



Matthew Rodriguez
Secretary for
Environmental Protection

California Regional Water Quality Control Board San Diego Region

Over 50 Years Serving San Diego, Orange, and Riverside Counties
Recipient of the 2004 Environmental Award for Outstanding Achievement from U.S. EPA



Edmund G. Brown Jr.
Governor

9174 Sky Park Court, Suite 100, San Diego, California 92123-4353
(858) 467-2952 • Fax (858) 571-6972
<http://www.waterboards.ca.gov/sandiego>

October 19, 2011

Chairman Grant Destache
Honorable San Diego Water Board Members
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340

**RE: IN THE MATTER OF TENTATIVE CLEANUP AND ABATEMENT ORDER
NO. R9-2011-0001 (FORMERLY R9-2010-0002) SHIPYARD SEDIMENT
CLEANUP; SAN DIEGO WATER BOARD CLEANUP TEAM'S HEARING BRIEF**

I. INTRODUCTION AND SUMMARY OF ARGUMENT

The Porter-Cologne Water Quality Control Act was enacted in 1969 with the Legislatively-declared objective of ensuring "that the quality of all the waters of the state shall be protected for use and enjoyment by the people of the state." Water Code § 13000. The water boards have animated the Legislature's concept of "use and enjoyment by the people of the state" by developing and defining what are known as "beneficial uses." To help ensure the preservation and enhancement of beneficial uses, Porter-Cologne grants regional water boards broad latitude to issue Cleanup and Abatement Orders (CAOs) when necessary to protect California's valuable and limited water resources from the effects of wastes. Water Code section 13304 (section 13304) governs the San Diego Water Board's authority to issue CAOs. Section 13304 authorizes the San Diego Water Board to, in pertinent part, require any person who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, to "clean up the waste or abate the effects of the waste."¹

Water Code section 13050 defines "pollution" as an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either "the waters for beneficial uses[,] or [f]acilities which serve these beneficial uses."² Water Code § 13050(l). As the Tentative Cleanup and Abatement Order (TCAO) finds, each of the Dischargers caused and/or contributed to an alteration of the quality of the waters at the Shipyard Sediment Site (Site) to a degree that has unreasonably affected beneficial uses there.

¹ Section 13304 provides additional legal bases for water boards to issue Cleanup and Abatement Orders, such as permit violations, but the TCAO's findings allege, in each instance, that the basis for naming a specific discharger as a responsible party is that it caused or contributed to a condition of pollution or nuisance at the Shipyard Sediment Site.

² "Nuisance" means anything which meets all of the following requirements:

- (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. Water Code section 13050(m).
- (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
- (3) Occurs during, or as a result of, the treatment or disposal of wastes.

None of the Designated Parties disagree with the finding that the quality of waters at the Site has been altered by the discharge of wastes such that a CAO under section 13304 is legally justified. Not surprisingly, the Designated Parties disagree about the appropriate cleanup or abatement action needed to restore beneficial uses. Naturally, NASSCO, and to a lesser extent BAE Systems, argue that Monitored Natural Attenuation (MNA) – the least expensive remedy – is the best remedial action to cleanup or abate the condition of pollution or nuisance at the Site.³ Equally naturally, at the other extreme, Environmental Health Coalition (EHC) and San Diego Coastkeeper (Coastkeeper) argue that a substantially larger and more expensive dredging project is needed to restore beneficial uses. But, the Cleanup Team is the only Designated Party to this proceeding charged with the duty of representing the public interest, rather than the special interests of its shareholders or members, and it is the only Designated Party obligated to adhere to the policies and procedures established by the Legislature, the State Water Resources Control Board (State Board) and the San Diego Water Board.

Designated Parties other than the Cleanup Team, and their respective scientists and experts, necessarily argue to further their own partisan interests in this proceeding. Many of their respective arguments supporting different alternative cleanup levels seem reasonable and evidence-supported when viewed in isolation. Under close scrutiny, however, all ultimately fail because they fall short of striking the proper balance for alternative cleanup levels mandated by State Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304* (Resolution 92-49). Only the TCAO:

“Ensures that Dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of ... 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 these waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible[.]” Resolution 92-49, § III G.

The Cleanup Team, having no partisan interest and beholding only to the public interest, is uniquely situated to balance the “total values involved, beneficial and detrimental, economic and social, tangible and intangible,” and the alternative cleanup levels proposed in the TCAO achieve the restoration and protection of beneficial uses at the Site while striking the appropriate and required balance.

The Cleanup Team has already responded in detail to arguments from the Designated Parties in its September 15, 2011 Response to Comments. After having distilled the Designated Parties’ arguments and comments, in the limited time it has to address the San Diego Water Board at the evidentiary hearing, the Cleanup Team will focus on the following five issues where the Designated Parties either clash with each other or the Cleanup Team most substantially:

- Whether and the extent to which beneficial uses at the Shipyard Sediment Site are impaired by wastes discharged by the Dischargers;
- Whether cleanup to background is economically and technologically feasible;

³ NASSCO spills considerable ink arguing that section 13304 allows parties to either clean up or abate the effects of their wastes, apparently to support its argument that MNA is the appropriate remedy. While the Cleanup Team disagrees that MNA is the appropriate remedy, we note that NASSCO’s argument constitutes an implied admission that beneficial uses at the Site are impaired and that some form of CAO is appropriate. Even Exponent, NASSCO’s and BAE System’s retained expert, concludes, based on a series of industry-favorable assumptions about how to interpret Site-specific data, that beneficial uses at the Site are 5 percent impaired.

