State of California
Regional Water Quality Control Board
San Diego Region

ADVISORY TEAM SUMMARY REPORT
November 9, 14, 15, and 16, 2011

ITEM: 6

SUBJECT: **PUBLIC HEARING:** Consideration of Tentative Cleanup and Abatement] Order No. R9-2011-0001 and Draft Technical Report, naming as Dischargers BAE Systems San Diego Ship Repair, Inc., Campbell Industries, City of San Diego, National Steel and Shipbuilding Company, San Diego Gas & Electric Company, San Diego Unified Port District, Star & Crescent Boat Company, and United States Navy, for the San Diego Bay Shipyard Sediment Cleanup Project, San Diego County. The San Diego Water Board may adopt, modify or reject the Tentative Order or may continue the hearing or action on the Tentative Order to December 14, 2011, or some other date. **TIME CERTAIN: THE SAN DIEGO WATER BOARD WILL HEAR COMMENTS FROM INTERESTED PERSONS/PUBLIC ON THIS ITEM AT 5:00 P.M. ON NOVEMBER 9, 2011.** *(Frank Melbourn)*

PURPOSE: To hear public comment, testimony, evidence and argument and to consider adoption of Tentative Cleanup and Abatement Order No. R9-2011-0001 and supporting Draft Technical Report. The hearing will be conducted by a panel of three or more members if a quorum of the San Diego Water Board is not present during the scheduled hearing dates for any reason. A panel cannot take final action, but will make a recommendation in the form of a draft order for a quorum of the board to consider at a future date.

PUBLIC NOTICE: This item was publicly noticed with a Notice of Public Hearing on September 16, 2011 and in the Agenda and Notice of Meeting published on October 26, 2011. A Public Hearing Fact Sheet was also published in English and Spanish on September 28, 2011(Supporting Document 3).

DISCUSSION: In brief, the TCAO (Supporting Document 5) and DTR (Supporting Document 6) prepared by the San Diego Water Board Cleanup Team allege that elevated levels of wastes above San Diego Bay background conditions exist in the San Diego Bay bottom marine sediment along the eastern shore of central San Diego Bay (See Supporting Document 1 – Site Location Map**;** This area is hereinafter referred to as the “Shipyard Sediment Site” or “Site.”). The TCAO and

DTR conclude that elevated levels of waste in sediment have unreasonably impaired aquatic life, aquatic-dependent wildlife and human health beneficial uses in the Shipyard Sediment Site location. The TCAO, if adopted, would direct that named Dischargers remediate the sediment to alternative cleanup levels through the primary use of dredging and disposal of sediment in the proposed remedial footprint.

**SHIPYARD SEDIMENT SITE (TCAO, Finding 1 & DTR § 1.1)**

The TCAO and the supporting DTR allege that discharges of wastes to San Diego Bay, which contain metals and organic pollutants, have resulted in the accumulation of these pollutants in bay bottom marine sediment, creating conditions that adversely impact beneficial uses. The data used to support many of the findings of the TCAO and DTR are included in a technical report titled *NASSCO and Southwest Marine Detailed Sediment Investigation, September 2003*(Exponent, 2003) prepared on behalf of National Steel and Shipbuilding Company (NASSCO) and Southwest Marine, Inc. (now BAE Systems San Diego Ship Repair, Inc. (BAE Systems)). The DTR refers to sediment containing elevated levels of wastes and pollutants at the Shipyard Site as “contaminated marine sediment.”

The NASSCO and BAE Systems leaseholds are adjacent to each other and lie within the Shipyard Sediment Site. The total combined San Diego Bay acres included in the two leaseholds is approximately 56 acres. Also included in the Shipyard Sediment Site are areas just outside the northwestern boundary of the BAE Systems leasehold and areas west of both the leaseholds near the eastern edge of the shipping channel. A plot plan for the NASSCO and BAE Systems shipyards is provided in Supporting Document 2.

