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16 **STATE OF CALIFORNIA**

17 **STATE WATER RESOURCES CONTROL BOARD**

18  
19 In the Matter of San Diego Regional Water Quality  
20 Control Board Cleanup and Abatement Order No.  
21 R9-2012-0024 – San Diego Shipyard Sediment Site

No.

**SAN DIEGO GAS & ELECTRIC  
COMPANY'S PETITION FOR REVIEW  
AND REQUEST FOR BIFURCATED  
HEARING**

1 Pursuant to Water Code section 13320(a) and California Code of Regulations, title 23,  
2 section 2050 *et seq.*, San Diego Gas & Electric Company (“Petitioner”) respectfully petitions the  
3 State Water Resources Control Board (“State Board”) for review of Cleanup and Abatement Order  
4 No. R9-2012-0024 and the accompanying Technical Report in support thereof (collectively, the  
5 “Order”), dated March 14, 2012, and issued by the Executive Officer of the San Diego Regional  
6 Water Quality Control Board (“Regional Board”) with regard to the San Diego Shipyard Sediment  
7 Site in San Diego, California (the “Site”). A copy of the Order is attached hereto as Exhibit A.<sup>1</sup>

8  
9 **I. Name and Address of Petitioner**

10 Petitioners may be contacted through counsel of record: Jill A. Tracy, San Diego Gas &  
11 Electric Company, Office of the General Counsel, 101 Ash Street, 12th Floor, San Diego, CA 9210,  
12 (619) 699-5112, jtracy@semprautilities.com; or Ward L. Benshoof, Peter A. Nyquist, Marisa E.  
13 Blackshire, Alston & Bird, LLP, 333 S. Hope Street, 16<sup>th</sup> Floor, Los Angeles, California 90071,  
14 (213) 576-1100, ward.benshoof@alston.com, pete.nyquist@alston.com, and  
15 marisa.blackshire@alston.com.

16  
17 **II. Specific Action or Inaction for Which This Petition for Review is Sought**

18 The Regional Board action for which this petition for review is filed concerns the issuance  
19 of the Order, entitled “Cleanup and Abatement Order, No. R9-2012-0024, Shipyard Sediment Site,  
20 San Diego Bay, San Diego, California,” dated March 14, 2012.

21  
22 **III. Date the Regional Board Acted or Failed to Act**

23 The date of the Regional Board’s action which is subject to review is March 14, 2012, the  
24 date the Order was signed and issued by the Executive Officer of the Regional Board.

25  
26 <sup>1</sup> The Technical Report and supporting documentation considered by the Regional Board in adopting the  
27 Order and the Order, are part of the administrative record for the Site and available for review at the following  
28 link: [http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/shipyards\\_sediment/cao.shtml](http://www.waterboards.ca.gov/sandiego/water_issues/programs/shipyards_sediment/cao.shtml). Due to  
their voluminous nature hard copies of these documents are not being included herewith, but can be made  
available upon request.

1           **IV. Statement of Reasons the Action is Inappropriate and Improper**

2           This issuance of the Order was beyond the authority of the Regional Board, inappropriate,  
3 improper, and not supported by the record, for the reasons set forth in Petitioner’s memorandum of  
4 points and authorities, filed concurrently herewith.

5  
6           **V. Petitioner is Aggrieved**

7           Petitioner is aggrieved for the reasons set forth in the memorandum of points and authorities,  
8 filed concurrently herewith. Unless Petitioner’s Request for Rescindment (of the Regional Board’s  
9 findings and directives in the Order specifically applicable to Petitioner) is granted, Petitioner will be  
10 forced to incur substantial cleanup and abatement, monitoring and other costs, without legal cause or  
11 justification.

12  
13           **VI. Petitioner’s Requested Action by the State Board**

14           Petitioner respectfully requests that the State Board determine the Regional Board’s actions  
15 in issuing the Order were inappropriate, improper and not supported by applicable law. Specifically,  
16 Petitioner seeks rescindment of those portions of the Order designating Petitioner as a “Discharger”  
17 under Water Code section 13304. This Petition presents issues of statewide importance and first  
18 impression, including, but not limited to, whether the Regional Board prejudicially erred in  
19 concluding that liability as a “discharger” can apply under Water Code section 13304(a) absent a  
20 showing that the party’s alleged discharges were a “substantial factor” in creating, or threatening to  
21 create, a “condition of pollution or nuisance.” Given the significance of the issues presented,  
22 Petitioner requests a hearing before the State Board at the earliest opportunity.

23           Moreover, for the reasons described at greater length in Petitioner’s accompanying  
24 Memorandum of Points and Authorities, Petitioner respectfully suggests that the following question  
25 of law can be bifurcated from the other issues presented by the Petition, and first considered at an  
26 expedited hearing: namely, whether liability under Water Code section 13304(a) requires a regional  
27 board to establish, based on substantial evidence, that a party’s alleged discharges were a  
28 “substantial factor” in creating, or threatening to create, a “condition of pollution or nuisance” at a

1 site. In this instance, the Regional Board concluded any such proof is “irrelevant” to liability, which  
2 Petitioner contends is incorrect as a matter of law.

3  
4 **VII. Statement of Points and Authorities**

5 Petitioner is concurrently filing a memorandum of points and authorities herewith.

6  
7 **VIII. Statement of Transmittal of Petition to the Regional Board**

8 A true and correct copy of this Petition for Review and accompanying memorandum of  
9 points and authorities was transmitted to David Gibson, Executive Officer of the Regional Board, on  
10 April 13, 2012.

11  
12 **IX. Substantive Issues Raised Before the Regional Board**

13 The substantive issues or objections raised in the Petition were all raised before the Regional  
14 Board by Petitioner through submittal of extensive written comments and supporting evidence, as  
15 well as through oral argument, expert witness testimony, and evidentiary submissions presented by  
16 Petitioner at evidentiary hearings before the Regional Board on November 9, 14, 15 and 16 and its  
17 final hearing on March 14, 2012 with respect to the proposed cleanup of contaminated sediments in  
18 the San Diego Bay and adoption of the Order.

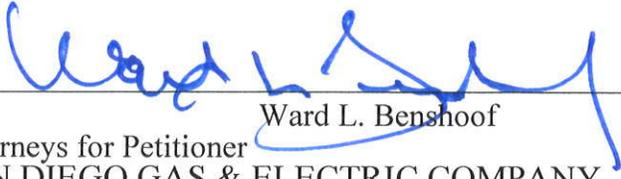
19 DATED: April 13, 2012

Respectfully submitted,

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22 OFFICE OF THE GENERAL COUNSEL

23 WARD L. BENSHOOF  
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27 By: \_\_\_\_\_

28   
Ward L. Benshoof  
Attorneys for Petitioner  
SAN DIEGO GAS & ELECTRIC COMPANY

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**CLEANUP AND ABATEMENT ORDER**

**NO. R9-2012-0024**

**NATIONAL STEEL AND SHIPBUILDING COMPANY**

**BAE SYSTEMS SAN DIEGO SHIP REPAIR, INC.**

**CITY OF SAN DIEGO**

**CAMPBELL INDUSTRIES**

**SAN DIEGO GAS AND ELECTRIC**

**UNITED STATES NAVY**

**SAN DIEGO UNIFIED PORT DISTRICT**

**SHIPYARD SEDIMENT SITE**

**SAN DIEGO BAY**

**SAN DIEGO, CALIFORNIA**

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board), finds as follows, based upon the weight of the evidence in this matter:

*JURISDICTION*

1. **WASTE DISCHARGE.** Elevated levels of pollutants above San Diego Bay background conditions exist in the San Diego Bay bottom marine sediment along the eastern shore of central San Diego Bay extending approximately from the Sampson Street Extension to the northwest and Chollas Creek to the southeast, and from the shoreline out to the San Diego Bay main shipping channel to the west. This area is hereinafter collectively referred to as the "Shipyard Sediment Site." The National Steel and Shipbuilding Company Shipyard facility (NASSCO), the BAE Systems San Diego Ship Repair Facility (BAE Systems), the City of San Diego, San Diego Marine Construction Company,<sup>1</sup> Campbell Industries (Campbell), San Diego Gas and Electric (SDG&E), the United States Navy, and the San Diego Unified Port District (Port District) have each caused or permitted the discharge of waste to the Shipyard Sediment Site resulting in the accumulation of waste in the marine sediment. The contaminated marine sediment has caused conditions of pollution, contamination or nuisance in San Diego Bay that adversely affect aquatic life, aquatic-dependent wildlife, and human health San Diego Bay beneficial uses. A map of the Shipyard Sediment Area is provided in Attachment 1 to this Order (referred to interchangeably as CAO or Order).

*RESPONSIBLE PERSON/DISCHARGER DETERMINATIONS*

2. **NATIONAL STEEL AND SHIPBUILDING COMPANY (NASSCO), A SUBSIDIARY OF GENERAL DYNAMICS COMPANY.** The San Diego Water Board finds that NASSCO has caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. These wastes contained metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), butyl tin species, polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH).

NASSCO, a subsidiary of General Dynamics Company, owns and operates a full service ship construction, modification, repair, and maintenance facility on 126 acres of tidelands property leased from the Port District on the eastern waterfront of central San Diego Bay at 2798 Harbor Drive in San Diego. Shipyard operations have been conducted at this site by NASSCO over San Diego Bay waters or very close to the waterfront since at least 1960. Shipyard facilities operated by NASSCO over the years at the Site have included concrete platens used for steel fabrication, a graving dock, shipbuilding ways, and berths on piers or

<sup>1</sup> San Diego Marine Construction Company is not identified as a discharger with responsibility for compliance with this Order because San Diego Marine Construction Company no longer exists and no corporate successor with legal responsibility for San Diego Marine Construction Company's liabilities has been identified. See Finding No. 5 and the Technical Report Section 5.

land to accommodate the berthing of ships. An assortment of waste is generated at the facility including spent abrasive, paint, rust, petroleum products, marine growth, sanitary waste, and general refuse. Based on these considerations NASSCO is referred to as "Discharger(s)" in this Cleanup and Abatement Order (CAO).

3. **BAE SYSTEMS SAN DIEGO SHIP REPAIR, INC., FORMERLY SOUTHWEST MARINE, INC.** The San Diego Water Board finds that BAE Systems caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. These wastes contained metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), butyl tin species, PCBs, PCTs, PAHs, and TPH.

From 1979 to the present, Southwest Marine, Inc. and its successor BAE Systems have owned and operated a ship repair, alteration, and overhaul facility on approximately 39.6 acres of tidelands property on the eastern waterfront of central San Diego Bay. The facility, currently referred to as BAE Systems San Diego Ship Repair, is located on land leased from the Port District at 2205 East Belt Street, foot of Sampson Street in San Diego, San Diego County, California. Shipyard facilities operated by BAE Systems over the years have included concrete platens used for steel fabrication, two floating dry docks, five piers, and two marine railways. An assortment of waste has been generated at the facility including spent abrasive, paint, rust, petroleum products, marine growth, sanitary waste, and general refuse. Based on these considerations BAE Systems is referred to as "Discharger(s)" in this CAO.

4. **CITY OF SAN DIEGO.** The San Diego Water Board finds that the City of San Diego caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. From the early 1900s through February 1963, when the relevant tideland areas were transferred from the City of San Diego to the Port District, the City was the trustee of and leased to various operators, all relevant portions of the Shipyard Sediment Site. The wastes the City of San Diego caused or permitted to be discharged, or to be deposited where they were discharged into San Diego Bay through its ownership of the Shipyard Sediment Site contained metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), butyl tin species, PCBs, PCTs, PAHs, and TPH.

The City of San Diego also owns and operates a municipal separate storm sewer system (MS4) through which it discharges waste commonly found in urban runoff to San Diego Bay subject to the terms and conditions of a National Pollutant Discharge Elimination System (NPDES) Storm Water Permit. The San Diego Water Board finds that the City of San Diego has discharged urban storm water containing waste directly to San Diego Bay at the Shipyard Sediment Site. The waste includes metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), total suspended solids, sediment (due to anthropogenic activities), petroleum products, and synthetic organics (pesticides, herbicides, and PCBs) through its SW4 (located on the BAE Systems leasehold) and SW9 (located on the NASSCO leasehold) MS4 conduit pipes.

The San Diego Water Board finds that the City of San Diego has also discharged urban storm water containing waste through its MS4 to Chollas Creek resulting in the exceedances of chronic and acute California Toxics Rule copper, lead, and zinc criteria for the protection of aquatic life. Studies indicate that during storm events, storm water plumes toxic to marine life emanate from Chollas Creek up to 1.2 kilometers into San Diego Bay, and contribute to pollutant levels at the Shipyard Sediment Site. The urban storm water containing waste that has discharged from the on-site and off-site MS4 has contributed to the accumulation of pollutants in the marine sediments at the Shipyard Sediment Site to levels, that cause, and threaten to cause, conditions of pollution, contamination, and nuisance by exceeding applicable water quality objectives for toxic pollutants in San Diego Bay. Based on these considerations the City of San Diego is referred to as "Discharger(s)" in this CAO.

5. **STAR & CRESCENT BOAT COMPANY.** The San Diego Water Board finds that between 1914 and 1972, San Diego Marine Construction Company operated a ship repair, alteration, and overhaul facility on what is now the BAE Systems leasehold at the foot of Sampson Street in San Diego. Shipyard operations were conducted at this site over San Diego Bay water or very close to the waterfront. An assortment of waste was generated at the facility, including spent abrasive blast waste, paint, rust, petroleum products, marine growth, sanitary waste and general refuse. These wastes contained metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), butyl tin species, PCBs, PCTs, PAHs, and TPH. In July 1972, San Diego Marine Construction Company sold its shipyard operations to Campbell Industries, and changed its corporate name, effective July 14, 1972, to Star & Crescent Investment Co. On March 19, 1976, Star & Crescent Boat Company (Star & Crescent), was incorporated in California and on April 9, 1976, Star & Crescent Investment Co. (formerly San Diego Marine Construction Company) transferred some portion of its assets and liabilities to Star & Crescent. The San Diego Water Board's Cleanup Team and several other designated parties allege that Star & Crescent Investment Co. (formerly San Diego Marine Construction Company) transferred all of its liabilities and assets to Star & Crescent. Accordingly, these parties allege that Star & Crescent is the corporate successor of and responsible for the conditions of pollution or nuisance caused or permitted by San Diego Marine Construction Company. Star & Crescent denies that it is the corporate successor to San Diego Marine Construction Company's and denies any responsibility for San Diego Marine Construction Company's discharges of waste to the San Diego Bay Shipyard Sediment Site from 1914 to 1972.

The San Diego Water Board finds that San Diego Marine Construction Company caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. San Diego Marine Construction Company is no longer in existence. The San Diego Water Board declines to decide the legal and factual questions necessary to determine whether Star & Crescent is the corporate successor to and therefore liable for San Diego Marine Construction Company's discharges. Due to Star & Crescent's uncertain legal status and due to the pending federal court litigation to which Star & Crescent is a party and that the San Diego Water Board expects will address allocation issues associated with this Order, the San Diego Water Board does not name Star & Crescent as a Discharger under this

Order. The San Diego Water Board retains the authority to exercise its discretion to add Star & Crescent as a Discharger under this Order in the future. If the federal court determines that Star & Crescent is the corporate successor to San Diego Marine Construction Company (later Star & Crescent Investment Company), the San Diego Water Board directs the Cleanup Team to reevaluate whether it is appropriate to amend the Order to add Star & Crescent as a Discharger.

6. **CAMPBELL INDUSTRIES.** The San Diego Water Board finds that Campbell caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. These wastes contained metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), butyl tin species, PCBs, PCTs, PAHs, and TPH. From July 1972 through 1979, Campbell's wholly owned subsidiaries MCCSD and later San Diego Marine Construction Corporation operated a ship repair, alteration, and overhaul facility on what is now the BAE Systems leasehold at the foot of Sampson Street in San Diego. Shipyard operations were conducted at this site by Campbell over San Diego Bay waters or very close to the waterfront. An assortment of waste was generated at the facility including spent abrasive blast waste, paint, rust, petroleum products, marine growth, sanitary waste, and general refuse. Based on these considerations, Campbell is referred to as "Discharger(s)" in this CAO.
7. **CHEVRON, A SUBSIDIARY OF CHEVRONTEXACO.** Chevron, a subsidiary of ChevronTexaco (hereinafter, Chevron) owns and operates the Chevron Terminal, a bulk fuel storage facility currently located at 2351 East Harbor Drive in the City of San Diego adjacent to the NASSCO and BAE Systems leaseholds. Fuel products containing petroleum hydrocarbons have been stored at the Chevron Terminal since the early 1900s at both the currently operating 7 million gallon product capacity upper tank farm and the closed 5 million gallon capacity lower tank farm. Based on the information that the San Diego Water Board has reviewed to date, there is insufficient evidence to find that discharges from the Chevron Terminal contributed to the accumulation of pollutants in the marine sediments at the Shipyard Sediment Site to levels, which create, or threaten to create, conditions of pollution or nuisance. Accordingly, Chevron is not referred to as "Discharger(s)" in this CAO.
8. **BP AS THE PARENT COMPANY AND SUCCESSOR TO ATLANTIC RICHFIELD.** BP owns and operates the Atlantic Richfield Company (ARCO) Terminal, a bulk fuel storage facility with approximately 9 million gallons of capacity located at 2295 East Harbor Drive in the City of San Diego. Fuel products containing petroleum hydrocarbons and related constituents such as PAHs have been stored at ARCO Terminal since the early 1900s. ARCO owned and operated ancillary facilities include a wharf, fuel pier (currently BAE Systems Pier 4), and a marine fueling station used for loading and unloading petroleum products and fueling from 1925 to 1978, and five pipelines connecting the terminal to the pier and wharf in use from 1925 to 1978. Storm water flows from ARCO Terminal enter a City of San Diego MS4 storm drain that terminates in San Diego Bay in the Shipyard Sediment Site approximately 300 feet south of the Sampson Street extension. Based on the information that the San Diego Water Board has reviewed

to date, there is insufficient evidence to find that discharges from the ARCO Terminal contributed to the accumulation of pollutants in the marine sediments at the Shipyard Sediment Site to levels, which create, or threaten to create, conditions of pollution or nuisance. Accordingly, BP and ARCO are not referred to as "Discharger(s)" in this CAO.

9. **SAN DIEGO GAS AND ELECTRIC, A SUBSIDIARY OF SEMPRA ENERGY.**

SDG&E owned and operated the Silver Gate Power Plant along the north side of the BAE Systems leasehold from approximately 1943 to the 1990s. SDG&E utilized an easement to San Diego Bay along BAE Systems' north property boundary for the intake and discharge of cooling water via concrete tunnels at flow rates ranging from 120 to 180 million gallons per day. SDG&E operations included discharging waste to holding ponds above the tunnels near the Shipyard Sediment Site.

The San Diego Water Board finds that SDG&E has caused or permitted waste (including metals [chromium, copper, lead, nickel, and zinc], PCBs, PAHs, and total petroleum hydrocarbons [TPH-d and TPH-h]) to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. Based on these considerations SDG&E is referred to as "Discharger(s)" in this CAO.

10. **UNITED STATES NAVY.** The San Diego Water Board finds that the United States Navy (hereinafter "U.S. Navy") caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. The U.S. Navy owns and operates a municipal separate storm sewer system (MS4) at Naval Base San Diego (NBSD), formerly Naval Station San Diego or NAVSTA, through which it has caused or permitted the discharge of waste commonly found in urban runoff to Chollas Creek and San Diego Bay, including excessive concentrations of copper, lead, and zinc in violation of waste discharge requirements. Technical reports by the U.S. Navy and others indicate that Chollas Creek outflows during storm events convey elevated sediment and urban runoff chemical pollutant loading and its associated toxicity up to 1.2 kilometers into San Diego Bay over an area including the Shipyard Sediment Site.

The San Diego Water Board finds that the U.S. Navy has caused or permitted marine sediment and associated waste to be resuspended into the water column as a result of shear forces generated by the thrust of propellers during ship movements at NBSD. The resuspended sediment and pollutants can be transported by tidal currents and deposited in other parts of San Diego Bay, including the Shipyard Sediment Site. The above discharges have contributed to the accumulation of pollutants in marine sediment at the Shipyard Sediment Site to levels that cause, and threaten to cause, conditions of pollution, contamination, and nuisance by exceeding applicable water quality objectives for toxic pollutants in San Diego Bay.

Also, from 1921 to the present, the U.S. Navy has provided shore support and pier-side berthing services to U.S. Pacific fleet vessels at NBSD located at 3445 Surface Navy Boulevard in the City of San Diego. NBSD currently occupies 1,029 acres of land and 326

water acres adjacent to San Diego Bay to the west, and Chollas Creek to the north near Pier 1. Between 1938 and 1956, the NBSD leasehold included a parcel of land within the Shipyard Sediment Site referred to as the 28th Street Shore Boat Landing Station, located at the south end of the present day NASSCO leasehold at the foot of 28th Street and including the 28th Street Pier. The San Diego Water Board finds that the U.S. Navy caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance at this location when it conducted operations similar in scope to a small boatyard, including solvent cleaning and degreasing of vessel parts and surfaces, abrasive blasting and scraping for paint removal and surface preparations, metal plating, and surface finishing and painting. Prevailing industry-wide boatyard operational practices employed during the 1930s through the 1980s were often not sufficient to adequately control or prevent pollutant discharges, and often led to excessive discharges of pollutants and accumulation of pollutants in marine sediment in San Diego Bay. The types of pollutants found in elevated concentrations at the Shipyard Sediment Site (metals, butyltin species, PCBs, PCTs, PAHs, and TPH) are associated with the characteristics of the waste the U.S. Navy operations generated at the 28th Street Shore Boat Landing Station site. Based on the preceding considerations, the U.S. Navy is referred to as "Discharger(s)" in this CAO.

11. **SAN DIEGO UNIFIED PORT DISTRICT.** The San Diego Water Board finds that the Port District caused or permitted wastes to be discharged or to be deposited where they were discharged into San Diego Bay and created, or threatened to create, a condition of pollution or nuisance. The Port District is a special government entity, created in 1962 by the San Diego Unified Port District Act, California Harbors and Navigation Code Appendix I, in order to manage San Diego Harbor, and administer certain public lands along San Diego Bay. The Port District holds and manages as trust property on behalf of the People of the State of California the land occupied by NASSCO, BAE Systems, and the cooling water tunnels for SDG&E's former Silver Gate Power Plant. The Port District is also the trustee of the land formerly occupied by the San Diego Marine Construction Company and by Campbell at all times since 1963 during which they conducted shipbuilding and repair activities.<sup>2</sup> The Port District's own ordinances, which date back to 1963, prohibit the deposit or discharge of any chemicals or waste to the tidelands or San Diego Bay and make it unlawful to discharge pollutants in non-storm water directly or indirectly into the storm water conveyance system.

The wastes the Port District caused or permitted to be discharged, or to be deposited where they were discharged into San Diego Bay through its ownership of the Shipyard Sediment Site contained metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), butyl tin species, PCBs, PCTs, PAHs, and TPH.

The San Diego Water Board has the discretion to name the Port District in its capacity as the State's trustee as a "discharger" and does so in the Shipyard Sediment site CAO. The Port District asserts that its status as a lessor and State's trustee as well as other factors

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<sup>2</sup> San Diego Marine Construction Company and Campbell Industries owned and operated ship repair and construction facilities in past years prior to BAE Systems San Diego Ship Repair, Inc.'s occupation of the leasehold. See Sections 5 and 6 of the Technical Report.

should only give rise to secondary and not primary liability as a discharger under this Order. Allocation of responsibility has not been determined and there is insufficient evidence to establish that present and former Port District tenants at the Site each have sufficient financial resources to perform all of the remedial activities required by this Order. In addition, cleanup is not underway at this time. Under these circumstances, it is not appropriate to accord the Port District secondary liability status it seeks.

The Port District also owns and operates a municipal separate storm sewer system (MS4) through which it discharges waste commonly found in urban runoff to San Diego Bay subject to the terms and conditions of an NPDES Storm Water Permit. The San Diego Water Board finds that the Port District has discharged urban storm water containing waste directly or indirectly to San Diego Bay at the Shipyard Sediment Site. The waste includes metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), total suspended solids, sediment (due to anthropogenic activities), petroleum products, and synthetic organics (pesticides, herbicides, and PCBs).

