



**REPORT ON THE SAN DIEGO BAY TOXIC SEDIMENT
CLEANUP AS REQUIRED BY THE SUPPLEMENTAL
REPORT TO THE 2008 BUDGET ACT**

November 2009



Introduction.

This report has been prepared in response to the following requirement of the *Supplemental Report of the 2008 Budget Act*:

“Item 3940 - 001 - 0001 - State Water Resources Control Board

1. *San Diego Bay Toxic Sediment Cleanup*. On or before January 30, 2009, the State Water Resources Control Board (SWRCB) shall submit a report to the Joint Legislative Budget Committee (JLBC) on the work of the San Diego Regional Water Quality Control Board (SDRWCB) on San Diego Bay cleanup. The report shall include information on the resources the SDRWCB is dedicating to the project, the estimated total cost and scope of the project, and a progress report for the project.”

This report is divided into seven sections: 1) San Diego Water Board Organizational Overview, 2) San Diego Bay Resource Value, 3) San Diego Bay Cleanup Program Overview, 4) Shipyard Sediment Site Overview, 5) Shipyard Sediment Site Current Status, 6) Estimated Project Costs to the San Diego Regional Water Board and 7) Conclusion.

San Diego Regional Water Quality Control Board (San Diego Regional Water Board or Board) Organizational Overview

The Porter-Cologne Water Quality Control Act¹ designates the San Diego Regional Water Board with broad responsibilities to conduct activities and make critical water quality decisions for ensuring the protection of California’s water resources within the boundaries of the San Diego regional watershed area.² The San Diego Regional Water Board has nine part-time Board members, with broad experience in water supply, irrigated agriculture, industry, and municipal and county government. The Board members are appointed to four-year terms by the Governor and confirmed by the Senate. The San Diego Regional Water Board has over 76 staff members employed in various engineering, scientific, and administrative disciplines and organized into divisions and units that address water quality, enforcement, financial assistance,

¹ Water Code §13000 et seq. The Porter-Cologne Water Quality Control Act is the primary water quality control law for California. Porter-Cologne applies broadly to all state waters, including surface waters, wetlands, and groundwater. Its provisions reflect the legislative intent that activities and factors that could affect the quality of state waters “be regulated to attain the highest water quality that is reasonable . . .” In addition, the act authorizes the state to implement the federal Clean Water Act. Porter-Cologne is administered regionally by nine regional water quality control boards, within a framework of statewide coordination and policy administered by the State Water Resources Control Board.

² The San Diego Region forms the southwest corner of California and occupies approximately 3,900 square miles of surface area. The San Diego Region stretches along 85 miles of scenic coastline from Laguna Beach to the Mexican Border and extends 50 miles inland to the crest of the coastal mountain range.

administrative support and various other functions to carry out the mission of the State Water Resources Control Board (State Water Board) and Regional Water Boards (collectively Water Boards).

Similar to other Regional Water Boards, the key activities of the San Diego Regional Water Board include developing water quality control plans (basin plans) for watersheds that establish water quality standards and implement strategies, issuing waste discharge requirements (permits) based on the basin plans and State Water Board plans and policies, monitoring water quality, determining compliance with requirements, and taking appropriate enforcement actions against violators. The activities are accomplished through implementation of a wide diversity of complex programs that focus on areas such as storm water, wastewater treatment, water quality monitoring, wetlands protection, ocean protection, groundwater protection, environmental education, environmental justice, contaminated sites cleanup, low-impact development, and enforcement.

The San Diego Regional Water Board programs are diverse and technically complex, requiring the joint effort of water quality scientists, engineers, attorneys, and other professional staff. San Diego Regional Water Board staff members work on a variety of technical issues in these programs such as regulation of a variety of waste streams to state waters, identification of impaired water bodies and development of regulatory strategies to restore these water bodies, regulatory oversight of the investigation and cleanup of spills and toxic waste releases, development of water quality standards and implementation strategies, and development and issuance of enforcement orders. These are just a small number of the varied responsibilities of the San Diego Regional Water Board.