**DISCHARGERS (TCAO Findings 2 – 11 & DTR §§ 1.3 & 2 – 11)**

The TCAO and DTR assert that eight entities/agencies have caused or permitted the discharge of waste to the Shipyard Sediment Site resulting in the accumulation of wastes in the bay bottom sediment. The TCAO finds that these discharges of waste have created conditions of contamination or nuisance, adversely impacting beneficial uses related to aquatic life, aquatic-dependent wildlife and human health. Therefore, the TCAO designates the

following entities/agencies as Dischargers for purposes of the implementing the TCAO:

1. BAE Systems;
2. Campbell Industries;
3. City of San Diego;
4. NASSCO;
5. San Diego Gas and Electric (SDG&E);
6. San Diego Unified Port District (Port District);
7. Star & Crescent Boat Company; and
8. United States Navy.

**ELEVATED POLLUTANT LEVELS (TCAO Findings 1, 13 – 29 & DTR §§ 1.2, 1.4 – 1.5, 13 – 29)**

The DTR identifies the Site's primary constituents of concern (primary COCs), as those associated with the greatest exceedance of background conditions[1] and the highest magnitude of potential risk at the Shipyard Sediment Site. The DTR concludes that a greater concentration above background suggests a stronger association with the Shipyard Sediment Site, higher potential for exposure risk, and therefore a higher potential for risk reduction via remediation. The DTR identifies secondary contaminants of concern (secondary COCs) as contaminants with lower concentrations relative to background, that are highly correlated with primary COCs and that likely would be addressed during remediation of the primary COCs. (Because they are physically co-located, removing the sediment containing the primary COCs would likely also remove the secondary COCs.) The primary COCs are:

1. Copper;
2. Mercury;
3. High molecular weight polynuclear aromatic hydrocarbons (HPAHs);
4. Polychlorinated biphenyls (PCBs); and
5. Tributyl tin (TBT).

The secondary COCs are the following and are described in more detail at DTR page 29-1:

1. Arsenic;
2. Cadmium;
3. Lead; and
4. Zinc.

[1] The TCAO and DTR use "background conditions" and "reference conditions" interchangeably.

**ARE BENEFICIAL USE RECEPTORS IMPAIRED DUE TO CONTAMINATED SEDIMENT IN THE SHIPYARD SEDIMENT SITE?**

The TCAO/DTR employed three scientific methodologies specifically designed for the purpose of assessing whether or not (and if so, the degree to which), ecological and human health beneficial use receptors are impaired. A TRIAD Weight of Evidence approach was used to assess any adverse effects to the aquatic life beneficial uses. The aquatic life category includes benthic community (assemblages of bottom-dwelling invertebrates) as well as shellfish and fish. However, the benthic community was selected as the single best indicator (representative) of the aquatic life category because benthic invertebrates live in and actively ingest sediment. An Aquatic Dependent Wildlife Risk Assessment and a Human Health Risk Assessment were used to evaluate impairment to the aquatic dependent wildlife and human health beneficial uses respectively.

**RISKS TO AQUATIC LIFE BENEFICIAL USE (THE BENTHIC COMMUNITY) (TCAO Findings 15, 16, 18 and DTR §§ 15, 16, 18)**

**Sediment Quality Triad Results –**The DTR assesses sediment quality based upon a weight of evidence or multiple lines of evidence approach; specifically the following lines of evidence were used: sediment chemistry; toxicity; and benthic community assessment.

The TCAO/DTR categorizes 6 of 30 sediment quality triad sampling stations at the Shipyard Sediment Site as having sediment pollutant levels “Likely” to adversely affect the health of the benthic community. The remaining triad stations were classified as “Possible” (13) and “Unlikely” (11). These results are based on the synoptic measures of sediment chemistry, toxicity, and benthic community structure at the sampled stations.

**Reference/Background Conditions –** The Site sediment quality characterizations presented in DTR Table 18-1 were determined by comparing the Site’s Triad results with a San Diego Bay reference condition. The reference condition is based upon sampling results from stations in San Diego Bay outside of the Site’s influence. See Section 17 of the DTR.

This reference condition represents contemporary background chemical and biological characteristics of San Diego Bay and is intended to be reflective of conditions that would exist in the marine sediment in the absence of Site discharges. As described in the DTR, reference conditions reflect the existing anthropogenic background pollutant levels from non-shipyard related discharges (e.g., urban watershed loading in San Diego Bay), as well as natural variability in marine sediment toxicity and benthic community condition. A description of the Reference Sediment Quality Conditions, including a list of the reference stations, is provided in Section 17 of the DTR.

