulic - Cabrillo SWH	-	-	-	-	-	-	-
Clamshell - To LA 2	0.30	2.74	7.60	0.01	0.22	0.22	0.20
Dredging of Coarse Material							
Clamshell - Berths 243-245	-	-	-	-	-	-	-
Clamshell - NW Slip Sliver	0.00	0.01	0.04	0.00	0.00	0.00	0.00
Total Mitigated Emissions	1.46	7.38	30.75	0.03	0.32	0.32	0.29

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	-	-	-	-	-	-	-
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 Net Annual Unmitigated Emissions - 2009	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 - 2010	0.1	1.1	2.9	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)
Alternative 1 Net Annual Unmitigated Emissions - 2010	(6.5)	(31.4)	(113.8)	(5.6)	(3.7)	(3.7)	(3.4)
Alternative 1 - 2011	1.3	6.3	27.8	0.0	0.2	0.2	0.2
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 Net Annual Unmitigated Emissions - 2011	(5.3)	(26.1)	(88.9)	(5.6)	(3.5)	(3.5)	(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.

1997 SIP	150,955	885,301		25,769		120,687	
Project peak year % of SIP emissions	0.0001	0.0001		0.0000		0.0001	
2007 AQMP	153,300	744,235		6,935			31,755
Project peak year % of AQMP emissions	0.0001	0.0001		0.0000			0.0002

2011 Source Group Emissions

Heavy-Duty Diesel Trucks	0.19	0.73	3.91	0.00	0.01	0.01	0.01
Mobile Equipment	0.96	3.81	19.10	0.02	0.07	0.07	0.07
Commercial Boats/Ships	0.31	2.84	7.74	0.01	0.23	0.23	0.21

Table C-168. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Cabrillo SWH							
Barge Equipment	0.08	0.30	1.64	0.00	0.01	0.01	0.01
Derrick Barge Crane	0.04	0.14	0.76	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.07	0.63	1.71	0.00	0.05	0.05	0.05
Tugboat - Transport Quarry Run to Site (1)	0.65	6.04	16.43	0.01	0.48	0.48	0.45
Subtotal	0.84	7.11	20.53	0.02	0.54	0.54	0.51
Eelgrass Restoration							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							

Table C-169. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Armor Stone Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Eelgrass							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Armor Stone to Site (1)							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
SW Slip A#1 Surcharge Removal - Loading							
Scraper							
Backhoe							
Main Hoist - Clamshell Dredge (Electric)							
Main Generator - Clamshell Dredge (Electric)							
Deck Generator - Clamshell Dredge							
Dozer							
Off-Road Truck							
Water Truck							
Grader							
Subtotal							
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							
SW Slip A#1 Surcharge Removal - Transport/Unload LA-2							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Electric Conveyor							
Dozer							
Tug Boat							
Subtotal							

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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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	0.01	0.05	0.30	0.00	0.00	0.00	0.00
Tug Boat	0.28	2.61	7.09	0.01	0.21	0.21	0.20
Subtotal	0.30	2.66	7.38	0.01	0.21	0.21	0.20
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

	Tons						
Location/Activity	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Dike Const. Quarry Run Placement							
Cabrillo SWH	0.84	7.11	20.53	0.02	0.54	0.54	0.51
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unload Cabrillo SWH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.30	2.66	7.38	0.01	0.21	0.21	0.20
Clamshell - LA-3	0.70	6.37	17.46	0.02	0.51	0.51	0.47
Total Mitigated Emissions (1)	1.99	17.21	49.16	0.05	1.33	1.33	1.25

Table C-168. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Cabrillo SWH							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							
Eelgrass Restoration							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Quarry Run to Site (1)							
Subtotal							

Table C-169. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Armor Stone Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Eelgrass							
Barge Equipment							
Derrick Barge Crane							
Tugboat - Derrick Barge Crane							
Tugboat - Transport Armor Stone to Site (1)							
Subtotal							

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

	Tons						
Location/Equipment Type	*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.

	Tons						
Location/Equipment Type	*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							
Scows							
Tug Boat							
Electric Pump							
Skiff							
Dozer							
Grader							
Compactor							
Water Truck							
Subtotal							

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

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Hydraulic Dredging - Fine Grain Material CSWH							
Main Engine - Electric							
Derrick Hoist							
Derrick Winch							
Anchor Barge Winch							
Generator							
Survey Boat							
Crew Boat							
Tug Boat							
Electric Pump							
Subtotal							
Clamshell Dredging - Fine Grain Material to LA 2							
Main Hoist - Clamshell Dredge (Electric)							
Main Generator - Clamshell Dredge (Electric)							
Deck Generator - Clamshell Dredge							
Tug Boat							
Subtotal							
Clamshell Dredging - Fine/Coarse Grain Material to LA-3							
Main Hoist - Clamshell Dredge							
Main Generator - Clamshell Dredge							
Deck Generator - Clamshell Dredge							
Tug Boat							
Subtotal							

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

	Tons						
Location/Activity	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Dike Const. Quarry Run Placement							
Cabrillo SWH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dredging and Disposal of Dredging Material							
Hydraulic - Cabrillo SWH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clamshell - LA-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clamshell - LA-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Mitigated Emissions (1)	1.15	4.64	23.15	0.02	0.10	0.10	0.09

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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Net Annual Mitigated Emissions - 2009	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Alternative 1 - 2010	-	-	-	-	-	-	-
CEQA Baseline - 2004	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
Net Annual Mitigated Emissions - 2010	(6.6)	(32.4)	(116.7)	(5.6)	(3.7)	(3.7)	(3.5)
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.

1997 SIP	150,955	885,301		25,769		120,687	
Project peak year % of SIP emissions	-	-		-		-	
2007 AQMP	153,300	744,235		6,935			31,755
Project peak year % of AQMP emissions	-	-		-			-

Total Source Group Emissions

Heavy-Duty Diesel Trucks	0.19	0.73	3.91	0.00	0.01	0.01	0.01
Mobile Equipment	0.95	3.76	18.83	0.02	0.07	0.07	0.07
Commercial Boats/Ships	0.02	0.15	0.42	0.00	0.01	0.01	0.01

APPENDIX C

Air Quality Emission Calculations – POLA Channel Deepening Project

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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
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

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
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

Location/Equipment Type	Power Rating (Hp)	Load Factor	# Active	Hourly Hp-Hrs	Hours Per Day	Daily Hp-Hrs	Work Days	Total Hp-Hrs
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 then 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

	Pounds per Day						
Activity/Equipment Type	*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

	Pounds per Day						
Activity/Equipment Type	*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

	Pounds per Day						
Activity/Equipment Type	*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 Are

	Pounds per Day						
Activity/Equipment Type	*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 I