The urban storm water containing waste that has discharged from the on-site and off-site MS4 has contributed to the accumulation of pollutants in the marine sediments at the Shipyard Sediment Site to levels, that cause, and threaten to cause, conditions of pollution, contamination, and nuisance by exceeding applicable water quality objectives for toxic pollutants in San Diego Bay. Based on these considerations the San Diego Unified Port District is referred to as "Discharger(s)" in this CAO.

#### *FACTUAL BACKGROUND*

12. **CLEAN WATER ACT SECTION 303(d) LIST.** The San Diego Bay shoreline between Sampson and 28<sup>th</sup> Streets is listed on the Clean Water Act section 303(d) List of Water Quality Limited Segments for elevated levels of copper, mercury, zinc, PAHs, and PCBs in the marine sediment. These pollutants are impairing the aquatic life, aquatic-dependent wildlife, and human health beneficial uses designated for San Diego Bay and are causing the Bay's narrative water quality objective for toxicity to not be attained. The Shipyard Sediment Site occupies this shoreline. Issuance of a CAO (in lieu of a Total Maximum Daily Load program) is the appropriate regulatory tool to use for correcting the impairment at the Shipyard Sediment Site.
13. **SEDIMENT QUALITY INVESTIGATION.** NASSCO and BAE Systems conducted a detailed sediment investigation at the Shipyard Sediment Site in San Diego Bay within and adjacent to the NASSCO and BAE Systems leaseholds. Two phases of fieldwork were conducted, Phase I in 2001 and Phase II in 2002. The results of the investigation are provided in the Exponent report *NASSCO and Southwest Marine Detailed Sediment Investigation, September 2003 (Shipyard Report, Exponent 2003)*. Unless otherwise explicitly stated, the San Diego Water Board's finding and conclusions in this CAO are based on the data and other technical information contained in the Shipyard Report prepared by NASSCO's and BAE Systems' consultant, Exponent.

The Shipyard Sediment Site is exempt from the Phase I Sediment Quality Objectives

promulgated by the State Water Board because a site assessment (the Shipyard Report) was completed and submitted to the San Diego Water Board on October 15, 2003. See State Water Board, *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality*, II.B.2 (August 25, 2009).

#### *IMPAIRMENT OF AQUATIC LIFE BENEFICIAL USES*

14. **AQUATIC LIFE IMPAIRMENT.** Aquatic life beneficial uses designated for San Diego Bay are impaired due to the elevated levels of pollutants present in the marine sediment at the Shipyard Sediment Site. Aquatic life beneficial uses include: Estuarine Habitat (EST), Marine Habitat (MAR), and Migration of Aquatic Organisms (MIGR). This finding is based on the considerations described below in this *Impairment of Aquatic Life Beneficial Uses* section of the CAO.
15. **WEIGHT-OF-EVIDENCE APPROACH.** The San Diego Water Board used a weight-of-evidence approach based upon multiple lines of evidence to evaluate the potential risks to aquatic life beneficial uses from pollutants at the Shipyard Sediment Site. The approach focused on measuring and evaluating exposure and adverse effects to the benthic macroinvertebrate community and to fish using data from multiple lines of evidence and best professional judgment. Pollutant exposure and adverse effects to the benthic macroinvertebrate community were evaluated using sediment quality triad measurements, and bioaccumulation analyses, and interstitial water (i.e., pore water) analyses. The San Diego Water Board evaluated pollutant exposure and adverse effects to fish using fish histopathology analyses and analyses of PAH breakdown products in fish bile.
16. **SEDIMENT QUALITY TRIAD MEASURES.** The San Diego Water Board used lines of evidence organized into a sediment quality triad, to evaluate potential risks to the benthic community from pollutants present in the Shipyard Sediment Site. The sediment quality triad provides a “weight-of-evidence” approach to sediment quality assessment by integrating synoptic measures of sediment chemistry, toxicity, and benthic community composition. All three measures provide a framework of complementary evidence for assessing the degree of pollutant-induced degradation in the benthic community.
17. **REFERENCE SEDIMENT QUALITY CONDITIONS.** The San Diego Water Board selected a group of reference stations from three independent sediment quality investigations to contrast pollution conditions at the Shipyard Sediment Site with conditions found in other relatively cleaner areas of San Diego Bay not affected by the Shipyard Sediment Site: (1) Southern California Bight 1998 Regional Monitoring Program (Bight 98), (2) 2001 Mouth of Chollas Creek and Mouth of Paleta Creek TMDL studies, and (3) 2001 NASSCO and BAE Systems Detailed Sediment Investigation. Stations from these studies were selected to represent selected physical, chemical, and biological characteristics of San Diego Bay. Criteria for selecting acceptable reference stations included low levels of anthropogenic pollutant concentrations, locations remote from pollution sources, similar biological habitat to the Shipyard Sediment Site, sediment total organic carbon (TOC) and grain size profiles similar to the Shipyard Sediment Site, adequate sample size for statistical analysis, and sediment quality data comparability. The

reference stations selected for the Reference Sediment Quality Conditions are identified below.

**Reference Stations Used To Establish Reference Sediment Quality Conditions**

2001 Chollas/Paletta Reference Station Identification Number	2001 NASSCO/BAE Systems Reference Station Identification Number	1998 Bight'98 Reference Station Identification Number
2231	2231	2235
2243	2243	2241
2433	2433	2242
2441	2441	2243
2238		2256
		2257
		2258
		2260
		2265

18. **SEDIMENT QUALITY TRIAD RESULTS.** The San Diego Water Board categorized 6 of 30 sediment quality triad sampling stations at the Shipyard Sediment Site as having sediment pollutant levels “Likely” to adversely affect the health of the benthic community. The remaining triad stations were classified as “Possible” (13) and “Unlikely” (11). These results are based on the synoptic measures of sediment chemistry, toxicity, and benthic community structure at the Shipyard Sediment Site.
19. **BIOACCUMULATION.** The San Diego Water Board evaluated initial laboratory bioaccumulation test data to ascertain the bioaccumulation potential of the sediment chemical pollutants at the Shipyard Sediment Site. Examination of laboratory test data on the chemical pollutant concentrations in tissue of the clam *Macoma nasuta* relative to the pollutant concentrations in sediment indicates that bioaccumulation of chemical pollutants is occurring at the Shipyard Sediment Site. The data indicates for several chemical pollutants that concentrations in *Macoma nasuta* tissue increase proportionally as chemical pollutant concentrations in sediment increase. Statistically significant relationships were found for arsenic, copper, lead, mercury, zinc, tributyltin (TBT), PCBs, and high molecular weight polynuclear aromatic hydrocarbons (HPAHs). These chemical pollutants have a bioaccumulation potential at the Shipyard Sediment Site and are therefore considered bioavailable to benthic organisms. No statistically significant relationships were found for cadmium, chromium, nickel, selenium, silver, or PCTs.
20. **INDICATOR SEDIMENT CHEMICALS.** The San Diego Water Board evaluated the relationships between sediment chemical pollutants and biological responses to identify

indicator chemical pollutants that may be impacting aquatic life and would therefore be candidates for assignment of cleanup levels or remediation goals. A two-step process was conducted. The first step in the selection of indicator chemicals was to identify chemicals representative of the major classes of sediment pollutants: metals, butyltins, PCBs and PCTs, PAHs, and petroleum hydrocarbons. The second step was the evaluation of relationships between these chemicals and biological responses. Results of the three toxicity tests, benthic community assessment, and bioaccumulation testing conducted in Phase 1 of the Shipyard study were all used to evaluate the potential of such relationships. Chemical pollutants were selected as indicator chemicals if they had any statistically significant relationship with amphipod mortality, echinoderm fertilization, bivalve development, total benthic macroinvertebrate abundance, total benthic macroinvertebrate richness, or tissue chemical concentrations in *Macoma nasuta*. Chemical pollutants selected as indicator chemicals include arsenic, copper, lead, mercury, zinc, TBT, total PCB homologs, diesel range organics (DRO), and residual range organics (RRO).

#### *IMPAIRMENT OF AQUATIC-DEPENDENT WILDLIFE BENEFICIAL USES*

21. **AQUATIC-DEPENDENT WILDLIFE IMPAIRMENT.** Aquatic-dependent wildlife beneficial uses designated for San Diego Bay are impaired due to the elevated levels of pollutants present in the marine sediment at the Shipyard Sediment Site. Aquatic-dependent wildlife beneficial uses include: Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), and Rare, Threatened, or Endangered Species (RARE). This finding is based on the considerations described below in the *Impairment of Aquatic-Dependent Wildlife Beneficial Uses* section of this CAO.
22. **RISK ASSESSMENT APPROACH FOR AQUATIC-DEPENDENT WILDLIFE.** The San Diego Water Board evaluated potential risks to aquatic-dependent wildlife from chemical pollutants present in the sediment at the Shipyard Sediment Site based on a two-tier approach. The Tier I screening level risk assessment was based on tissue data derived from the exposure of the clam *Macoma nasuta* to site sediments for 28 days using the protocols specified by American Society of Testing Material (ASTM). The Tier II baseline comprehensive risk assessment was based on tissue data derived from resident fish and shellfish caught within and adjacent to the Shipyard Sediment Site.
23. **TIER I SCREENING LEVEL RISK ASSESSMENT FOR AQUATIC-DEPENDENT WILDLIFE.** The Tier I risk assessment objectives were to determine whether or not Shipyard Sediment Site conditions pose a potential unacceptable risk to aquatic-dependent wildlife receptors of concern and to identify whether a comprehensive, site-specific risk assessment was warranted (i.e., Tier II baseline risk assessment). The receptors of concern selected for the assessment include: California least tern (*Sterna antillarum brownie*), California brown pelican (*Pelecanus occidentalis californicus*), Western grebe (*Aechmophorus occidentalis*), Surf scoter (*Melanitta perspicillata*), California sea lion (*Zalophus californianus*), and East Pacific green turtle (*Chelonia mydas agassizii*). Chemical pollutant concentrations measured in clam tissue derived from laboratory bioaccumulation tests were used to estimate chemical exposure to these receptors of concern. Based on the Tier I screening level risk assessment results, there is a potential

risk to all receptors of concern ingesting prey caught at the Shipyard Sediment Site. The chemical pollutants in *Macoma* tissue posing a potential risk include arsenic, copper, lead, zinc, benzo[a]pyrene (BAP), and total PCBs. The results of the Tier I risk assessment indicated that a Tier II baseline comprehensive risk assessment was warranted.

24. **TIER II BASELINE COMPREHENSIVE RISK ASSESSMENT FOR AQUATIC-DEPENDENT WILDLIFE.** The Tier II risk assessment objective was to more conclusively determine whether or not Shipyard Sediment Site conditions pose an unacceptable risk to aquatic-dependent wildlife receptors of concern. The receptors of concern selected for the assessment include: California least tern (*Sterna antillarum brownie*), California brown pelican (*Pelecanus occidentalis californicus*), Western grebe (*Aechmophorus occidentalis*), Surf scoter (*Melanitta perspicillata*), California sea lion (*Zalophus californianus*), and East Pacific green turtle (*Chelonia mydas agassizii*). Based on the Tier I screening level risk assessment results, there is a potential risk to all receptors of concern ingesting prey caught at the Shipyard Sediment Site and so a Tier II assessment was conducted. To focus the risk assessment, prey items were collected within four assessment units at the Shipyard Sediment Site and from a reference area located across the bay from the site. Chemical concentrations measured in fish were used to estimate chemical exposure for the least tern, western grebe, brown pelican, and sea lion and chemical concentrations in benthic mussels and eelgrass were used to estimate chemical pollutant exposure for the surf scoter and green turtle, respectively. Based on the Tier II risk assessment results, ingestion of prey items caught within all four assessment units at the Shipyard Sediment Site poses an increased risk above reference to all receptors of concern (excluding the sea lion). The chemicals in prey tissue posing a risk include BAP, PCBs, copper, lead, mercury, and zinc.

#### *IMPAIRMENT OF HUMAN HEALTH BENEFICIAL USES*

25. **HUMAN HEALTH IMPAIRMENT.** Human health beneficial uses for Shellfish Harvesting (SHELL), and Commercial and Sport Fishing (COMM) designated for San Diego Bay are impaired due to the elevated levels of pollutants present in the marine sediment at the Shipyard Sediment Site. This finding is based on the considerations described below in this *Impairment of Human Health Beneficial Uses* section of the CAO.
26. **RISK ASSESSMENT APPROACH FOR HUMAN HEALTH.** The San Diego Water Board evaluated potential risks to human health from chemical pollutants present in the sediment at the Shipyard Sediment Site based on a two-tier approach. The Tier I screening level risk assessment was based on tissue data derived from the exposure of the clam *Macoma nasuta* to site sediments for 28 days using ASTM protocols. The Tier II baseline comprehensive risk assessment was based on tissue data derived from resident fish and shellfish caught within and adjacent to the Shipyard Sediment Site. Two types of receptors (i.e., members of the population or individuals at risk) were evaluated:
- Recreational Anglers – Persons who eat the fish and/or shellfish they catch recreationally; and

- b. Subsistence Anglers – Persons who fish for food, for economic and/or cultural reasons, and for whom the fish and/or shellfish caught is a major source of protein in their diet.
27. **TIER I SCREENING LEVEL RISK ASSESSMENT FOR HUMAN HEALTH.** The Tier I risk assessment objectives were to determine whether or not Shipyard Sediment Site conditions potentially pose an unacceptable risk to human health and to identify if a comprehensive, site-specific risk assessment was warranted (i.e., Tier II baseline risk assessment). The receptors of concern identified for Tier I are recreational anglers and subsistence anglers. Recreational anglers represent those who eat the fish and/or shellfish they catch recreationally and subsistence anglers represent those who fish for food, for economic and/or cultural reasons, and for whom the fish and/or shellfish caught is a major source of protein in the diet. Chemical concentrations measured in *Macoma nasuta* tissue derived from laboratory bioaccumulation tests were used to estimate chemical exposure for these receptors of concern. Based on the Tier I screening level risk assessment results, there is a potential risk greater than that in reference areas to recreational and subsistence anglers ingesting fish and shellfish caught at the Shipyard Sediment Site. The chemicals in *Macoma* tissue posing a potential risk include arsenic, BAP, PCBs, and TBT.
28. **TIER II BASELINE COMPREHENSIVE RISK ASSESSMENT FOR HUMAN HEALTH.** The Tier II risk assessment objective was to more conclusively determine whether Shipyard Sediment Site conditions pose unacceptable cancer and non-cancer health risks to recreational and subsistence anglers. Fish and shellfish were collected within four assessment units at the Shipyard Sediment Site and from two reference areas located across the bay from the Shipyard Site. Chemical concentrations measured in fish fillets and edible shellfish tissue were used to estimate chemical exposure for recreational anglers and chemical concentrations in fish whole bodies and shellfish whole bodies were used to estimate chemical exposure for subsistence anglers. Based on the Tier II risk assessment results, ingestion of fish and shellfish caught within all four assessment units at the Shipyard Sediment Site poses a theoretical increased cancer and non-cancer risk greater than that in reference areas to recreational and subsistence anglers. The chemicals posing theoretical increased cancer risks include inorganic arsenic and PCBs. The chemicals posing theoretical increased non-cancer risks include cadmium, copper, mercury, and PCBs.

*EVALUATING FEASIBILITY OF CLEANUP TO BACKGROUND  
SEDIMENT QUALITY CONDITIONS*

29. **CHEMICALS OF CONCERN AND BACKGROUND SEDIMENT QUALITY.** The San Diego Water Board derived sediment chemistry levels for use in evaluating the feasibility of cleanup to background sediment quality conditions from the pool of San Diego Bay reference stations described in Finding 17. The background sediment chemistry levels based on these reference stations are as follows:

**Table 1. Background Sediment Chemistry Levels**

Chemicals of Concern	Units (dry weight)	Background Sediment Chemistry Levels <sup>1</sup>
<b>Primary COCs</b>		
Copper	mg/kg	121
Mercury	mg/kg	0.57
HPAHs <sup>2</sup>	µg/kg	663
PCBs <sup>3</sup>	µg/kg	84
Tributyltin	µg/kg	22
<b>Secondary COCs</b>		
Arsenic	mg/kg	7.5
Cadmium	mg/kg	0.33
Lead	mg/kg	53
Zinc	mg/kg	192

1. Equal to the 2005 Reference Pool's 95% upper predictive limits shown in Section 18 of the *Technical Report for Cleanup and Abatement Order No. R9-2012-0024*. The background levels for metals are based on the %fines:metals regression using 50% fines, which is conservative because the mean fine grain sediment at the Shipyard Investigation Site is 70% fines.
2. HPAHs = sum of 6 PAHs: Fluoranthene, Perylene, Benzo[a]anthracene, Chrysene, Benzo[a]pyrene, and Dibenzo[a,h]anthracene.
3. PCBs = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

The San Diego Water Board identified constituents of primary concern (primary COCs), which are associated with the greatest exceedance of background and highest magnitude of potential risk at the Shipyard Sediment Site. A greater concentration relative to background suggests a stronger association with the Shipyard Sediment Site, and a higher potential for exposure reduction via remediation. Secondary contaminants of concern (secondary COCs) are contaminants with lower concentrations relative to background, and are highly correlated with primary COCs and would be addressed in a common remedial footprint. Based on these criteria, the primary COCs for the Shipyard Sediment Site are copper, mercury, HPAHs,<sup>3</sup> PCBs, and TBT, and the secondary COCs are arsenic, cadmium, lead, and zinc.

<sup>3</sup> Petroleum hydrocarbons, including TPH, RRO, DRO, and other PAHs were eliminated as primary and secondary COCs for the following reasons. HPAHs, a primary COC, are considered to be the most recalcitrant, bioavailable, and toxic compounds present in the complex mixture of petroleum hydrocarbons. Other measures of petroleum hydrocarbons are generally correlated with HPAHs such that remedial measures to address HPAHs will also address

30. **TECHNOLOGICAL FEASIBILITY CONSIDERATIONS.** Although there are complexities and difficulties that would need to be addressed and overcome (e.g. removal and handling of large volume of sediment; obstructions such as piers and ongoing shipyard operations; transportation and disposal of waste), it is technologically feasible to cleanup to the background sediment quality levels utilizing one or more remedial and disposal techniques. Mechanical dredging, subaqueous capping, and natural recovery have been successfully performed at numerous sites, including several in San Diego Bay, and many of these projects have successfully overcome the same types of operational limitations present at the Shipyard Sediment Site, such as piers and other obstructions, ship movements, and limited staging areas. Confined aquatic disposal or near-shore confined disposal facilities have also been employed in San Diego Bay and elsewhere, and may be evaluated as project alternatives for the management of sediment removed from the Shipyard Sediment Site.
31. **ECONOMIC FEASIBILITY CONSIDERATIONS.** Under State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*, determining “economic feasibility” requires an objective balancing of the incremental benefit of attaining further reduction in the concentrations of primary COCs as compared with the incremental cost of achieving those reductions. Resolution No. 92-49 provides that “[e]conomic feasibility does not refer to the dischargers’ ability to finance cleanup.” When considering appropriate cleanup levels under Resolution No. 92-49, the San Diego Water Board is charged with evaluating “economic feasibility” by estimating the costs to remediate constituents of concern at a site to background and the costs of implementing other alternative remedial levels. An economically feasible alternative cleanup level is one where the incremental cost of further reductions in primary COCs outweighs the incremental benefits.

The San Diego Water Board evaluated a number of criteria to determine risks, costs, and benefits associated with no action, cleanups to background sediment chemistry levels, and alternative cleanup levels greater than background concentrations. The criteria included factors such as total cost, volume of sediment dredged, exposure pathways of receptors to contaminants, short- and long-term effects on beneficial uses (as they fall into the broader categories of aquatic life, aquatic-dependent wildlife, and human health). The San Diego Water Board then compared these cost criteria against the benefits gained by diminishing exposure to the primary COCs to estimate the incremental benefit gained from reducing exposure based on the incremental costs of doing so. As set forth in detail herein, this comparison revealed that the incremental benefit of cleanup diminishes significantly with additional cost beyond a certain cleanup level, and asymptotically approaches zero as remediation approaches background. Based on these considerations, cleaning up to background sediment chemistry levels is not economically feasible.

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environmental concerns associated with elevated levels of low molecular weight PAHs (LPAHs), total PAHs, TPH, RRO and DRO.

*ALTERNATIVE SEDIMENT CLEANUP LEVELS*

32. **ALTERNATIVE CLEANUP LEVELS.** Under State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304*, the San Diego Water Board may prescribe alternative cleanup levels less stringent than background sediment chemistry concentrations if attainment of background concentrations is technologically or economically infeasible. Resolution No. 92-49 requires that alternative levels must result in the best water quality which is reasonable if background levels of water quality cannot be restored, considering all demands being made and to be made on the waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. Resolution No. 92-49 further requires that any alternative cleanup level shall: (1) be consistent with maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial uses of such water; and (3) not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards.

The San Diego Water Board is prescribing the alternative cleanup levels for sediment summarized in the table below to protect aquatic life, aquatic-dependent wildlife, and human health based beneficial uses consistent with the requirements of Resolution No. 92-49. Compliance with alternative cleanup levels will be determined using the monitoring protocols summarized in Finding 34 and described in detail of Section 34 of the Technical Report.

**Table 2. Alternative Cleanup Levels: Shipyard Sediment Site**

Aquatic Life	Aquatic Dependent Wildlife and Human Health	
Remediate all areas determined to have sediment pollutant levels likely to adversely affect the health of the benthic community.	Surface Weighted Average Concentrations (site-wide)	
	Copper	159 mg/kg
	Mercury	0.68 mg/kg
	HPAHs <sup>1</sup>	2,451 µg/kg
	PCBs <sup>2</sup>	194 µg/kg
Tributyltin	110 µg/kg	

1. HPAHs = sum of 10 PAHs: Fluoranthene, Pyrene, Benz[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, and Benzo[g,h,i]perylene.

2. PCBs = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

In approving alternative cleanup levels less stringent than background the San Diego Water Board has considered the factors contained in Resolution No. 92-49 and the California Code of Regulations, Title 23, section 2550.4, subdivision (d):

*Alternative Cleanup Levels are Appropriate.* Cleaning up to background sediment quality levels at the Shipyard Sediment Site is economically infeasible. The alternative cleanup levels established for the Shipyard Sediment Site are the lowest levels that are technologically and economically achievable, as required under the California Code of Regulations Title 23 section 2550.4(e).

*Alternative Cleanup Levels are Consistent with Water Quality Control Plans and Policies.* The alternative cleanup levels provide for the reasonable protection of San Diego Bay beneficial uses and will not result in water quality less than prescribed in water quality control plans and policies adopted by the State Water Board and the San Diego Water Board. While it is impossible to determine the precise level of water quality that will be attained given the residual sediment pollutant constituents that will remain at the Site, compliance with the alternative cleanup levels will markedly improve water quality conditions at the Shipyard Sediment Site and result in attainment of water quality standards at the site.

*Alternative Cleanup Levels Will Not Unreasonably Affect Present and Anticipated Beneficial Uses of the Site.* The level of water quality that will be attained upon remediation of the required cleanup at the Shipyard Sediment Site will not unreasonably affect San Diego Bay beneficial uses assigned to the Shipyard Sediment Site represented by aquatic life, aquatic-dependent wildlife, and human health.

*Alternative Cleanup Levels are Consistent with the Maximum Benefit to the People of the State.* The proposed alternative cleanup levels are consistent with maximum benefit to the people of the State based on the San Diego Bay resource protection, mass removal and source control, and economic considerations. The Shipyard Sediment Site pollution is located in San Diego Bay, one of the finest natural harbors in the world. San Diego Bay is an important and valuable resource to San Diego and the Southern California Region. The alternative cleanup levels will result in significant contaminant mass removal and therefore risk reduction from San Diego Bay. Remediated areas will approach reference area sediment concentrations for most contaminants. Compared to cleaning up to background cleanup levels, cleaning up to the alternative cleanup levels will cause less diesel emission, less greenhouse gas emission, less noise, less truck traffic, have a lower potential for accidents, and less disruption to the local community. Achieving the alternative cleanup levels also requires less barge and crane movement on San Diego Bay, has a lower risk of re-suspension of contaminated sediments, and reduces the amount of landfill capacity required to dispose of the sediment wastes. The alternative cleanup levels properly balance reasonable protection of San Diego Bay beneficial uses with the significant economic and service activities provided by the City of San Diego, the NASSCO and BAE Systems Shipyards and the U.S. Navy.