**RISKS TO AQUATIC DEPENDENT WILDLIFE (TCAO Finding 24 and DTR § 24)**

The Ecological Risk Assessment objective was to more conclusively determine whether or not Shipyard Sediment Site conditions pose an unacceptable risk to aquatic-dependent wildlife receptors of concern. The receptors of concern selected for the assessment include: California least tern (*Sterna antillarum brownie*); California brown pelican (*Pelecanus occidentalis californicus*); Western grebe (*Aechmophorus occidentalis*); Surf scoter (*Melanitta perspicillata*); California sea lion (*Zalophus californianus*); and East Pacific green turtle (*Chelonia mydas agassizii*). Based on the screening level risk assessment results, the TCAO and DTR conclude that there is a potential risk to all receptors of concern ingesting prey caught at the Shipyard Sediment Site.

To focus the risk assessment, prey items were collected within four assessment units at the Shipyard Sediment Site and from a reference area located across the bay from the Site. Chemical concentrations measured in fish were used to estimate chemical exposure for the least tern, western grebe, brown pelican, and sea lion and chemical concentrations in benthic mussels and eelgrass were used to estimate chemical pollutant exposure for the surf scoter and green turtle, respectively. Based on the ecological risk assessment results, the TCAO and DTR conclude that ingestion of prey items caught within all four assessment units at the Shipyard Sediment Site pose an increased risk above reference to all receptors of concern (excluding the sea lion). The chemicals in prey tissue found to pose a risk include Benzo-[a]-pyrene (BAP), PCBs, copper, lead, mercury, and zinc.

**RISKS TO HUMAN HEALTH (TCAO Finding 28 and DTR § 28)**

According to the DTR, fish consumption is the primary pathway (mechanism) of exposure by humans because pollutants identified as existing at the Site bioaccumulate in fish and shellfish. The DTR analyzed potential human health risks by estimating carcinogenic and non-carcinogenic hazards associated with consuming Site fish. The DTR incorporates procedures used by the U.S. EPA for estimating human health risks due to the consumption of chemically contaminated fish. The DTR concludes that consumption of Site fish and shellfish (e.g., spotted sand bass and spiny lobster) poses a greater risk of cancer and non-cancer health effects, to recreational and subsistence anglers, than risks posed from consumption of fish exposed to reference conditions in San Diego Bay. The carcinogenic Constituents of Potential Concern (CoPCs) are identified as including total PCBs and inorganic arsenic. The non-carcinogenic CoPCs include cadmium, copper, mercury, and total PCBs.

**LEGAL AUTHORITY TO REQUIRE SEDIMENT CLEANUP AND DEFINITION OF "BACKGROUND"**

Water Code section 13304 authorizes the San Diego Water Board to order persons (1) who have discharged waste into waters of the state in violation of waste discharge requirements or other orders/prohibitions, or (2) who have caused or permitted or threaten to cause or permit waste to be discharged or deposited where it is, or probably will be, discharged into 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. San Diego Water Board actions pursuant to Water Code section 13304 must be consistent with State Water Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," which interprets and implements section 13304.

Resolution No. 92-49 requires that the Regional Water Boards assure that any cleanup conform to the state's anti-degradation policy (Resolution No. 68-16) and assure that dischargers cleanup and abate the effects of discharged waste in a manner that promotes attainment of (1) background water quality (i.e., the water quality that existed before the discharge) or (2) the best water quality which is

reasonable if background water quality levels cannot be restored.

Background or "reference conditions" for purposes of implementing Resolution No. 92-49 are terms that are subject to numerous differing interpretations. The TCAO and DTR use the terms "background" and "reference" interchangeably and define these terms to mean the *contemporary ambient conditions in San Diego Bay absent the discharge of shipyard waste.* In other words, the TCAO definition of background assumes that low levels of anthropogenic pollutants are present throughout San Diego Bay and that Bay sediments exhibit natural biological and physical variability. The definition of background or reference conditions is significant because in the TCAO it is the standard against which the shipyard sediment cleanup results will be compared. Shipyard results are also compared against published human health and species-specific threshold concentrations (i.e., concentrations above which adverse effects will likely be observed).