- Whether the TCAO's proposed alternative cleanup levels will attain the best water quality which is reasonable considering the total values involved;
- Whether the TCAO's proposed monitoring program will reliably confirm that alternative cleanup levels have been met; and
- Whether record evidence supports naming the parties proposed in the TCAO as Dischargers.

II. **BRIEF STATEMENT OF RELEVANT FACTS**

A. **Overview of Site History and Characteristics**

The Site is approximately one-half mile south of the Coronado Bridge, 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. Since about 1914, approximately 150 acres of the tidelands area of the Site have been leased by first the City of San Diego (City), and then the San Diego Unified Port District (Port District), to a series of shipyards engaged in the maintenance and construction of ships, as well as for other industrial uses. At various times, the United States Navy (Navy) also operated a small boat yard at the Site. From 1943 through 1990, San Diego Gas & Electric (SDG&E) operated a steam turbine power plant, many of the components of which contained large quantities of PCBs, adjacent to the tidelands, and leased a right-of-way at the Site for cooling water tunnels from the City, and then the Port District.

At various times for almost 100 years, shipyards, and other industrial operators discharged metals such as arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver and zinc, as well as butyl tin species, polychlorinated biphenyls (PCBs) polychlorinated terphenyls (PCTs), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPHs) to San Diego Bay where they have accumulated in Bay bottom sediments at levels above background conditions, creating a condition of pollution and/or nuisance by impairing designated beneficial uses. Moreover, at relevant times, the City, the Port District and the Navy also owned and/or operated municipal separate storm sewer systems (MS4s) that conveyed pollutants to the Site, contributing to its condition of pollution and/or nuisance. The Site is within an area listed on the Clean Water Act section 303(d) List of Water Quality Limited Segments (impaired water bodies) for elevated levels of copper, mercury, zinc, PAHs, and PCBs in the marine sediment.

B. **Developing the Tentative Cleanup and Abatement Order**

1. *The San Diego Water Board Issues Investigation Orders to NASSCO and BAE Systems*

In May 2001, the San Diego Water Board issued Water Code section 13267 investigation orders to the two current operators of the tidelands shipyard leases at the Site, NASSCO and BAE Systems. These orders directed NASSCO and BAE Systems to prepare a technical report to delineate the nature and extent of contamination at the Site, and to assess the contamination's biological impacts, and ecological and human health risks. The orders further required NASSCO and BAE Systems to develop sediment cleanup levels, to analyze potential remediation measures, to propose sediment cleanup alternatives that would protect beneficial uses, and to estimate cleanup costs.

2. *Public and Stakeholder Participation in the Sediment Investigation is Unprecedented, but the Exponent Report is Flawed*

In response, NASSCO and BAE Systems directed their consultant Exponent to conduct a sediment investigation, which is entitled *NASSCO and Southwest Marine Detailed Sediment Investigation, September 2003* (Exponent Report). Because the Exponent Report was completed and submitted to the San Diego Water Board prior to February 19, 2008, this sediment cleanup is expressly exempt from the State Board's *Water Quality Control Plan for Enclosed Bays and Estuaries – Part I Sediment Quality* (SQOs), which sets forth a specific methodology for determining whether contaminated sediments are impairing beneficial uses relating to aquatic life. The Exponent Report purports to assess the effects of elevated levels of pollution on beneficial uses at the Site by analyzing how relevant contaminants impact aquatic life-related beneficial uses, aquatic dependent wildlife-related beneficial uses and human health-related beneficial uses.

Prior to and during the course of NASSCO's and BAE System's approximately two-year sediment quality investigation, the Cleanup Team organized a series of no fewer than eight public workshops, stakeholder meetings, and technical meetings to set parameters for the investigation with respect to a number of critical issues including sampling locations, chemical analyses, reference pool or "background" conditions, bioaccumulation and pore water analyses, and the development of an appropriate triad model for measuring impairment to aquatic life-related beneficial uses. Issues discussed during this public outreach effort included not only what data to collect, but also how to interpret the data. In addition to NASSCO and BAE Systems, the stakeholder groups participating in the Cleanup Team's development of key assumptions and basic principles to be used in the Exponent Report and, ultimately, underlying the TCAO and Draft Technical Report (DTR), included Designated Parties EHC, San Diego Baykeeper (now Coastkeeper), the U.S. Navy, the City and the Port District, as well as non-parties such as Audubon Society, Department of Fish and Game, National Oceanic and Atmospheric Administration (NOAA), Sierra Club, Southern California Coastal Water Research Project (SCCWRP), Surfrider Foundation, University of California, Davis, Marine Pollution Studies Laboratory, and U.S. Fish and Wildlife Service. Two additional public workshops were held after the Exponent Report was released, but prior to the release of the Cleanup Team's DTR. The Cleanup Team provided the stakeholders with extensive and detailed written responses and supporting rationale for its decisions on the various issues. The level of stakeholder, public and public agency participation in the development of the TCAO and DTR was, and continues to be, unprecedented.