33. **PROPOSED REMEDIAL FOOTPRINT AND PRELIMINARY REMEDIAL DESIGN.** Polygonal areas were developed around the sampling stations at the Shipyard Sediment Site using the Thiessen Polygon method to facilitate the development of the remedial footprint. The polygons targeted for remediation are shown in red and green in

Attachment 2. The red areas are where the proposed remedial action is dredging. The areas shown in green represent inaccessible or under-pier areas that will be remediated by one or more methods other than dredging. Portions of polygons NA20, NA21, and NA22 as shown in Attachment 2 were omitted from this analysis because it falls within an area that is being evaluated as part of the TMDLs for Toxic Pollutants in Sediment at the Mouth of Chollas Creek TMDL and is not considered part of the Shipyard Sediment Site for purposes of the CAO.

The polygons were ranked based on a number of factors including likely impaired stations, composite surface-area weighted average concentration for the five primary COCs, Site-Specific Median Effects Quotient (SS-MEQ)<sup>4</sup> for non-Triad stations, and highest concentration of individual primary COCs. Based on these rankings, polygons were selected for remediation on a “worst first” basis.

In recognition of the methodologies and limitations of traditional mechanical dredging, the irregular polygons were converted into uniform dredge units. Each dredge unit (sediment management unit or “SMU”) was then used to develop the dredge footprint. The conversion from irregular polygons to SMUs is shown in Attachments 3 and 4. These attachments show the remedial footprint, inclusive of areas to be dredged (“dredge remedial area,” in red) and under-pier areas (“under-pier remedial area,” in green) to be remediated by other means, most likely by sand cover. Together, the dredge remedial area and the under-pier remedial area constitute the remedial footprint.

Upland source control measures in the watershed of municipal separate storm sewer system outfall SW-4 are also needed to eliminate ongoing contamination from this source, if any, and ensure that recontamination of cleaned up areas of the Shipyard Sediment Site from this source does not occur.

34. **REMEDIAL MONITORING PROGRAM.** Monitoring during remediation activities is needed to document that remedial actions have not caused water quality standards to be violated outside of the remedial footprint, that the target cleanup levels have been reached within the remedial footprint, and to assess sediment for appropriate disposal. This monitoring should include water quality monitoring, sediment monitoring, and disposal monitoring.

Post-remediation monitoring is needed to verify that remaining pollutant concentrations in the sediments will not unreasonably affect San Diego Bay beneficial uses. Post-remediation monitoring should be initiated two years after remedy implementation has been completed and continue for a period of up to 10 years after remediation. For human health and aquatic dependent wildlife beneficial uses, post-remediation monitoring should include sediment chemistry monitoring to ensure that post-remediation SWACs are maintained at the site following cleanup. A subset of samples should undergo bioaccumulation testing using *Macoma*. For aquatic life beneficial uses, post-remediation

<sup>4</sup> The SS-MEQ is a threshold developed to predict likely benthic community impairments based on sediment chemistry at the Shipyard Sediment Site. The development, validation, and application of the SS-MEQ are described in Section 32.5.2 of the Technical Report.

monitoring should include sediment chemistry, and toxicity bioassays to verify that post-remedial conditions have the potential to support a healthy benthic community. In addition, post-remediation monitoring should include benthic community condition assessments to evaluate the overall impact of remediation on the benthic community recolonization activities.

Environmental data has natural variability which does not represent a true difference from expected values. Therefore, if remedial monitoring results are within an acceptable range of the expected outcome, the remedial actions will be considered successful.

35. **REMEDIAL ACTION IMPLEMENTATION SCHEDULE.** The Dischargers have proposed a remedial action implementation schedule and a description of specific remedial actions they intend to undertake to comply with this CAO. The remedial action implementation schedule will begin with the adoption of this CAO and end with the submission of final reports documenting that the alternative sediment cleanup levels have been met. From start to finish, remedial action implementation is expected to take approximately 5 years to complete.

The proposed remedial actions have a substantial likelihood to achieve compliance with the requirements of this CAO within a reasonable time frame. The proposed schedule is as short as possible, given 1) the scope, size, complexity, and cost of the remediation, 2) industry experience with the time typically required to implement similar remedial actions, 3) the time needed to secure other regulatory agency approvals and permits before remediation can start, and 4) the need to conduct dredging in a phased manner to prevent or reduce adverse effects to the endangered California Least Tern. Therefore, the remedial action implementation schedule proposed by the Dischargers is consistent with the provisions in Resolution No. 92-49 for schedules for cleanup and abatement.

36. **LEGAL AND REGULATORY AUTHORITY.** This Order is based on (1) section 13267 and Chapter 5, Enforcement, of the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with section 13000), commencing with section 13300; (2) applicable state and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board and the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) adopted by the San Diego Water Board including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies for water quality control, including State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* and Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code section 13304*; and (5) relevant standards, criteria, and advisories adopted by other state and federal agencies.

37. **CALIFORNIA ENVIRONMENTAL QUALITY ACT.** In many cases, an enforcement action such as this could be exempt from the provisions of the California Environmental Quality Act ("CEQA"; Public Resources Code, section 21000 et seq.), because it would fall within Classes 7, 8, and 21 of the categorical exemptions for projects that have been

determined not to have a significant effect on the environment under section 21084 of CEQA.<sup>5</sup> In Resolution No. R9-2010-0115 adopted on September 8, 2010, the San Diego Water Board found that because the tentative CAO presents unusual circumstances and there is a reasonable possibility of a significant effect on the environment due to the unusual circumstances, the tentative CAO is not exempt from CEQA and that an EIR analyzing the potential environmental effects of the tentative CAO should be prepared.

As the lead agency for the tentative CAO, the San Diego Water Board prepared an EIR that complies with CEQA. The San Diego Water Board has reviewed and considered the information in the EIR and certified the EIR, adopting a statement of overriding considerations, in Resolution No. R9-2012-0025.

38. **PUBLIC NOTICE.** The San Diego Water Board has notified all known interested persons and the public of its intent to adopt this CAO, and has provided them with an opportunity to submit written comments, evidence, testimony and recommendations.
39. **PUBLIC HEARING.** A lengthy procedural history preceded adoption of this CAO. The San Diego Water Board has considered all comments, evidence and testimony pertaining to this CAO submitted to the San Diego Water Board in writing, or by oral presentations at the public hearing held on November 9, 14, 15, and 16, 2011, and March 14, 2012. Responses to many relevant comments have been incorporated into the Technical Report for this CAO and/or are provided in the Response to Comments Report, as revised, prepared by the San Diego Water Board Cleanup Team.
40. **TECHNICAL REPORT.** The "*Technical Report for Cleanup and Abatement Order No. R9-2012-0024 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA*" is hereby incorporated as a finding in support of this CAO as if fully set forth here verbatim.
41. **COST RECOVERY.** Pursuant to Water Code section 13304, and consistent with other statutory and regulatory requirements, including but not limited to Water Code section 13365, the San Diego Water Board and the State Water Board are entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the San Diego Water Board and the State Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action required by this Order.

Unreimbursed reasonable costs actually incurred by the San Diego Water Board and the State Water Board for the development and issuance of this Cleanup and Abatement Order are as follows:

- a. Contracts funded by the State Water Board Cleanup and Abatement Account or other San Diego Water Board contract funds for services in support of the development and issuance of this Cleanup and Abatement Order.

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<sup>5</sup> Title 14 CCR sections 15307, 15308, and 15321

- i. DM Information Services, Inc. produced the electronic administrative record. This work was paid for with Cleanup and Abatement Account funds and San Diego Water Board contract funds in the amount of \$109,908.
  - ii. The Department of Fish and Game provided technical consultation services on the fish histopathology and bile studies, and the wildlife risk assessments. This work was paid for with Cleanup and Abatement Account funds in the amount of \$43,287.
  - iii. The Office of Environmental Health Hazard Assessment provided technical consultation services on the human health risk assessments. This work was paid for with San Diego Water Board contract funds in the amount of \$12,009.
- b. Filing fees for CEQA documents. Pursuant to Fish and Game Code Section 711.4, the San Diego Water Board must pay to the Department of Fish and Game a filing fee to defray the costs of managing and protecting California's vast fish and wildlife resources. The filing fee for the Environmental Impact Report is \$2,919 and the County Clerk Processing fee is 50.00 for a total of \$2,969.

The amount of past and future recoverable staff costs will be determined through the process set forth in Water Code section 13365. The Chair may designate an individual qualified under Water Code section 13365, subdivision (c)(4) to resolve dischargers' disputes about the reasonableness of past and future oversight costs the San Diego Water Board seeks to recover from the dischargers to this Order. Under Water Code section 13365, the determination of the reasonableness of oversight costs can include, but is not limited to, evaluation of documentary support (including information not already in the record) for requested oversight costs. The Assistant Executive Officer is authorized to amend this Order as necessary to include any undisputed oversight cost amounts or amounts derived through the dispute resolution process identified in Water Code section 13365, subdivision (c)(4) and determined to be owed by the discharger(s).

42. **PROCEDURAL MATTERS.** At the public hearing, the San Diego Water Board Cleanup Team objected to argument made by counsel for SDG&E during SDG&E's presentation as mischaracterizing Cleanup Team witnesses' deposition testimony. The Cleanup Team's objections are overruled. The San Diego Water Board has considered the deposition testimony and counsel's legal argument. The transcripts speak for themselves. Counsel's characterization of the Cleanup Team witnesses' deposition testimony took some of the deposition testimony out of context, but counsel was making legal argument and not testifying. Accordingly, it is not necessary to strike any portion of counsel's presentation. All exhibits introduced and marked during the hearing were accepted and are included in the administrative record.

#### ***ORDER DIRECTIVES***

**IT IS HEREBY ORDERED** that, pursuant to sections 13267 and 13304 of the Water Code, National Steel and Shipbuilding Company; BAE Systems San Diego Ship Repair Inc.; the City of San Diego; Campbell Industries; San Diego Gas and Electric; the United States Navy; and the

*San Diego Unified Port District (hereinafter Dischargers), shall comply with the following directives:*

**A. CLEANUP AND ABATE**

1. **Illicit Discharges.** The Dischargers shall terminate all illicit discharges, if any, to the Shipyard Sediment Site (see Attachment 1) in violation of waste discharge requirements or other order or prohibition issued by the San Diego Water Board.
2. **Corrective Action.** The Dischargers shall take all corrective actions necessary to remediate the contaminated marine bay sediment at the Shipyard Sediment Site as described below: Corrective action design details shall be included in the Remedial Action Plan required by Directive B.
  - a. **Dredge Remedial Areas.** The sediments in the dredge remedial areas shown on Attachments 3 and 4 shall be dredged. This dredging shall remediate the sediment in the dredge remedial area to the concentrations in the table below for primary COCs, pursuant to confirmatory testing:

Primary COCs	Post-Remedial Dredge Area Concentrations (Background <sup>1</sup> )
Copper	121 mg/kg
Mercury	0.57 mg/kg
HPAHs <sup>2</sup>	663 µg/kg
PCBs <sup>3</sup>	84 µg/kg
Tributyltin	22 µg/kg

1. See Finding 29, Table 1.
2. HPAHs = High Molecular Weight Polynuclear Aromatic Hydrocarbons, sum of 6 PAHs: Fluoranthene, Perylene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene, and Dibenzo(a,h)anthracene.
3. PCBs = Polychlorinated Biphenyls, sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

If the concentration of any primary COC in subsurface sediments (deeper than the upper 5 cm) is above 120 percent of the post-remedial dredge area concentration after completion of initial dredging, then additional sediments shall be dredged by performing an additional "pass" with the equipment. If concentrations of primary

COCs in subsurface sediments are below 120 percent of post-remedial dredge area concentrations, then the dredging is sufficient and may stop.

- b. ***Under-Pier Remedial Areas.*** The sediments in the under pier areas shown on Attachments 3 and 4 and other locations where significant impacts to infrastructure may occur shall be remediated by dredging, sand covering or other means.
- c. ***Post Remedial Surface-Area Weighted Average Concentrations.*** The Shipyard Sediment Site as shown in Attachment 2 shall be remediated to attain the following post remedial surface-area weighted average concentrations (“SWACs”):

Primary COCs	Predicted Post-Remedial SWACs
Copper	159 mg/kg
Mercury	0.68 mg/kg
HPAHs <sup>1</sup>	2,451 µg/kg
PCBs <sup>2</sup>	194 µg/kg
Tributyltin	110 µg/kg

- 1. HPAHs = sum of 10 PAHs: Fluoranthene, Pyrene, Benz[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, and Benzo[g,h,i]perylene.
- 2. PCBs = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

- 3. **MS4 Interim Mitigation Measures.** Immediately after adoption of the CAO, the City of San Diego and the San Diego Unified Port District within the tideland area shall take interim remedial actions, as necessary, to abate or correct the actual or potential effects of releases from the MS4 system that drains to outfall SW4. Interim remedial actions can occur concurrently with any phase of corrective action. Before taking interim remedial actions, the City and the Port District shall notify the San Diego Water Board of the proposed action and shall comply with any requirements that the San Diego Water Board sets.
- 4. **MS4 Investigation and Mitigation Plan.** The City of San Diego and the San Diego Unified Port District within the tideland area shall prepare and submit a municipal separate storm sewer system (MS4) Investigation and Mitigation Plan (Plan) within 90 days after adoption of the CAO. The Plan shall be designed to identify, characterize, and

mitigate pollutants and pollutant sources in the watershed that drains to the MS4 outfall SW-4 at the Shipyard Sediment Site and contain, at a minimum, the following information:

- a. **Site Conceptual Model.** The Plan shall contain a site conceptual model showing all of the current and former potential pollutant sources and pathways for pollutants to potentially enter the watershed that drains to the MS4 outfall SW-4.
- b. **Map.** A detailed map to scale showing the location and all elements of, and potential pollutant sources within, the MS4 system within the watershed that drains to the outfall SW-4.
- c. **Sampling and Analyses.** The Plan shall include sampling and analysis of the residual sediments within the MS4 system at key locations sufficient to characterize the sediments that will potentially be discharged to the Shipyard Sediment Site. The suite of chemical analyses must be adequate to identify the full range of site-specific waste constituents including, at a minimum, total PCB congeners, copper, mercury, lead, zinc, TPH, and HPAHs.
- d. **Sample Locations.** At a minimum, samples must be collected within all catch basins and similar junctions where accessible, and at intervals adequate to detect potential sources and no greater than approximately 500 feet within the streets in the storm water infrastructure within the SW-4 watershed. In addition, samples must be collected at locations designed to assess contributions from potential pollutant sources such as businesses with industrial activities or other pollutant-generating activities within the current SW-4 watershed. The Plan shall identify the number and location of the proposed sampling locations, and provide justification for the sampling intervals within the streets.
- e. **Sampling Protocols and Quality Assurance Project Plan (QAPP).** The Plan shall include the planned sampling protocols and a Quality Assurance Project Plan (QAPP) to assure that all environmental data generated scientifically valid and of acceptable quality to meet the Plan's objectives.
- f. **Mitigation.** The Plan shall include, at a minimum, the following mitigation activities:
  1. Removal and characterization of residual sediments in the MS4 system.
  2. Installation of structural treatment control best management practices (BMPs), where necessary and feasible, in the MS4 system to prevent or mitigate the entry of pollutants into the storm drains to the maximum extent practicable.
  3. Maintenance of BMPs, as necessary, to prevent degradation of their performance.

- g. **Activity Completion Schedule:** The Plan shall include a reasonable schedule for completion of all activities and submission of a final MS4 Investigation and Mitigation Report described in Directive A.5.

**5. MS4 Investigation and Mitigation Implementation and Report**

- a. **Implementation.** The City of San Diego and the San Diego Unified Port District within the tideland area shall implement the MS4 Investigation and Mitigation Plan according to the Activity Completion Schedule described in Directive 4.g.
- b. **MS4 Investigation and Mitigation Report.** The MS4 Investigation and Mitigation Report shall include the following:
  - 1. Sampling protocols implemented.
  - 2. Location, type, and number of samples shown on detailed site maps and tables.
  - 3. Concentration and interpreted lateral extent of each constituent.
  - 4. Mass of residual sediments removed from the MS4 system.
  - 5. Interpretations regarding the potential for the pollutants within the MS4 system to contaminate or re-contaminate the Shipyard Sediment Site during or after the remedial activities.
  - 6. Evaluation of the effectiveness of the mitigation activities implemented.
  - 7. Recommendations for additional investigation and mitigation activities.

**B. REMEDIAL ACTION PLAN AND IMPLEMENTATION**

- 1. **Remedial Action Plan.** The Dischargers shall prepare and submit a Remedial Action Plan (RAP) to the San Diego Water Board no later than 90 days after adoption of the CAO. The RAP shall be complete and contain the following information
  - a. **Introduction.** A brief description of the Shipyard Sediment Site and Site History.
  - b. **Selected Remedy.** A detailed description of all of the remedial activities selected to attain all cleanup levels in Directive A.2.
  - c. **Health and Safety Plan.** A Health and Safety Plan including employee training, protective equipment, medical surveillance requirements, standard operating procedures and contingency plans.
  - d. **Community Relations Plan.** A Community Relations Plan for informing the public about (i) activities related to the final remedial design, (ii) the schedule for the remedial action, (iii) the activities to be expected during construction and

remediation, (iv) provisions for responding to emergency releases and spills during remediation, and (v) any potential inconveniences such as excess traffic and noise that may affect the community during the remedial action.

- e. *Quality Assurance Project Plan.* A Quality Assurance Project plan (QAPP) shall be included describing the project objectives and organization, functional activities, and quality assurance/quality control protocols as they relate to the remedial action
- f. *Sampling and Analysis Plan.* A Sampling and Analysis Plan defining (i) sample and data collection methods to be used for the project, (ii) a description of the media and parameters to be monitored or sampled during the remedial action, and (iii) a description of the analytical methods to be utilized and an appropriate reference for each.
- g. *Wastes Generated.* A description of the plans for management, treatment, storage and disposal of all wastes generated by the remedial action.
- h. *Pilot Testing.* The results of bench scale or pilot scale studies or other data collected to provide sizing and operations criteria to optimize the remedial design.
- i. *Design Criteria Report.* A Design Criteria Report that defines in detail the technical parameters upon which the remedial design will be based. Specifically, the Design Criteria Report shall include the preliminary design assumptions and parameters, including (i) waste characterization; (ii) volume and types of each medium requiring removal or containment; (iii) removal or containment schemes and rates, (iv) required qualities of waste streams (i.e., input and output rates to stockpiles, influent and effluent qualities of any liquid waste streams such as dredge spoil return water, potential air emissions, and so forth); (v) performance standards; (v) compliance with applicable local, State and federal regulations; (vi) technical factors of importance to the design, construction, and implementation of the selected remedy including use of currently accepted environmental control measures, constructability of the design, and use of currently acceptable construction practices and techniques.
- j. *Equipment, Services, and Utilities.* A list of any elements or components of the selected remedial action that will require custom fabrication or long lead time for procurement. The list shall state the basis for such need, and the recognized sources of such procurement.
- k. *Regulatory Permits and Approvals.* A list of required federal, State and local permits or approvals to conduct the remedial action.
- l. *Remediation Monitoring Plan.* A Remediation Monitoring Plan consisting of (i) water quality monitoring, (ii) sediment monitoring, and (iii) disposal monitoring consistent with Section 34.1 of the Technical Report. The water quality monitoring must be sufficient to demonstrate that implementation of the selected remedial activities do not result in violations of water quality standards outside the construction area. The sediment monitoring must be sufficient to confirm that the selected

remedial activities have achieved target cleanup levels within the remedial footprint specified in Directive A.2. The disposal monitoring must be sufficient to adequately characterize the dredged sediments in order to identify appropriate disposal options.

- m. *Site Map*. A site map showing the location of buildings, roads, property boundaries, remedial equipment locations and other information pertinent to the remedial action.
- n. *Contingencies*. A description of any additional items necessary to complete the RAP.
- o. *Remediation Schedule*. A schedule detailing the sequence of events and time frame for each activity based on the shortest practicable time required to complete each activity. The initiation and completion of each activity must be no longer than the durations described in Attachment 5.

2. **RAP Implementation**. In the interest of promoting prompt cleanup, the Discharger may begin implementation of the RAP 60 calendar days after submittal to the San Diego Water Board, unless otherwise directed in writing by the San Diego Water Board. The Dischargers shall complete implementation of the RAP based on the schedule in the RAP. Before beginning RAP implementation activities, the Dischargers shall:

- a. Notify the San Diego Water Board of its intention to begin cleanup; and
- b. Comply with any conditions set by the San Diego Water Board, including mitigation of adverse consequences from cleanup activities.
- c. The Dischargers shall modify or suspend cleanup activities when directed to do so by the San Diego Water Board.

#### C. CLEANUP AND ABATEMENT COMPLETION VERIFICATION

**Final Cleanup and Abatement Completion Report**. The Dischargers shall submit a final Cleanup and Abatement Completion Report verifying completion of the RAP activities for the Shipyard Sediment Site within 90 days of completion of remediation. The report shall provide a demonstration, based on a sound technical analysis, that sediment quality cleanup levels in Directive A.2 have been achieved.

#### D. POST REMEDIAL MONITORING

1. **Post Remedial Monitoring Plan**. The Dischargers shall prepare and submit a Post Remedial Monitoring Plan to the San Diego Water Board no later than 90 days after adoption of this CAO. The Post Remedial Monitoring Plan shall be designed to verify that the remaining pollutant concentrations in the sediments will not unreasonably affect San Diego Bay beneficial uses. At a minimum the Post Remedial Monitoring Plan shall include the following elements:

- a. *Quality Assurance Project Plan*. A Quality Assurance Project plan (QAPP) describing the project objectives and organization, functional activities, and quality assurance/quality control protocols for the post remediation monitoring.

- b. *Sampling and Analysis Plan.* A Sampling and Analysis Plan defining (i) sample and data collection methods to be used for the post radiation monitoring, (ii) a description of the media and parameters to be monitored or sampled, and (iii) a description of the analytical methods to be utilized and an appropriate reference for each.
- c. *Sediment Chemistry.* Site-wide post-remedial SWACs for the five primary COCs (copper, mercury, TBT, PCBs, and HPAH) shall be confirmed through composite sampling of the entire Shipyard Sediment Site. Samples shall be collected at all 65 sampling stations used to develop Thiessen polygons and composited on a surface area weighted basis into 6 polygon groups as shown in Attachment 6.
  1. To prepare the composite samples, the 65 station locations within the six polygon groups shall be sampled. The volume of the sample at each station shall be proportional to the area of the polygon the station represents. These samples shall be collected from the 0-2 cm depth interval. Two (2) grab samples shall be composited in the field at each station.
  2. The individual samples shall be combined into six (6) composite samples representing the six (6) polygon groups as shown in Attachment 6. Three (3) replicates shall be taken from each of these six (6) composite samples and analyzed for PCBs, copper, mercury, HPAHs, and TBT, and sediment conventional parameters (e.g., grain size, TOC, ammonia). See Attachment 7 for the required list of PCB and HPAH analytes.
  3. The average concentration of each of the six (6) composites shall be calculated from the analytical results of the replicates for each COC. The average concentrations represent SWACs for each of the six (6) polygon groups.
  4. The three replicate sub-samples of composite samples provide an estimate of variances in the compositing process. Sample material from the 65 station-specific composite samples shall be archived for potential future analysis.
  5. The mean concentration for each of the six (6) composite groups shall be used to calculate Site-Wide SWACs for each COC.
  6. SWAC trigger concentrations shall be used to evaluate whether Site-Wide SWACs exceed the Predicted Post-Remedial SWACs, and whether further action is needed. These concentrations represent the surface-area weighted average concentration expected after cleanup, accounting for the variability in measured concentrations throughout the area. If the Site-Wide SWAC after remediation is below the trigger concentration then remediation shall be considered successful. Exceedance of the trigger concentration shall result in further evaluation of the site-specific conditions to determine if the remedy was successful as detailed in Directive D.3. The trigger concentrations for the primary COCs are listed below.

Primary COCs	Trigger Concentrations
Copper	185 mg/kg
Mercury	0.78 mg/kg
HPAHs <sup>1</sup>	3,208 µg/kg
PCBs <sup>2</sup>	253 µg/kg
Tributyltin	156 µg/kg

1. HPAHs = sum of 6 PAHs: Fluoranthene, Perylene, Benzo[a]anthracene, Chrysene, Benzo[a]pyrene, and Dibenzo[a,h]anthracene.
2. PCBs = sum of 41 congeners: 18, 28, 37, 44, 49, 52, 66, 70, 74, 77, 81, 87, 99, 101, 105, 110, 114, 118, 119, 123, 126, 128, 138, 149, 151, 153, 156, 157, 158, 167, 168, 169, 170, 177, 180, 183, 187, 189, 194, 201, and 206.