State Water Board Resolution No. 92-49 directs the San Diego Water Board to require cleanup to background levels *unless* the board finds that it is technologically or economically infeasible to do so. The TCAO concludes that "it is technologically feasible to cleanup to the background sediment quality levels utilizing one or more remedial and disposal techniques" (TCAO Finding 30). However, based upon analysis in the DTR (see DTR analysis of economic feasibility of cleanup at pages 31-1 to 31-3, and the Appendix for DTR Section 31); the TCAO concludes that it is economically *infeasible* to clean up the sediment to background conditions. In reaching this determination, the TCAO recognizes that Resolution No. 92-49's "economic feasibility" determination "does not refer to the dischargers' financial ability to finance cleanup" but "requires an objective balancing of the incremental benefit of attaining further reduction in the concentrations of primary COCs as compared with the incremental cost of achieving those reductions" (TCAO, Finding 31).

The TCAO also finds: "When considering appropriate cleanup levels under Resolution No. 92-49, the San Diego Water Board is charged with evaluating 'economic feasibility' by estimating the costs to remediate constituents of concern at a site to background and the costs of implementing other

alternative remedial levels. An economically feasible alternative cleanup level is one where the incremental cost of further reductions in primary COCs outweighs the incremental benefits" (Supporting Document 5, Finding 31).

## DEVELOPMENT OF ALTERNATIVE CLEANUP LEVELS

**SEDIMENT CLEANUP LEVELS (TCAO § 32 & DTR § 32)**
As stated in the TCAO, Resolution No. 92-49 allows the San Diego Water Board to "prescribe alternative cleanup levels less stringent than background sediment chemistry concentrations if attainment of background concentrations is technologically or economically infeasible. Resolution No. 92-49 requires that alternative levels must be set at the lowest levels the discharger demonstrates and the San Diego Water Board finds is technologically and economically achievable" (Supporting Document 5, Finding 32)**.**

In developing alternative cleanup levels, the DTR analysis compares sediment chemistry levels found at the Shipyard Sediment Site to various sediment quality guidelines (SQGs) as well as background reference sediment chemistry levels found in other parts of San Diego Bay. Consistent with the principles described in the DTR (Supporting Document 6, Section 17.1), the San Diego Water Board Cleanup Team selected stations to establish reference conditions that are reflective of the sediment quality condition that exists adjacent to the Shipyard Sediment Site and that would likely be present at the Site in the absence of shipyard waste discharges. The analysis considers the contemporary background conditions, which necessarily includes the global distribution of pollutants in San Diego Bay from current and historical discharges. This is an important distinction because the "reference condition" used in the DTR is not representative of pre-industrial background conditions in San Diego Bay. According to the DTR, factoring in low levels of pollutants at a reference site is consistent with U.S. EPA guidelines on selecting and establishing reference conditions. The purpose of this comparison was to evaluate 1) if sediment chemistry levels at the Shipyard Sediment Site chemistry levels exceed background conditions in San Diego Bay, and 2) the potential threat to aquatic life from chemical pollutants detected in the marine sediment.

Resolution No. 92-49 (Section III.G., references to CCR 23, section 2550.4) requires that alternative cleanup levels not

pose a substantial present or potential hazard to human health or the environment. Alternative cleanup levels should be based upon an evaluation of risks to human health and the environment at the site, and set to reduce the risks to acceptable levels.

According to the DTR, tor many receptors, risk is estimated by comparing pollutant concentrations in sediments and prey tissues to calculated risk thresholds developed specifically for those receptors. For other receptors, such as benthic invertebrates, direct measurements such as benthic community metrics, sediment toxicity and chemistry may be applied instead. Typically, those most sensitive receptors identified will become the focus of the remedial effort. Although risk assessments may guide the development of appropriate alternative cleanup levels, the levels must comply with all of the requirements of Resolution No. 92-49.

The DTR identifies target species that model the routes of exposure for sediment pollutants to representative species of aquatic-dependent wildlife (i.e., California least tern, California brown pelican, Western grebe, Surf scoter, California sea lion, and East Pacific green turtle) and human receptors. The aquatic-dependent wildlife and some prey species (i.e., top smelt, anchovies, spotted sand bass, benthic mussels, and eelgrass) may have foraging ranges many times larger than the Shipyard Sediment Site, and it is unlikely that they would be exposed to Shipyard sediment concentrations for an extended period of time.