3. *The Cleanup Team Issues Its First TCAO, Creates Its Own Technical Report and an Electronic Administrative Record, and the Designated Parties Agree to Mediation*

After an exhaustive review, the Cleanup Team determined the data gathered and technical information provided in the Exponent Report to be of sufficient quality for use in making decisions about the nature and extent of the contamination, about biological effects, and about ecological and human health risks. Accordingly, the data and technical information in the Exponent Report is the primary basis for the analyses in the TCAO and DTR, except where otherwise specifically noted. While the Cleanup Team determined Exponent's data and technical information to be sound, many of the Exponent Report's interpretive assumptions concerning, for example, area use factors, fractional intake, sensitive receptors and acceptable risk levels, were not. Not surprisingly, these flawed assumptions in the Exponent Report led its authors to conclude that MNA should be the preferred remedy.

The Cleanup Team decided to build on the sound data and technical information in the Exponent Report and, after applying more appropriate, conservative assumptions with an eye towards ensuring the protection of beneficial uses at the Site, as opposed to promoting the cheapest possible remedy, issued Tentative CAO R9-2005-0126 on May 1, 2005. The 2005 TCAO determined that it was not economically feasible to cleanup to background levels, and recommended a cleanup level of five times background for PCBs, benzo[a]pyrene (BAP), TBT, and other COCs in the Table below.

5X BACKGROUND COC CONCENTRATIONS

PCBs	420 µg/kg	Mercury	0.7 mg/kg	Zinc	300 mg/kg
TBT	110 µg/kg	Silver	1.5 mg/kg	Chromium	81 mg/kg
BAP	1,010 µg/kg	Nickel	20 mg/kg	Cadmium	1.0 mg/kg
Copper	200 mg/kg	Lead	90 mg/kg	Arsenic	10 mg/kg

Although the May 2005 TCAO set alternative cleanup levels, it left undecided how alternative cleanup levels would be achieved at the Site, and lacked remediation and post-remediation monitoring programs to verify that alternative cleanup levels would be achieved and maintained. Furthermore, the 2005 TCAO did not specifically address cleanup levels to protect aquatic life-related beneficial uses.

Thereafter, the San Diego Water Board agreed to undertake a formal hearing process as requested by a number of parties to consider the development and issuance of a CAO for the Site. There were additional workshops and public hearings, and the Presiding Officer ordered the Cleanup Team in January, 2006, to develop and release its own technical report to support the 2005 TCAO, and to prepare a comprehensive, electronic, text searchable administrative record of proceedings. By August 2007, the Cleanup Team had released the DTR. A revised TCAO and DTR, and the electronic administrative record, the first iteration of which contained some 375,000 pages, were released on April 4, 2008. Revised hearing procedures were issued by then-Presiding Officer David King, in relevant part scheduling a settlement conference for June 13, 2008, and establishing an order of proceedings set to culminate in final San Diego Water Board action on the TCAO about a year later. Shortly after the settlement conference, **all** Designated Parties, including EHC and Coastkeeper, agreed to suspend the proceedings and engage in confidential mediation with Timothy Gallagher, Esq. acting as the mediator.

4. The Designated Parties Mediate, and the Cleanup Team Issues a More Scientifically Robust TCAO Requiring More Stringent Cleanup Levels

In December 2010, the Cleanup Team issued TCAO R9-2010-0002 and a further revised DTR. Based on evidence and analysis acquired during the time the parties were mediating, the 2010 TCAO named additional responsible parties as Dischargers, established more stringent cleanup levels than the 2005 TCAO, set forth a specific cleanup footprint, and contained robust remedial and post-remedial monitoring programs designed to verify remedy success and the protection of beneficial uses at the Site. The Cleanup Team, and later the San Diego Water Board itself, also determined that the TCAO would not qualify for a categorical exemption under the California Environmental Quality Act ("CEQA") and that environmental review should proceed.

On September 15, 2010, the Cleanup Team released TCAO No. R9-2011-0001, which determines that it is not economically feasible to cleanup to background, then establishes an alternative cleanup level requiring that all Site stations that were determined to be “likely impaired” for aquatic life-related beneficial uses be remediated, and that specific Site-wide chemical concentration levels be achieved to protect aquatic-dependent wildlife and human health-related beneficial uses. Specific Site stations that must be remediated to achieve the Site-wide chemical concentration levels were also identified, and added to the “likely impaired” stations to establish a cleanup footprint. The TCAO’s resulting post-remedial COC levels are:

POST-REMEDY COC CONCENTRATIONS

PCBs	194 µg/kg	Mercury	0.68 mg/kg	Zinc	221 mg/kg
TBT	110 µg/kg	Silver	0.89 mg/kg	Chromium	49.60 mg/kg
HPAHs ⁴	2,451 µg/kg	Nickel	13.07 mg/kg	Cadmium	0.20 mg/kg
Copper	159 mg/kg	Lead	66 mg/kg	Arsenic	8.67 mg/kg

The 2011 TCAO also contains robust remedial and post-remedial monitoring regimes to verify that alternative cleanup levels are met and beneficial uses at the Site are protected.

III. ARGUMENT

A. Standard of Review Under Water Code Section 13304

When adopting a CAO under section 13304, a regional water board may not prejudicially abuse its discretion. See Water Code, § 13330(c); Code Civ. Proc., § 1094.5(c). A prejudicial abuse of discretion occurs when the water board fails to proceed in the manner required by law, fails to support a CAO with findings, or fails to support those findings with substantial evidence. Code Civ. Proc., § 1094.5(c); *Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515. Courts presume that a respondent agency’s actions comply with applicable law. Evid. Code § 664; *Foster v. Civil Service Com. of Los Angeles* (1983) 142 Cal.App.3d 444, 453.