San Diego Bay Resource Value

San Diego Bay, one of the finest natural harbors in the world, is an important and valuable resource to San Diego and the Southern California Region. The Bay provides habitat for fish and wildlife, extensive commercial and industrial economic benefits, and recreational opportunities to citizens and visitors. The Bay is a key element for the military security of the United States.

San Diego Bay is of significant economic value to California and the Nation. The Bay is a major tourist and convention destination, international shipping center, plays a key role in the national defense, and has many other recreational, industrial, and commercial uses. Most of these uses rely on a healthy Bay. Shipping, shipbuilding, boat repair, tourism, and other industries are either directly dependent on, or otherwise benefit from, the Bay. Because of its beauty and availability as a recreational resource, San Diego Bay is a major draw for the tourist industry. In 1997, tourism in the greater San Diego area accounted for 14 million overnight visitors and \$4.4 billion in income. Much of this activity occurred around San Diego Bay and downtown San Diego where the hotels and San Diego Convention Center are located.

San Diego Bay is designated as a State Estuary under Section 1, Division 18 (commencing with section 28000) of the Public Resources Code. A State Estuary is defined as a California saltwater bay or body of water, receiving freshwater stream

flows, which supports human beneficial uses and wildlife and merits high priority action for preservation.

San Diego Bay is bordered by the cities of San Diego, National City, Chula Vista and Coronado, with an estimated population of approximately 1.65 million persons. San Diego County has a population of over 3 million and is growing at a rate of about 50,000 per year; most of these residents are located in the in the metropolitan western portion of the county.

For all these reasons San Diego Bay water quality issues have always been one of the San Diego Regional Water Board's highest priorities.

San Diego Bay Cleanup Program Overview

Under the authority of the 1949 Dickey Act, and later under the authority of 1969 Porter-Cologne Act, the San Diego Regional Water Board eliminated all municipal wastewater discharges and most point source industrial waste discharges to San Diego Bay. The resulting improvement in the water quality and sustainability of the beneficial uses of the Bay was dramatic and has been well documented.

With the reduction in the waste loadings from municipal and industrial point source discharges and their impacts on water quality in San Diego Bay, the San Diego Regional Water Board turned its attention to the subtle, but pervasive water quality impacts resulting from fuel spills, stormwater discharges and miscellaneous dry weather nuisance flows, and legacy deposits of contaminated sediments.

During the early 1980s, the San Diego Regional Water Board began an investigation focusing on pollutant sources, fates, and effects in San Diego Bay. The San Diego Regional Water Board directed the placement of the station locations for the State Mussel Watch program and augmented this work with significant staff effort to collect sediment samples at more than 300 sites throughout the Bay. As a result of this effort, the San Diego Regional Water Board identified several areas in San Diego Bay with sediments contaminated with chemical pollutants. Further investigations by the San Diego Regional Water Board identified the sources or potential sources of the contamination at most of these sites. In 1985, to combat this water quality problem, the San Diego Regional Water Board embarked on the San Diego Bay Cleanup Program, a long-term endeavor to control contaminant inputs and remediate sediment contamination.

The San Diego Regional Water Board was an early leader in recognizing that addressing the emerging issue of contaminated marine sediments in San Diego Bay was important from both an environmental and public health perspective. Bay bottom marine sediment provides habitat for many aquatic organisms and functions as an important component of aquatic ecosystems. Bay bottom sediment also serves as a major repository for persistent and toxic chemical pollutants released into the environment. In the aquatic environment, chemical waste products of anthropogenic (human) origin that do not easily degrade can eventually accumulate in sediment. The environmental threat associated with elevated levels of pollutants in sediment is caused by the tendency of many chemical substances discharged into marine waters to attach

to sediment particles and thus accumulate to high concentrations in the bay bottom sediment.

Adverse effects on organisms in or near sediment can occur even when pollutant levels in the overlying water are low. Benthic (bottom-dwelling) organisms are exposed to pollutants in sediment through direct contact, ingestion of sediment particles, or uptake of dissolved contaminants present in the interstitial (pore) water. In addition, natural and human disturbances of the sediment can release pollutants to the overlying water, where water column organisms can be exposed. Evidence from laboratory tests shows that contaminated sediment can cause both immediate lethality (acute toxicity) and long-term deleterious effects (chronic toxicity) to benthic organisms. Field studies have revealed other effects, such as tumors and other lesions, on bottom-feeding fish. These effects can reduce or eliminate species of recreational, commercial, or ecological importance (such as crabs, shrimp, and fish) in water bodies either directly or by affecting the food supply that sustainable populations require.