- d. **Bioaccumulation Testing.** Nine (9) sediment samples shall undergo bioaccumulation testing using the 28-day *Macoma nasuta* test. The samples selected for bioaccumulation testing shall be from stations SW04, SW08, SW13, SW21, SW28, and NA06, NA11, NA12, and NA20. Tissue samples shall be analyzed for arsenic, cadmium, copper, lead, mercury, zinc, HPAHs, and PCBs. See Attachment 7 for the required list of PCB and HPAH analytes.
- e. **Sediment Chemistry for Benthic Exposure.** Samples shall be collected for chemical analyses at the following five station locations: SW04, SW13, SW22, SW23 and NA19. Sediments shall be analyzed for sediment conventional parameters (e.g., grain size, TOC, ammonia) and the following: arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, TBT, PCBs, and PAHs. See Attachment 7 for the required list of PCB and PAH analytes. Results from the chemical analyses shall be evaluated in accordance with the flow diagram in Attachment 8 to determine if further evaluation or action is necessary based on benthic effects indicators. SS-MEQ values shall be determined for each station and compared to the 0.9 SS-MEQ threshold. The sediment chemistry results shall be compared to the 60% LAET thresholds.
- f. **Sediment Toxicity.** Sediment samples shall be collected for toxicity analyses at the following five station locations: SW04, SW13, SW22, SW23, and NA19. Two types of sediment toxicity tests shall be conducted in accordance with protocols recommended by the San Diego Water Board: (1) 10-day amphipod survival test using *Eohaustorius estuarius* exposed to whole sediment, and (2) 48-hour bivalve larva development test using the mussel *Mytilus galloprovincialis* exposed to whole sediment at the sediment-water interface. Results from the toxicity analyses shall be evaluated in accordance with the flow diagram in Attachment 9 to determine if further evaluation or action is necessary based on benthic effects indicators.



**1. Year 2 Remedial Goals**

- Composite site-wide SWACs below the Trigger Concentrations identified in D.1.c.6. above; and
- Sediment chemistry below SS-MEQ and 60%LAET thresholds; and
- Toxicity not significantly different from conditions at the reference stations described in Finding 17 and in the *Technical Report for Cleanup and Abatement Order No. R9-2012-0024 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA*; and
- The average of stations sampled shows bioaccumulation levels below the pre-remedial levels.

**2. Year 5 Remedial Goals**

- Composite site-wide SWACs below the Trigger Concentrations identified in D.1.c.6. above; and
- Sediment chemistry below SS-MEQ and 60%LAET thresholds; and
- Toxicity not significantly different from conditions at the reference stations described in Finding 17 and as defined in the *Technical Report for Cleanup and Abatement Order No. R9-2012-0024 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA*; and
- The average of stations sampled shows bioaccumulation levels continuing to decrease below the pre-remedial levels and equal to or below the Year 2 post-remedial monitoring sampling event levels.

**3. Confirm remedial goals are maintained at year 10 (if goals were not met in year 5)**

- Composite site-wide SWACs below the Trigger Concentrations identified in D.1.c.6. above; and
- Sediment chemistry below SS-MEQ and 60%LAET thresholds; and
- Toxicity not significantly different from conditions at the reference stations described in Finding 17 and defined in the *Technical Report for Cleanup and Abatement Order No. R9-2012-0024 for the Shipyard Sediment Site, San Diego Bay, San Diego, CA*; and
- The average of stations sampled shows bioaccumulation levels below the pre-remedial levels and equal to or below the Year 5 post-remedial monitoring sampling event levels.

4. **SWAC Trigger Concentration, SS-MEQ Threshold, or 60% LAET Threshold Exceedance Investigation and Characterization.** Post remediation monitoring may indicate exceedance of one or more of the post-remediation Site-Wide SWAC trigger concentrations, SS-MEQ thresholds, or 60% LAET thresholds. In that event the Dischargers shall conduct an Exceedance Investigation and Characterization study to determine the cause(s) of the exceedance. There are several lines of investigation that may be pursued, individually or in combination, depending upon the type, scope, and scale of the exceedance(s) and site-specific conditions. The following approaches may be considered and implemented for the investigation and characterization effort:
  - a. Recalculation of the 95% UCL incorporating more recent sampling data (e.g. the dredge performance monitoring data, pre-remediation monitoring data from July, 2009, the most recent post remediation verification monitoring data etc.).
  - b. Identification of the specific subarea(s) that caused the excursion(s) using surrounding post remediation monitoring data and historical data as appropriate.
  - c. Evaluation of changes in site conditions as a result of disturbances since the previous sampling event from spills, major storm events, construction activities, newly discovered pollutant sources or other causes.
  - d. Analysis of the archived samples used to comprise the composite sample for the specific COC(s) exceeding the 95% UCL as a basis to understand which polygons have higher concentrations than expected. The data from this analysis could be used as a basis for spatial weighting of the data before recalculating 95% UCLs using interpolation methods such as inverse distance weighting.
5. **Exceedance Investigation and Characterization Report.** The Dischargers shall prepare and submit an adequate Exceedance Investigation and Characterization Report describing the final results of the investigation and characterization study to the San Diego Water Board. If the exceedances are found to be significant, the Report shall include a recommended approach, or combination of approaches, for addressing the exceedance(s) by additional sampling of the affected area, re-dredging, natural recovery, reanalysis following the next scheduled monitoring event, or other appropriate methods. The Report shall be due within 90 days of discovery of the exceedance or as otherwise directed by the San Diego Water Board.

#### **E. QUARTERLY PROGRESS REPORTS**

The Dischargers shall prepare and provide written quarterly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this CAO during the

previous quarter; (2) include all results of sampling, tests, and all other verified or validated data received or generated by or on behalf of the Dischargers during the previous quarter in the implementation of the remedial actions required by this CAO; (3) describe all activities including, data collection and other field activities which are scheduled for the next two quarters and provide other information relating to the progress of work, including, but not limited to, a graphical depiction of the progress of the remedial actions; (4) identify any modifications to the Remedial Action Plan or other work plan(s) that the Dischargers proposed to the San Diego Water Board or that have been approved by San Diego Water Board during the previous quarter; and (5) include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the remedial actions required, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to the San Diego Water Board by the (15th) day of March, June, September, and December of each year following the effective date of this CAO. Submission of these progress reports shall continue until submittal of the final Cleanup and Abatement Completion Report verifying completion of the Remedial Action Plan (RAP) for the Shipyard Sediment Site (see Directive C).

#### **F. REPORTS AND WORKPLANS**

The Dischargers shall prepare and submit all required plans and reports described in Directives B, C, and D of this Order to the San Diego Water Board for review and approval. The San Diego Water Board shall make these plans/reports available to the public for comment. If comments or concerns on these plans and reports are not resolved informally, then the Assistant Executive Officer will schedule the item for San Diego Water Board consideration at a public meeting.

#### **G. NO FURTHER ACTION**

Upon approval by the San Diego Water Board of the Final Cleanup and Abatement Completion Report (Directive C) and the Post Remedial Monitoring Reports (Directive D.3) remedial actions and monitoring will be complete and compliance with this CAO will be achieved. At that time the San Diego Water Board will inform the Dischargers and other interested persons in writing that, based on available information, no further remedial work is required. However, the portion of polygon SW29 not in the dredge footprint may be addressed by the San Diego Water Board under a separate future regulatory action based upon available information.

#### **H. PROVISIONS**

1. **Cost Recovery.** The Dischargers shall reimburse the State of California for all reasonable costs actually incurred by the San Diego Water Board and State Water Board to investigate, oversee, and monitor cleanup and abatement actions required by this CAO, including the cost to prepare CEQA documents according to billing statements prepared from time to time by the State Water Board. If the Dischargers are enrolled in a reimbursement program managed by the State Water Board for the discharge addressed by this CAO, reimbursement shall be made pursuant to the procedures established in that program.

Within 60 days of the adoption of this CAO, the Dischargers shall reimburse the State of California in the amount of \$168,173 for the unreimbursed costs actually incurred by the San Diego Water Board and State Water Board as described in Finding 41 of this Order.

Within 30 days of the adoption of this CAO, the Dischargers shall identify to the San Diego Water Board an entity or party, including contact information, authorized by the Dischargers to receive and pay future invoices issued by the State Water Board Cost Recovery Program for staff oversight costs incurred by the San Diego Water Board to investigate, oversee, and monitor cleanup and abatement actions required by this CAO.

2. **Waste Management.** The Dischargers shall properly manage, store, treat, and dispose of contaminated marine sediment and associated wastes in accordance with applicable federal, state, and local laws and regulations. The storage, handling, treatment, or disposal of contaminated marine sediment and associated waste shall not create conditions of pollution, contamination or nuisance as defined in Water Code section 13050. The Dischargers shall, as required by the San Diego Water Board, obtain, or apply for coverage under, waste discharge requirements or a conditional waiver of waste discharge requirements for the removal of waste from the immediate place of release and discharge of the waste to (a) land for treatment, storage, or disposal or (b) waters of the state. No waste discharge requirements or conditional waiver of waste discharge requirements shall be required for disposal of marine sediment and associated waste in a landfill regulated under existing waste discharge requirements.
3. **Request to Provide Information.** The Dischargers may present characterization data, preliminary interpretations and conclusions as they become available, rather than waiting until a final report is prepared. This type of on-going reporting can facilitate a consensus being reached between the Dischargers and the San Diego Water Board and may result in overall reduction of the time necessary for regulatory approval.
4. **Waste Constituent Analysis.** Unless otherwise permitted by the San Diego Water Board, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. Specific methods of analysis must be identified. If the Dischargers propose to use methods or test procedures other than those included in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (U.S. Environmental Protection Agency) or 40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification", the exact methodology must be submitted for review and must be approved by the San Diego Water Board prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports submitted to the San Diego Water Board.

Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) must be signed by the laboratory director and contain:

- A complete sample analytical report.
  - A complete laboratory quality assurance/quality control (QA/QC) report.
  - A discussion of the sample and QA/QC data.
  - A transmittal letter that must indicate whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement, "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services in accordance with current USEPA procedures."
5. **Duty to Operate and Maintain.** The Dischargers shall, at all times, properly operate and maintain all facilities and systems of treatment, control, storage, disposal and monitoring (and related appurtenances) which are installed or used by the Dischargers to achieve compliance with this CAO. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, which are installed by the Dischargers only when the operation is necessary to achieve compliance the conditions of this CAO.
6. **Field Work Notice.** The Dischargers shall give the San Diego Water Board at least fourteen (14) days advance notice of all field work or field activities to be performed by the Dischargers pursuant to this CAO; provided, however, that in a given instance, if it is impossible for the Dischargers to provide such notice, the Dischargers shall provide notice to the San Diego Water Board of all such field work or activities as far in advance of such work as is possible. In any event, any notification pursuant to this Provision shall be given at least twenty-four (24) hours prior to the given field activities, unless the San Diego Water Board agrees otherwise.
7. **Duty to Use Registered Professionals.** The Dischargers shall provide documentation that plans and reports required under this CAO are prepared under the direction of appropriately qualified professionals. California Business and Professions Code sections 6735, 7835 and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of the responsible lead professionals shall be included in all plans and reports submitted by the Dischargers. The lead professional shall sign and affix their registration stamp to the report, plan or document.
8. **Corporate Signatory Requirements.** All reports required under this Order shall be signed and certified by a responsible corporate officers of the Dischargers described in paragraph 5.a. of this provision or by a duly authorized representative of that person as described in paragraph 5.b.of this provision.
- a. **Responsible Corporate Officer(s).** For the purposes of this provision, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who

performs similar policy - or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. ***Duly Authorized Representative.*** A person is a duly authorized representative only if

1. The authorization is made in writing by a person described in paragraph (a) of this provision;
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
3. The written authorization is submitted to the San Diego Water Board.

c. ***Changes to Authorization.*** If an authorization under paragraph (b) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this provision must be submitted to the San Diego Water Board prior to or together with any reports or information to be signed by an authorized representative.

d. ***Certification Statement.*** Any person signing a document under paragraph a. or b. of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

9. **Duty to Submit Other Information.** When the Dischargers become aware that it failed to submit any relevant facts in any report required under this CAO, or submitted incorrect

information in any such report, the Dischargers shall promptly submit such facts or information to the San Diego Water Board.

10. **Electronic and Paper Media Reporting Requirements.** The Dischargers shall submit both electronic and paper copies of all reports required under this CAO including work plans, technical reports, and monitoring reports. Larger documents shall be divided into separate files at logical places in the report to keep file sizes under 150 megabytes. The Discharger shall continue to provide a paper transmittal letter, a paper copy of all figures larger than 8.5 inches by 14 inches (legal size), and an electronic copy (on CD or other appropriate media) of all reports to the San Diego Water Board. All paper correspondence and documents submitted to the San Diego Water Board must include the following identification numbers in the header or subject line: Geotracker Site ID: T10000003580. The Dischargers shall comply with the following reporting requirements for all reports and plans (and amendments thereto) required by this Order:

- a. **Reports and Plans Required by this Order.** The Dischargers shall submit one paper and one electronic, searchable PDF copy of all technical reports, monitoring reports, progress reports, and plans required by this Order. The PDF copy of all the reports shall also be uploaded into the Geotracker database, as required by Provision G.10(b)(4) below.
- b. **Electronic Data Submittals for Sediment Chemistry.** All information submitted to the San Diego Water Board in compliance with this Order is required to be submitted electronically via the Internet into the Geotracker database <http://geotracker.waterboards.ca.gov/> (Geotracker Site ID. T10000003580). The electronic data shall be uploaded on or prior to the regulatory due dates set forth in the Order or addenda thereto. To comply with these requirements, the Dischargers shall upload to the Geotracker database the following minimum information:
  1. **Laboratory Analytical Data:** Analytical data (including geochemical data) for all sediment and water samples in Electronic Data File (EDF) format. Water, sediment, and soil include analytical results of samples collected from: dredging equipment, monitoring wells, boreholes, gas and vapor wells or other collection devices, surface water, groundwater, piezometers, and stockpiles.
  2. **Locational Data:** The latitude and longitude of any permanent monitoring location (surface water or sediment sampling location) for which data is reported in EDF format, accurate to within 1 meter and referenced to a minimum of two reference points from the California Spatial Reference System (CSRS-H), if available.
  3. **Site Map:** Site map or maps which display discharge locations, streets bordering the facility, and sampling locations for all sediment, soil, and water samples. The site map is a stand-alone document that may be submitted in various electronic formats. A site map must also be uploaded to show the maximum extent of any sediment and water pollution. An update to the site map may be uploaded at any time.

4. **Electronic Report:** A complete copy (in searchable PDF format) of all workplans, assessment, cleanup, and monitoring reports including the signed transmittal letters, professional certifications, and all data presented in the reports.

11. **Report Submittals.** All monitoring and technical reports required under this CAO shall be submitted to

Executive Officer  
California Regional Water Quality Control Board  
San Diego Region  
9174 Sky Park Court, Suite 100  
San Diego, CA 92123-4340

12. **Amendment.** This CAO in no way limits the authority of this San Diego Water Board to institute additional enforcement actions or to require additional investigation and cleanup consistent with the California Water Code. This CAO may be revised by the San Diego Water Board as additional information becomes available.
13. **Time Extensions.** If, for any reason, the Dischargers are unable to perform any activity or submit any documentation in compliance with requirements in this CAO, including the RAP, or in compliance with associated implementation schedules, including the RAP implementation schedule, the Dischargers may request, in writing, an extension of time. The written extension request shall include justification for the delay and shall be received by the San Diego Water Board reasonably (but not less than 15 calendar days) in advance of the deadline sought to be extended. An extension may be granted for good cause, in which case this CAO will be accordingly amended.
14. **Community Relations.** The Dischargers shall cooperate with the San Diego Water Board in providing information regarding the remediation of the Shipyard Sediment Site to the public. If requested by the San Diego Water Board, the Dischargers shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by the San Diego Water Board to explain activities at or relating to the Shipyard Sediment Site.

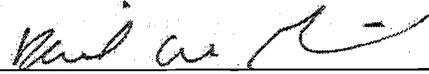
## I. NOTIFICATIONS

1. **Enforcement Discretion.** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this CAO.
2. **Enforcement Notification.** The Porter-Cologne Water Quality Control Act commencing with Chapter 5, Enforcement and Implementation, section 13308, provides that if there is a threatened or continuing violation of a CAO, the San Diego Water Board may issue a Time Schedule Order prescribing a civil penalty in an amount not to exceed \$10,000 per day for each day compliance is not achieved in accordance with that time schedule. Section 13350 provides that any person may be assessed administrative civil liability by the San Diego Water Board for violating a CAO in an amount not to exceed \$5,000 for

March 14, 2012

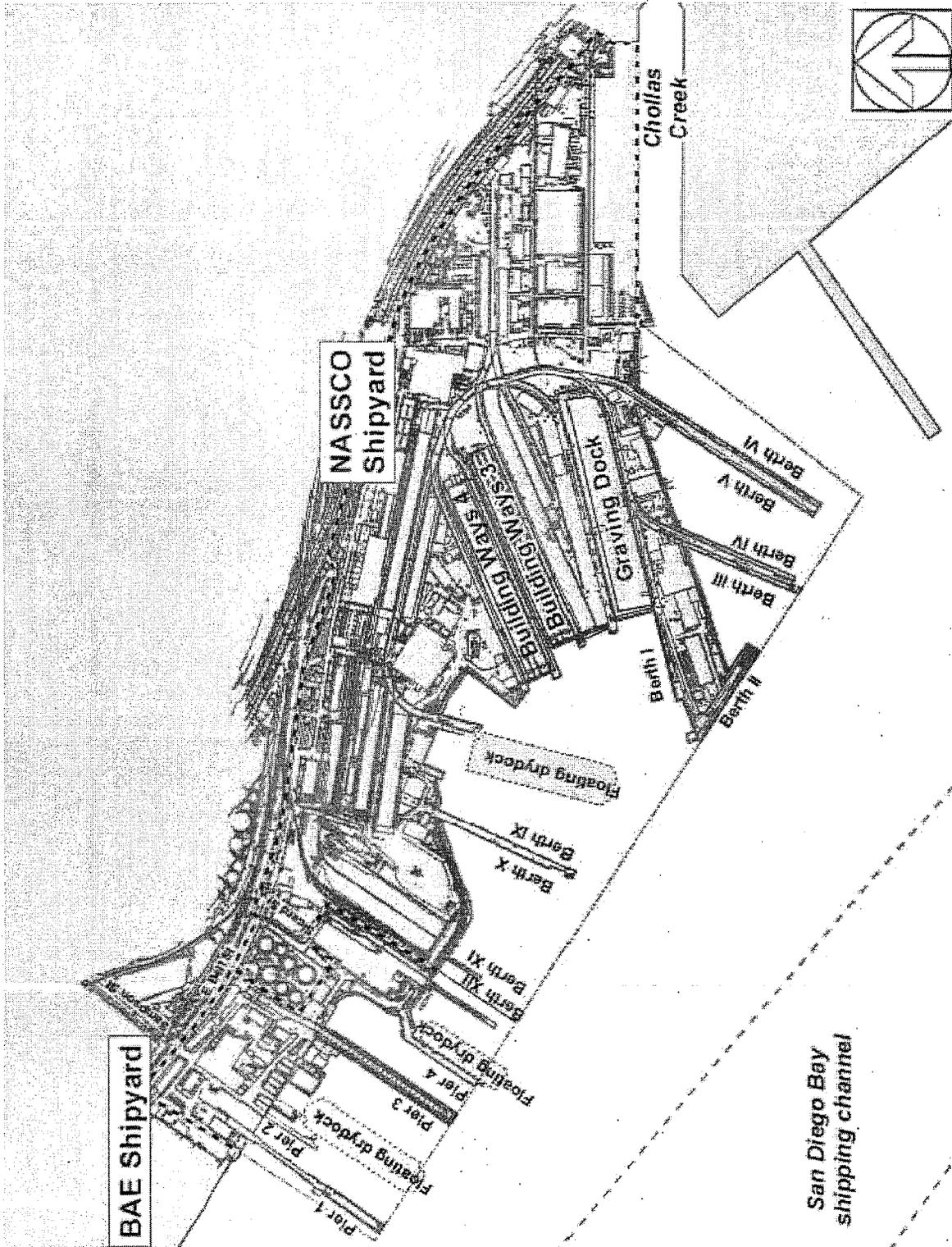
each day the violation occurs, or on a per gallon basis, not to exceed \$10 for each gallon of waste discharged. Alternatively the court may impose civil liability in an amount not to exceed \$15,000 for each day the violation occurs, or on a per gallon basis, not to exceed \$20 for each gallon of waste discharged. Section 13385 provides that any person may be assessed administrative civil liability by the San Diego Water Board for violating a CAO for an activity subject to regulation under Division 7, Chapter 5.5 of the Water Code, in an amount not to exceed the sum of both of the following: (1) \$10,000 for each day in which the violation occurs; and (2) where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed \$10 multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons. Alternatively the civil liability may be imposed by the court in an amount not to exceed the sum of both of the following: (1) \$25,000 for each day in which the violation occurs; and (2) where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed \$25 multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

*I, David W. Gibson, Executive Officer, do hereby certify the forgoing is a full, true, and correct copy of a CAO issued on March 14, 2012.*