As California’s Supreme Court observed, substantial evidence is evidence of “ponderable legal significance,” which is “reasonable in nature, credible and of solid value.” *Ofsevit v. Trustees of California State Universities and Colleges* (1978) 21 Cal.3d 763, 773, n. 9. “Substantial evidence” means facts, reasonable assumptions based on facts and expert opinions supported by facts. *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1019. Importantly, an agency may also rely on the opinion of its staff in reaching decisions, and “the opinion of staff has been recognized as constituting substantial evidence.” *Browning-Ferris Industries v. City Council* (1986) 181 Cal.App.3d 852, 866 citing *Coastal Southwest Dev. Corp. v. California*

⁴ The latter iterations of the TCAO utilize HPAHs by summing six PAHs, one of which is BAP, as opposed to the earlier iterations which utilized only BAP. HPAHs are considered to be the most recalcitrant, bioavailable, and toxic compounds present in the complex mixture of petroleum hydrocarbons. Therefore by using six HPAHs instead of one (namely BAP), the 2011 TCAO addresses additional COCs.

Coastal Zone Conservation Com. (1976) 55 Cal.App.3d 525, 535-536. The Cleanup Team has vast collective expertise directly relating to the TCAO's and DTR's scientific and technical issues, including, but not limited to, direct regulatory oversight over every sediment cleanup ever undertaken by the San Diego Water Board in San Diego Bay. See Appendix A to September 15, 2011 Response to Comments for complete list of Cleanup Team members' qualifications and expertise.

Resolution 92-49 further delineates the types of evidence that may be considered substantial when naming Dischargers in a cleanup and abatement order, including direct or circumstantial evidence. Resolution 92-49, § II A. Such direct or circumstantial evidence includes "[i]ndustry-wide operational practices that historically have led to discharges, such as leakage of pollutants from wastewater collection and conveyance systems, sumps, storage tanks, landfills and clarifiers." *Id.*, at § II A(4).

Although Water Code section 13330(c) authorizes a court to exercise its independent judgment on the record evidence when reviewing a water board's decision to adopt a CAO, the water board's interpretation of its own regulations and the regulatory scheme which it implements and enforces is entitled to great deference. See *Building Industry Assn.(BIA) v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 985, 998, n. 9; *citing Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 7-8. In light of the statutory presumption that an agency's action complies with applicable law, and the judicial direction that an agency's interpretation of its own regulations is entitled to great deference, even when exercising its independent judgment, "a trial court must afford a strong presumption of correctness concerning the administrative findings, and **the party challenging the administrative decision bears the burden of convincing the court that the administrative findings are contrary to the weight of the evidence.**" *BIA, supra*, 124 Cal.App.4th at 998, *emph. added; citing Fukuda v. City of Angels* (1999) 20 Cal.4th 805, 817. As explained by California's Supreme Court, even in "independent judgment review" cases, the findings of a board where formal hearings are held come before the courts with a strong presumption in their favor, and considerable weight must be given to the findings of experienced administrative bodies made after a full and formal hearing, especially in cases involving technical and scientific evidence. *Fukuda, supra*, 20 Cal.4th at 812, *citing Drummey v. State Bd. of Funeral Directors* (1939) 13 Cal.2d 75, 84, 86. Certainly, the San Diego Water Board is an experienced administrative body, familiar with the application of its own regulations, and will be deciding this matter involving technical and scientific evidence after a full and formal hearing.

B. The Dischargers Have Impaired Beneficial Uses at the Site

The TCAO findings establishing aquatic life-related, aquatic dependent wildlife-related and human health-related beneficial use impairments are based on substantial evidence and reasonably conservative risk-based assumptions. All of the Designated Parties are using the same data, but their respective conclusions about the level of impairment at the Site vary based on their respective partisan viewpoints and interests. Specifically, Dischargers NASSCO and BAE Systems contend that the Cleanup Team's analyses, assumptions and interpretation of the same data Exponent used in its analyses are too conservative, and that MNA is a sufficient "abatement" action to remedy beneficial use impairment at the Site. We disagree.

The Cleanup Team focused on benthic organisms as a primary measure of aquatic life-related beneficial use impairment because of the critical role benthic organisms play in aquatic ecosystem health. A weight of evidence (WOE) framework for integrating chemical

concentration, sediment toxicity, and benthic infaunal community condition lines of evidence (LOE) was used at 30 of the sample stations at the Site to evaluate potential risks to the benthic community from pollutants present there. The Cleanup Team's WOE approach uses a logic system to integrate the sediment chemistry, sediment toxicity and infaunal community conditions data based on a transparent set of criteria used to measure the likelihood that pollutants are adversely impacting aquatic life-related beneficial uses at the Site. This methodology is based on accepted principles of WOE analysis documented in the scientific literature and consistent with frameworks used at other sediment cleanup sites as well as in the State Board's SQO Policy.

The WOE framework compares data about the general conditions found in relatively cleaner areas of San Diego Bay (reference conditions) with data obtained at the Site to identify areas where pollutants attributable to the Dischargers are causing toxicity to benthic communities. Reference sites having physical characteristics broadly similar to the Site were appropriately selected to represent contemporary bay-wide ambient background pollution levels that could be expected to exist in the absence of contaminants attributable to the Dischargers.