Furthermore, contaminated sediment can also lead to the accumulation of pollutants in organisms due to the effects of bioaccumulation. Biomagnification of the contaminants can also occur in the food chain when smaller contaminated organisms are consumed by higher trophic level species, including humans. Thus pollutants in the marine sediment might accumulate in edible tissue to levels that cause health risks to wildlife and human consumers.

In summary, contaminated marine sediments are a threat to water quality and beneficial uses, including public health, for the following reasons:

- Various toxic contaminants found only in barely detectable amounts in the water column can accumulate in sediment to much higher levels;
- Sediment serves as both a reservoir for contaminants and a source of contaminants to the water column and organisms;
- Sediment integrates contaminant concentrations over time, whereas water column contaminant concentrations are much more variable and dynamic;
- Sediment contaminants (in addition to water column contaminants) affect bottom-dwelling organisms and other sediment-associated organisms, as well as both the organisms that feed on them and humans; and
- Sediment is an integral part of the aquatic environment that provides habitat, feeding, spawning, and rearing areas for many aquatic organisms.

For all of these reasons the San Diego Regional Water Board has focused a great deal of its resources to address contaminated sediments in San Diego Bay. The ongoing process of implementing the San Diego Bay Cleanup Program has been long, controversial and contentious, involving many hours of San Diego Regional Water Board workshops, hearings and deliberations. In addressing the contaminated sediment sites the San Diego Regional Water Board has been pursuing a strategy of identifying any ongoing sources of contaminants impacting each site, initiating regulatory actions to terminate or control discharges where appropriate, and pursuing cleanup or remediation. There has been significant stakeholder involvement in the process. Key

steps in the cleanup or remediation phase include requiring identified responsible parties to delineate the horizontal and vertical extent of the contamination, establishing cleanup levels, and directing cleanup and post-cleanup verification monitoring.

To date, eight contaminated sediment sites in San Diego Bay have been totally remediated. These sites are identified in Table 1. Projects completed to-date have resulted in removal or capping of more than 230,000 cubic yards of contaminated sediment at an estimated cost in excess of \$25 million.

The work to remediate these contaminated sediment sites has been controversial and time consuming because of the costs involved and polarization over the degree of potential or actual adverse water quality effects from contaminated sediments, cleanup responsibilities, and ultimate cleanup levels. The parties deemed responsible for the sites have disputed that the sites cause pollution conditions, denied any responsibility, and argued for no-action or passive remediation alternatives. Environmental groups have argued for cleanup to background levels. Furthermore many of the Water Boards' regulatory tools are designed to address ongoing dischargers of pollutants from point sources, or "discreet conveyances," whereas the sediment sites typically involve past, or a combination of past and ongoing, discharges from unknown or speculative sources, including non-point sources. This pervasive dynamic at sediment sites makes it more difficult to establish responsibility for and/or a reasonable basis to allocate responsibility for cleanup costs. As a result of all these factors, the sites that have been remediated to-date have taken an average of approximately ten years to be cleaned up from start to finish.

There are 21 additional contaminated sediment cleanup/remediation projects itemized in Table 1 now pending in San Diego Bay. Ten of these projects involve segments of San Diego Bay that are listed as "impaired" on the statewide list of impaired water bodies. One of the "impaired" sites consists of approximately 100 acres of San Diego Bay shoreline between Sampson and 28th streets, listed for elevated levels of copper, mercury, zinc, Polychlorinated biphenyls (PCBs), Polycyclic aromatic hydrocarbons (PAHs) and Pentachlorophenols (PCPs). This site - referred to as the Shipyard Sediment Site - is the cleanup site project that is referenced in the 2008 Supplemental Report Language. The recommended alternative for remediation at the Shipyard Sediment Site has an estimated cost of \$96 million, almost four times the total cost of all the completed projects to date.