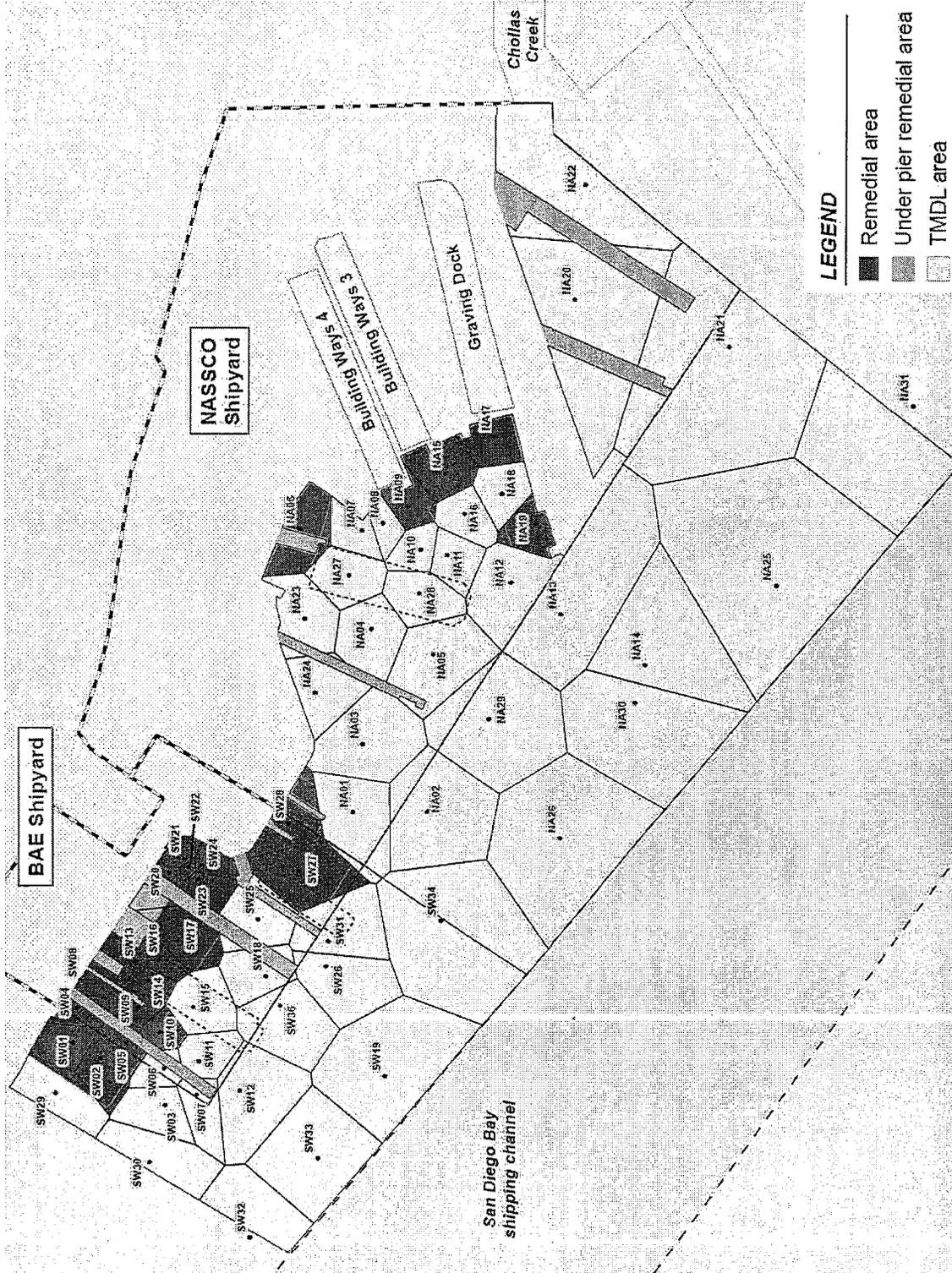


David W. Gibson  
Executive Officer

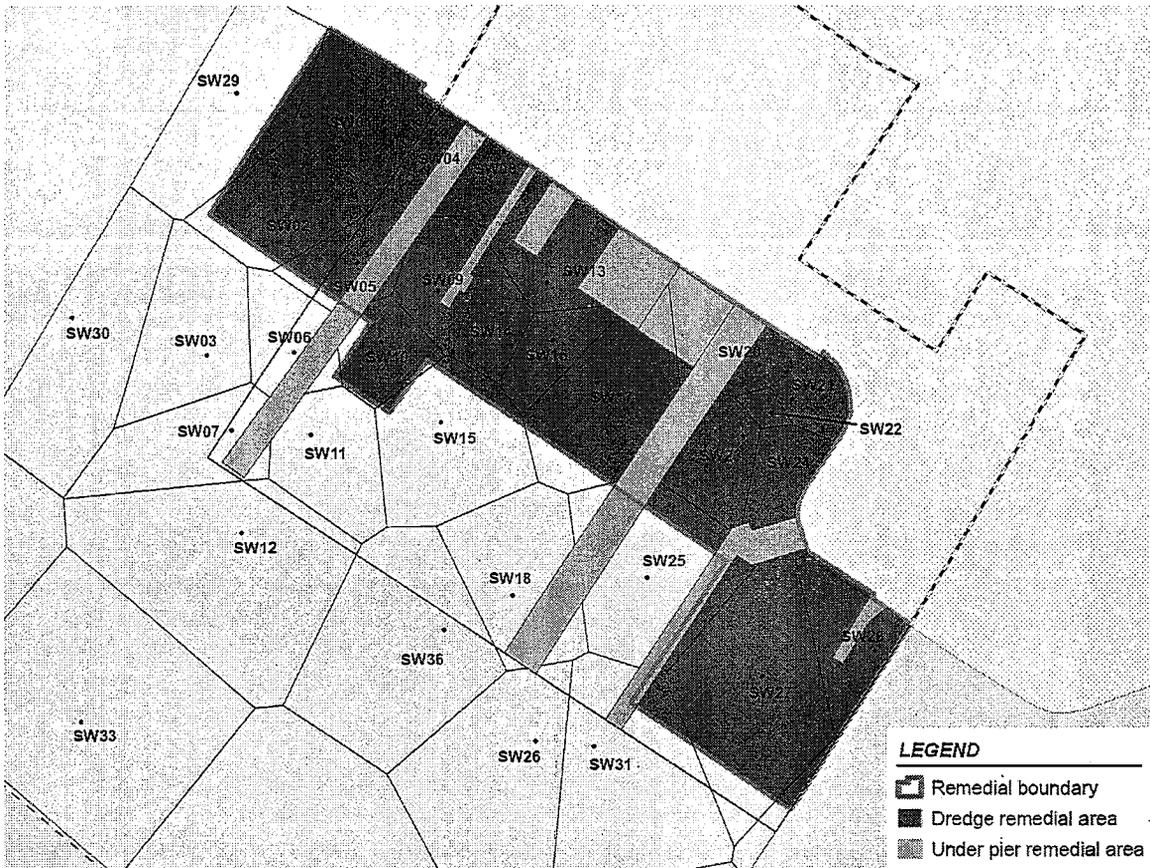
**Attachment 1. Shipyard Sediment Area**



**Attachment 2. Polygons Targeted for Remediation**



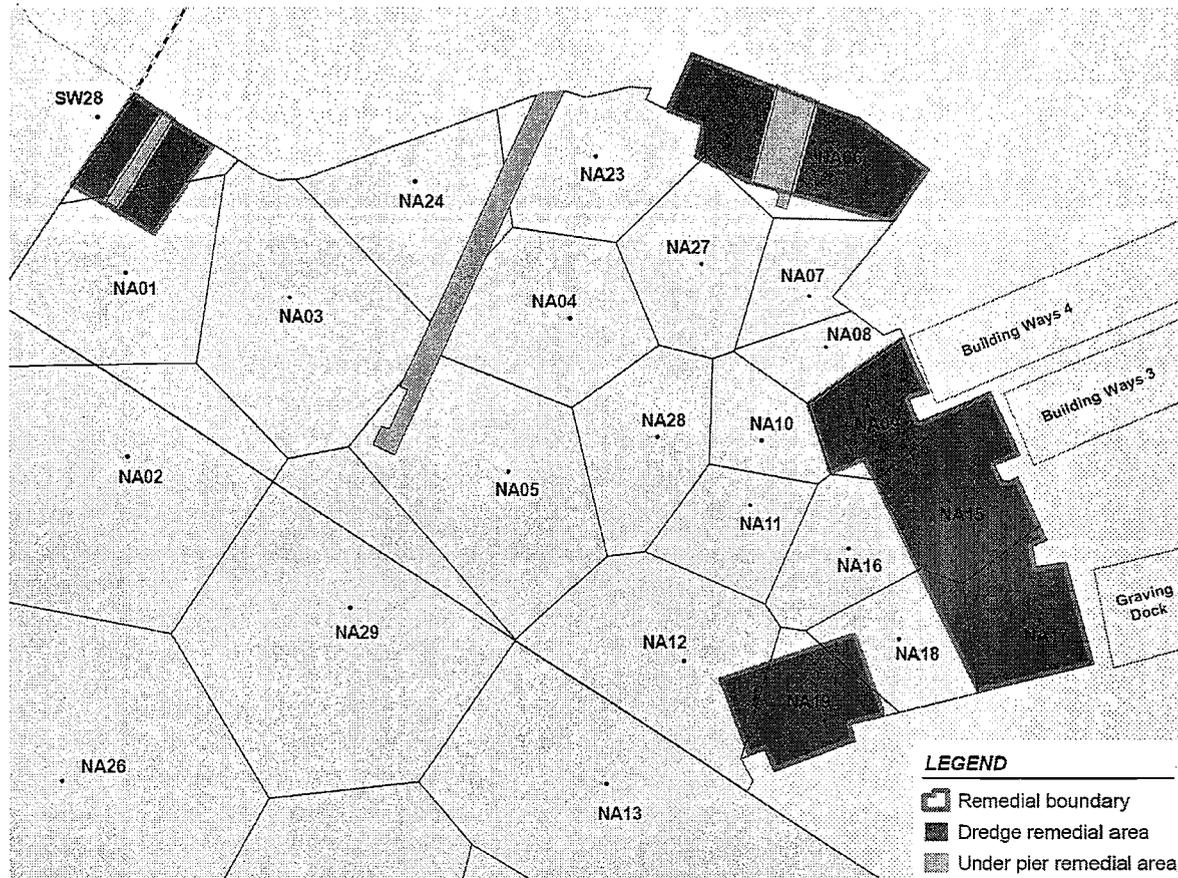
**Attachment 3. Remedial Footprint Based on Sediment Management Units for BAE Shipyard**



<b>Remedial Site (North)</b>	
Dredge remedial Area (ft <sup>2</sup> )	438,300
Under pier remedial area (ft <sup>2</sup> )	89,980
Total Remedial Area (ft <sup>2</sup> )	528,295
Dredge Volume (yd <sup>3</sup> )	90,800

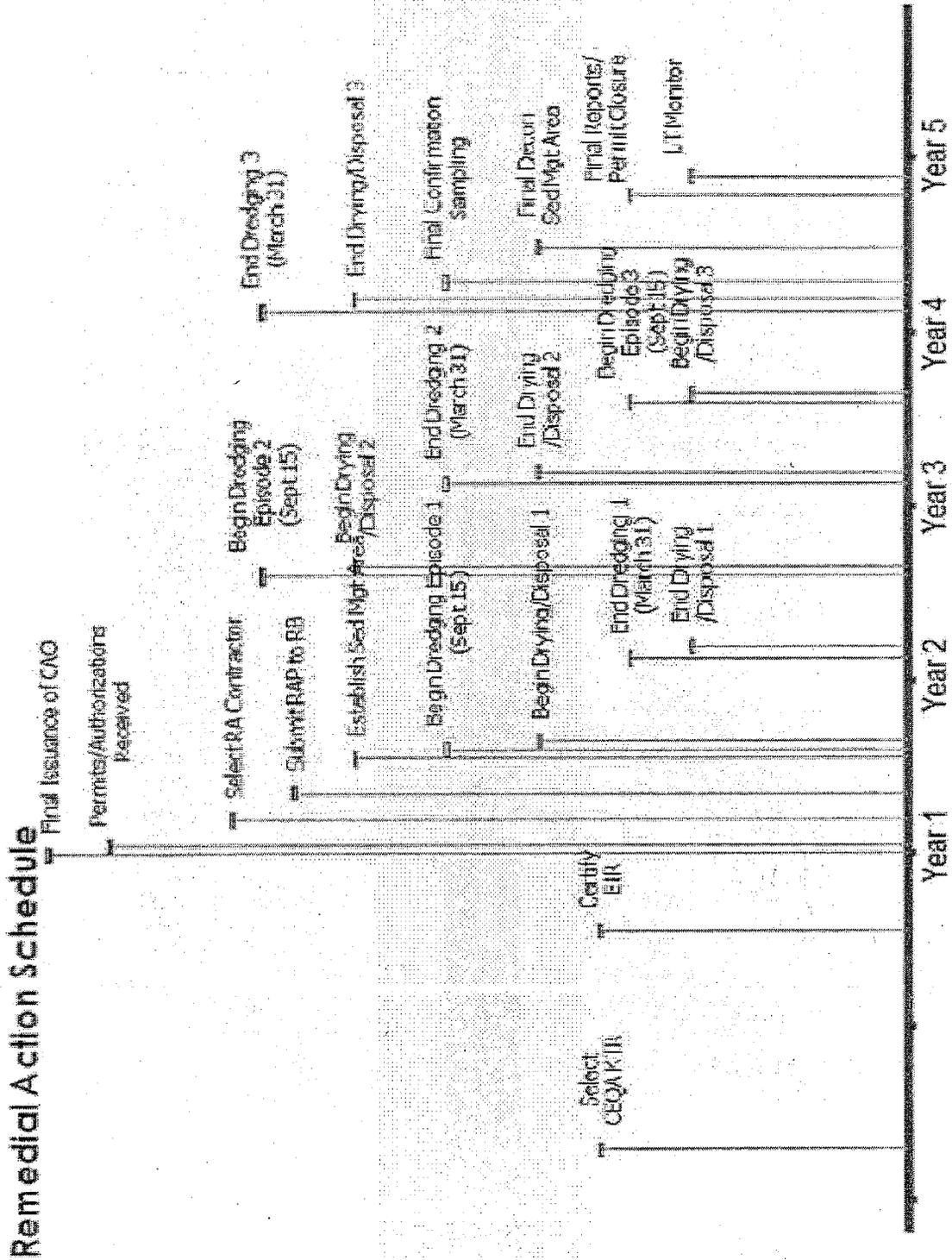
**Note:** Presumed remedy within the remedial boundary is dredging, except for under pier remedial areas.

**Attachment 4. Remedial Footprint Based on Sediment Management Units for NASSCO Shipyard**

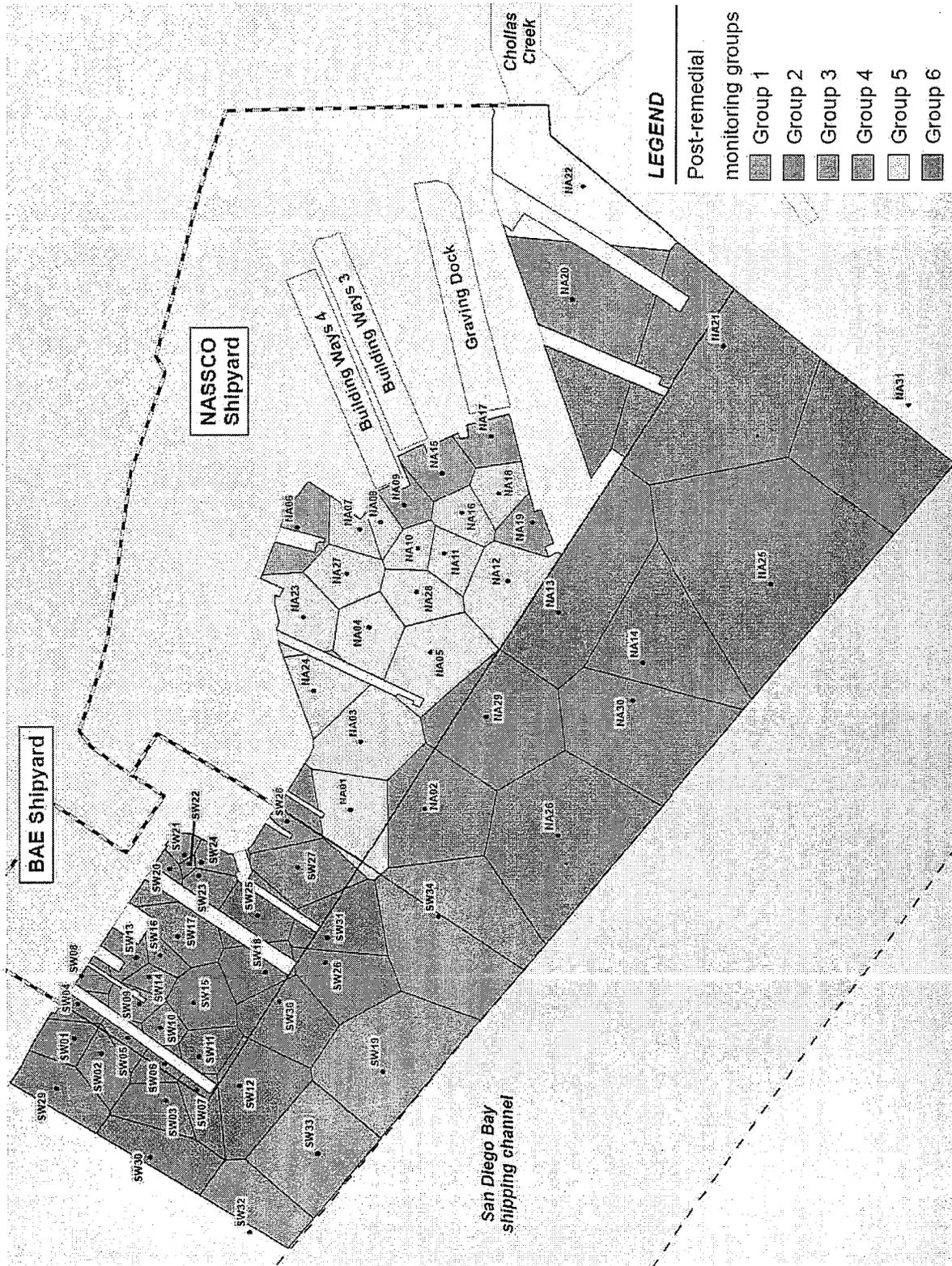


<b>Remedial Site (South)</b>	
Dredge remedial Area (ft <sup>2</sup> )	217,800
Under pier remedial area (ft <sup>2</sup> )	13,725
Total Remedial Area (ft <sup>2</sup> )	231,495
Volume (yd <sup>3</sup> )	52,600
TMDL area (ft <sup>2</sup> )	218,060
<b>Note:</b> Presumed remedy within the remedial boundary is dredging, except for under pier remedial areas.	

# Attachment 5. Remedial Action Implementation Schedule



Attachment 6. Composite Sampling Area for Post-Remedial Monitoring



**Attachment 7. Summed list of PCB and PAH analytes measured in bulk sediments.**

PAH	Identifier	PAH	Identifier
Naphthalene	C0N	Pyrene	PYR
C1-Naphthalenes	C1N	C1-Fluoranthenes/pyrenes	C1F/P
C2-Naphthalenes	C2N	C2-Fluoranthenes/pyrenes	C2F/P
C3-Naphthalenes	C3N	C3-Fluoranthenes/pyrenes	C3F/P
C4-Naphthalenes	C4N	Benzo[a]anthracene	BAA
Acenaphthylene	ACEY	Chrysene	C0C
Acenaphthene	ACE	C1-Chrysenes	C1C
Biphenyl	BIP	C2-Chrysenes	C2C
Fluorene	C0F	C3-Chrysenes	C3C
C1-Fluorenes	C1F	C4-Chrysenes	C4C
C2-Fluorenes	C2F	Benzo[b]fluoranthene	BBF
C3-Fluorenes	C3F	Benzo[k]fluoranthene	BKF
Anthracene	C0A	Benzo[e]pyrene	BEP
Phenanthrene	C0P	Benzo[a]pyrene	BAP
C1-Phenanthrenes/anthracenes	C1P/A	Perylene	PER
C2-Phenanthrenes/anthracenes	C2P/A	Indeno[1,2,3,-c,d]pyrene	INDENO
C3-Phenanthrenes/anthracenes	C3P/A	Dibenzo[a,h]anthracene	DAH
C4-Phenanthrenes/anthracenes	C4P/A	Benzo[g,h,i]perylene	BGP
Dibenzothiophene	C0D	Total PAH <sup>1</sup>	TPAH
C1-Dibenzothiophenes	C1D	Priority Pollutant PAH <sup>2</sup>	PPPAH
C2-Dibenzothiophenes	C2D	Low Molecular Weight PAH <sup>3</sup>	LMWPAH
C3-Dibenzothiophenes	C3D	High Molecular Weight PAH <sup>4</sup>	HMWPAH
Fluoranthene	FLANT		

SCCWRP and U.S. Navy, 2005b

<sup>1</sup>Total PAH = sum of all listed PAH analytes

<sup>2</sup>Priority pollutant PAH = sum of C0N, ACEY, ACE, C0F, C0A, C0P, FLANT, PYR, BAA, C0C, BBF, BKF, BAP, INDENO, DAH, BGP

<sup>3</sup>Low Molecular Weight PAH = sum of C0N, C2N, ACEY, ACE, C0F, C0A, C0P

<sup>4</sup>High Molecular Weight PAH = sum of FLANT, PYR, BAA, C0C, BAP, DAH

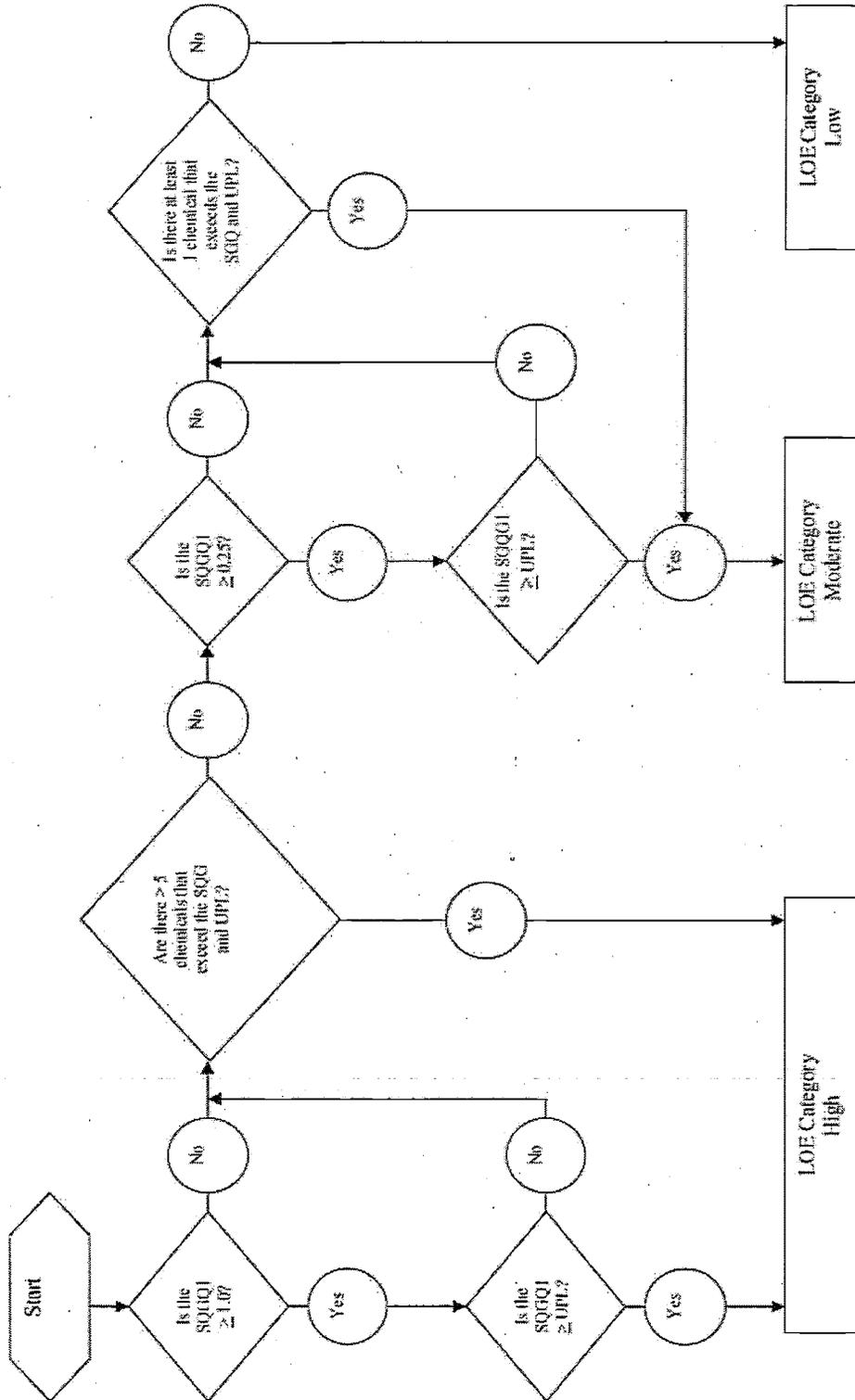
**Attachment 7 (continued). Summed list of PCB and PAH analytes measured in bulk sediments.**

PCB Congener	Congener Number	PCB Congener	Congener Number
2,2',5-Trichlorobiphenyl (C13)	18	2,2',3,3',4,4'-Hexachlorobiphenyl (C16)	128
2,4,4'-Trichlorobiphenyl (C13)	28	2,2',3,4,4',5'-Hexachlorobiphenyl (C16)	138
3,4,4'-Trichlorobiphenyl (C13)	37	2,2',3,4',5',6'-Hexachlorobiphenyl (C16)	149
2,2',3,5'-Tetrachlorobiphenyl (C14)	44	2,2',3,5,5',6'-Hexachlorobiphenyl (C16)	151
2,4,4',5'-Tetrachlorobiphenyl (C14)	49	2,2',4,4',5,5'-Hexachlorobiphenyl (C16)	153
2,2',5,5'-Tetrachlorobiphenyl (C14)	52	2,3,3',4,4',5'-Hexachlorobiphenyl (C16)	156
2,3',4,4'-Tetrachlorobiphenyl (C14)	66	2,3,3',4,4',5'-Hexachlorobiphenyl (C16)	157
2,3',4',5 - Tetrachlorobiphenyl (C14)	70	2,3,3',4,4',6'-Hexachlorobiphenyl (C16)	158
2,4,4',5 -Tetrachlorobiphenyl (C14)	74	2,3',4,4',5,5'-Hexachlorobiphenyl (C16)	167
3,4,4',5 -Tetrachlorobiphenyl (C14)	81	2,3',4,4',5',6'-Hexachlorobiphenyl (C16)	168
3,3',4,4'-Tetrachlorobiphenyl (C14)	77	3,3',4,4',5,5'-Hexachlorobiphenyl (C16)	169
2,2',3,4,5'-Pentachlorobiphenyl (C15)	87	2,2',3,3',4,4',5'-Heptachlorobiphenyl (C17)	170
2,2',4,4',5'-Pentachlorobiphenyl (C15)	99	2,2',3,3',4,5',6'-Heptachlorobiphenyl (C17)	177
2,2',4,5,5'-Pentachlorobiphenyl (C15)	101	2,2',3,4,4',5,5'-Heptachlorobiphenyl (C17)	180
2,3,3',4,4'-Pentachlorobiphenyl (C15)	105	2,2',3,4,4',5',6'-Heptachlorobiphenyl (C17)	183
2,3,3',4',6-Pentachlorobiphenyl (C15)	110	2,2',3,4',5,5',6'-Heptachlorobiphenyl (C17)	187
2,3,4,4',5-Pentachlorobiphenyl (C15)	114	2,3,3',4,4',5,5'-Heptachlorobiphenyl (C17)	189
2,3',4,4',5-Pentachlorobiphenyl (C15)	118	2,2',3,3',4,4',5,5'-Octachlorobiphenyl (C18)	194
2,3',4,4',6-Pentachlorobiphenyl (C15)	119	2,2',3,3',4,5',6,6'-Octachlorobiphenyl (C18)	201
2,3',4,4',5'-Pentachlorobiphenyl (C15)	123	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (C18)	206
3,3',4,4',5-Pentachlorobiphenyl (C15)	126	Total PCB <sup>1</sup>	TPCB