A different approach for analyzing impairment to aquatic-life related beneficial uses based on an empirical evaluation of sediment contaminant concentration was used at the 36 sample stations where only sediment chemistry data were collected (non-triad stations) to determine the likelihood that pollutants attributable to the Dischargers are causing impacts to the benthic community. The Cleanup Team evaluated the levels of the five primary COCs (copper, mercury, HPAH, PCBs and TBT) in surface sediments at the Site using two chemical thresholds derived from Site-specific data and referred to as 1) Site-Specific Lowest Apparent Effects Thresholds (LAETs) for individual COCs, and 2) Site-Specific Median Effects Quotient (SS-MEQ) to address the combined effects of multiple COCs. Both the LAET and the SS-MEQ chemical thresholds are based on scientifically credible approaches measuring the relationships between stressor pollutant exposure and biological response. This is one of several approaches sanctioned by the State Board's Bays and Estuaries Policy. Polygonal areas associated with all of the Site stations that were "Likely impacted" for aquatic wildlife-related beneficial uses under both scenarios are included in the proposed remedial dredge footprint.

The Cleanup Team used a risk assessment approach to evaluate aquatic-dependent wildlife-related beneficial use impairment. The risk assessment characterized the threat of pollutant bioaccumulation in aquatic life to levels that are harmful to aquatic dependent wildlife through consumption of contaminated prey.

The Cleanup Team conducted key elements of the risk assessment largely consistent with USEPA guidance designed for the remedy selection process at CERCLA-based cleanup sites. The Site however is not a Superfund Site and is not subject to CERCLA, and the USEPA guidance is not a regulation in itself and does not impose any legally binding requirements on how to perform the aquatic dependent wildlife risk assessment the Cleanup Team undertook to determine whether the Site is impaired for aquatic life-related beneficial uses. Because Porter-Cologne and Resolution 92-49 require that designated and reasonably foreseeable future beneficial uses be reasonably protected, and because the goals and objectives of CERCLA differ considerably, the Cleanup Team is warranted in utilizing approaches and assumptions on a case-by-case basis that differ from the USEPA guidance for a CERCLA remediation project. Accordingly, the Dischargers' criticism of the TCAO and DTR for departing from USEPA CERCLA guidance is misplaced.

The duty to ensure restoration and enhancement of beneficial uses under Porter-Cologne demands that the San Diego Water Board make more conservative assumptions about exposure, consumption, and risk than would be appropriate under CERCLA's cost-efficiency driven remediation scheme for which the USEPA guidance document was designed. For example, the general equations used in the DTR's aquatic dependent wildlife risk analysis include the conservative assumption that the receptors are present at the Site year-round, and that they obtain all of their food from the Site. Unlike the position advocated by NASSCO and BAE Systems, the Cleanup Team did not estimate a receptor-specific fraction for aquatic dependent wildlife species foraging that may occur at the Site. Although the DTR's conservative assumptions may overestimate the risk of exposure to **some** wildlife species, it helps to ensure that risks to aquatic dependent wildlife are not under-predicted, and that the DTR's conclusions about risk are biased in a beneficial use protective direction that is more likely to be protective of **all** wildlife receptor species, some of which may reside at the Site area year round, and/or may forage there 100 percent of the time. Based on the assessment results, ingestion of prey items caught within all four assessment units at the Site poses an increased risk above reference to all receptors of concern (excluding the sea lion).

The Cleanup Team used a risk assessment approach to analyze human health-related beneficial use impairment by evaluating both recreation and subsistence anglers' exposure to pollutants at the Site through consumption of fish and shellfish that may have bio-accumulated chemicals either directly from Site sediments, or through the food web. The focus of the risk assessment was to determine whether current Site conditions pose unacceptable cancer and non-cancer health risks and thereby impair human health-related beneficial uses.

As with the aquatic dependent wildlife risk assessment, the Cleanup Team conducted key elements of the risk assessment largely consistent with the approaches described in the USEPA guidance for remedy selection at CERCLA-based cleanup sites. The DTR's human health risk assessment also departs from USEPA's CERCLA guidance by making conservative assumptions about exposure and consumption, which are entirely consistent with the San Diego Water Board's duty to ensure restoration and enhancement of beneficial uses under Porter-Cologne. The DTR's risk assessment assumes that recreational and subsistence anglers will catch 100 percent of the fish and shellfish they consume at the Site.

The Dischargers argue that the DTR's human health risk assessment is too conservative because it should assume that recreational and subsistence anglers catch only a fraction of the fish and shellfish they consume at the Site. They contend this is because: (1) there is not a complete exposure pathway due to the security measures that prevent public access to the Site, (2) there is no documentation in the administrative record that employees or U.S. Navy personnel fish at the Site, and (3) the Port Master Plan's designation of the Site for heavy industrial use should be heavily weighed in the analysis. These arguments are simply not relevant to the San Diego Water Board's obligations to make conservative assumptions about exposure, consumption, and risk in order to ensure the restoration and enhancement of COMM and SHELL beneficial uses at the Site.

The DTR's conservative fractional intake assumptions are warranted because shellfish harvesting and commercial beneficial uses for the collection of fish, shellfish and other organisms for human consumption are designated as existing beneficial uses for **all** of the waters of San Diego Bay, and at all points within San Diego Bay regardless of property access restrictions in Bay water. Federal and State anti-degradation polices require the San Diego Water Board to protect existing and potential beneficial uses such as COMM and SHELL, and to

protect the level of water quality needed to protect those uses. Full protection of the water and sediment quality needed to protect these uses requires protection throughout San Diego Bay, including areas of the Bay where public access happens to be currently restricted. NASSCO and BAE Systems do not own the waters of the state even if those waters happen to be currently surrounded by a security boom. The Cleanup Team's selection of a conservative fractional intake is based on an appropriate, reasonably conservative, and environmentally protective assumption that recreational and subsistence anglers catch and consume 100 percent of their seafood from the Site.