	Pounds per Day						
Activity/Equipment Type	*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

	Pounds per Day						
Activity/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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 follwing 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

	Tons						
Activity/Equipment Type	*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

	Tons						
Activity/Equipment Type	*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

	Tons						
Activity/Equipment Type	*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

	Tons						
Activity/Equipment Type	*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

	Tons						
Activity/Equipment Type	*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

	Tons						
Activity/Equipment Type	*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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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

	Tons						
Project Year/Activity	*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 then 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

	Tons			
Activity/Equipment Type	*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

	Tons			
Activity/Equipment Type	*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

	Tons			
Activity/Equipment Type	*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

	Tons			
Activity/Equipment Type	*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

	Tons			
Activity/Equipment Type	*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

	Tons			
Activity/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Metric Tons			
Project Year/Activity	*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

Activity/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

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

Notes: (9) CCAR General Reporting Protoco, 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

	Tons			
Activity/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	A	B	C	D	E	F	G	H	I
1	Table C-44. Construction Activities for the POLA Channel Deepening Proposed Project - Demolition								
2		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
3	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
27	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
54	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
76	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
98	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
135	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
150	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
194	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Fuel*	*Emission Factors (Grams/Horsepower-Hour)*							
3	*Project Year/Source Type*	*Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*	*References*
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									
24	Basin equipment fleet age distributions for project year 2007. Factors developed by averaging hourly emissions for different diesel									
25	construction equipment types within the same Hp category.									
26	(2) Heavy duty diesel truck running emission factors developed from EMFAC2007 (ARB 2006). Units in grams/mile for project									
27	year 2007. Based on annual average conditions at 60 degrees and 50% humidity with the average fleet found in the South Coast Air Basin.									
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									
30	in these calculations, emissions from 5 minutes of idling mode included for each truck round trip.									
31	(4) For on-road trucks other then dredge material haul trucks, composite factor based on a round trip of 75% at 55 mph,									
32	20% at 25 mph, and 5% at 5 mph. Units in grams/mile. Although not shown in these calculations, emissions from 5 minutes									
33	of idling mode included for each truck round trip.									
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	(6) Units in lbs/acre-day from section 11.2.3 of AP-42 (EPA 1995). Emissions reduced by 75% from uncontrolled levels to									
36	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		*Pounds per Day*						
3	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
29	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
60	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
85	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
110	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
152	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
168	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
215	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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	*Location/Activity*	*Pounds per Day*						
242		*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
3	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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							
27	Construction Quarry Run Placement							
28		*Tons*						
29	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
30	NW Slip Sliver							
31	Barge Equipment	0.24	0.65	2.39	0.00	0.09	0.09	0.08
32	Derrick Barge Crane	0.11	0.30	1.10	0.00	0.04	0.04	0.04
33	Tugboat - Derrick Barge Crane	0.07	0.65	2.82	0.00	0.07	0.07	0.07
34	Tugboat - Transport Quarry Run to Site (1)	0.77	7.12	30.97	0.02	0.81	0.81	0.76
35	Subtotal	1.18	8.73	37.28	0.02	1.02	1.02	0.95
36	Berths 243-245							
37	Barge Equipment	0.18	0.50	1.84	0.00	0.07	0.07	0.06
38	Derrick Barge Crane	0.08	0.23	0.85	0.00	0.03	0.03	0.03
39	Tugboat - Derrick Barge Crane	0.05	0.50	2.17	0.00	0.06	0.06	0.05
40	Tugboat - Transport Quarry Run to Site (1)	0.54	5.04	21.90	0.01	0.58	0.58	0.54
41	Subtotal	0.86	6.27	26.77	0.02	0.74	0.74	0.69
42	Cabrillo SWH							
43	Barge Equipment	0.37	1.03	3.76	0.00	0.14	0.14	0.13
44	Derrick Barge Crane	0.17	0.47	1.73	0.00	0.07	0.07	0.06
45	Tugboat - Derrick Barge Crane	0.11	1.02	4.42	0.00	0.12	0.12	0.11
46	Tugboat - Transport Quarry Run to Site (1)	1.06	9.79	42.59	0.02	1.12	1.12	1.05
47	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		Tons						
60	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		Tons						
85	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		Tons						
110	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		Tons						
152	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
168	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
215	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
242	*Location/Activity*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons (1)*						
281	*Project Scenario*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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

	Tons			
Location/Equipment Type	*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-73. Total GHG Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement

	Tons			
Location/Equipment Type	*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	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

	Tons			
Location/Equipment Type	*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	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

	Tons			
Location/Equipment Type	*CO2*	*CH4*	*N2O*	*CO2e*
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

	Tons			
Location/Equipment Type	*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	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.

	Tons			
Location/Equipment Type	*CO2*	*CH4*	*N2O*	*CO2e*
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

Location/Equipment Type	Tons			
	CO2	*CH4*	*N2O*	*CO2e*
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.

	Tons			
Location/Equipment Type	*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

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	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

	Tons			
Location/Equipment Type	*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

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				
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

Year	*Metric Tons (1)*			
	CO2	*CH4*	*N2O*	*CO2e*
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		*Total*	*Tons/*	*Total*
4	*Location/Equipment Type*	*Tons*	*Barge*	*Tug Trips*
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		*Total*	*Tons/*	*Total*
16	*Location/Equipment Type*	*Tons*	*Barge*	*Tug Trips*
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		*Total*	*CY/*	*Total*
26	*Location/Equipment Type*	*CY*	*Barge*	*Tug Trips*
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		*Total*	*CY/*	*Total*
34	*Location/Equipment Type*	*CY*	*Barge*	*Tug Trips*
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		*Total*	*CY/*	*Total*
42	*Location/Equipment Type*	*CY*	*Barge*	*Tug Trips*
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		*Total*	*CY/*	*Total*
50	*Location/Equipment Type*	*CY*	*Barge*	*Tug Trips*
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 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 then 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

	Pounds per Day						
Location/Equipment Type	*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-94. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement

	Pounds per Day						
Location/Equipment Type	*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 Quarry Run 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 Quarry Run 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
Cabrillo SWH							
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 Quarry Run to Site (1)	10.26	95.01	258.43	0.22	7.60	7.60	7.12
Subtotal	13.14	111.82	322.98	0.29	8.53	8.53	7.99
Eelgrass Restoration							
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 Quarry Run 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-95. Daily Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Armor Stone Placement

	Pounds per Day						
Location/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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.

	Pounds per Day						
Location/Equipment Type	*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

	Pounds per Day						
Location/Equipment Type	*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.