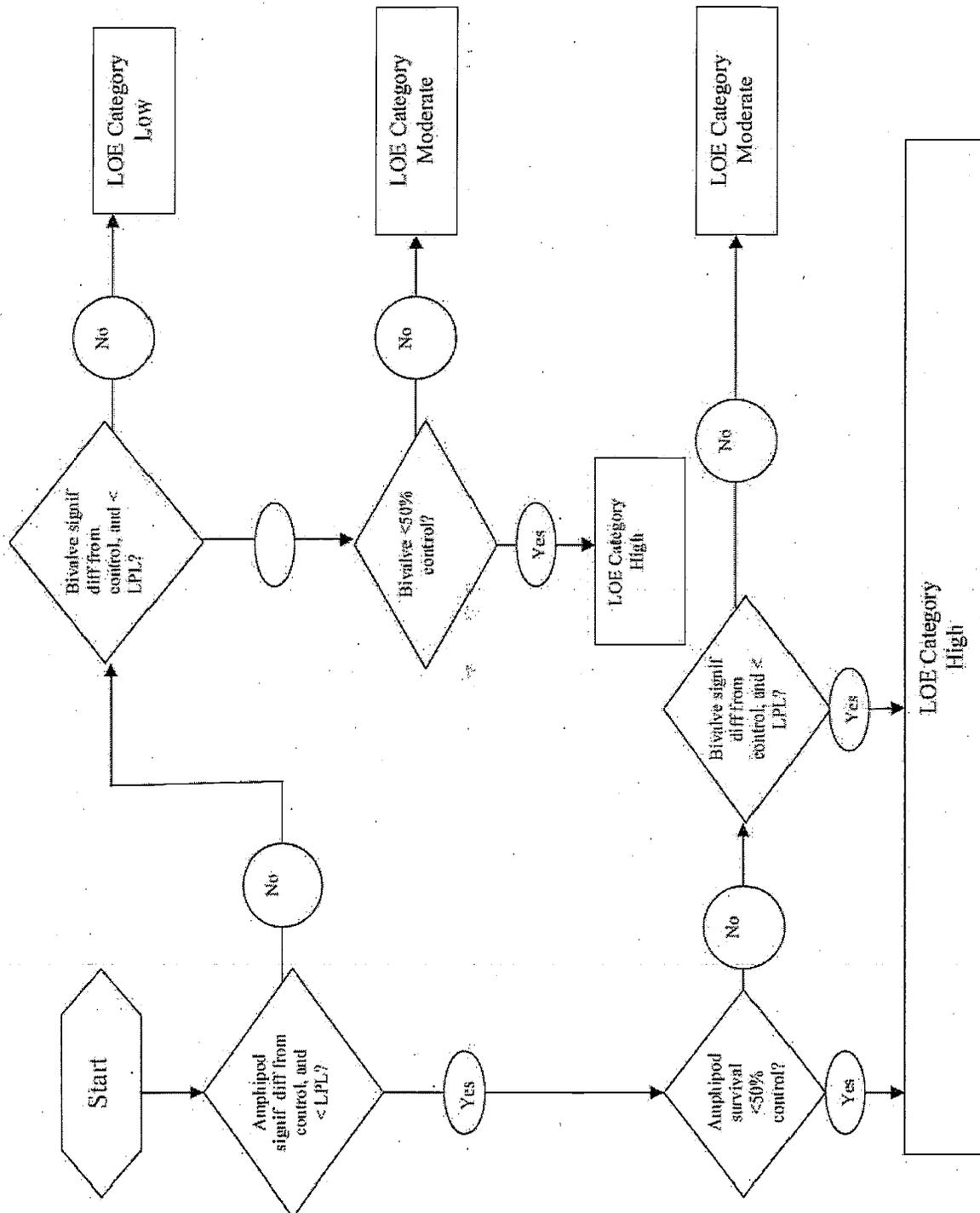
SCCWRP and U.S. Navy, 2005b

<sup>1</sup>Total PCB = sum of all listed PCB congeners.

**Attachment 8. Flow Diagram for the Sediment Chemistry Ranking Criteria (Low, Moderate, and High)**



**Attachment 9. Flow Diagram for the Toxicity Ranking Criteria (Low, Moderate, and High)**



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14  
15  
16 **STATE OF CALIFORNIA**

17 **STATE WATER RESOURCES CONTROL REGIONAL BOARD**

18  
19 In the Matter of San Diego Regional Water Quality  
20 Control Board Cleanup and Abatement Order No.  
21 R9-2012-0024 – San Diego Shipyard Sediment Site

No.

**SAN DIEGO GAS & ELECTRIC  
COMPANY'S MEMORANDUM OF  
POINTS & AUTHORITIES IN SUPPORT  
OF PETITION FOR REVIEW AND  
REQUEST FOR HEARING**

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6 *In re Petition of County of San Diego, et al.* (SWRCB 1996)  
Order No. WQ 96-02, 1996 Cal. ENV LEXIS 3 .....14

7 *In the Matter of the Petition of Stinnes-Western Chemical Corporation*  
WQO No. 86-16, 1986 Cal. ENV LEXIS 18 (September 18, 1986).....23

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1 **I. INTRODUCTION**

2 On March 14, 2012, the San Diego Regional Water Quality Control Regional Board  
3 (“Regional Board”), acting pursuant to Water Code § 13304(a), adopted Cleanup and Abatement  
4 Order No. R9-2012-0024 (“CAO”), erroneously naming Petitioner San Diego Gas & Electric  
5 Company (“SDG&E”) as a responsible “Discharger” at the Shipyard Sediment Site in San Diego  
6 Bay (“Site”). Not only does the Administrative Record contain no substantial evidence establishing  
7 that SDG&E was in fact responsible for discharges impacting the Bay sediment, the CAO was issued  
8 with absolutely no evidence – substantial or otherwise – that *any* release allegedly attributed to  
9 SDG&E was of significant enough mass and concentration to constitute a “substantial factor” in  
10 causing a “condition of pollution or nuisance” at the Site.

11 To the contrary, even though the substantial factor test for legal causation is settled beyond  
12 dispute in California, in issuing the CAO, the Regional Board – ignoring clear California law to the  
13 contrary – mistakenly concluded that it did *not* apply to liability under Water Code section 13304(a).  
14 This conclusion was most clearly evidenced by the action taken by the Regional Board at its  
15 March 14, 2012 hearing where it voted to amend the Draft Technical Report (“DTR”) supporting the  
16 CAO. In its only action to alter the terms of the Proposed Order submitted to it by the Hearing  
17 Panel, the Regional Board voted unanimously to reword footnote 65 of the DTR to acknowledge  
18 SDG&E’s “substantial factor” argument. In so doing, the Regional Board wrongly concluded that  
19 this settled legal test for causation in California did not apply to establishing liability under Section  
20 13304(a), but, rather, was only relevant “to allocation of responsibility rather than liability”. (*See*  
21 *Technical Report for Cleanup and Abatement Order R9-2012-0024, March 14, 2012 (hereinafter*  
22 *“TR”) – at 9-4, fn 65.)<sup>1</sup>*

23 \_\_\_\_\_  
24 <sup>1</sup> The full footnote, setting forth the Regional Board’s conclusion that traditional causation is irrelevant to  
Water Code liability, reads as follows:

25 “SDG&E asserts that its contribution of pollutants was not a substantial factor in causing a  
26 condition of pollution or nuisance and therefore liability may not be imposed under Water  
27 Code section 13304. For the reasons discussed in the San Diego Water Board Cleanup  
Team’s Response to Comments Report (Aug. 23, 2011), pp. 9-1 through 9-12, SDG&E’s  
argument is one of allocation of responsibility rather than liability”

28 In fact, while the Cleanup Team’s Responses referred to by the Regional Board asserted the substantial factor

1 The Regional Board's conclusion that the Water Code imposes no causation requirement, but  
2 that it instead attaches liability to *any* discharge, however small or inconsequential it might be, is  
3 fundamentally flawed. By the express terms of the statute, liability cannot exist under the Water  
4 Code unless a discharge is of a sufficient mass and concentration so that it "creates, or threatens to  
5 create a condition of pollution or nuisance." "Threaten" is defined to emphasize the need for a  
6 showing by the Regional Board of "substantial probability of harm." Water Code §13304(e).

7 Case authority analyzing section 13304(a) of the Water Code has found that in enacting  
8 Porter Cologne, the Legislature "explicitly relied" upon California's common law of public nuisance  
9 and that, therefore, the Water Code "must be construed 'in light of the common law principles' . . .  
10 of public nuisance." *City of Modesto Redevelopment Agency v. Superior Court* (2004) 119 Cal.  
11 App. 4<sup>th</sup> 28, 30, *rehearing denied*, 2004 Cal. App. LEXIS 1019 (Cal. App. 1st Dist.); *review denied*,  
12 2004 Cal. LEXIS 8692 (Cal. September 14, 2004). One of those fundamental principles, universally  
13 recognized in the case law, is that no liability can exist for public nuisance unless the defendant's  
14 conduct is shown to be a "substantial factor" in causing the harm alleged. See, e.g., *Department of*  
15 *Fish & Game v. Superior Court* (2011) 197 Cal. App. 4<sup>th</sup> 1323, 1352, *review denied*, 2011 Cal.  
16 LEXIS 11962 (Cal. Nov. 16, 2011) (listing requirement that defendant's conduct be a "substantial  
17 factor in causing plaintiff's harm" as an essential element of a claim for public nuisance); *Birke v.*  
18 *Oakwood World Wide* (2009) 169 Cal. App. 4<sup>th</sup> 1540, 1548, *review denied*, 2009 Cal. LEXIS 3701  
19 (Cal. Apr. 15, 2009) (similarly holding that an essential element to establishing a public nuisance is a  
20 showing that the defendant's conduct was a "substantial factor" in causing plaintiff's harm).

21 Since no other Regional Board has ever entered such an extraordinary order, concluding that  
22 long-settled requirements of legal causation have no application to the Water Code, this is a matter  
23 of first impression for the State Board. The issue could not be more clearly defined: namely,  
24 whether liability under Water Code section 13304(a) requires a regional board to prove, based upon  
25 substantial evidence, that a party's alleged discharges were a "substantial factor" in creating, or

26  
27 test was not relevant to liability under the Water Code, no authority was ever cited by the Cleanup Team to  
28 support such an assertion. To the contrary, as the analysis set forth in this Memorandum demonstrates, such  
a conclusion cannot be supported.

1 threatening to create, a “condition of pollution or nuisance” at a site. In other words, do the basic  
2 rules of legal causation applicable to all suits in California on contract or tort – including, in  
3 particular, actions for public nuisance – apply to Water Code liability? *City of Modesto* directs that  
4 they do. Its reasoning is unimpeachable and the State Board has a duty to follow the law of this  
5 decision.

6         Could it be true, as the Regional Board found, that *any* discharge, regardless of mass or  
7 concentration, subjects a person to liability under section 13304(a)? Not if binding judicial  
8 authority is followed. Such a conclusion simply cannot be squared with one of the most well  
9 established and safely guarded principles of California law: that one is not liable for harm caused to  
10 another unless its actions were a “substantial factor” in causing that harm.

11         The CAO is flawed on the evidence but, more importantly, as to SDG&E, it applies a legal  
12 conclusion directly contrary to California law - that one can be found liable for a harm with **no**  
13 evidence that its acts were a substantial factor in causing that harm.<sup>2</sup> For that fundamental,  
14 overriding reason, the CAO must be rescinded as to SDG&E. Under these circumstances, the  
15 Regional Board’s other errors – which will be demonstrated in this Memorandum as well – would  
16 become unnecessary for the State Board to reach.

17  
18 **II. THE PREJUDICE SUFFERED BY SDG&E JUSTIFIES AN EXPEDITED HEARING**  
19 **ON THE THRESHOLD LEGAL ISSUE OF CAUSATION PRESENTED BY THIS**  
20 **PETITION**

21         We not only request that the State Board grant SDG&E a hearing, we ask that it be granted as  
22 expeditiously as possible. In order to expedite matters, we respectfully suggest that the clearly  
23

24 <sup>2</sup> SDG&E has repeatedly shown that the Administrative Record contains no evidence that any of the releases  
25 attributed to SDG&E were a “substantial factor” in causing, or threatening to cause, a condition of “pollution  
26 or nuisance” at the Site, but rather that the opposite is true. See discussion *infra* at Section VI.E. The  
27 Cleanup Team never attempted to make a contrary showing. Rather, counsel for the Cleanup Team  
28 adamantly insisted throughout the proceedings that such evidence of legal causation was irrelevant to liability,  
but rather was relevant only to the share of liability ultimately allocated to SDG&E in district court  
proceedings under CERCLA with the other Dischargers, an argument *apropos* to the strict liability scheme of  
CERCLA rather than Water Code liability. The Advisory Team accepted this erroneous conclusion.

1 focused legal issue of whether Water Code liability incorporates causation as an essential element  
2 can be bifurcated from the “substantial evidence” issues presented by this Petition (which would  
3 necessitate review of a lengthy administrative record), and the Regional Board’s “remedy driver”  
4 errors (which requires consideration of expert evidence) to be heard first.

5 Whether liability under Water Code section 13304(a) depends upon proof, as does the  
6 common law of public nuisance, that the defendant’s alleged discharges were a substantial factor in  
7 creating, or threatening to create, a condition of “pollution or nuisance” – in this case, beneficial use  
8 impairment – is a purely legal issue which is conducive to a prompt hearing. Because it is purely  
9 legal in nature, it does not require any sifting through of a substantial evidentiary record to be  
10 resolved.

11 SDG&E has been named as a responsible Discharger notwithstanding the fact that the  
12 Regional Board acknowledged, in issuing the CAO, that there was no evidence establishing that  
13 SDG&E’s alleged discharges were a “substantial factor” in creating, or threatening to create, a  
14 “condition of pollution or nuisance” at the Site. According to the Regional Board and its counsel,  
15 such evidence was “irrelevant.” As a matter of law, this position is plainly erroneous. Either way,  
16 however, since it can be resolved expeditiously on purely legal briefing, and in view of the  
17 substantial prejudice faced by SDG&E should a hearing be delayed, it is entirely appropriate to  
18 bifurcate this issue from the “substantial evidence” and “remedy driver” issues for early resolution.

19 The Site cleanup ordered by the CAO will be enormously expensive, projected to exceed  
20 approximately \$70,000,000. Under the terms of the CAO, even though it has been wrongly named,  
21 SDG&E nevertheless faces potentially substantial penalties of at least \$15,000 a day, unless it  
22 performs this work. CAO at 38-39. It is unfair that SDG&E should be placed in this predicament.  
23 For this reason, bifurcating the threshold legal issue of “causation” and deferring the “substantial  
24 evidence” issue, and the “remedy driver” issue to a later date, makes imminent sense: particularly  
25 since, if SDG&E is correct, resolution of the Regional Board’s legal error will ultimately make it  
26 unnecessary for the State Board to spend the time and resources necessary to address the significant  
27 “substantial evidence” and “remedy driver” issues.

28

1 We therefore request the State Board, for the reasons set forth below, to act expeditiously to  
2 both grant a hearing on the entire Petition, while ordering first the legal issue of whether proof of  
3 “substantial factor” causation is necessary for Water Code liability bifurcated for hearing and  
4 resolution at the earliest practical date.

5  
6 **III. STANDARD OF REVIEW**

7 Pursuant to Water Code section 13320(a), within thirty days of any action or failure to act by  
8 a regional board, any aggrieved person may petition the State Board to review that action or failure  
9 to act. The Regional Board adopted the CAO on March 14, 2012. Thus, the present petition is  
10 timely filed.

11 The evidence before the State Board shall consist of the record before the Regional Board,  
12 and any other relevant evidence which, in the judgment of the State Board, should be considered to  
13 effectuate and implement the policies of the Water Code. Water Code § 13320(b). Upon finding  
14 that an action of the Regional Board, or the failure of the Regional Board to act, was “inappropriate  
15 or improper,” the State Board may direct that the appropriate action be taken by the Regional Board,  
16 take the appropriate action itself, or take any combination of those actions. Water Code § 13320(c).  
17 As set forth herein, SDG&E requests that the State Board rescind its designation as a “Discharger”  
18 under the CAO, or alternatively, direct the Regional Board to do so.

19  
20 **IV. SUMMARY OF ARGUMENT**

21 The relief sought by this Petition should be granted for three independent reasons:

22 First, as just discussed, the Regional Board committed a fundamental error of law by  
23 concluding, as it did, that liability could be imposed upon SDG&E without any proof that the  
24 discharges attributed to SDG&E were a “substantial factor” in creating, or threatening to create, a  
25 “condition of pollution or nuisance” at the Site. As a pure legal issue, the Regional Board not only  
26 had no discretion on the matter, it was bound to follow settled California jurisprudence which  
27 unequivocally establishes substantial factor causation as the standard for liability in California,  
28 including liability under Section 13304(a) of the Water Code.

1           Second, while no further reason is necessary to set the CAO's findings as to SDG&E aside, it  
2 is also true that in adopting the CAO the Regional Board committed serious error by concluding that  
3 SDG&E was responsible for any discharges of Chemicals of Concern ("COCs") to the Site, when in  
4 fact those allegations have no support in substantial, credible, and reliable evidence.

5           Third, and finally, the Regional Board abused its discretion by selecting polychlorinated  
6 biphenyls ("PCBs") as a primary "remedy driver" causing Beneficial Use Impairment<sup>3</sup> at the Site,  
7 ignoring evidence that tributyltin ("TBT"), an additive to marine paints used almost exclusively by  
8 shipyards for decades, as well as other shipyard COCs copper and HPAHs, provided a much more  
9 accurate measure of causes to beneficial use impairment at the Site.

10           We will develop further each of these bases to set the CAO aside, but first a brief factual  
11 summary.

12  
13       **V. FACTUAL SUMMARY**

14           The Shipyard Site is aptly named, consisting of an area along the eastern shore of the Bay  
15 embracing the entire 56 acre shipyard leaseholds presently operated by BAE, Inc. ("BAE")<sup>4</sup> on the  
16 north, and National Steel and Shipbuilding Company ("NASSCO") on the south, operations which,  
17 for decades<sup>5</sup>, contaminated the Bay sediments with their uncontrolled industrial wastes, including –  
18 to name just a few – numerous metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel,  
19

20       <sup>3</sup> Beneficial Use Impairments (BUIs) refer to conditions of degradation sufficient to limit the inherent quality  
21 or human use of particular surface water resources such as healthy wildlife populations, human fishing and  
22 seafood harvesting opportunities, and healthy aquatic life (fish and invertebrate) communities. BUIs are the  
23 basis for Regional Water Board decisions regarding investigation, and cleanup and abatement (SWRCB.  
24 1996. Resolution No. 92-49 - Policies and Procedures for Investigation and Cleanup and Abatement of  
Discharges Under Water Code Section 13304 (As Amended on April 21, 1994 and October 2, 1996).  
California Environmental Protection Agency, State Water Resources Control Board, Sacramento, CA.  
October 2, 1996.)

25       <sup>4</sup> "BAE" collectively refers to BAE San Diego Ship Repair, Inc., and its predecessor, Southwest Marine, Inc.  
26 ("Southwest Marine"). Beginning in or about 1914, entities that have engaged in shipyard operations at this  
leasehold include: San Diego Marine Construction Company; Campbell Industries, Inc. Star & Crescent  
Investment Co.; Southwest Marine, Inc. and BAE San Diego Ship Repair, Inc.

27       <sup>5</sup> BAE and its shipyard predecessors have been contaminating the Bay for nearly 100 years, and NASSCO has  
28 been discharging to the Bay at its Site since at least the 1960. (TR at 2-1; 3-1; and 5-1.)

1 silver and zinc), TBT used by the shipyards as biocides to control the growth of aquatic organisms  
2 on vessels, PCBs used in marine paints as well as in a host of shipyard operations conducted  
3 directly over and adjacent to the water, and poly-aromatic hydrocarbons (PAHs), released to the Bay  
4 as a byproduct of the fossil fuels used and disposed of at the shipyards present in creosote-soaked  
5 marine piers.

6 Each of these contaminants, widely known to be associated with shipyards generally, and the  
7 operations of BAE, NASSCO and their predecessors in particular, have over the course of decades  
8 accumulated in the sediments of the Site, prompting the Regional Board to commence its initial  
9 investigation in 1995. Initially, Regional Board staff placed responsibility where it belonged:  
10 squarely on the shoulders of the shipyards, issuing orders to shipyard entities only in 1997 for  
11 cleanup of shipyard wastes – notably the same COCs (with the exception of TBT) at issue at the  
12 Site. Immediately, however, BAE began an intensive campaign to pressure staff to add SDG&E  
13 and others as responsible Dischargers, exchanging no less than 658 separate communications with  
14 the Regional Board during the development of the DTR between 1996 to 2005.<sup>6</sup> The pressure  
15 worked. In 2005, SDG&E, among others, was added to the Site “discharger” list and Cleanup Team  
16 member Ben Tobler left no doubt as to why. At deposition, Mr. Tobler testified that when he  
17 joined the Cleanup Team he asked Mr. Craig Carlisle, senior member of the Cleanup Team, why  
18 SDG&E had been named a Discharger. Mr. Carlisle responded that SDG&E was named as a  
19 responsible party simply because, as Mr. Carlisle put it, the shipyards wanted “more people on  
20 board.”<sup>7</sup> (Deposition of Benjamin Tobler, September 29, 2010 (“Tobler Depo.”) at 129:9-14.)

21 Staff’s acquiescence in the unrelenting pressure applied by BAE, and later the City, to name  
22 SDG&E as a Discharger may be understandable, but it clearly was not right. Indeed, the intense  
23 shipyard pressure demonstrably undermined the credibility of the staff’s investigation in at least

24 \_\_\_\_\_  
25 <sup>6</sup> See, e.g. Barker Depo.,(March 3, 2011) Vol. III at 577:24-581:19; Barker Depo. Exh. 1240.) Many of these  
26 communications specifically reference the naming of SDG&E as a Discharger, and reflect direct pressure  
being applied upon staff. (See, e.g., Barker Depo. Exh. 1241 (SAR 069625); Barker Depo., Vol. III at  
581:20-589-12.)

27 <sup>7</sup> At his subsequent deposition, Mr. Carlisle claimed he could not recall this comment, but did not deny  
28 making a statement to this effect. (Carlisle Depo., Vol. II at 215:17-216:17.)

1 three respects.