This assumption is used as a basis to both identify COMM and SHELL beneficial use impairment, and to minimize the potential for human exposure to pollutants through the food chain. The DTR's use of a fractional intake of 100 percent is based primarily on the San Diego Water Board's statutory mandate under the Clean Water Act and California Water Code to ensure that the level of cleanup at the Shipyard Sediment Site will be protective of the COMM and SHELL beneficial uses. Allowing the Site to remain impaired for years while pollutant levels "attenuate" would fall well short of the San Diego Water Board's mandate.

The Dischargers also criticize the DTR's conservative assumption that subsistence anglers always consume whole fish and shellfish. But the assumption that subsistence anglers always consume the entire fish and shellfish represents a reasonable scenario for subsistence anglers and is supported by substantial evidence. The Santa Monica Bay Seafood Consumption Study and the San Diego Bay Health Risk Study relied on by the Cleanup Team both indicate subsistence anglers consume whole fish and shellfish.

Finally, the DTR's assumption of a 30-year exposure duration also represents a reasonably protective maximum exposure period for recreational and subsistence anglers who may rely upon seafood in San Diego Bay as a major food source. Moreover, the San Diego Bay Health Risk Study cited in the record reported that 74 percent of people who catch and consume fish from San Diego Bay are people of color. Anglers of color have a disproportionately higher health risk from pollution in San Diego Bay than other San Diego Bay anglers because they tend to eat more fish in their diet, and to eat parts of fish that have higher pollutant accumulation. Were the San Diego Water Board to follow the Dischargers' recommendation and fail to use appropriately conservative assumptions about exposure, it would violate principles of environmental justice because the health risk from regular consumption of fish caught in the San Diego Bay falls disproportionately on minority groups. Based on the risk assessment results, ingestion of fish and shellfish caught within all four assessment units at the Site poses a theoretical increased cancer and non-cancer risk to recreational and subsistence anglers greater than that in reference areas.

C. Cleanup to Background Is Not Feasible

Under Resolution 92-49, setting cleanup levels may require two distinct analyses to be undertaken in a two-step process. First, a determination must be made regarding *whether* it is economically and/or technologically feasible to cleanup to background. If cleanup to background is technologically and economically feasible, that is the end of the inquiry and background is the appropriate cleanup level under Resolution No. 92-49. Several Designated Parties propose different ways to look at whether cleanup to background is economically feasible, but each method employed results in the conclusion that it is not.

Economic feasibility is a term of art under Resolution 92-49. There are no prescribed

methodologies in statute, regulation, or case law for determining that cleanup to background conditions is economically infeasible. Although the Cleanup Team and other Designated Parties used different approaches to analyze the economic feasibility of cleaning up to background conditions, all approaches showed the same trend. The highest net environmental benefit per remedial dollar spent occurs in cleaning up the most contaminated areas of the Site first, roughly 12 of the 66 Site stations or "polygons." After that, net benefit expressed as both pollutant exposure and risk reduction, drops consistently as the cost of the remediation increases, making cleanup to background conditions economically infeasible.

D. Alternative Cleanup Levels Achieve the Best Water Quality Which Is Reasonable Given the Total Values Involved, and Will Not Unreasonably Affect Beneficial Uses

Because cleanup to background is not economically feasible, a second and distinct analysis must be undertaken under Resolution 92-49. Specifically, the text of the Resolution mandates alternative cleanup levels must result in:

"[t]he 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 these waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible; in approving any alternative cleanup levels less stringent than background, apply Section 2550.4 of Chapter 15 ... any such alternative cleanup shall:

1. Be consistent with maximum benefit to the people of the state;
 2. Not unreasonably affect present and anticipated beneficial use 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[.]"
- Resolution 92-49, § III (G), *emph. added.*

EHC and Coastkeeper assert that constituent concentration limits for alternative cleanup levels less stringent than background *must* be the lowest that are technologically and/or economically achievable. Their argument is based on a single sentence found in section 2550.4(c) of Chapter 15 of Title 23 of the California Code of Regulations. However, as detailed in the Cleanup Team's Response to Comments 1.1, Chapter 15 and section 2550.4 apply to cleanups at Class I Waste Management Units, and only "applicable provisions" of Chapter 15 need be applied to the Shipyard Sediment Site cleanup under Resolution 92-49's express language. See Resolution 92-49, § III (F)(2) ["The Regional Board shall require actions for cleanup and abatement to implement the provisions of Chapter 15 that are applicable to cleanup and abatement[.]"].

Even then, those "applicable provisions" need only be applied "to the extent feasible." 23 Cal. Code Regs., § 2511(d). While the alternative cleanup levels proposed in the TCAO take into consideration the achievement of the lowest concentrations that are economically achievable, this consideration is not, and *cannot* be, the sole consideration for setting alternative cleanup levels.