In addition to cleaning up contaminated sediments in San Diego Bay, the San Diego Regional Water Board has also worked aggressively to significantly reduce current and future discharges into the Bay. Concurrent with the contaminated sediment cleanup/remediation projects, the San Diego Regional Water Board has used its regulatory authority to eliminate or reduce emissions of pollutants from the few remaining industrial discharges to San Diego Bay. A major effort was launched to upgrade the National Pollutant Discharge Elimination System (NPDES) requirements, issued pursuant to the federal Clean Water Act, for these discharges during the five-year permit reissuance cycles beginning in the early 1990's and in subsequent cycles. Work on reissuing NPDES requirements for San Diego Bay boatyards and shipyards, the South Bay Power Plant and the U.S. Navy Graving Dock was completed by 1998. In addition, NPDES requirements were issued to three US Navy facilities around San

Diego Bay, Naval Base San Diego, Naval Base Coronado, and Naval Base Point Loma. The reissued NPDES requirements for the South Bay Power Plant significantly increased the area of South San Diego Bay protected against impacts of the discharge. The power plant eliminated all in-plant waste stream discharges to San Diego Bay and now only retains the discharge of cooling water through a series of heat exchangers. The monitoring required of the discharger was also significantly increased to allow evaluation of permit compliance and the effects of the discharge on the Bay.

The other NPDES requirements for San Diego Bay discharges, for the first time, included limits on toxicity in rainfall runoff from work areas and required management measures to remove pollutants or contaminants before they could be picked up by the runoff and be transported to the Bay. For example, the boatyard NPDES requirements now require containment of the first flush volume of storm water runoff for discharge to the sanitary sewer system. Many of the boatyards have gone beyond this requirement and prevent the discharge of all storm water discharges associated with up to two inches of rainfall. One of the largest groundwater dewatering facilities, the City of San Diego Convention Center, has ceased discharge to San Diego Bay and now diverts the water to the sanitary sewer system. Recent reissuance of NPDES requirements for all dischargers incorporate the more stringent requirements of the California Toxics Rule (CTR) in accordance with the State Implementation Policy (SIP). Finally, the NPDES general requirements for discharges of groundwater extraction wastes include a prohibition on any new permanent groundwater discharges to San Diego Bay.

In the early 1990s, the San Diego Regional Water Board issued its first municipal NPDES storm water permit to all of the municipalities in San Diego County, including the four cities (San Diego, National City, Chula Vista and Coronado,) discharging urban runoff directly into San Diego Bay. The purpose of the municipal storm water permit is to prevent and reduce the discharge of pollutants to San Diego Bay and other surface waters that result from the many urban land uses in the San Diego metropolitan area. In addition the pollutants running off industrial and construction sites during wet and dry weather are now regulated under the statewide general storm water permits. This includes construction sites tributary to San Diego Bay.

Finally, in addition to the San Diego Regional Water Board's efforts to clean up contaminated sites and control waste discharges into San Diego Bay, the Board has taken important additional regulatory measures to restore and protect San Diego Bay. These measures include the development and adoption of waste load allocations under the Board's Total Maximum Daily Load (TMDL) program for diazinon in Chollas Creek (a tributary of San Diego Bay) (2003), dissolved copper in Shelter Island Yacht Basin (2005), copper, lead and zinc in Chollas Creek (2007) and indicator bacteria at Shelter Island Shoreline Park (2008) to ensure that water quality standards are achieved. Other TMDL projects for establishing waste load allocations for waste discharges to San Diego Bay are planned for future years.

As was the case with the sediment cleanup/remediation projects, the issuance and renewal of NPDES requirements, as well as the TMDL requirements were controversial, hotly contested and involved many workshops and hearings before the San Diego Regional Water Board. Environmental organizations argued for more stringent

requirements and dischargers argued either for keeping previous requirement terms and conditions in place or for making only minimal changes.

In spite of these challenges, the San Diego Regional Water Board has demonstrated its commitment to protecting water quality in the San Diego Region, and has a long history of aggressively investigating and cleaning up numerous contaminated sediment areas in San Diego Bay.