According to the DTR, the same is true of fish and lobster harvested by anglers. Target species consumed by recreational or subsistence anglers are known to forage over areas near or greater than the size of the Site, depending on the species. Fish and lobster do not limit their movement to the small area represented by a single sediment sample, but range among a much larger area and would be exposed to sediments of varying chemical concentrations throughout the Site and the greater San Diego Bay.

**THE TCAO/DTR ESTABLISH ALTERNATIVE SEDIMENT CLEANUP LEVELS AS "SURFACE AREA WEIGHTED AVERAGE CONCENTRATIONS" OR "SWACS"**

According to the DTR, under these conditions, exposure to sediment chemicals at the Site is best estimated as an

average across the entire Site. The DTR uses a method for averaging estimated exposures referred to as "surface-area weighted average concentrations" (SWACs). The sediment sample concentration is constant over an irregularly shaped area (known as a "polygon") that includes the sampling point and area that is mathematically located closest to the sample point relative to all other adjacent sampling points. The DTR asserts that the use of SWACs retains conservatism since the amount of time most species are likely to spend foraging at the site is expected to be less than one hundred percent. The DTR asserts that a SWAC for sediment is a more appropriate method for evaluating the exposure to chemicals that aquatic-dependent wildlife species (fish and lobster) incur during foraging. The DTR concludes that this approach allows a much more accurate and realistic estimation of the bioaccumulation of chemicals from Site sediments and prey items. Quantification of pollutant bioaccumulation in fish and lobster facilitates an accurate and realistic estimation of chemical exposure for hypothetical anglers consuming species harvested from the Site, and allow the prediction of potential risks to aquatic-dependent wildlife species and human health associated with chemical concentrations in sediment.

The DTR uses post-remedial SWACs (i.e., concentrations of pollutants expected after remediation) to estimate risk and hazard calculations for protection of aquatic-dependent wildlife and human health. According to the DTR (Supporting Document 6, Page 32-26):

> "*All post-remedial SWACs approximated protection of recreational angler consumption at 100 percent consumption rates, although subsistence anglers would only be protected at lower consumption rates. In development of fish tissue advisory levels, OEHHA bases risk-based fish tissue advisory levels using a one-meal per week consumption rate (equivalent to 32 g/day; OEHHA, 2008). This is the equivalent of a 20 percent fractional intake for subsistence fishermen. The PCB post-remedial SWAC for subsistence fishermen is not protective, although reference conditions are not protective of this PCB exposure route, reflecting the broad regional pattern of PCBs in Southern California.*"

The DTR asserts that "reference" conditions are not protective of the calculated PCB exposures for subsistence anglers.

State Board Resolution No. 92-49 (Section F.1), provides that the Regional Boards require actions for cleanup and abatement to:

"*Conform to the provisions of Resolution No. 68-16 of the State Water Board, and the Water Quality Control Plans of the State and regional Water Boards, provided that under no circumstances shall these provisions be interpreted to require cleanup and abatement which achieves water quality conditions that are better than background conditions*."

The DTR concludes that the analysis of alternative cleanup levels complies with State policy to the extent that the "reference conditions" for this site are consistent with the meaning of "background conditions" included in State Board Resolution No. 92-49. The DTR concludes that the proposed sediment cleanup levels (SWACs) are reasonably protective of human health beneficial uses of San Diego Bay, primarily because of the conservative assumptions (Supporting Document 6, Pages 32-26 To 32-28) built into the analysis of Human Health Risk Assessments for this Site.

**REMEDIAL FOOTPRINT (TCAO Findings 32 and 33 & DTR §§ 32 and 33).**

The DTR proposes a remedial footprint based on irregularly shaped cleanup areas (polygons) as presented in Supporting Document 6 (See Section 32 and Appendix for DTR Section 32). These polygons are used to associate a specific area (the area within a polygon) with the analytical results of sediment chemistry, toxicity, and benthic sampling within the polygon. The sediment chemistry, toxicity, and benthic community data at the sampling station are assumed to be constant over the entire polygon. The DTR calculates post remedial SWACs based upon the expectation that contaminated sediments located within the dredged areas would achieve background chemical concentrations. The tentative Cleanup Order allows target cleanup levels may be as high as the cleanup levels required by Directive A.2.a (Dredge Remedial Areas) plus twenty percent. The cleanup is required to attain the final post remedial SWACs specified

in Directive A.2.c of the TCAO (see Supporting Document 5, Page 21).