This is because the specific language of Resolution 92-49 commands that the San Diego Water Board *must* consider the "total values involved, beneficial and detrimental, economic and social, tangible and intangible" when setting alternative cleanup levels. Considering only whether

alternative cleanup levels are set at the most stringent level that is economically feasible, as EHC and Coastkeeper urge, would read this language out of the Resolution, make it "surplusage" and be an impermissible abuse of discretion. See *California Mfrs. Assn. v. Public Utilities Com.* (1979) 24 Cal.3d 836, 844; *Moyer v. Workmen's Comp. Appeals Bd.* (1973) 10 Cal.3d 836, 844 [A statutory construction making some words surplusage is to be avoided. The words of the statute must be construed in context, keeping in mind the statutory purpose, and statutes or statutory sections relating to the same subject must be harmonized, both internally and with each other, to the extent possible.]. The DTR meets the test for statutory construction because it gives the important words "total values involved, beneficial and detrimental, economic and social, tangible and intangible" in Resolution 92-49 meaning and harmonizes them to the extent feasible with the words of section 2550.4(c). The DTR does consider setting alternative cleanup levels at the lowest levels that are economically achievable, but it does so in the context of the other factors Resolution 92-49 requires the San Diego Water Board to consider. Achieving the lowest cleanup levels that are economically feasible is but one of the factors the San Diego Water Board must consider when setting alternative cleanup levels under Resolution 92-49.

DTR Section 32 addresses and assesses *all* of the factors required by Resolution No. 92-49. Critically, it analyzes the three enumerated subsections of Resolution No. 92-49 section III (G), concluding that the alternative cleanup levels: (1) are consistent with maximum benefit to the people of the state; (2) do not unreasonably impact present and anticipated beneficial uses; and (3) do not result in water quality less than that prescribed in applicable water quality control plans and policies. DTR section 32.7 specifically weighs the various aspects of the "total values involved." The decision about an appropriate alternative cleanup level is not driven by a single factor, but requires water boards to weigh a number of factors and strike the appropriate balance between them. In essence, the question "what is an appropriate alternative cleanup level" under Resolution 92-49 is one of policy. The Cleanup Team's experience, expertise and neutrality make it uniquely situated among the Designated Parties to make the recommendation for alternative cleanup levels it makes in the DTR and TCAO; a recommendation that strikes the appropriate balance among all of the policy objectives of Resolution 92-49 including, most importantly, reasonable protection of beneficial uses.

The alternative cleanup levels are reasonably protective of the beneficial uses of San Diego Bay. Furthermore, the cost effectiveness of the cleanup will decrease with a larger remedial footprint while causing greater quality of life, community, habitat, and business impacts. Finally, the estimated \$58 million cost of cleaning up the 23 polygons in the remedial footprint is likely beyond the initial high pollutant and risk exposure reduction per cost scenario of cleaning up the 12 most contaminated polygons as shown in the "clean up to background" economic feasibility analysis. Thus, the alternative cleanup levels strike the proper balance among the total values involved as required by Resolution 92-49.

E. Post Remedial Monitoring Will Ensure Alternative Cleanup Levels Are Met

The TCAO includes appropriate and robust remedial monitoring requirements to ensure that the alternative cleanup levels are met through the dredging remedy. The TCAO is also the first enforcement order to include post-remedial monitoring requirements to ensure long-term remedy success where the remedy did not include an engineered cap.

The TCAO includes a series of decision rules to be applied to sediment chemistry monitoring results obtained **during dredging operations** to determine dredging success. Comments on

the DTR indicate that there is some confusion concerning the "120 percent of background concentration" decision rule to determine when dredging can stop. To clarify, the 120 percent of background level is not an average value; it must be met at every sediment sampling point. Following a dredging pass, if concentrations of COCs in sediments in the dredge pass area are below 120 percent of background concentrations, then dredging is sufficient for that area and can stop.

The "twenty percent above background concentration" as an indicator of dredging success is appropriate because of natural variability in sediment concentrations at the site. This variability is attributable to random error in laboratory instrument outputs, sample collection and handling techniques, grain size distribution variance in sediment samples, or other random non-systematic differences that cannot be measured or specifically accounted for. The "120 percent of background" concentration rule will not be used to determine compliance with cleanup levels and is not a benchmark, objective, or threshold for determining remedy success.

The **post-remedial monitoring** requirements are included in the TCAO to determine short-term and long-term remedy success, and whether there is a need for additional post-remedial actions. The post-remedial monitoring program incorporates a weight of evidence approach similar to the evaluation conducted to determine the level of impairment and the scope of remediation needed to protect beneficial uses at the Site. The lines of evidence include sediment chemistry, toxicity, and bioaccumulation. Benthic community information will also be collected for qualitative purposes. Sediment chemistry will be evaluated using a Surface-Area Weighted Average (SWAC) approach, with samples composited into 1) remediated, 2) adjacent to remediated, and 3) farthest from remediated groups. This reasonable approach will evaluate the success of remedial dredging at the actual dredge sites, in addition to assessing the success of BMPs deployed during dredging at preventing the migration of contaminated sediment to adjacent and far-field non-remedial sites. Stations selected for toxicity and bioaccumulation testing are co-located with the pre-remedial triad stations, enabling a before and after evaluation of the remediation efforts. The City and Port District are required to develop and implement an MS4 investigation and mitigation plan to ensure source control and that sediment is not re-contaminated.

For human health-related and aquatic dependent wildlife-related beneficial uses, post-remediation monitoring includes sediment chemistry monitoring to ensure that post-remediation SWACs are maintained at the Site following cleanup. A subset of samples will undergo bioaccumulation testing using *Macoma*.