2 First, even though the Administrative Record contains overwhelming evidence of both the  
3 magnitude of the shipyard contamination to the Bay, and the virtual certainty that this massive  
4 pollution was the sole cause of conditions at the Site, Cleanup Team members universally  
5 acknowledged in their deposition testimony that at *no* point did they ever investigate whether the  
6 decades long pollution of the Bay by BAE, NASSCO and their predecessors was in fact the *sole*  
7 *cause* of conditions found at the Site.<sup>8</sup> In failing to investigate the probability that the shipyards  
8 were the sole cause of the impacts to the Site, the Regional Board failed to carry its burden of  
9 demonstrating any liability by SDG&E. As one court has held under similar circumstances,  
10 dismissing a nuisance action brought by a private landowner against the State:

11 The plaintiff has the burden of proving a substantial causal relationship between the  
12 defendant's act or omission and the injury. (*California State Automobile Assn. v. City*  
13 *of Palo Alto* (2006) 138 Cal. App. 4th 474, 481, *review denied*, 2006 Cal. LEXIS  
14 9072 (Cal. July 19, 2006).) *To carry that burden the plaintiff must exclude the*  
15 *probability that other forces alone produced the injury.* (*Ibid.*)<sup>9</sup>

16 Second, the shipyard pressure on the staff's investigation was also plainly reflected in the  
17 COC remedy driver mechanism and underlying analysis chosen for the Site. A scientifically  
18 rigorous evaluation of Aquatic Life, Aquatic-dependent Wildlife, and Human Health Beneficial Use  
19 Impairment (BUI) revealed that HPAHs, copper, and TBT – all acknowledged to be caused by the  
20 shipyards – exhibit the highest BUI potential for the Site. PCBs should not have been selected as a  
21 primary remedy driver because PCBs are present at concentrations below risk thresholds for Aquatic  
22 Life, Aquatic-dependent Wildlife, and Human Health Beneficial Use Impairment. See discussion at  
23 Section VIII, *infra*.

24  
25  
26 <sup>8</sup> See, e.g., Barker Depo., Vol. III 618:4-619:25; Barker Depo. Exh. 1206; Barker Depo., Vol. IV at 699:8-  
700:11; Carlisle Depo., Vol. II 236:24-239:6.)

27 <sup>9</sup> *Bookout v. State of California* (2010) 186 Cal. App. 4th 1478, 1486, *review denied*, 2010 Cal. LEXIS 11014  
28 (Cal. Oct. 27, 2010) (emphasis added).

1            Third, as already mentioned, this demonstrable shipyard bias unfortunately culminated in  
2 2005 with the staff bowing to pressure from the shipyards to name SDG&E, and others, as a  
3 Discharger, simply – as Mr. Tobler put it – because the shipyards wanted “more people on board.”  
4 The record contains no credible evidence that SDG&E in fact was responsible for discharges which  
5 impacted the Site sediments. SDG&E made a comprehensive evidentiary showing establishing this  
6 fact by its Request for Rescindment, filed with the Hearing Panel on May 26, 2011, and supporting  
7 evidence presented at the Hearing Panel’s November, 2011 hearings. Other than generally  
8 concluding that “the weight of the evidence supports naming SDG&E as a discharger” the Advisory  
9 Team made no response whatsoever to this comprehensive showing, and has never identified what  
10 evidence it found to have greater “weight” than that submitted by SDG&E, and why.<sup>10</sup>

11            As noted just above, however, we believe consideration of this clear evidentiary error can be  
12 deferred until later because of the even more fundamental legal error which we discussed at the  
13 outset: the Regional Board’s mistaken assumption that liability can exist under section 13304(a) of  
14 the Water Code without a showing that the discharges allegedly attributed to SDG&E were, in fact, a  
15 “substantial factor” in either creating, or threatening to create, a “condition of pollution or nuisance”  
16 at the Site.

17            With no citation to any authority, the Regional Board simply held that liability under the  
18 Water Code is exempt from California’s traditional test for legal causation. Moreover, the Regional  
19 Board never articulated what sort of causation, if any, would be required, but, rather, dismissed all  
20 arguments directed to whether SDG&E’s alleged discharges were a “substantial factor” in causing  
21 the Site conditions as merely arguments relevant to a later “allocation” of SDG&E’s share of the  
22 alleged liability.

23            In fact, for the Regional Board to justify denying SDG&E’s Request for Rescindment, it had  
24 no other choice. Its mistaken legal assumption began with the approach adopted by the Cleanup  
25

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26 <sup>10</sup> See, Advisory Teams Response to Comments, March 14, 2012 at p. 1. No detailed findings on the  
27 evidence were ever made by the Advisory Team, even though specifically requested by SDG&E. See, “San  
28 Diego Gas & Electric Company’s Comments and Objections to Adoption of the Hearing Panel’s Proposed  
Order, February 24, 2012 at pp. 2-3.

1 Team, which – originating the flawed argument that liability existed under the Water Code without a  
2 showing of legal causation – presented absolutely no evidence whatsoever that SDG&E’s alleged  
3 discharges were a “substantial factor” in causing conditions at the Site. Rather, like the Regional  
4 Board, the Cleanup Team simply dismissed all such evidence as going merely to “allocation” and  
5 thus claimed that it had no burden to present such “substantial factor” evidence.<sup>11</sup>

6 It was wrong.

7  
8 **VI. LIABILITY UNDER WATER CODE SECTION 13304(a) REQUIRES PROOF THAT**  
9 **A PARTY’S DISCHARGES WERE A “SUBSTANTIAL FACTOR” IN CREATING,**  
10 **OR THREATENING TO CREATE, A “CONDITION OF POLLUTION OR**  
11 **NUISANCE”**

12 **A. Legal Causation: A Fundamental Principle of Liability Under California Law**

13 Requiring the complaining party to prove “legal causation” is a fundamental cornerstone of  
14 our justice system. *See McDonald v. Scripps Newspaper* (1989) 210 Cal. App. 3d 100, 104 (“A  
15 fundamental rule of law is that ‘whether the action be in tort or contract compensatory damages  
16 cannot be recovered unless there is a causal connection between the act or omission complained of  
17 and the injury sustained.’”) *See also Lineweaver et al. v. Plant Insulation Co.* (1995) 31 Cal. App.  
18 4<sup>th</sup> 1409, 1417 (explaining that traditional tort principles require plaintiff to establish legal causation,  
19 and calling this requirement a less than “onerous burden.”)

20 Establishing the fundamental element of causation requires an appropriate evidentiary  
21 showing. *Raven v. Gamette* (2007) 157 Cal. App. 4<sup>th</sup> 1017, 1030 (“A mere possibility of causation is  
22 not enough, and when the matter remains one of pure speculation or conjecture, or the probabilities

23 \_\_\_\_\_  
24 <sup>11</sup> *See, e.g.,* the Cleanup Team’s “Response to Comments Report”, August 23, 2011, at p. 9-5 where the  
25 Cleanup Team argued that whether or not SDG&E’s “contribution to the condition of pollution or nuisance  
26 was negligible or de minimus [sic]” was relevant only to “allocation”. “To rescind SDG&E’s designation as a  
discharger now, even assuming it has made a showing that its responsibility is relatively minor, would go  
against State Water Board precedent. *See, e.g., In re County of San Diego, City of National City et al.*;  
Order No. WQ 96-2.”

27 Despite the Cleanup Team’s “Response to Comments” arguments quoted above, neither the State Board’s  
28 decision in *County of San Diego*, nor any other of its decisions, condone ignoring the “substantial factor” test  
for legal causation. *See* discussion, *infra*, in Section VI.C, pp. 13-14.

1 are at best evenly balanced, it becomes the duty of the court to direct a verdict for the defendant.”);  
2 *McDonald v. Scripps Newspaper, supra* at 104 (“It is fundamental that damages which are  
3 speculative, remote, imaginary, contingent, or merely possible cannot serve as a legal basis for  
4 recovery.”)

5  
6 **B. “Substantial Factor” as the Test for Legal Causation in California**

7 Whether analyzing a defendant’s liability in contract, tort, or for criminal conduct, California  
8 courts routinely hold that no liability for harm can exist without it being *first* established that the  
9 defendant’s acts were a “substantial factor” in causing that harm to happen. As the California  
10 Supreme Court has held:

11 “[N]o cause will receive juridical recognition if the part it played was so infinitesimal  
12 or so theoretical that it cannot properly be regarded as a *substantial factor* in bringing  
13 about the particular result. This is merely a special application of the general maxim  
14 — ‘*de minimis non curat lex...*’” (*Perkins & Boyce, supra*, at 779.)

15 *People v. Caldwell* (1984) 36 Cal. 3d 210, 220-221 (emphasis in original).

16 The cases directly on point are legion. *See, e.g., Department of Fish & Game v. Superior*  
17 *Court* (2011) 197 Cal. App. 4<sup>th</sup> 1323, 1352, *review denied*, 2011 Cal. LEXIS 11962 (Cal. Nov. 16,  
18 2011) (listing the requirement that defendant’s conduct be a “substantial factor in causing plaintiff’s  
19 harm” as an essential element of a claim for public nuisance); *Birke v. Oakwood World Wide* (2009)  
20 169 Cal. App. 4<sup>th</sup> 1540, 1548, *review denied*, 2009 Cal. LEXIS 3701 (Cal. Apr. 15, 2009) (similarly  
21 holding that an essential element to establishing a public nuisance is a showing that the defendant’s  
22 conduct was a “substantial factor” in causing plaintiff’s harm (referring, as did *Department of Fish*  
23 *and Game*, to CACI No. 2020 – the Judicial Council Instruction for Public Nuisance – which  
24 expressly declares “substantial factor” causation as an essential element in establishing liability for  
25 public nuisance)); *Jordan v. City of Santa Barbara* (1996) 46 Cal. App. 4<sup>th</sup> 1245, 1274-1275, *review*  
26 *denied*, 1996 Cal. LEXIS 5237 (Cal. Sept. 18, 1996) (applying “substantial factor” test to exonerate  
27 public entity defendants’ surface water diversions from causing a nuisance to plaintiff landowner);  
28 *Crane-McNab v. County of Merced* (E.D. Calif. 2011) 773 F. Supp. 2d 861, 867 (applying

1 “substantial factor” test to determine liability in trespass for migrating contamination); *Jacobs*  
2 *Farm/Del Cabo, Inc. v. Western Farm Service, Inc.* (2010) 190 Cal. App. 4<sup>th</sup> 1502, 1515 (approving  
3 “substantial factor” instruction as an essential element of a claim of negligence *per se* for  
4 contamination resulting from alleged violation of pesticide laws); *Selma Pressure Treating Co. v.*  
5 *Osmose Wood Preserving* (1990) 221 Cal. App. 3d 1601, 1623-1624<sup>12</sup> (applying “substantial factor”  
6 test to allegations that chemical suppliers’ “failure to warn” created a public nuisance); *Vanderpol v.*  
7 *Starr* (2011) 194 Cal. App. 4<sup>th</sup> 385, 395, *petition for review denied*, 201 Cal. App. LEXIS 519 (4<sup>th</sup>  
8 Dist. May 2, 2011) (CACI No. 430 instruction defining “substantial factor” given to determine legal  
9 causation for causing a private nuisance); *Haley v. Casa Del Rey Homeowners Association* (2007)  
10 153 Cal. App. 4<sup>th</sup> 863, 871, *review denied*, 2007 Cal. LEXIS 12136 (Cal. Oct. 24, 2007) (applying  
11 “substantial factor” test to liability for breach of contract); *Mitchell v. Gonzales* (1991) 54 Cal. 3d  
12 1041, 1051-1054 (adopting “substantial factor” test for negligence actions); *Tate v. Canonica* (1960)  
13 180 Cal. App. 2d 898, 904 and 907 (applying “substantial factor” test to liability for intentional  
14 torts); *People v. Caldwell* (1984) 36 Cal. 3d 210, 220-221 (applying “substantial factor” test to  
15 criminal liability for robbery and murder); and *City of L.A. v. Shpegel-Dimsey* (1988) 198 Cal. App.  
16 3d 1009, 1021 (applying “substantial factor” test to claim for negligence *per se*).

17 The authorities cited above not only establish the “substantial factor” test as the required  
18 measurement of legal causation in California, they particularly emphasize its role in establishing  
19 liability in those common law public nuisance actions out of which California’s environmental  
20 statutes, including the Water Code, have grown. See, *Department of Fish & Game v. Superior*  
21 *Court; Birke v. Oakwood World Wide; and Selma Pressure Treating Co. v. Osmose Wood*  
22 *Preserving, supra*. As these authorities hold, on claims for public nuisance in California, case law  
23 not only emphasizes that liability cannot exist without the defendant’s conduct being first shown to  
24 be a “substantial factor” in causing the harm suffered by the plaintiff, the jury instruction approved  
25 by California’s Judicial Council for Public Nuisance expressly lists proof that defendant’s “conduct  
26 was a substantial factor in causing [plaintiff’s] harm”, as the final essential element in any public

27 \_\_\_\_\_  
28 <sup>12</sup> Overruled, in part, on other grounds (use of sophisticated user defense) by *Johnson v. American Standard, Inc.* (1998) 43 Cal. 4th 56.

1 nuisance claim. (CACI 2020: Public Nuisance – Essential Factual Elements.)

2  
3 **C. Causation Requirements Under Water Code Section 13304(a) Must be**  
4 **Construed in Light Of the Established Causation Requirements for the Common**  
5 **Law Action of Public Nuisance**

6 The well-settled requirement that a plaintiff must prove “substantial factor” legal causation  
7 before it can establish a claim for public nuisance is critical to understanding the scope of the  
8 Regional Board’s error in this instance for the very simple reason that liability under the Water  
9 Code, and Section 13304(a) in particular, has been expressly recognized as being based upon the  
10 common law of public nuisance. *City of Modesto Redevelopment Agency v. Superior Court, supra.*  
11 (Water Code § 13304(a) must be construed “in light of the common law principles bearing upon  
12 [nuisance] [citation]”).

13 In several of its decisions, this State Board has frequently discussed the roots of today’s  
14 Water Code in the common law doctrine of public nuisance. *See, e.g., In re Petition of Aluminum*  
15 *Company of America et al.* (SWRCB 1993) Order No. WQ 93-09, 1993 Cal. ENV LEXIS 17; *In re*  
16 *Petition of Lindsay Olive Growers* (SWRCB 1993) Order No. WQ 93-17, 1993 Cal. ENV LEXIS  
17 23; and *In re Petition of County of San Diego, et al.* (SWRCB 1996) Order No. WQ 96-02, 1996  
18 Cal. ENV LEXIS 3.

19 Courts have recognized the same relationship, with judicial recognition of the essential links  
20 between the common law doctrine of public nuisance and our current environmental legislation  
21 beginning with *CEED v. California Coastal Zone Conservation Commission* (1974) 43 Cal. App.  
22 3d 306, 318. There, in upholding the constitutionality of the Coastal Zone Conservation Act, the  
23 Court did so by affirming its roots in traditional principles of the common law of public nuisance:

24 “The power of the state to declare acts injurious to the state’s natural resources to  
25 constitute a public nuisance has long been recognized in this state. (*People v. K.*  
26 *Hovden Co.*, (1932) 215 Cal. 54, 56.) Contemporary environmental legislation  
27 represents an exercise by government of this traditional power to regulate activities in  
28 the nature of nuisances: ‘Legislation designed to free from pollution the very air that

1           people breathe clearly falls within the exercise of even the most traditional concept of  
2           what is compendiously known as the police power.’ (*Huron Portland Cement Co. v.*  
3           *Detroit*, (1960) 362 U.S. 440, 442.)”

4           This relationship of “contemporary environmental legislation” to the historic common law of public  
5           nuisance was later expanded upon in *Leslie Salt Company v. San Francisco Bay Conservation and*  
6           *Development Commission* (1984) 153 Cal. App. 3d 605. In that case, plaintiff challenged the  
7           Commission’s issuance of a Cease and Desist Order against placing further fill into San Francisco  
8           Bay, arguing that the statute which created the Commission – the McAteer-Petris Act (Gov. Code  
9           § 66600, et. seq.) – conferred no such authority. In rejecting plaintiff’s narrow interpretation of the  
10          Commission’s authorizing legislation, and citing instead to the *CEED* opinion at 43 Cal. App. 3d  
11          318, , the Court held the disputed order was justified, since the “McAteer-Petris Act is the sort of  
12          environmental legislation that represents the exercise of the traditional government power to regulate  
13          public nuisances.” 153 Cal. App. 3d at 618.

14           “Such legislation ‘constitutes but ‘a sensitizing of and refinement of nuisance law.’  
15           [citation omitted] Where, as here, such legislation does not expressly purport to  
16           depart from or alter the common law, it will be construed in light of common law  
17           principles bearing on the same subject. [citations omitted]”  
18           153 Cal. App. 3d at 618-619.

19           The next decision drawing upon the common law of public nuisance to interpret the scope of  
20          a party’s statutory liability was *City of Modesto Redevelopment Agency v. Superior Court* (2004)  
21          119 Cal. App. 4<sup>th</sup> 28, *rehearing denied*, 2004 Cal. App. LEXIS 1019 (Cal. App. 1<sup>st</sup> Dist.); *review*  
22          *denied*, 2004 Cal. LEXIS 8692 (Cal. September 15, 2004) which specifically addressed the scope of  
23          liability under Water Code section 13304(a). That case involved various claims brought by the  
24          plaintiff redevelopment agency, including claims for cost recovery against several alleged polluters  
25          under California’s Polanco Act, a statute which authorized redevelopment agencies to remediate  
26          contaminated properties within a redevelopment area and then to recover such costs from  
27          “responsible parties” – a term defined as “any person described in . . . subdivision (a) of Section  
28          13304 of the Water Code.”

1 The question in *City of Modesto* was focused on interpreting what sort of entity fell within  
2 Section 13304(a)'s definition of someone "who causes or permits a discharge or deposit of wastes",  
3 and whether "cause" as used in that phrase, referred to "a party who was directly involved with a  
4 discharge, to anyone whose actions were a substantial factor in causing the discharge, or even, as the  
5 City argued below, to anyone who places a hazardous substance into the chain of commerce". 119  
6 Cal. App. 4<sup>th</sup> at 36-37.

7 Here, of course, the legal issue presented by the CAO deals with the second test for liability  
8 under section 13304(a) – what must be shown to prove that a discharge of waste "creates, or  
9 threatens to create, a condition of pollution or nuisance." While technically a different prong of  
10 § 13304(a) liability than that which *City of Modesto* interpreted, the Court's holding in that case  
11 controls the answer here in two respects. First, in construing the word "cause" in the context of who  
12 should be regarded as a discharger, the Court's opinion ultimately rejected the defendant's narrow  
13 definition, requiring "direct involvement", and likewise rejected plaintiff's expansive definition, of  
14 "anyone who places a hazardous substance into the chain of commerce." Instead, the Court adopted  
15 the middle ground, one which explicitly incorporated the "substantial factor" test: "anyone whose  
16 actions were a substantial factor in causing the discharge". 119 Cal. App. 4<sup>th</sup> at 36-37.

17 Equally significant, however, was the interpretative approach which the *City of Modesto*  
18 Court took to construing section 13304(a) liability – holding, in the language of *Leslie Salt, supra*,  
19 that this section should be construed "in light of the common law principles bearing upon  
20 [nuisance]" Indeed, the Court prefaced this conclusion by following the same method of analysis  
21 to determine the scope of liability under the Water Code that *Leslie Salt* had followed to determine  
22 the reach of the McAteer-Petris Act: reviewing the basic elements of the common law action for  
23 public nuisance.

24 Concluding that it should be "guided" by *Leslie Salt*, the *City of Modesto* Court first found  
25 that in enacting the Water Code through the Porter-Cologne Act, "the Legislature not only did not  
26 intend to depart from the law of nuisance, but also explicitly relied on it in the Porter-Cologne Act."  
27 119 Cal. App. 4<sup>th</sup> at 38. With this finding, the Court adopted the holding of *Leslie Salt*, that since  
28 "the legislation does not expressly purport to depart from or alter the common law, it will be

1 construed in light of common law principles bearing upon the same subject”. *Id.* Examining those  
2 principles – “here the subject of public nuisance” – the *City of Modesto* Court agreed with the  
3 plaintiff that liability under the Water Code should extend to anyone whose conduct was a  
4 substantial factor in causing the discharge, – reviewing nuisance cases which supported that  
5 conclusion. *Id.* At the same time, however, it found that plaintiff reached too far when it argued  
6 that liability should extend beyond persons whose conduct was a substantial factor in causing the  
7 discharge to those who merely placed a hazardous substance in the chain of commerce, concluding  
8 that nuisance cases simply did not justify such a broad reach of liability. *Id.*, at 36-37; 38-39.

9 Turning to our case, any evaluation of what must be shown to prove that a discharge of waste  
10 “creates, or threatens to create, a condition of pollution or nuisance” must follow the same analytical  
11 framework utilized by *City of Modesto* in construing the meaning of what conduct by a party is  
12 sufficient to “cause” a “deposit or discharge of waste” – *i.e.*, referring to principles of the common  
13 law of public nuisance “bearing upon the same subject.” In so doing, there can be absolutely no  
14 doubt that the Regional Board fundamentally erred in omitting from section 13304(a) any  
15 requirement that the alleged discharges be shown to have been a “substantial factor” in causing the  
16 “condition of pollution or nuisance” at the Site. To the contrary, “substantial factor” causation has  
17 long been regarded as a key element in establishing liability for public nuisance and, for that basic  
18 reason, under the holdings of both *Leslie Salt* and *City of Modesto*, must be recognized by this State  
19 Board as a key element of establishing liability under section 13304(a) of the Water Code as well.

20  
21 **D. Liability for a Public Nuisance Cannot Exist Without Proof that Defendant’s**  
22 **Conduct was a “Substantial Factor” in Causing the Harm: The Same**  
23 **Conclusion Required for Liability Under Water Code § 13304(a)**

24 As we established in the discussion above, the requirement that a defendant’s acts be shown  
25 to be a “substantial factor” in causing the harm alleged by a plaintiff is an essential element of  
26 liability in literally all actions in California – whether civil or criminal. We cited to cases applying  
27 the “substantial factor” test for causation in civil actions for private nuisance (*Jordan v. City of Santa*  
28 *Barbara* and *Vanderpol v. Starr, supra*); trespass allegedly caused by migrating contamination

1 (*Crane-McNab v. County of Merced, supra*); negligence (*Mitchell v. Gonzales, supra*); negligence  
2 per se (*City of L.A. v. Shpegel-Dimsey and Jacobs Farm/Del Cabo, Inc. v. Western Farm Service,*  
3 *Inc., supra*); intentional torts (*Tate v. Canonica, supra*); breach of contract (*Haley v. Casa Del Rey*  
4 *Homeowners Assn, supra*); and criminal prosecutions for robbery and murder (*People v. Caldwell,*  
5 *supra*).

6 Given this unanimous treatment of legal causation, it is obviously not surprising that  
7 “substantial factor” causation is the requirement for liability in actions for public nuisance as well.  
8 *See, Department of Fish & Game v. Superior Court; Birke v. Oakwood World Wide; and Selma*  
9 *Pressure Treating Co. v. Osmose Wood Preserving, supra.* Indeed, as both the *Department of Fish*  
10 *and Game* and the *Birke* decisions noted, the Jury Instruction for the “Essential Factual Elements” of  
11 a claim for Public Nuisance, adopted by the Judicial Council of California, and published as Civil  
12 Jury Instruction CACI 2020, expressly lists as one of the seven essential elements of a public  
13 nuisance claim proof that the “defendant’s conduct was a substantial factor in causing the plaintiff’s  
14 harm”.

15 Under the authority of *Leslie Salt* and *City of Modesto*, since the Water Code must be  
16 construed in light of the principles of public nuisance out of which it grew, this very simply means  
17 that the very same “substantial factor” requirement of causation *must* be recognized before liability  
18 can exist under § 13304(a).

19  
20 **E. The Only Evidence Presented by the Cleanup Team and Other Named**  
21 **Dischargers Demonstrates that the Discharges Attributed to SDG&E Could Not**  
22 **Have Been a Substantial Factor in Causing A “Condition of Pollution or**  
23 **Nuisance” at the Site**

24 As we have pointed out before, there was absolutely no evidence in the record presented by  
25 the Cleanup Team and other named dischargers that the discharges attributed to SDG&E were a  
26 substantial factor in creating, or threatening to create, the condition of “pollution or nuisance” at the  
27 Site. Not a *scintilla* of such evidence appears *anywhere* in the massive Administrative Record for  
28 the simple reason that both the Cleanup Team and the Advisory Team misread California law, and –

1 without a single authority supporting their position -- claimed that such evidence was wholly  
2 *irrelevant* and unnecessary for a showing of a party's liability under the Water Code. Proof of  
3 causation, however, is not a mere technicality. In fact, as we have seen, it is an essential element of  
4 the Regional Board's proof -- proof which is admittedly completely lacking. Without it, there can  
5 be no liability under Water Code § 13304(a), just like, without proof of substantial factor causation  
6 there can be no liability for public nuisance.