Shipyard Sediment Site Overview

The Shipyard Sediment site consists of approximately 100 acres of San Diego Bay shoreline between Sampson and 28th streets in the City of San Diego. This site is listed as an “impaired” water body for human health and aquatic life beneficial uses due to elevated levels of copper, mercury, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and zinc. These contaminants have resulted in the San Diego County Department of Environmental Health Services posting of San Diego Bay at various public fishing locations with “fish consumption warning signs,” warning about potential health risks associated with consumption of fish from the Bay.

There are multiple parties currently believed responsible for discharging pollutants to the Shipyard Sediment Site, all major corporate or governmental entities that have been actively engaged in industrial activities on or near San Diego Bay for decades. As with the past sediment cleanup sites, these parties vigorously dispute that the Shipyard Sediment Site is impaired or contributes in any significant way to adverse water quality effects.

In January 1991, the San Diego Regional Water Board Executive Officer requested two of the potentially responsible parties, National Association of Sewer Service Companies (NASSCO) and Southwest Marine (now BAE Systems San Diego Ship Repair, Inc.), to participate in a sediment study to determine the quality of sediment within their respective leaseholds, areal extent of contamination, and appropriate cleanup levels. From that date until February 2001, the San Diego Regional Water Board was engaged in a long and difficult process to obtain sufficient information upon which to base decisions regarding the cleanup of the contaminated site.

In February 2001, the San Diego Regional Water Board adopted Resolution Nos. 2001-02 and 2001-03 which directed the Executive Officer to issue Investigative Orders pursuant to Water Code Section 13267 to NASSCO and Southwest Marine requiring each shipyard to submit the results of a site-specific study to develop sediment cleanup levels and identify sediment cleanup alternatives. San Diego Regional Water Board staff developed and began following a workplan for developing sediment cleanup levels and in June 2001 directed each shipyard to conduct a detailed sediment investigation in accordance with the workplan guidelines. Representatives of environmental advocacy organizations appeared before the San Diego Regional Water Board, during Public Forum, and objected to the process outlined in the workplan. Their objections were based on concerns that the workplan was not based on scientifically defensible methods and consequently could not be used as a basis to develop sediment cleanup levels and identify sediment cleanup alternatives protective of San Diego Bay beneficial uses. In response, the Board directed the Executive Officer to increase outreach efforts

to these organizations through workshops and public meetings and to involve them in all aspects of the conduct of the sediment study and the decision making process to develop sediment cleanup levels. As a result the San Diego Regional Water Board held three day-long public workshops, seven day-long public meetings, and provided three extensive written responses to comments documents to comprehensively address the concerns of the environmental advocacy organizations during the three year period over which the study was conducted.

Between the years 2001 to 2003 NASSCO and BAE Systems conducted a detailed sediment investigation, at a cost of in excess of \$1 million at the 100 acre site, within and adjacent to their respective leaseholds with Phase I conducted in 2001 and Phase II conducted in 2002. The results of the investigation are provided in the Exponent report *NASSCO and Southwest Marine Detailed Sediment Investigation, September 2003* (Exponent Report). Although the conclusions and recommendations of the industry funded report were that the Board should not require any cleanup of the sediments, many of the findings and conclusions of the San Diego Regional Water Board's subsequently issued Cleanup and Abatement Order were based on the data and other technical information contained in the report.

On April 29, 2005, the San Diego Regional Water Board issued a draft (tentative) cleanup and abatement order (CAO No. R9-2005-0126) pursuant to Water Code section 13304, directed at numerous parties believed to be responsible for discharges of waste to the Shipyard Sediment Site. The process for finally adopting CAO No. R9-2005-0126 is governed by Water Code section 13304, relevant regulations contained in Title 23, California Code of Regulations, and relevant provisions of the Administrative Procedures Act contained in the Government Code. Until the tentative cleanup and abatement order is adopted by the San Diego Regional Water Board, it is not enforceable.

The Tentative CAO No. R9-2005-0126 alleges that NASSCO, a subsidiary of General Dynamics, BAE Systems San Diego Ship Repair, Inc., formerly Southwest Marine, Marine Construction and Design Company and Campbell Industries, Inc., San Diego Gas and Electric Company, the United States Navy and the City of San Diego are responsible for the impairment and clean up of sediments in San Diego Bay at the site. The Tentative CAO requires these parties to undertake cleanup and abatement for shipyard sediments containing toxic pollutants.