Comments on the DTR indicate that there is confusion regarding the use of the "SWAC trigger levels" as indicators that the alternative cleanup levels have been maintained two and ten years after dredging. Because the SWAC trigger levels are higher than the alternative cleanup levels, on the face of it, the trigger levels appear to require a less stringent cleanup than intended by the alternative cleanup levels. The SWAC trigger levels, however, are higher than the alternative cleanup levels because they are set at the 95 percent upper confidence limit (95% UCL) of the estimated post-remedial SWACs (ie, the alternative cleanup levels). Using the 95% UCL as the measure of compliance with an environmental benchmark is a standard and acceptable statistical approach because environmental data have a natural variability which does not represent a true difference from expected values. Thus, even though the SWAC trigger levels are higher than the alternative cleanup levels, due to the natural spatial variability of sediment concentrations at the site, the SWAC trigger levels do not represent a true difference from the alternative cleanup levels. In order to use the alternative cleanup levels

themselves as trigger levels for further action, many more sediment samples would need to be taken and analyzed in order to account for the natural spatial variability in sediment concentrations. To do so would be cost prohibitive.

For aquatic life-related beneficial uses, post-remediation monitoring will include sediment chemistry, and toxicity bioassays to verify that post-remedial conditions have the potential to support a healthy benthic community.

The San Diego Water Board will review the post-remedial monitoring plan and may require additional condition(s) to the sampling proposed by the Dischargers. The San Diego Water Board will also review exceedance investigation and characterization reports, post-remedial monitoring reports, and the final cleanup and abatement completion report to determine the need for additional remedial actions. It is the responsibility of the Dischargers to meet the cleanup requirements in the TCAO. If, at any time during the 10-year post-remediation monitoring period, monitoring data and follow-up studies indicate that the cleanup levels are not maintained, the San Diego Water Board may require further remedial actions.

F. Record Evidence Indicates Named Dischargers Should Remain So

Regulations adopted by the State Board require that the regional boards name in a CAO all Dischargers who contributed to a condition of pollution or nuisance to the maximum extent permitted by law. *See* 23 Cal. Code Regs. § 2907; *see also* Resolution 92-49, § II (A)(4). Accordingly, the San Diego Water Board should review the substantial evidence set forth in the DTR and administrative record with an eye towards naming Dischargers to the TCAO to further the purposes of Porter-Cologne. Only SDG&E and Star & Crescent Boat Company (Star & Crescent) dispute their status as Dischargers under the TCAO, while the Port District contends it should be named only as “secondarily liable.”

Star & Crescent Boat Company is named to the TCAO as the corporate successor of San Diego Marine Construction Company (SDMCC), an entity that no party disputes contributed to the condition of pollution and/or nuisance at the Site. Star & Crescent claims that it did not take SDMCC’s liabilities when that Company, albeit after a name change, conveyed its assets to Star & Crescent. However, as detailed in the Cleanup Team’s Response to Comments, Star & Crescent is liable for the acts of SDMCC because its own Board of Director’s Meeting Minutes expressly state it agreed to assume all of SDMCC’s liabilities. As also detailed in the Response to Comments, Star & Crescent is legally obligated for the acts and omissions of SDMCC under the de facto merger and mere continuation theories of corporate successor liability.

SDG&E also claims it should not be named as a Discharger despite operating a steam turbine power plant where equipment containing large quantities of PCBs was operated in “open” systems in close proximity to San Diego Bay for over 40 years. Despite its best effort to foist off 100 percent of the responsibility for PCBs and metals contamination near its cooling tunnel outfalls onto BAE Systems and its predecessors at the Site, SDG&E’s arguments fall short of exculpation. Substantial record evidence indicates it is more likely than not that SDG&E made some contribution of pollutants to the Site through its cooling tunnels, through its discharges to land at its switchyard where pollutants were conveyed via the MS4 system to the Site, through overflows of its open waste pits in close proximity to the Bay, and/or through a trench from the open waste pits to the Bay. Accordingly, its arguments against BAE Systems and its

predecessors relate to allocation, not to whether SDG&E is properly named as a Discharger. Because SDG&E made some contribution to the condition of pollution and/or nuisance at the Site, even if that contribution was small, it must remain a named Discharger. Its precise percentage of responsibility for cleanup costs will be resolved in the City's pending federal litigation.

Finally, the Port District argues that it should be named as secondarily liable. Its argument fails because the Port District operates an MS4 system through which pollutants have been conveyed to the Site, and because the legal principle of secondary liability only applies to landowners under certain conditions - not to operators of a MS4 pollutant discharge conveyance. Moreover, the Port District does not qualify for secondary liability as a landowner or lessor because it cannot demonstrate its former tenants all have the financial resources to pay their respective fair shares of the cleanup costs, and because no cleanup is underway at the Site, two of the necessary elements to establish secondary liability.

IV. CONCLUSION

The San Diego Water Board has a unique opportunity before it to adopt an order compelling a group of Dischargers to cleanup a site in San Diego Bay that has been accumulating industrial pollutants for nearly 100 years. The TCAO represents an unbiased and conservative cleanup designed to achieve the best water quality that is reasonable considering all demands being made and to be made on waters at the Site. Some of the partisan Designated Parties urge the San Diego Water Board to do more, while others suggest the Board should do less. The Cleanup Team respectfully requests that you adopt the TCAO and certify the accompanying Environmental Impact Report.

Respectfully submitted,



Christian Carrigan
Senior Staff Counsel
Office of Enforcement
State Water Resources Control Board
Attorneys for San Diego Water Board Cleanup Team

cc: (via email only)

All Shipyard Counsel