7         Rather than following California law on legal causation, the Regional Board -- relying upon  
8 the most tenuous of circumstantial evidence -- instead concluded that its *only* burden was to show  
9 *any* discharge by SDG&E, however slight, of *some* chemical of concern that would have  
10 "contributed" or "added to" the extensive pollution previously caused by shipyard operations.  
11 However, the vast scope of the Regional Board's error in converting Water Code liability into  
12 something which exists *regardless* of the trivial nature of a party's discharge was illustrated to the  
13 Hearing Panel during the November hearings by the testimony of Ms. Ruth Kolb of the City. Ms.  
14 Kolb testified to the fact that PAHs, copper and other metals are commonly found in City of San  
15 Diego storm water runoff to the Bay resulting from of the normal operation of automobiles driven  
16 along the shore.<sup>13</sup> If section 13304(a) liability exists, as the Regional Board maintains, *regardless*  
17 of the mass and concentration of the discharge alleged, then every motorist that has at any time  
18 driven near the Bay could be added to the CAO. Obviously, such a logical extension of the  
19 Regional Board's argument is absurd and indefensible.

20         Finally, in addition to noting the Regional Board's complete failure to offer any evidence  
21 showing that the discharges attributed to SDG&E were a "substantial factor" in causing the  
22 beneficial use impairment, and therefore conditions of pollution or nuisance at the Site, it is further  
23 the case that the *only* causation evidence in the record demonstrated precisely the *opposite*. We refer  
24 to the extensive causation evidence that was presented by SDG&E both in its comprehensive  
25 Request for Rescindment and Sur-Reply, and then further through the testimony of its expert, Dr.

26  
27  
28 <sup>13</sup> See, Reporter's Transcript of Proceedings, November 15, 2011, at 25:24 -- 31:13.

1 Jason Conder, before the Hearing Panel on November 15, 2011.<sup>14</sup> This evidence showed that, for  
2 the several reasons explained by Dr. Conder in his testimony, the disputed discharges attributed to  
3 SDG&E simply would not have reached the Site in sufficient mass and concentration to have been  
4 the cause of any “condition of pollution or nuisance”. His well-qualified and amply supported  
5 expert opinion stands alone, and completely unrefuted, in the Administrative Record.

6 It was not only error for the Regional Board to ignore this evidence, in reading out of the  
7 Water Code any requirement for causation, but rather concluding that liability under  
8 section 13304(a) exists upon proof of *any* release, *regardless* of the mass or concentration of the  
9 discharge, the Regional Board plainly committed a fundamental error of law. For this reason alone,  
10 the CAO must be set aside.

11  
12 **VII. EVEN HAD THE REGIONAL BOARD NOT IGNORED THE SUBSTANTIAL**  
13 **FACTOR TEST FOR CAUSATION, THERE WAS ALSO NO CREDIBLE**  
14 **EVIDENCE THAT SDG&E WAS RESPONSIBLE FOR THE DISCHARGES WHICH**  
15 **THE REGIONAL BOARD ATTRIBUTED TO IT**

16 As the discussion immediately above establishes, the State Board need go no further than the  
17 analysis required by *Leslie Salt* and *City of Modesto* to grant the Petition and rescind the CAO as to  
18 SDG&E. Indeed, we urge bifurcation of these proceedings so that this issue can be addressed first,  
19 at the State Board’s earliest convenience.

20 Nevertheless, should the State Board ultimately find that no threshold legal error was  
21 committed by the Regional Board in ignoring California’s standard of substantial factor causation, it  
22 is also true that the Regional Board’s error did not end at naming SDG&E as a liable Discharger  
23 when there was absolutely no showing that any of the releases attributed to SDG&E were a  
24 substantial factor in causing the harm alleged – i.e. the elevated levels of COCs resulting in  
25 beneficial use impairment at the Site. Rather, the Regional Board also disregarded the fact that the  
26 discharges allegedly attributed to SDG&E were based upon speculation and conjecture, and wholly  
27

28 <sup>14</sup> *Id.*, at 52:6 – 108:15.

1 unsupported by substantial evidence.

2  
3 **A. SDG&E's Silvergate Facility: Background of Efforts by BAE and the City to**  
4 **Deflect Their Responsibility**

5 SDG&E owned and operated the Silvergate Power Plant, and related substation facilities,  
6 adjacent to the north side of the present-day BAE leasehold beginning in the early 1940's. The  
7 power plant facility operated continuously through 1974, and intermittently thereafter with minimal  
8 operations (and associated cooling water circulation) after 1983. Decommissioning of the facility  
9 began in 1994, with facility closure and demolition thereafter completed by 2007.

10 Beginning in 1991 -- and for the next 14 years -- the Regional Board directed BAE and  
11 NASSCO to address sediment contamination directly adjacent to and beneath nearly 100 years of  
12 active, ongoing shipyard operations at their facilities. These operations included known, substantial,  
13 and direct discharges of all COCs referenced in the TR into San Diego Bay. In 2005, for the first  
14 time, the Cleanup Team identified SDG&E as a "Discharger", not based upon any newly-discovered  
15 evidence implicating SDG&E's former Silvergate Power Plant, but instead, based upon the self-  
16 serving and unsupported assertions of other responsible parties -- primarily, BAE.<sup>15</sup> Rather than  
17 taking any independent steps to assess the theories of previously named dischargers who wanted to  
18 get "more people on board," the Cleanup Team simply adopted those theories as its own and  
19 incorporated them into the CAO ultimately approved by the Regional Board. In doing so, the  
20 Cleanup Team failed to identify any evidence of discharges from SDG&E's former Silvergate Power  
21 Plant that caused a condition of nuisance or pollution at the Site, much less evidence that is credible,  
22 reasonable, and substantial.

23 The Cleanup Team compounded this error by failing to even investigate the question as to  
24 whether or not the Site contamination could not be fully explained by nothing more than the  
25

26  
27 <sup>15</sup> See, e.g., E-mail from Ruth Kolb to Lisa Honma, dated Nov. 21, 2005 at SAR285339. See also, *NASSCO*  
28 *and Southwest Marine Detailed Sediment Investigation*, Volume I, Exponent, October 2003 at SAR105466,  
SAR105470, SAR105472, SAR105473, SAR105507.

1 obvious: the decades of pollution caused by the shipyards. For almost a century, active shipyard  
2 operations have been continuously ongoing along tidelands property on the eastern waterfront of  
3 central San Diego Bay, substantially contaminating the Bay. This includes the roughly 40-acre  
4 parcel BAE leasehold adjacent to, overlying portions of, and fronting SDG&E's former Silvergate  
5 Power Plant facilities and the San Diego Bay.

6 Industrial activities at the BAE leasehold have included abrasive/sand blasting, painting, tank  
7 and equipment cleaning, mechanical and structural assembly, repair and maintenance, engine and  
8 hydraulic repair and installation, tank emptying, fueling, boiler cleaning, and sheet metal  
9 fabrication.<sup>16</sup> Notably, these activities involved countless features containing PCBs, metals and  
10 other COCs in immediate proximity to and, in some instances, over the San Diego Bay, including  
11 electrical transformers and infrastructure, winches, cranes, marine railcars, sandblasting and painting  
12 equipment, electrical and machine shops (with PCBs in dielectric fluids, cutting oils, hydraulic  
13 fluids, and other functional fluids), creosote piers and other in-water infrastructure containing High  
14 molecular weight Polycyclic Aromatic Hydrocarbons ("HPAHs"), miscellaneous solid wastes  
15 associated with shipbuilding (metal components, caulks, insulation, gaskets, cables, etc.), and ships  
16 painted with copper, TBT (a contaminant used exclusively by the shipyard industry as an anti-  
17 fouling agent), and PCB-impregnated paints (resulting in passive leaching of COCs to water, as well  
18 as direct disposal of paint wastes and sandblast material to water).<sup>17</sup>

19 For many years, the Regional Board correctly focused its investigation of pollutant sources  
20 and impacts at the Site exclusively on the shipyard operators at the Site, and neighboring  
21 contaminated sites along the Bay. However, as acknowledged by multiple staff in deposition  
22 testimony, it was not long before Southwest Marine and BAE, in particular, applied enormous  
23 pressure on the Regional Board to get "more people on board" through the naming of additional

24 \_\_\_\_\_  
25 <sup>16</sup> See "Findings of Fact and Conclusions of Law," *Natural Resources Defense Council, et al. v. Southwest*  
26 *Marine, Inc.*, USDC Case No. 96-CV-1492-B, at 3:10-24 (Sept. 7, 1999) ("testing performed by Defendant  
revealed that substantial quantities of pollutants – metals and toxics – have entered the Bay in Defendant's  
stormwater discharges and because of blasting operations." *Id.* at 9:21-23.).

27 <sup>17</sup> See SDG&E Demonstrative Exhibits ("Dem. Ex.") 1a, 1b, 1c, 1d, 2; November 15, 2011 testimony of  
28 SDG&E's expert Dr. Jason Condor ("Rprt's Tr.") at 75:16 – 78:14; 79:5-80:10.

1 dischargers, including SDG&E.<sup>18</sup>

2 In acquiescing in this pressure by naming SDG&E, the Regional Board has abused its  
3 discretion by: (i) basing its findings and conclusions in Sections 9 of the CAO and TR on pure  
4 speculation and conjecture; (ii) failing to engage in any meaningful evaluation of extensive  
5 exculpatory evidence submitted by SDG&E; and (iii) relying instead on biased, unsubstantiated  
6 information provided by other responsible parties seeking to implicate SDG&E as an additional  
7 Discharger.

8  
9 **B. The Allegations Against SDG&E Fail to Meet the “Substantial Evidence”**  
10 **Standard**

11 There’s no dispute that the “substantial evidence” standard governs an alleged discharger’s  
12 liability under section 13304 of the Water Code.

13 “Generally speaking it is appropriate and responsible for a Regional Board to name  
14 all parties for which there is reasonable evidence of responsibility, even in cases of  
15 disputed responsibility. However there must be a reasonable basis on which to name  
16 each party. There must be substantial evidence to support a finding of responsibility  
17 for each party named. This means credible and reasonable evidence which indicates  
18 the named party has responsibility.”

19 *In the Matter of the Petition of Stinnes-Western Chemical Corporation*, WQO No. 86-  
20 16 at 16-17, 1986 Cal. ENV LEXIS 18 (September 18, 1986) (emphasis added).

21 As to SDG&E, the CAO clearly fails to meet this standard.

22 Section 9 of the TR sets forth the Regional Board’s findings with respect to SDG&E’s  
23 alleged liability, and yet rests on purely speculative assertions and conclusions. These serious  
24 evidentiary errors have already been thoroughly documented by SDG&E in two of its filings below:  
25 SDG&E’s Request for Rescindment filed with the Hearing Panel on May 26, 2011, and SDG&E’s  
26 Sur-Reply In Support of Request for Rescindment, filed on July 12, 2011. Those two documents

27  
28 <sup>18</sup> See Tobler Depo. at 129:9-14.

1 taken together comprehensively demonstrate the extent to which the allegations of discharges against  
2 SDG&E have absolutely no support in “substantial evidence”.

3         As we have previously pointed out, SDG&E’s showing as never been specifically responded  
4 to – because it cannot be. While SDG&E requested Findings of Fact from the Regional Board on  
5 the critical evidentiary issues which the Cleanup Team, BAE and the City failed to credibly  
6 controvert, none were ever provided. Rather, other than generally stating that “the weight of the  
7 evidence supports naming SDG&E as a discharger” the Advisory Team made no response  
8 whatsoever to SDG&E’s comprehensive showing, and has never identified what evidence it found to  
9 have greater “weight” than that submitted by SDG&E, and why.<sup>19</sup>

10         In any event, the foregoing sections of this Memorandum demonstrate that the Regional  
11 Board’s error in ignoring the legal requirement of substantial factor causation is absolutely clear,  
12 and, just as clearly, requires the CAO to be rescinded as to SDG&E. The State Board ought to have  
13 no need to reach any evidentiary issues. Nevertheless, in the unlikely circumstance that such review  
14 does become necessary, we refer the State Board to the comprehensive factual showing made by  
15 SDG&E in its Request for Rescindment and Sur-Reply, and expert testimony presented by SDG&E  
16 at the November 2011 hearings, a showing that leaves no doubt that the CAO must not only be  
17 rescinded on account of the Regional Board’s legal error, it must be set aside for the additional  
18 reason that – in terms of the allegations against SDG&E – it wholly fails to meet the “substantial  
19 evidence” test.

20 ///  
21 ///  
22 ///  
23 ///  
24 ///

25

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26 <sup>19</sup> See, Advisory Teams Response to Comments, March 14, 2012 at p. 1. As pointed out earlier, no detailed  
27 findings on the evidence were ever made by the Advisory Team, even though specifically requested by  
28 SDG&E. See, “San Diego Gas & Electric Company’s Comments and Objections to Adoption of the Hearing  
Panel’s Proposed Order, February 24, 2012 at pp. 2-3.

1           C.     The Regional Board Failed to Consider the Extensive Evidence of Shipyards'  
2                     Role as the Probable Sole Cause of COC Impacts in the Northern Area of the  
3                     Site

4           It is fundamental to the Regional Board carrying its burden of causation, that it not only  
5 present evidence against the party it would name as a Discharger – here, SDG&E—showing that that  
6 party's actions were a substantial factor in causing the harm alleged, but that it also *rule out that*  
7 *others alone* produced the injury:

8           The plaintiff has the burden of proving a substantial causal relationship between the  
9 defendant's act or omission and the injury. (*California State Automobile Assn. v. City*  
10 *of Palo Alto* (2006) 138 Cal. App. 4th 474, 481, *review denied*, 2006 Cal. LEXIS  
11 9072 (Cal. July 19, 2006.) *To carry that burden the plaintiff must exclude the*  
12 *probability that other forces alone produced the injury.* (*Ibid.*)<sup>20</sup>

13 The CAO fails in this respect as well.

14           As noted above, for almost a century, active shipyard operations have been continuously  
15 ongoing in the vicinity of the BAE leasehold, which fronts SDG&E's former Silvergate Power Plant  
16 facilities and immediately adjacent to, and within, waters of the San Diego Bay. Since the inception  
17 of the Regional Board's Site investigation there has never been, and remains, no dispute whatsoever  
18 that shipyard activities were a major pollutant source that directly and adversely impacted San Diego  
19 Bay marine sediment and water quality. Evidence in support of this conclusion is overwhelming.  
20 (Dem. Ex. 1b; Rprt's Tr. at 76:13-77:12.)

21           Indeed, in their deposition testimony, Cleanup Team members acknowledged shipyards have  
22 been in operation at the BAE leasehold area since 1914, and that those operations involved  
23 discharges of all the COCs identified at the Site. (Barker Depo., Vol. III (March 3, 2011) 618:4-  
24 619:25; Barker Depo. Exh. 1206.) Despite this, Cleanup Team members admitted to never  
25 undertaking, or asking anyone on the Regional Board staff to doing, a comprehensive investigation  
26

27 <sup>20</sup> *Bookout v. State of California* (2010) 186 Cal. App. 4th 1478, 1486, *review denied*, 2010 Cal. LEXIS  
28 11014 (Cal. Oct. 27, 2010) (emphasis added).

1 of shipyard impacts. (Carlisle Depo., Vol. II at 236:24-239:6.) As Messrs. Barker and Carlisle  
2 have acknowledged, if shipyard operations were the sole cause of PCBs in Shipyard Site sediments,  
3 it would have “made a difference” in their liability determination. (*Id.*; Barker Depo., Vol. IV at  
4 692:17-693:15.) Unfortunately, Mr. Barker conceded that he never asked Regional Board staff to  
5 investigate whether or not shipyard operations might be the source of all sediment impacts in the  
6 Northern Area and, specifically, the vicinity of SW-4. (Barker Depo., Vol. IV at 699:8-700:11.)  
7 Regional Board staff ignored decades of sediment monitoring reports establishing the extent of  
8 Southwest Marine’s impacts to the Shipyard Site sediments, including multiple investigations in and  
9 near marine railways, as well as numerous investigations in San Diego Bay sediment.<sup>21</sup> (Dem. Exhs.  
10 6 through 10; Rprt’s Tr. at 83:6-90:14; Barker Depo., Vol. III at 638:8-645:8.)

11 Finally, the Cleanup Team acknowledged that the Regional Board staff never reviewed or  
12 accounted for any findings or evidence from the preliminary proceedings and trial in Natural  
13 Resources Defense Council, et al. v. Southwest Marine, Inc., United States District Court Case No.  
14 96-CV-1492-B. (Barker Depo., Vol. IV at 823:7-825:9; Barker Depo. Exhs. 112-113.) In this  
15 action, NRDC prevailed in a citizen’s suit against Southwest Marine under the Clean Water Act, on  
16 the grounds that Southwest Marine had regularly and systemically engaged in unlawful pollutant  
17 discharges to San Diego Bay. Over the course of many years, SDG&E communicated to Cleanup  
18 Team members regarding the abundance of relevant information to be discerned from this  
19 proceeding. As Mr. Barker acknowledged, the Regional Board never sought to engage in interviews  
20 of any persons with knowledge or witnesses to Southwest Marine’s activities that caused extensive  
21 pollutant discharges to San Diego Bay. (Barker Depo., Vol. IV at 823:7-16.)

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23 <sup>21</sup> See, e.g., *Final Report Site Remediation, Marine Railway Removal Project, Southwest Marine Shipyard*,  
24 Ogden Environmental, December 1998; *Site Investigation and Characterization Report For 401 Water*  
25 *Quality Certification, BAE, Inc. (Formerly Southwest Marine, Inc.) Bulkhead Extension and Yard*  
26 *Improvement Phase 2 Activities*, Anchor Environmental, Revised August 2005; see also *Report of Waste*  
27 *Discharge Sediment Remediation Project Southwest Marine Shipyard San Diego, California*, Ogden  
28 Environmental and Energy Services, 1998; *Sediment Sampling at Southwest Marine Shipyard, San Diego*  
*Bay, California. Final Report*, SAIC, 1992; “NPDES Sediment Sampling Results” and various reports  
compiled by SWM consultants during 1992-2000 (e.g. SAR011470); and *Chemistry, toxicity, and benthic*  
*community conditions in sediments of the San Diego Bay region, Final Report – CRWQCB*, 1996 at  
SAR280617.

1 Under well settled case law, to properly find SDG&E as a liable party, it was the burden of  
2 the Regional Board to first “exclude the probability *that other forces alone produced the injury.*”<sup>22</sup>  
3 This they completely failed to do. Indeed, as Board staff has admitted, the question of the shipyards  
4 as sole cause was never even asked, much less investigated.

5  
6 **VIII. THE REGIONAL BOARD FURTHER ABUSED ITS DISCRETION BY SELECTING**  
7 **AN IMPROPER REMEDY DRIVER FOR THE SITE**

8 In addition to committing a threshold legal error of declaring proof of substantial factor  
9 causation “irrelevant” to Water Code liability, and disregarding the essential fact that none of the  
10 allegations directed against SDG&E were supported by substantial evidence, the Regional Board  
11 erred in one further respect: by selecting PCBs as a primary “remedy driver” causing beneficial use  
12 impairment at the Site, ignoring evidence that TBT, an additive to marine paints used almost  
13 exclusively by shipyards for literally decades, as well as other shipyard COCs copper and HPAHs,  
14 provided a much more accurate measure of causes of beneficial use impairment at the Site.

15 In a pair of reports prepared by SDG&E’s expert, Dr. Jason Conder, and submitted to the  
16 Regional Board on March 11, 2011, SDG&E established that the Board’s technical analyses  
17 supporting Human Health, Aquatic-dependent Wildlife, and Aquatic Life Beneficial Use Impairment  
18 (BUI) failed to meet technical and regulatory standards such that they were both inadequate to  
19 identify BUIs at the Site and failed to properly identify COCs used to determine and delineate  
20 remedial action (remedy drivers).<sup>23</sup> SDG&E’s expert demonstrated specifically that the appropriate  
21 primary remedy driver for the Site was TBT, a chemical associated only with shipyard operations, as  
22 well as shipyard discharges of copper and HPAHs, rather than PCBs.<sup>24</sup>

23  
24 <sup>22</sup> *Bookout v. State of California* (2010) 186 Cal. App. 4th 1478, 1486, *review denied*, 2010 Cal. LEXIS  
25 11014 (Cal. Oct. 27, 2010) (emphasis added).

26 <sup>23</sup> *See, Evaluation of CRWQCB Human Health Risk Assessment for the San Diego Shipyard Sediment Site*,  
27 Jason M. Conder, PhD, submitted on behalf of SDG&E on March 11, 2011; and *Analysis of Causality*  
28 *Between Aquatic Life Beneficial Use Impairment and Site Primary COCs at the San Diego Shipyard Sediment*  
*Site*, Jason M. Conder, PhD, submitted on behalf of SDG&E on March 11, 2011.

<sup>24</sup> *Id.*

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The path to this conclusion is laid out with scientific rigor, and certainty, by Dr. Conder’s analysis, and is exhaustively documented in his reports. In the unlikely event that the State Board finds it necessary to proceed beyond the Regional Board’s threshold legal error in ignoring the requirement of causation, we would urge that the error confirmed by Dr. Conder’s analysis be addressed in a subsequent hearing, along with the “substantial evidence” issues discussed immediately above.

In the meantime, rather than repeating here the expert analysis thoroughly set out Dr. Conder’s March, 2011 studies, we simply refer to those reports, incorporating them fully into SDG&E’s Petition.

**IX. CONCLUSION**

Both the legal and factual foundations of the CAO are fatally flawed.

SDG&E has been named a responsible Discharger without a *scintilla* of evidence that *any* of the disputed discharges attributed to SDG&E were of sufficient mass and concentration to have been a “substantial factor” in causing “condition of pollution or nuisance”: in this case, beneficial use impairment at the Site. Indeed, SDG&E’s evidence showed affirmatively that they were *not*. Rather than attempting to controvert that showing with evidence that SDG&E’s alleged discharges were a “substantial factor” in causing the Site conditions, the Regional Board ignored controlling California law and wrongly concluded that causation evidence was simply not required. This error alone requires that the CAO's findings regarding SDG&E be set aside.

Yet, the Regional Board erred in its factual conclusions as well. The “evidence” offered to support the allegations of discharges against SDG&E was self-serving, speculative and entirely circumstantial. SDG&E’s factual showing in support of its Request for Rescindment, including the expert testimony presented, was never rebutted – only ignored. That was error.

Finally, if more error were necessary, it is also true that the remedy driver findings ultimately selected by the Regional Board is simply not technically defensible.

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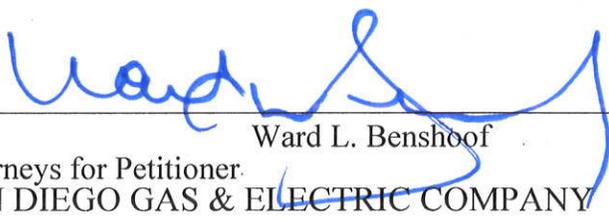
For all of these reasons, the relief sought by the Petition should be granted.

DATED: April 13, 2012

Respectfully submitted,

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April 13, 2012

**VIA E-MAIL & U.S. MAIL**

State Water Resources Control Board  
Office of Chief Counsel  
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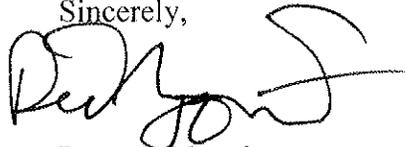
Re: San Diego Gas & Electric Company's Petition for Review  
Shipyard Sediment Site, Cleanup and Abatement Order No. R9-2012-0024

Dear Ms. Bashaw:

Enclosed please find San Diego Gas & Electric Company's ("SDG&E") Petition for Review and Request for Bifurcated Hearing and Memorandum of Points and Authorities in support thereof, with regard to the above-referenced matter. As set forth therein, we respectfully request a determination on SDG&E's request for bifurcation and scheduling of a hearing before the State Water Resources Control Board at the earliest opportunity.

Should you have any questions concerning this matter, please feel free to contact Jill Tracy, Ward Benshoof or the undersigned.

Sincerely,



Peter A. Nyquist  
ALSTON & BIRD LLP

PAN:dte  
Enclosures

cc: Jill Tracy, SDG&E (via e-mail, w/ enclosures)  
Ward Benshoof, Alston & Bird (via e-mail, w/ enclosures)