The DTR (Supporting Document 6, See Discussion and Figures in Section 33 and Appendix for DTR Section 33) divides the remedial footprint into two areas (North and South) with the remedial areas and volume of dredge wastes summarized as follows:

| Activity | North Area | South Area |
|---|---|---|
| Dredge Remedial Area (square feet) | 438,300 | 217,800 |
| Under Pier Remedial Area (square feet) | 89,980 | 13,725 |
| Total Remedial Area (square feet) | 528,295 | 231,495 |
| Dredge Volume (cubic yards) | 90,800 | 52,600 |

The DTR summary of the general characteristics of the proposed remedial footprint can be paraphrased as follows:

a. Includes a total of 23 Polygons/cleanup areas
b. Captures 100 percent of Triad “Likely” and 57 percent of Triad “Possible” impacted stations
c. Captures all non-Triad stations with COC concentrations above ecological risk thresholds
d. Total Remedial Surface Area (including under piers) = 20.55 acres
e. Total Dredge Volume = 143,400 cubic yards
f. Achieves SWAC for protection of human health and wildlife
g. SWACs are at or near background for 6 out of 9 COCs

**POST-REMEDIAL MONITORING (TCAO Finding 34 & DTR § 34) (and Triggers for Future Corrective Action)**
The DTR states that the objective of the post-remedy implementation monitoring is to verify that remaining pollutant concentrations in the sediments will not unreasonably affect San Diego Bay beneficial uses. The proposed sediment monitoring program will be based upon a conceptual model of the site that identifies the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the sediment.

The DTR proposes that composite surface sediment samples be collected from six polygon groups comprising

sub-regions of the site (Supporting Document 6, See Discussion and Figures in DTR Section 34). To prepare the composite samples, the 65 station locations within the six polygon groups (Supporting Document 5, see TCAO Attachment 6) will be sampled. The volume of the sample at each station will be proportional to the area of the polygon the station represents. A summary of the post-remediation analysis, proposed in the DTR, is as follows:

**Sediment Chemistry –** These samples will be collected from the 0 to 2 cm depth interval. Analyses of surface sediment samples will include sediment bulk chemistry of PCBs, copper, mercury, HPAHs, and TBT, and sediment conventional parameters (e.g., grain size and Total Organic Carbon).

**Bioaccumulation –** Nine (9) sediment samples will undergo bioaccumulation testing using the 28-day clam (*Macoma sp*.) test. The samples selected for bioaccumulation testing will be from the same shipyard and reference stations that underwent bioaccumulation testing in the Shipyard Report (Exponent, 2003).

**Benthic community conditions –** Surface sediment samples will be collected at five stations within the footprint area. Sediments will be evaluated using two types of sediment toxicity tests in accordance with protocols recommended in the DTR: (1) 10-day amphipod survival test using *Eohaustorius estuarius* exposed to whole sediment, and (2) 48 hour bivalve larva development test using the mussel (*Mytilus galloprovincialis)* exposed to whole sediment at the sediment-water interface.

The proposed frequency of post-remedial sediment sampling and analyses (chemical, physical, and bioassay testing) is to occur at two and five years after remediation. The DTR proposes that at ten years post remediation additional sampling events may be scheduled, depending on the results at year five post-remediation.

The DTR proposes that SWAC trigger concentrations be used to evaluate whether SWAC cleanup levels have been met, or whether further action is needed. These

concentrations represent the surface-area weighted average concentration expected after cleanup, accounting for the variability in measured concentrations throughout the area. The DTR identifies SWAC trigger concentrations as follows:

| Primary COCs | Trigger Concentrations |
|---|---|
| Copper | 185 mg/kg |
| Mercury | 0.78 mg/kg |
| HPAHs | 3,208 µg/kg |
| PCBs | 253 µg/kg |
| TBT | 156 µg/kg |

**HOW WILL CLEANUP SUCCESS BE MEASURED?**

If the SWAC after remediation is below the trigger concentration then remediation will be considered successful. Exceedance of the trigger concentration will result in further evaluation of the site-specific conditions to determine if the remedy was successful. For these post-remedial comparisons, it is critical to account for the natural variability of the predicted post-remedial SWAC. The proposed trigger level for each primary COC was set at the upper 95 percent confidence limit (UCL) on the estimated post-remediation SWAC.