	Pounds per Day						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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-103. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Quarry Run Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
NW Slip Sliver							
Barge Equipment	0.08	0.31	1.69	0.00	0.01	0.01	0.01
Derrick Barge Crane	0.04	0.14	0.78	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.07	0.65	1.76	0.00	0.05	0.05	0.05
Tugboat - Transport Quarry Run to Site (1)	0.77	7.12	19.37	0.02	0.57	0.57	0.53
Subtotal	0.96	8.22	23.61	0.02	0.63	0.63	0.59
Berths 243-245							
Barge Equipment	0.06	0.24	1.31	0.00	0.00	0.00	0.00
Derrick Barge Crane	0.03	0.11	0.60	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.05	0.50	1.36	0.00	0.04	0.04	0.04
Tugboat - Transport Quarry Run to Site (1)	0.54	5.04	13.70	0.01	0.40	0.40	0.38
Subtotal	0.69	5.89	16.97	0.02	0.45	0.45	0.42
Cabrillo SWH							
Barge Equipment	0.13	0.49	2.66	0.00	0.01	0.01	0.01
Derrick Barge Crane	0.06	0.23	1.23	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.11	1.02	2.77	0.00	0.08	0.08	0.08
Tugboat - Transport Quarry Run to Site (1)	1.06	9.79	26.64	0.02	0.78	0.78	0.73
Subtotal	1.35	11.53	33.29	0.03	0.88	0.88	0.82
Eelgrass Restoration							
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 Quarry Run 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-104. Total Mitigated Emissions for the POLA Channel Deepening Proposed Project - Dike Construction Armor Stone Placement

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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.

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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.

	Tons						
Location/Equipment Type	*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 - Dem

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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.

	Tons			
Location/Equipment Type	*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 Projec Dredging of Coarse Grain Material.

	Tons			
Location/Equipment Type	*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 Projec

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 aproximately 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.

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 - 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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
4	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
33	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
64	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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		*Power*	*Load*	*#*	*Hourly*	*Hours*	*Daily*	*Work*	*Total*
83	*Location/Equipment Type*	*Rating (Hp)*	*Factor*	*Active*	*Hp-Hrs*	*Per Day*	*Hp-Hrs*	*Days*	*Hp-Hrs*
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
1	Table C-138. Daily Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike							
2	Construction Quarry Run Placement							
3		*Pounds per Day*						
4	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
5	Cabrillo SWH							
6	Barge Equipment	3.60	9.98	36.45	0.03	1.38	1.38	1.27
7	Derrick Barge Crane	1.66	4.60	16.82	0.01	0.64	0.64	0.59
8	Tugboat - Derrick Barge Crane	1.07	9.87	42.93	0.02	1.13	1.13	1.06
9	Tugboat - Transport Quarry Run to Site (1)	10.26	95.01	413.18	0.22	10.87	10.87	10.18
10	Subtotal	16.59	119.46	509.39	0.29	14.02	14.02	13.10
11								
12								
13								
14								
15								
16								

	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		*Pounds per Day*						
36	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
71	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
91	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Pounds per Day*						
119	*Location/Activity*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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 follwing 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
1	Table C-143. Total Unmitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike							
2	Construction Quarry Run Placement							
3		*Tons*						
4	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
5	Cabrillo SWH							
6	Barge Equipment	0.37	1.03	3.76	0.00	0.14	0.14	0.13
7	Derrick Barge Crane	0.17	0.47	1.73	0.00	0.07	0.07	0.06
8	Tugboat - Derrick Barge Crane	0.11	1.02	4.42	0.00	0.12	0.12	0.11
9	Tugboat - Transport Quarry Run to Site (1)	1.06	9.79	42.59	0.02	1.12	1.12	1.05
10	Subtotal	1.71	12.31	52.50	0.03	1.44	1.44	1.35
11								
12								
13								
14								
15								
16								

	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		*Tons*						
36	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
71	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
91	*Location/Equipment Type*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons*						
119	*Location/Activity*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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		*Tons (1)*						
144	*Yearly Scenario*	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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

Location/Equipment Type	*Tons*			
	CO2	*CH4*	*N2O*	*CO2e*
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

	Tons			
Location/Equipment Type	*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.

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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	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

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				
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

Project Scenario	Metric Tons (1)			
	CO2	CH4	N2O	CO2e
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

Location/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

	Tons			
Location/Equipment Type	*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

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 activites 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		*Total*	*Vol/Tons*	*Total*
4	*Location/Equipment Type*	*Vol/Tons*	*/Barge*	*Tug Trips*
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		*Total*	*Vol/Tons*	*Total*
12	*Location/Equipment Type*	*Vol/Tons*	*/Barge*	*Tug Trips*
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		*Total*	*Vol/Tons*	*Total*
20	*Location/Equipment Type*	*Vol/Tons*	*/Barge*	*Tug Trips*
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 Disiposal of Dredging Material			
27		*Total*	*Vol/Tons*	*Total*
28	*Location/Equipment Type*	*Vol/Tons*	*/Barge*	*Tug Trips*
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-162. Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement

	Pounds per Day						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Cabrillo SWH							
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 Quarry Run to Site (1)	10.26	95.01	258.43	0.22	7.60	7.60	7.12
Subtotal	13.14	111.82	322.98	0.29	8.53	8.53	7.99
Eelgrass Restoration							
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 Quarry Run 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-163. Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Armor Stone Placement

	Pounds per Day						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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-164. Daily Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal

	Pounds per Day						
Location/Equipment Type	*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 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.

	Pounds per Day						
Location/Equipment Type	*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	0.23	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

	Pounds per Day						
Location/Equipment Type	*ROG*	*CO*	*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	*CO*	*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 follwing 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-168. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Quarry Run Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
Cabrillo SWH							
Barge Equipment	0.13	0.49	2.66	0.00	0.01	0.01	0.01
Derrick Barge Crane	0.06	0.23	1.23	0.00	0.00	0.00	0.00
Tugboat - Derrick Barge Crane	0.11	1.02	2.77	0.00	0.08	0.08	0.08
Tugboat - Transport Quarry Run to Site (1)	1.06	9.79	26.64	0.02	0.78	0.78	0.73
Subtotal	1.35	11.53	33.29	0.03	0.88	0.88	0.82
Eelgrass Restoration							
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 Quarry Run 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-169. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Dike Construction Armor Stone Placement

	Tons						
Location/Equipment Type	*ROG*	*CO*	*NOx*	*SOx*	*PM*	*PM10*	*PM2.5*
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-170. Total Mitigated Emissions for the POLA Channel Deepening Project Alternative 2 - Surcharge Removal

	Tons						
Location/Equipment Type	*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.