In response to a number of parties who were vigorously opposed to undertaking cleanup at the site, the Regional Water Board instituted a formal hearing process to consider the development and issuance of a CAO for the Shipyard Sediment Site. The Board appointed one of its members as the Hearing Officer, and the Hearing Officer presided over pre-hearing conferences on September 26, 2005, December 6, 2006, January 30, 2006, April 25, 2008 and May 16, 2008. The decisions of the Hearing Officer with regard to order of proceedings, scheduling, and other matters are posted on the San Diego Regional Water Board's website at http://www.waterboards.ca.gov/sandiego/water_issues/programs/shipyards_sediment/index.shtml. Among the Hearing Officer's decisions, was a January 30, 2006 determination that the administrative record for the proceeding should be made

available electronically, in indexed and searchable format, to facilitate location of documents within the record and meaningful participation in the proceeding for both the tentatively named responsible parties and other interested parties, including non-governmental environmental organizations.

The initial draft of the technical report prescribed by the Hearing Officer was completed in March 2006. However, the report was not deemed complete until the voluminous record of all the supporting documentation upon which the report is based was indexed to the technical report in a manner allowing San Diego Regional Water Board and all parties to track the evidentiary and analytical basis for conclusions presented in the report. The administrative record upon which the San Diego Regional Water Board will rely in making the determinations regarding the liability, or lack thereof, for the parties identified in the Tentative CAO as being responsible for discharging pollutants to the Shipyard Sediment Site is extensive and voluminous. The initial source record pertaining to the various parties consists of approximately 618 file volumes occupying approximately 130 lineal feet of shelf space comprised of paper documents, microfiche, video tapes, and computer discs.

The preparation process was labor intensive on the part of San Diego Regional Water Board staff, involving a substantial amount of set-up work to dismantle paper file volumes, batch the documents by numerous classification types, prepare an index form for each individual document type, and package the documents for shipment to the contractor. The contractor in turn scanned the documents and populated the document index fields. The contractor completed the work on the indexed electronic record on April 3, 2008.

On April 3 - 4, 2008 the San Diego Regional Water Board released an updated version of the tentative CAO, the technical report, and the completed indexed electronic record simultaneously to each currently named designated party to the CAO proceedings for review and comment. The final electronic administrative record assembled by the contractor consisted of over 375,000 pages of information pertaining to the various parties and was fully indexed, text searchable, and available for use by both the tentatively named responsible parties and other interested parties, including non-governmental environmental organizations. The extraordinary efforts of the San Diego Regional Water Board staff to prepare, assemble and make this record available to the parties were unprecedented and driven in large measure by vigorous resistance of the tentatively named responsible parties to undertake cleanup at the site.

Shipyard Sediment Site Current Status

Since May 16, 2008, the San Diego Regional Water Board staff and the Designated Parties³ have participated in numerous settlement conferences to facilitate settlement of the cleanup levels issue. On June 9, 2008, the Board's Presiding Officer issued an order referring the CAO proceedings to mediation for ninety days at the request of ten of

³ "Parties" to the proceeding include the responsible discharger parties to whom the tentative cleanup and abatement order is directed, and any other person whom the Regional Board determines should be designated as a party. "Person" includes an individual, partnership, corporation, governmental subdivision or units of a governmental subdivision, or public or private organization or entity of any character.

the thirteen Designated Parties who jointly asked that the CAO proceedings be referred to mediation (with the other three Designated Parties having no objection to said referral) and that they be allowed a ninety-day period to "initiate mediation activities." On September 5, 2008, at the request of all Designated Parties, and after having heard the mediator's report on the likelihood of the mediation's success, the Presiding Officer issued an order extending the mediation period by another ninety days, through December 7, 2008. On December 3, 2008, the Designated Parties and the mediator met with and reported directly to the Presiding Officer regarding the progress being made in mediation. The Parties relayed to the Presiding Officer their collective belief that they could reach agreement on the cleanup levels issue by March 31, 2009, and the Presiding Officer subsequently issued an order extending the mediation and stay on the adjudicative administrative proceeding through March 31, 2009. By Orders dated March 20, 2009 and June 10, 2009 the Presiding Officer extended the period of mediation based on the good progress of the mediation as reported by the mediator. Most recently the mediation was extended by Order dated October 27, 2009 until December 22, 2009 to allow the San Diego Regional Board time to complete work on updating the draft Cleanup and Abatement Order and draft Technical Report to reflect the revisions agreed upon during the course of the mediation.