Post-remediation monitoring will be initiated two years after remedy implementation has been completed and will continue for a period of up to 10 years after remediation.

KEY ISSUES/
LEGAL ISSUES

1. Are the Dischargers appropriately identified in the tentative Order?
2. Do the reference stations adequately and appropriately represent the “background” conditions for San Diego Bay?
3. Were all Constituents of Concern (COCs) appropriately identified?
4. Do existing concentrations of waste constituents create conditions of pollution and/or nuisance subject to Water Code section 13304?
5. Are station assessments reasonable and appropriate for this site?

6. Is the assessment of technological and economic feasibility reasonable and appropriate?
7. Are the proposed sediment cleanup levels established in accordance with applicable State Plans and Policies, including State Water Board Resolution No. 92-49, and applicable regulations?
8. Is the proposed remedial footprint adequate to protect beneficial uses and reasonable for the site?
9. Is the proposed post-remedial monitoring and verification program appropriate to assess the long-term effectiveness and impacts of the sediment cleanup project?

SUPPORTING DOCUMENTS:

1. Location Map of the Shipyards site
2. Plot plan for Shipyard facilities – NASSCO and BAE
3. Public Hearing Notifications
   a. Notice of Public Meeting: English, September 16, 2011
   b. Fact Sheet: Spanish, September 28, 2011
4. Public Hearing Fact Sheet: English, September 28, 2011
5. Tentative Cleanup and Abatement Order No. R9-2011-0001 (September 15, 2010)
6. Draft Technical Report (DTR) (September 15, 2010)
   a. Volume 1 – Finding Numbers 1 through 11
   b. Volume 2 – Finding Numbers 12 through 31
   c. Volume 3 – Finding Numbers 32 through 39
   d. Appendix for Section 6 – Campbell Industries
   e. Appendix for Section 12 – Clean Water Act 303d List
   f. Appendix for Section 15 – Multiple Lines of Evidence/Weight of Evidence
   g. Appendix for Section 17 – Reference Sediment Quality Conditions
   h. Appendix for Section 18 – Sediment Quality Triad results
   i. Appendix for Section 19 – Bioaccumulation
   j. Appendix for Section 23 – Indicator Sediment Chemicals
   k. Appendix for Section 24 - Tier II Baseline Comprehensive Risk Assess- Aquatic Life
   l. Appendix for Section 27 – Tier I Screening Level Risk Assessment Human Health
   m. Appendix for Section 28 – Tier II Baseline Comprehensive Risk Assess Human Health
   n. Appendix for Section 31- Economic Feasibility
   o. Appendix for Section 32 – Alternative Cleanup Levels

   p. Appendix for Section 33 – Proposed Remedial Footprint
   q. Appendix for Section 34 – Remedial Monitoring Program
7. Response to Comments Report for TCAO and DTR – Contains Cleanup Team summary of Designated Party comment, Cleanup Team Response, and Designated Party verbatim comment. (August 23, 2011)
8. Revisions to TCAO and DTR– Revisions to documents by Cleanup Team based upon comments received (September 15, 2011)
9. Designated Parties Written Comments, Argument and Evidence (May 26, 2011) and Rebuttal Comments, Argument and Evidence (June 23, 2011) some of which included expert reports. These documents are posted on the San Diego Water Board web site at http://www.waterboards.ca.gov/sandiego/water_issues/programs/shipyards_sediment/2005_0126adt.shtml
10. Hearing Briefs for Tentative CAO R9-2011-0001
   a. NASSCO Legal Brief
   b. BAE Systems San Diego Ship Repair, Inc.
   c. Star and Crescent Boat Company
   d. San Diego Gas and Electric Company
   e. San Diego Unified Port District
   f. City of San Diego
   g. San Diego Coastkeeper and Environmental Health Coalition
   h. San Diego Water Board Cleanup Team
11. Comments on Revisions to TCAO No. R9-2011-0001 and Associated Portions of DTR
   a. NASSCO
      i. Comments on TCAO (hard-copy)
      ii. Comments on Hearing Notice (hard-copy)
   b. BAE Systems (hard-copy)
   c. San Diego Port District (hard-copy)
12. Table of Contents – Comments and Rebuttals

RECOMMENDATION: Recommendations from the Advisory Team will be provided upon request at the conclusion of the hearing.