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Equipment Type	*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

	Tons						
Location/Activity	*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

	Tons (1)						
Yearly Scenario	*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

	Tons			
Location/Equipment Type	*CO2*	*CH4*	*N2O*	*CO2e*
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

	Tons			
Location/Equipment Type	*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.

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Activity	*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.

	Metric Tons (1)			
Year/Source Category	*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

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		

Table C-182. Construction Activities for the POLA Channel Deepening Project Alternative 2 - 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*
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

Location/Equipment Type	*Power Rating (Hp)*	*Load Factor*	*# Active*	*Hourly Hp-Hrs*	*Hours Per Day*	*Daily Hp-Hrs*	*Work Days*	*Total Hp-Hrs*
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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Equipment Type	*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

	Tons			
Location/Activity	*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

	Metric Tons (1)			
Year	*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.

Attachment B

USACE Guidance Concerning Implementation of EPA's Clean Air Act General Conformity Rule

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

20 APR 1994

CECC-E

MEMORANDUM FOR ALL MAJOR SUBORDINATE COMMANDERS, AND DISTRICT COMMANDERS

SUBJECT: EPA's Clean Air Act (CAA) General Conformity Rule

1. In the Federal Register of November 30, 1993, the U.S. Environmental Protection Agency (EPA) published its final General Conformity Rule to implement Section 176(c) of the Clean Air Act (CAA) for geographic areas designated as "nonattainment" and "maintenance" areas under the CAA. EPA's final rule addresses how Federal agencies are to demonstrate that activities in which they engage conform with applicable, Federally-approved CAA state implementation plans. Because these agency conformity determinations can sometimes take considerable time and cost thousands of dollars to produce, and because failure to produce and sign an adequate conformity determination where one is required can create a serious legal vulnerability for a Corps project or permit, the Corps must ensure full and careful compliance with the new EPA Final Rule.

2. The enclosed guidance document has been prepared to assist Corps Divisions and Districts in understanding and complying with the subject rule. This guidance document is introductory in nature, and cannot be considered a substitute for careful reading of and compliance with the rule itself. (See 58 Fed.Reg. 63214 et seq.)

3. One of the primary subjects discussed in the enclosed guidance document is how the General Conformity Rule relates to the Corps regulatory program under Sections 9 and 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Ocean Dumping Act. As soon as practicable I intend to promulgate another guidance document providing more detailed instructions on how Corps personnel should deal with CAA conformity considerations regarding Corps Civil Works projects during the planning process, including preparation of CAA conformity determinations where that is necessary.

4. Although the attached document is rather "legalistic" in nature, it should be broadly distributed within the Corps family (e.g., counsel, regulatory, planning, operations, etc.). This guidance also contains important policy considerations, and thus has been fully coordinated with the Office of the Assistant Secretary of the Army (Civil Works) and with the Director of Civil Works.

5. My points of contact for this guidance are Lance Wood and Bill Sapp, CECC-E; their telephone number is (202) 272-0035.

FOR THE COMMANDER:

Lester Edelman

Encl

LESTER EDELMAN
Chief Counsel

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EPA'S FINAL CLEAN AIR ACT GENERAL CONFORMITY RULE

I. INTRODUCTION.

In the Federal Register of November 30, 1993, the U.S. Environmental Protection Agency (EPA) published its final General Conformity Rule[1] to implement section 176(c) of the Clean Air Act (CAA)[2] for geographic areas designated as "nonattainment" and "maintenance" areas under the CAA. EPA's final rule addresses how Federal agencies are to demonstrate that activities in which they engage conform with applicable, Federally approved CAA state implementation plans.[3] Because these agency conformity determinations can sometimes take considerable time and cost thousands of dollars to produce[4], and because failure to produce and sign an adequate conformity determination where one is required can create a serious legal vulnerability for a Corps project or permit, the Corps must ensure full and careful compliance with the new EPA final rule.

EPA's final rule was promulgated to implement CAA section 176(c), which was added to the Clean Air Act in 1977[5] to require that Federal agencies assure that activities they engage in are in conformance with Federally-approved CAA state implementation plans.[6] This requirement is clearly triggered whenever a Federal

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[1] 58 Fed. Reg. 63214 (November 30, 1993).

[2] Clean Air Act § 176(c), 42 U.S.C. § 7506 (1993).

[3] 58 Fed. Reg. 63214 (November 30, 1993). Section 110 of the Clean Air Act requires that all states and the District of Columbia develop state implementation plans for EPA approval that provide detailed accounts of how the state will attain the National Ambient Air Quality Standards throughout the state. 42 U.S.C. § 7410 (1993).

[4] The EPA estimated in its proposed rule that a conformity determination would cost approximately $5,000, whereas an extensive conformity determination would cost $50,000. 58 Fed. Reg. 13848 (March 15, 1993). Department of Defense estimates double the figures supplied by the EPA.

[5] Pub. L. 95-95, § 176(c) (1977).

[6] Section 176(c)(1) provides in relevant part that:

> No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve,

(continued...)

agency engages in a Federal project, but it is also triggered whenever a Federal agency permits, licenses, funds, or approves a non-Federal undertaking. The Corps' Clean Water Act (CWA) section 404 permits, Rivers and Harbors Act of 1899 Section 10 permits, and Ocean Dumping Act Section 103 permits fall under this latter category.

II. APPLICABILITY.

A. EXEMPTIONS AND PRESUMPTIONS. As you study the final rule and its preamble, the first general subject to consider is the "applicability" of the rule. The new rule applies generally to Federal actions except for those covered by EPA's transportation conformity rule[7], actions with associated emissions below the de minimis levels specified at 40 CFR 91.853, certain classes of actions designated at 40 CFR 91.853 as exempted or presumed to conform, and actions that the new rule "grandfathers" at 40 CFR 91.850. A number of Corps activities may fit within the long list of "exempted" or "presumed to conform" activities. For example, note the specific exemption provided for maintenance dredging and debris disposal actions.

B. GRANDFATHER CLAUSE. As you consider the "grandfather provision", remember that it describes the specific circumstances where a Federal action need not comply with the new general conformity rule, but the Corps might nevertheless have to create and sign a CAA conformity determination to show compliance with the statutory mandate of CAA Section 176(c). However, that conformity determination would not have to comply with the specific procedural requirements of the new EPA regulation. Also note that the second basis provided in the rule for grandfathering, i.e., the three-part requirement of 40 CFR 93.150(c)(2), requires that an environmental analysis had to be commenced prior to January 31, 1994, or that a contract to develop a specific environmental analysis was awarded prior to January 31, 1994. The reference in that section to the date of December 30, 1993, was an error. The EPA has since corrected that date to January 31, 1994, by publishing the correction in the Federal Register, i.e., January 31, 1994. Moreover, that same section requires that a CAA conformity

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[6](...continued)
any activity which does not conform to an implementation plan after it has been approved or promulgated under section 110. . . . The assurance of conformity to such an implementation plan shall be an affirmative responsibility of the head of such department, agency or instrumentality.