Between June 9 and December 15, 2008, the Designated Parties and their respective experts, attorneys and consultants met face-to-face with each other and the mediator in various combinations, and engaged in numerous teleconferences. As a direct result of the mediation process, the designated parties have assessed potential impacts to beneficial uses of San Diego Bay in the area of the shipyard leaseholds, established cleanup levels, agreed upon a cleanup methodology for the site, agreed upon a post-remedial monitoring plan, and agreed upon post-remedial monitoring triggers for possible future action. All of these agreements involved negotiation and resolution of complex technical and legal issues. In addition, the designated parties continue to make significant progress working towards an agreement on allocation, which is a pre-condition to accepting any negotiated cleanup order

The San Diego Regional Board secured consent from the mediation parties to release certain facts that were heretofore "mediation confidential." For example, the Regional Board is now able to report that the proposed revised Cleanup and Abatement Order will contain more stringent proposed cleanup levels for eight of nine chemicals of concern than in the original draft Cleanup and Abatement Order. (The cleanup level for the tributyltin is the same in both orders.) The new proposed draft Cleanup and Abatement Order will also contain a more sophisticated economic analysis, the footprint of the area to be cleaned up, a preliminary remedial design, a robust monitoring program to be undertaken by the responsible parties both during the cleanup activities and after the proposed remedial scheme is implemented, and an implementation schedule. Also unlike the current draft, the new proposed draft Cleanup and Abatement Order will contain specific numeric "further action" levels for the primary chemicals of concern if monitoring reports indicate these numeric levels have been exceeded. The Cleanup Team believes, in good faith, that the parties responsible for the cleanup will not contest the new proposed draft Cleanup and Abatement Order and draft technical report when it is released for public review on December 22, 2009. Such an order

would then be subject to consideration for adoption by the San Diego Regional Water Board members in a subsequent formal public hearing sometime in early 2010.

Estimated Project Costs to the San Diego Regional Water Board

The estimated total cost of the Shipyard Sediment Cleanup Project to the San Diego Regional Water Board is estimated to be \$3,335,000 and the total costs of cleanup at the Shipyard Sediment site by the Designated Parties is approximately \$96 million.

The Regional Water Board cost estimate assumes that the ongoing effort to mediate sediment cleanup levels will be successful, and that an adversarial hearing on the Tentative Cleanup and Abatement Order before the San Diego Regional Water Board, and any subsequent litigation will be avoided. This cost estimate also assumes that cleanup actions will be completed by December 2011, and that post-cleanup monitoring will be ongoing for five years. It should be noted, however, that post-cleanup monitoring may actually exceed five years.

The costs of this project fall into two main categories; staff costs and contracts as shown in Table 2. All of the project costs are potentially reimbursable to the San Diego Regional Water Board pursuant to its authority under Water Code section 13304.

TABLE 2. ESTIMATED TOTAL REGIONAL WATER BOARD COSTS FOR SHIPYARD SEDIMENT CLEANUP PROJECT			
	Staff Costs	Contracts	Total
Feb. 2001 – Dec. 2008	\$2,970,361	\$119,907	
Jan. 2009 – Dec. 2016	\$405,729	\$20,000	
Totals	\$3,376,090	\$139,907	\$ 3,515,998

To date, National Steel and Shipbuilding Company, Inc., and BAE Systems, Inc. have reimbursed \$1,442,000 to the State Water Resources Control Board. The remaining costs can be recovered by the San Diego Regional Water Board upon adoption of a Cleanup and Abatement Order using the authority of Water Code section 13304.