C.A.A. § 176(c)(1), 42 U.S.C. § 7506 (1993).

[7]See 40 CFR Part 51, subpart T.

determination demonstrating compliance with the statutory mandate of CAA Section 176(c) be signed by March 15, 1994.

C. ATTAINMENT VERSUS NON-ATTAINMENT AREAS. Also regarding applicability, note that the new CAA General Conformity Rule applies only to Federal actions in CAA non-attainment areas and in those attainment areas subject to maintenance plans required by CAA Section 175A (i.e., "maintenance areas"; see 58 Fed. Reg. 13841) . EPA has announced its intentions to do another rulemaking at a later date describing how CAA Section 176(c) will be applied to CAA attainment areas, in general.

III. REQUIREMENTS OF THE NEW RULE.

To fully understand the requirements of the rule, you must carefully study both the rule itself and the explanatory guidance provided in the preamble. In the near future, the Office of the Chief Counsel expects to provide additional guidance that will assist Corps personnel who must prepare CAA conformity determinations, especially for Corps planning studies, feasibility reports, and the like. In this guidance, I only wish to emphasize a few important aspects of the rule, to ensure understanding of those matters throughout the Corps, for both our projects and our regulatory responsibilities.

A. CONFORMITY DETERMINATIONS. The basic requirement of the General Conformity Rule is stated at 40 CFR 93.150(b): "A Federal agency must make a determination that a Federal action conforms to the applicable implementation plan in accordance with the requirements of this subpart before the action is taken." (emphasis added). Obviously, to implement that mandate we must turn to the definition of "Federal action" provided at 40 CFR 93.152:

> **Federal action** means any activity engaged in by a[n] ... agency ... of the Federal Government, or any activity that a[n] ... agency ... supports in any way, provides financial assistance for, licenses, permits, or approves.... Where the Federal action is a permit, license, or other approval for some aspect of a non-Federal undertaking, the relevant activity is the part, portion, or phase of the non-Federal undertaking that requires the Federal permit, license, or approval."

B. DIRECT EMISSIONS. Regarding what air emissions must be considered in a CAA conformity determination, the rule defines two classes: direct emissions, and indirect emissions. The definition of "direct emissions" is straightforward: "Direct emissions" means those emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and occur at the same time and place as the action." (40 CFR 93.152)

C. INDIRECT EMISSIONS. In contrast, the definition of "indirect emissions" needs careful study: "indirect emissions"

means those emissions of a criteria pollutant or its precursors that: (1) Are caused by the Federal action but may occur later in time and/or may be further removed in distance from the action itself but are still reasonably foreseeable; and (2) The Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal agency." (40 CFR 93.152; emphasis added.) Note that the second, limiting part of that definition is crucial, since the underlined words provide essential restrictions on how far the Corps' responsibilities extend regarding documenting and controlling indirect emissions. Those restrictions from the rule's definition of "indirect emissions" are especially important, given the General Conformity Rule's broad, "but for" definition of the term "caused by": "Caused by, as used in the terms 'direct emissions' and 'indirect emissions,' means emissions that would not otherwise occur in the absence of the Federal action."[8] This definition of the term "caused by" can be characterized as a "but for" approach to the concept of causation, because, standing alone, it would require the Corps to take responsibility for all indirect emissions that would not occur without (i.e., "but for") the Corps permit or project. If the General Conformity Rule did not contain the various limiting provisions discussed herein, that "but for" approach to defining "caused by" would have made the Corps responsible for dealing with potential emissions that might not occur "but for" the Corps project or permit, but which might be substantially removed in time and/or distance from the Corps action; those emissions would be almost impossible for the Corps to predict, document, or control through mitigation measures.

Consequently, it is of considerable importance to the Corps Civil Works program that everyone understand and make proper use of the restrictions noted above in the definition of "indirect emissions" when deciding whether or how we need to prepare a CAA conformity determination. Of course, the Corps must consider the "direct emissions" caused by our proposed project or activity, or by the specific activity requiring a Corps permit. However, the final General Conformity Rule does not require the Corps to document or analyze any "indirect emissions" unless we determine that it would be practicable for the Corps to control them, and that the Corps would maintain control over them due to a continuing Corps program responsibility. As we shall discuss later, we expect that the Corps will not be legally required under the General Conformity Rule to analyze, document, and seek mitigation measures for indirect emissions for many Corps project-related actions, and for the vast majority of actions requiring Corps permit authorization, since often it will not be practicable for the Corps to control such emissions, and frequently the Corps will not have a continuing program responsibility to maintain control over them.

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[8] 40 CFR 913.152 (1994).

The logic behind the limitation on what "indirect emissions" the Corps must analyze, document, and seek mitigation measures to reduce, is explained in the preamble to EPA's rule, as follows:

> The EPA does not believe that it is reasonable to conclude that a Federal agency "supports" an activity by third persons over whom the agency has no practicable control--or "supports" emissions over which the agency has no practicable control, based on the mere fact that, if one inspects the "causal" chain of events, the activity or emissions can be described as being a "reasonably foreseeable" result of the agency's actions.
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> In fact, achievement of the clean air goals is not primarily the responsibility of the Federal government. Instead, Congress assigned that responsibility to the State and local agencies.... Where the Federal control over the resultant emissions is relatively minor, the problem is likely caused by multiple pollution sources and a solution may be impossible unless it is directed at all the contributing sources. This role is given to the State and local agencies by Congress and should not be interpreted as the Federal agencies' role under section 176(c).[9]

IV. CORPS IMPLEMENTATION OF THE EPA GENERAL CONFORMITY RULE.

A. CORPS PROJECTS VERSUS NON-FEDERAL ACTIVITIES NEEDING CORPS PERMIT AUTHORIZATION.

From a legal point of view, many of the limitations on Corps responsibilities for documenting and mitigating for indirect emissions (as discussed above) apply to both Corps Civil Works projects and to Corps regulatory program actions regulating non-Federal activities. Nevertheless, there are some significant distinctions that must be made, as a practical matter, regarding how often and in what circumstances the Corps will voluntarily choose to go beyond our strict legal obligations under the General Conformity Rule regarding CAA analyses of indirect emissions. As we explain at some length hereinafter, for practical reasons, policy reasons, and legal reasons, we are not required to, and thus we will not, prepare CAA conformity determinations for the vast majority of the approximately 100,000 activities that we must authorize yearly through the Corps regulatory program. We intend to assert and make full use of the various exemptions and limitations written into the General Conformity Rule that apply to our regulatory program, which exemptions and limitations will usually lead us to conclude that the emissions we are responsible for fall below the de mimimis exemption level. Among the many reasons why this approach is necessary and appropriate is the fact

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[9] 58 Fed. Reg. 63220 (November 30, 1993)

that we must provide relatively expeditious decisions for non-Federal activities that require Corps permit authorization, and because all of the non-Federal activities that require Corps permits are fully subject to the CAA authorities of the U.S. EPA and of the state and local governments.

In contrast, some Corps water resource development projects go through lengthy planning processes, with full-scale NEPA Environmental Impact Statements, coordination with numerous state and Federal agencies, etc. Moreover, many of our water resource development projects are subject to litigation brought by project opponents. Consequently, wherever it is practicable and appropriate, the Corps will go beyond our strict legal obligations under the General Conformity Rule, and we will prepare CAA conformity determinations that consider indirect emissions that would follow from our project, even where it is debatable whether we could "practicably" control those indirect emissions, and even where it is debatable whether the Corps has a continuing program responsibility to control those indirect emissions. In other words, we should err on the side of caution in writing CAA conformity determinations for large-scale Corps projects, and in coordinating those determinations with the U.S. EPA and with state and local clean air agencies. However, whenever the Corps does voluntarily choose to go beyond our obligations under the General Conformity Rule while preparing a CAA conformity determination, the fact that we are voluntarily going beyond our understanding of our legal obligations must be clearly stated in our public documentation.

When the Corps prepares a CAA conformity determination for a Corps project in the planning stage, and in that conformity determination we voluntatily address all indirect emissions that would be "caused by" our project, that will provide us the valuable opportunity to demonstrate that any short-term increase in emissions from project construction will be entirely or partially offset by decreases in long-term, "without project condition" emissions, due to increased efficiencies (for example, through more efficient port operations from a port improvement project). Also, when we prepare a CAA conformity determination that deals with all indirect emissions that can reasonably be said to be "caused by" our project, our project can be presented to the state CAA authority and specifically approved as part of the state implementation plan, along with any necessary state revisions to that SIP necessary to accommodate the Federal project and all associated indirect emissions. Development and coordination of our CAA conformity determination should be undertaken as early as possible in the planning stage for a large-scale or litigation-prone Corps project. The resulting documentation will be extremely useful to help defend our project from potential litigation challenging compliance with the CAA. On the other hand, for small-scale Corps projects, covered only by environmental assessments and findings of no significant impact, and where no CAA-related litigation can be anticipated, we can probably rely only on the

exemptions found in the General Conformity Rule, and need not necessarily prepare a full-blown CAA conformity determination voluntarily addressing various indirect emissions. Please feel free to consult the points of contact provided in this guidance if you are in doubt about whether a particular Civil Works activity should be covered by a CAA conformity determination voluntarily covering indirect emissions.

B. THE CORPS REGULATORY PROGRAM.

One crucial aspect of this guidance involves how we expect all Corps offices to implement the CAA General Conformity Rule regarding non-Federal activities requiring authorization under the Corps regulatory program. Of course, if another Federal agency requires a Corps permit for one of its activities or projects, that Federal agency is fully responsible for ensuring compliance with CAA Section 176(c), and the Corps can adopt and rely upon that agency's conformity determination, or upon whatever waiver or presumption under the CAA General Conformity Rule that agency believes will satisfy CAA Section 176(c). However, for non-Federal activities, the Corps must take responsibility for whatever CAA conformity determination may be necessary. Nevertheless, for the reasons explained hereinafter, the new rule and its preamble clearly indicate that the vast majority of activities needing Corps permit authorization will not require a CAA conformity determination, because practically all of those activities will fall below the de minimis threshold levels for emissions specified at 40 CFR 93.153.

C. SCOPE OF ANALYSIS. One feature of EPA's final General Conformity Rule that clearly demonstrates that the Corps will not have to perform many conformity determinations is the rule's definition of the term "Federal action". The final rule's definition clearly distinguishes between large Federal projects, such as a Federally funded and Federally controlled military base, versus non-Federal undertakings that simply require a Federal permit. Oftentimes in the latter case, the Federal agency only has to permit a minor part, portion, or phase of a much larger non-Federal undertaking. To reflect the limited Federal responsibility under the CAA derived from such Federal permits, the EPA definition of "Federal action" indicates that, in complying with section 176(c), Federal regulatory agencies are only responsible for analyzing the emissions resulting from the "part, portion, or phase" of the non-Federal undertaking that they permit. To deal with this important point, the EPA added the following sentence to the final rule's definition of "Federal action":

> Where the Federal action is a permit, license, or other approval for some aspect of a non-Federal undertaking, the relevant activity is the part, portion, or phase of

the non-Federal undertaking that requires the Federal permit, license, or approval.[10]

As you can see, the legal principle behind the quoted sentence is the same principle that supports the "narrow scope of analysis" approach for our NEPA documents reflected at Appendix B of 33 CFR Part 325, paragraph 7.b. and the "permit area" approach used to limit Corps responsibilities in Appendix C, implementing the National Historic Preservation Act.[11] The rule of administrative law and practice created by the sentence just quoted from EPA's definition of "Federal action" is that, for the limited and particular purposes of the CAA Conformity Rule and for every Corps CAA conformity determination for a Corps regulatory action under this rule, the Corps will always use a narrow "scope of analysis" for purposes of CAA Section 176(c), even if we choose to use a broader scope of analysis for purposes of NEPA, the public interest review, or the 404(b)(1) analysis for that same permit case.

This narrow scope of analysis for purposes of the CAA conformity analysis is always appropriate, for several reasons. For example, the Corps regulators have no expertise or authority allowing them to evaluate or control air emissions from the larger, overall projects, such as a shopping center, that may require a Corps permit for one phase or portion of that larger project (e.g., placement of fill material on which part of the shopping center will later be constructed and operated). In contrast, the state and EPA clean air authorities have broad, general authority, expertise, and responsibility to evaluate and control air emissions from the larger, overall projects, such as shopping centers, regardless of whether part of all of such a shopping center happens to be constructed on fill material permitted by the Corps of Engineers.

D. CONFORMITY DETERMINATIONS FOR CORPS PERMITS CASES WILL BE NECESSARY VERY RARELY. The sentence quoted above from EPA's definition of "Federal action" may well be the most important provision of the General Conformity Rule relating to the Corps regulatory program, because this provision, in conjunction with the restrictive language discussed above from the definition of "indirect emissions", means that very rarely will the Corps have to prepare a CAA conformity determination document for a Corps regulatory action. The reasons for this conclusion are reflected in the following case example, provided by EPA in the preamble of the final General Conformity Rule. In this example, the EPA shows the close relationship between the sentence quoted above from the definition of "Federal action" and the restrictive language from the definition of "indirect emissions", as follows:

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[10] 58 Fed. Reg. 63248 (November 30, 1993).