Conclusion

The San Diego Regional Water Board considers San Diego Bay to be one of the Region’s most valuable resources and therefore one of its highest priorities. The Board has a long history of protecting and restoring San Diego Bay. Over the past five decades, the Board has employed its full arsenal of regulatory tools including permitting (both wastewater and storm water discharges), monitoring and surveillance, enforcement, cleanup, and implementation of TMDL restoration strategies to address San Diego Bay water quality issues. The San Diego Regional Water Board is currently addressing contaminated sediment cleanup at a number of sites throughout San Diego Bay, including the Shipyard Sediment Site (San Diego Bay Shoreline, between Sampson and 28th Streets). The Board is currently engaged in proceedings to consider the development and issuance of a cleanup and abatement order for discharges of metals and other pollutant wastes to San Diego Bay marine sediments at the Shipyard Sediment Site. Aquatic life and human health beneficial uses designated for San Diego

Bay are impaired due to elevated levels of pollutants present in the marine sediment at the Shipyard Sediment Site.

The proceedings for establishing cleanup levels for the Shipyard Sediment Site are extremely contentious and controversial with environmental organizations pushing for stringent cleanup levels and responsible parties trying to keep the costs of cleanup or remediation as low as possible. The cost for cleanup is expected to be in the tens of millions of dollars and it is highly likely that the San Diego Regional Water Board's decision on the matter will be subject to litigation if the current mediation efforts are not successful. For this reason the Board is ensuring that the complex proceedings, involving complicated technical issues and multiple sophisticated dischargers, follow an orderly process with adequate opportunity for meaningful participation by the parties. The overarching goal of the proceedings is for the San Diego Regional Water Board to ensure that its final order is implementable, scientifically and legally defensible, and enforceable and will ultimately result in the cleanup of contaminated sediment at the Site.

Although the time period over which the Board has prepared the tentative cleanup and abatement order, technical report and administrative record has been extended due to a variety of factors, the Regional Water Board has nonetheless made steady substantial progress to date. The San Diego Regional Water Board has been engaged in mediation proceedings with the designated parties on discharger liability and cleanup level establishment issues since June 2008. Given the progress made to date in the current mediation phase the Board is hopeful that an enforceable order establishing cleanup levels can be agreed to by all Parties, by December 22, 2009. Such an order would then be subject to consideration for adoption by the San Diego Regional Water Board members in a subsequent formal public hearing, in early 2010.

Table 1. San Diego Bay Sediment Cleanup Sites

Number	San Diego Bay Sediment Cleanup Sites	Pending	Sites on the 303(d) List	Site Investigation Underway	Site Cleanup Initiated	Cleanups Completed
1	24th Street Marine Terminal	X	X			
2	B St and Broadway Piers	X	X	X		
3	Bay City Marine					X
4	Between Sampson and 28th Streets (Shipyard Sediment Site)	X	X	X		
5	BF Goodrich Aerospace Facility	X		X	X	
6	Campbell Shipyard					X
7	Coronado Bridge	X	X			
8	Downtown Anchorage	X	X	X		
9	Driscoll Boatyard					X
10	Eichenlaub Marine					X
11	Former Teledyne Ryan Phase 1 (Convair Lagoon)					X
12	Former Teledyne Ryan Phase 2 (Convair Lagoon)	X		X	X	
13	Kettenburg Marine					X
14	Koehler Kraft					X
15	Mauricio and Sons					X
16	Mouth of Chollas Creek	X	X	X		
17	Mouth of Switzer Creek	X	X	X		
18	NAB Coronado - Site 6 - Recreation Marina	X		X		
19	NAS North Island - Site 20 - Ground Water Plume	X		X		
20	Naval Air Station North Island - San Diego Bay Primary Ship Channel and Homeporting	X				
21	Naval Air Station North Island - Site 1 - Storm Water Outfalls (16 Outfalls)	X		X		
22	Naval Air Station North Island - Site 9 - Former Industrial Waste Disposal Area	X		X		
23	Naval Station San Diego - Site 1 - Shipyard Basin	X		X		
24	Naval Station San Diego - Site 2 - Mole Pier	X		X	X	
25	Naval Station San Diego, Piers 2 - 7	X	X	X		
26	Naval Training Center Site 12 - Boat Channel	X		X		
27	Navy Submarine Base	X	X	X		
28	Paco Terminals					X
29	Seventh Street Channel	X	X	X		
30	Tow Basin	X		X	X	