[11]. 55 Fed. Reg. 27000 (June 29, 1990)

> [In the final rule] the definition of "Federal action" is revised by adding the following sentence to the end of the definition in the [proposed rule]: Where the Federal action is a permit, license, or other approval for some aspect of a nonfederal undertaking, the relevant activity is the part, portion, or phase of the nonfederal undertaking that requires the Federal permit, license or approval. The following examples illustrate the meaning of the revised definition.
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> Assume, for example, that the [Corps] issues a permit and that permitted fill activity represents one phase of a larger nonfederal undertaking; i.e., the construction of an office building by a nonfederal entity. Under the conformity rule, the [Corps] would be responsible for addressing all emissions from that one phase of the overall office development undertaking that the [Corps] permits; i.e., the fill activity at the wetland site. However, the [Corps] is not responsible for evaluating all emissions from later phases of the overall office development (the construction, operation, and use of the office building itself), because later phases generally are not within the [Corps'] continuing program responsibility and generally cannot be practicably controlled by the [Corps].[12]

The conclusion to be drawn regarding the preamble's case example is that the Corps almost certainly would not have to prepare a CAA conformity determination for that permit action described in the preamble, because the direct emissions from the fill activity would be relatively minor, and thus in all probability they would fall below the de minimis levels exempted by 40 CFR 93.153. Moreover, in this example one cannot identify any indirect emissions for which the Corps would be responsible.

E. "PART, PORTION, OR PHASE" OF A LARGER UNDERTAKING. The preamble for the final rule provides several other important explanatory passages that accurately describe the limited nature of the responsibilities the Corps must fulfill as we operate our regulatory program in compliance with EPA's General Conformity Rule. As the EPA states in the preamble, the "inclusive definition" that EPA had published for public comment in the proposed rule to define the term "indirect emissions" would have been overly burdensome and inappropriate for regulatory programs that might have to "document the air quality affects from tens of thousands of public and private business activities each year, even where the associated Federal action in extremely minor."[13] The EPA

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[12] 58 Fed. Reg. 63227 (November 30, 1993).

[13] 58 Fed. Reg. 63219 (November 30, 1993).

goes on to use the Corps in an illustration of this point by explaining that:

> [T]he Army Corps of Engineers estimates that 65,000 of their regulatory actions would have required a conformity review in 1992 under the inclusive definition. The [Corps] permits are often limited to a small portion of a much larger project and, thus, may not be the best mechanism to review the larger project: e.g., one river crossing for a 500 mile gas pipeline or a half-acre wetland fill for a twenty acre shopping mall.[14]

As the EPA explains here, it would be impractical to force a Federal regulatory agency like the Corps to do potentially time-consuming and costly air quality analyses when the activity that agency permits may be a very minor aspect of a much larger non-Federal undertaking, and when that specific activity needing a Corps permit may have little or no effect on air quality.

F. CONTINUING PROGRAM RESPONSIBILITY. The EPA also used the Corps in an illustration to explain the phrase "continuing program responsibility" in the definition of the term "indirect emissions". In their example the EPA explains that only if the Corps were to impose conditions on a permit as part of its responsibilities under its regulatory program and these permit conditions, in and of themselves, would lead to an increase in the air emissions caused by the activity, would the Corps be required to include the air emissions caused by its permit conditions in our CAA conformity analysis.[15] However, the preamble to EPA's rule makes clear that normally the Corps is not responsible for indirect emissions related to activities needing Corps permits:

> j. Exclusive definition [for the term "indirect emissions"]--types of Federal actions not covered. The following types of Federal actions, among others, are not covered by the conformity rule under the exclusive definition approach [i.e., the approach adopted in the final rule]....(3) Certain indirect emissions related to a [Corps of Engineers] permit for the discharge of dredged or fill material. The indirect emissions from development activities related to [Corps] permit actions are not subject to the continuing program responsibility of the [Corps], or cannot be practicably controlled by the [Corps].[16]

The EPA preamble also recognizes that the Corps has an explicit exemption from the conformity rule where:

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[14] 58 Fed. Reg. 63219 (November 30, 1993).

[15] 58 Fed. Reg. 63220 (November 30, 1993).

[16] 58 Fed. Reg. 63224 (November 30, 1993).

> The indirect emissions from development activities related to [Corps] permit actions are not covered where such emissions are not subject to the continuing program responsibility of the [Corps], or cannot be practicably controlled by the [Corps].[17]

The EPA then goes on in the preamble to explain the changes in the definition for the term "indirect emissions" that EPA adopted in its final General Conformity Rule (i.e., the "exclusive" definition). Again it uses the Corps in an illustration. The EPA points out that conformity analyses are not required when Federal actions are incidental to later development by private parties. As the EPA states:

> ...this approach would not require a conformity analysis for certain Federal actions that are necessary for, but incidental to, subsequent development by private parties. For example, the exclusive definition does not generally require that a [Corps] fill permit needed for a relatively minor part, portion, or phase of a twenty acre development on private land would somehow require the [Corps] to evaluate all emissions from the construction, operation, and use of that larger development.[18] (emphasis added)

Here the EPA explains that the "activity" contemplated under section 176(c) in many cases is properly limited to the particular "part, portion, or phase" of a non-Federal action that is actually permitted by the regulatory agency (i.e., the Corps). As the EPA goes on to explain:

> The person's [i.e., permit applicant's] activities that fall outside the Federal agency's continuing program responsibility to control are subject to control by state and local agencies.[19]

As indicated above, generally speaking the Corps does not have a continuing program responsibility to measure, monitor, control, or mitigate for air emissions that may result from the construction or operation of a non-Corps facility (such as a shopping center, factory, or non-Federal port), even though some part, portion, or phase of that facility requires a permit from the Corps. Under the CAA, the state and local clean air authorities have full responsibility and authority to deal with those emissions, and to prevent or condition the construction of the non-Federal facility as necessary to deal with those air emissions. Under the General

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[17] 58 Fed. Reg. 63224 (November 30, 1993).

[18] 58 Fed. Reg. 63222 (November 30, 1993).

[19] 58 Fed. Reg. 63222 (November 30, 1993)

Conformity Rule the Corps (1) must consider direct emissions from only the particular part, portion, or phase of the larger, non-Federal facility that we permit; and (2) we must consider indirect emissions from that same part, portion, or phase, and then only to the extent that we can practicably control them, and have a continuing program responsibility to control them.

G. CORPS DOCUMENTATION OF COMPLIANCE WITH CAA SECTION 176(C)

For any permit case where the Corps reasonably determines that the emissions from the particular "part, portion, or phase" of a larger, non-Federal undertaking, needing a Corps permit, would fall below the de minimis threshold levels of 40 CFR 93.153, the Corps will not have to conduct a technical analysis to document that the emissions from the proposed undertaking would not exceed the de minimis thresholds. This conclusion is supported by the following example taken from EPA's preamble to the General Conformity Rule:

> Example 4: Where a [Corps of Engineers] permit is needed to fill a wetland so that a shopping center can be built on the fill, generally speaking, the [Corps] could not practicably maintain control over and would not have a continuing program responsibility to control indirect emissions from subsequent construction, operation, or use of that shopping center. Therefore, only those emissions from the equipment and motor vehicles used in the filling operation, support equipment, and emissions from movement of the fill material itself would be included in the analysis. If such emissions are below the de minimis levels described below for applicability purposes (section 51.858), no conformity determination ... would be required for the issuance of the ... permit.[20]

The same point is made elsewhere in the preamble to the General Conformity Rule, as follows:

> Most Federal actions result in little or no direct or indirect air emissions. The EPA intends such actions to be exempted under the de minimis levels specified in the rule and, thus, no further analysis by the Federal agency is required to demonstrate that such actions conform.... Further, the EPA believes that Federal actions which are de minimis should not be required by this rule to make an applicability analysis. A different interpretation could result in an extremely wasteful process which generates vast numbers of useless conformity statements. Paragraphs (c)(1) and (2) of Section 51.853 are added to the final rule to provide that de minimis actions are exempt from the requirements of this rule. Therefore, it is

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[20] 58 Fed. Reg. 63223 (November 30, 1993).

not necessary for a Federal agency to document emissions levels for a de minimis action.[21]

Although we expect that the vast majority of activities needing Corps permits will not need CAA conformity determinations for the reasons explained above, nevertheless, for any permit case where litigation can be anticipated if the Corps issues the permit, the permit administrative record should explain our limited CAA responsibilities under the CAA General Conformity Rule, and the basis for our conclusion that the relevant emissions would be de minimis. That explanation often may need to include a discussion of why it would not be "practicable" for the Corps to control certain specified indirect emissions, and why the Corps does not have a continuing program responsibility to control such indirect emissions, and why our CAA responsibilities are limited to the particular "part, portion, or phase" of a larger undertaking requiring Corps permit authorization.

V. CONCLUSION.

Because of the various provisions discussed above, we expect that very few Corps permit actions will require CAA conformity analyses, and that our CAA conformity determinations will normally conclude that the air emissions relevant to our permit action are safely below the final rule's de minimis levels. It seems that the only time that the Corps will have to do a full-scale CAA conformity determination in a permit case is when the emissions associated with the particular activity needing the Corps permit, or the particular activity required by Corps permit conditions (e.g., the placement of the fill, or the construction of the structure in the water, or the actual dredging and disposal operation, or implementation of the required mitigation plan) are so substantial that those emissions would exceed the de minimis thresholds by themselves. This conclusion flows logically from the provisions discussed above from EPA's final rule and preamble, based in part on the principle of limited Corps responsibilities under the CAA.

Nevertheless, the practical necessity that the Corps will use a "narrow scope of analysis" to limit our requirements under the CAA conformity rule must not lead the Corps necessarily to use such a narrow scope of analysis for purposes of the Corps' other responsibilities under other aspects of the public interest review or the 404(b)(1) Guidelines. Because the Corps has ample discretion to adopt and use a broader scope of analysis for purposes of NEPA, the Endangered Species Act, etc., we will not use the CAA conformity determination as an excuse or occasion to reduce our more wide-ranging reviews and responsibilities under those other statutes and regulations.

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[21] 58 Fed. Reg. 63228-63229 (November 30, 1993).

The Corps' very limited expertise, authority, and continuing program responsibilities regarding air emissions fully justifies our using a narrow scope of analysis for purposes of compliance with CAA Section 176(c). In contrast, our broader, traditional responsibility, authority, and expertise to regulate activities affecting aquatic resources will often justify our using a broader scope of analysis to consider effects of a proposed undertaking on aquatic resources, endangered species, etc. Thus, for any particular permit case, the Corps will implement the CAA General Conformity Rule by focusing on only the specific part, portion, or phase of the larger undertaking that requires our permit authorization. Nevertheless, we often will consider all direct and indirect effects of the larger undertaking when evaluating effects on the aquatic environment.

Corps Headquarters points of contact for this guidance are Lance Wood and Bill Sapp of the Office of the Chief Counsel (CECC-E); their telephone number is (202) 272-0035. However, non-counsel Corps employees should only contact them in conjunction with district/division counsel to ensure proper coordination.

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SOUTHWESTERN DIVISION, ATTN: CESWD
MEMPHIS DISTRICT, ATTN: CELMM
NEW ORLEANS DISTRICT, ATTN: CELMN
ST. LOUIS DISTRICT, ATTN: CELMS
VICKSBURG DISTRICT, ATTN: CELMK
KANSAS CITY DISTRICT, ATTN: CEMRK
OMAHA DISTRICT, ATTN: CEMRO
BALTIMORE DISTRICT, ATTN: CENAB
NEW YORK DISTRICT, ATTN: CENAN
NORFOLK DISTRICT, ATTN: CENAO
CHICAGO DISTRICT, ATTN: CENCC
DETROIT DISTRICT, ATTN: CENCE
ROCK ISLAND DISTRICT, ATTN: CENCR
ST. PAUL DISTRICT, ATTN: CENCS
ALASKA DISTRICT, ATTN: CENPA
PORTLAND DISTRICT, ATTN: CENPP
SEATTLE DISTRICT, ATTN: CENPS
WALLA WALLA DISTRICT, ATTN: CENPW
HUNTINGTON DISTRICT, ATTN: CEORH
LOUISVILLE DISTRICT, ATTN: CEORL
NASHVILLE DISTRICT, ATTN: CEORN
PITTSBURGH DISTRICT, ATTN: CEORP
JACKSONVILLE DISTRICT, ATTN: CESAJ
MOBILE DISTRICT, ATTN: CESAM
SAVANNAH DISTRICT, ATTN: CESAS
LOS ANGELES DISTRICT, ATTN: CESPL
SACRAMENTO DISTRICT, ATTN: CESPK
ALBUQUERQUE DISTRICT, ATTN: CESWA
FORT WORTH DISTRICT, ATTN: CESWF
GALVESTON DISTRICT, ATTN: CESWG
LITTLE ROCK DISTRICT, ATTN: CESWL
TULSA DISTRICT, ATTN: CESWT