Frank Melbourn

APPENDIX A
COVER PAGE
SHIPYARD SEDIMENT SITE

Designated Parties to the proceeding shall provide the following information on the cover page of their submittal:

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Comment 1.0 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Section 4.3.1
DTR Page, Paragraph, and Sentence Number	Page 4-3 (paragraphs and sentences not numbered)
Concise Summary of Issue	Studies cited in DTR do not support the DTR's conclusions regarding Chollas Creek's influence on chemicals of concern in shipyard sediments.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 1.0: STUDIES CITED IN DTR SECTION 4.3.1 DO NOT SUPPORT THE DTR'S STATEMENTS REGARDING CHOLLAS CREEK'S INFLUENCE ON THE CHEMICALS OF CONCERN IN SHIPYARD SEDIMENTS.

The Draft Technical Report for Tentative Cleanup and Abatement, Order No. R9-2011-0001 is herein referred to as the "DTR." The DTR quotes the following allegation by the San Diego Regional Board in Cleanup and Abatement Order, Finding 4:

> "the City of San Diego has discharged urban water containing waste through its MS4 to Chollas Creek resulting in the exceedances of chronic and acute California Toxics Rule copper, lead, and zinc criteria for the protection of aquatic life. Studies indicate that during storm events, storm water plumes toxic to marine life emanate from Chollas Creek up to 1.2 kilometers into San Diego Bay, and contribute to pollutant levels at the Shipyard Sediment Site." (Section 4, page 4-1.)

The DTR further states this allegation is based on:

> "Available studies (Schiff, 2003, Katz et al., 2003; Chadwick et al., 1999) indicate that storm water plumes emanating from Chollas Creek outflow to San Diego Bay are toxic to marine life and introduce suspended solids, copper, zinc, and lead to the Shipyard Sediment Site through settling of particles." (Section 4.3.1, page 4-3.)

The available studies referred to above are:

- Schiff, K., S. Bay and D. Diehl, 2003. Stormwater Toxicity in Chollas Creek and San Diego Bay, California. Environmental Monitoring and Assessment 81: 119–132, 2003. 2003 Kluwer Academic Publishers. Printed in the Netherlands. (Herein referred to as Schiff 2003).

- Katz, C.N., A. Carlson-Blake, and D.B. Chadwick 2003. Not found[1].
- Chadwick B., J. Leather, K. Richter, S. Apitz, D. Lapota, D. Duckworth, C. Katz, V. Kirtay, B. Davidson, A. Patterson, P. Wang, S. Curtis, G. Key, S. Steinert, G. Rosen, M. Caballero, J. Groves, G. Koon, A Valkirs, K. Meyers-Schulte, M. Stallard, S. Clawson, R. Streib Montee, D. Sutton, L. Skinner, J. Germano, and R. Cheng. 1999. Sediment Quality Characterization - Naval Station San Diego Final Summary Report. U.S. Navy Technical Report 1777. (Herein Referred to as Chadwick 1999).

The studies cited by the DTR at Section 4.3.1, page 4-3, provide insufficient support for the allegations in the DTR, because they lack information that would allow a detailed peer review, thus preventing reproduction of the results, verification of all data and methods, and testing of hypotheses. Scientists are generally known to have natural human biases that can influence their perceptions. While these biases are not always conscious and certainly not intentional, they are widely recognized to exist. To overcome these biases, certain principles generally known as the scientific method have evolved in an attempt to be as objective as possible. The scientific method's approaches for overcoming natural biases include:

- Adopting a practice of full disclosure by documenting, archiving, and sharing all data and methodology so they are available for careful scrutiny by other scientists giving them the opportunity to verify the results, and most importantly, reproduce them.
- Proposing hypotheses and testing these hypotheses through experimental studies using methods that are repeatable. Through this testing of hypotheses, scientific theories can be developed when independently derived hypotheses come together in a coherent and supportive structure.

The documents referenced above by the DTR do not appear to achieve these goals. The data are not included in the reports, which prevents an independent scientific review of the information. The lack of data availability and independent review of such information, and its use in the DTR to assign responsibility to parties is particularly problematic since two of the three documents are authored by employees or contractors of the U.S. Navy, and one of the documents cited is published by the U.S. Navy, a party named as responsible for discharges to the site.

Specifically, an independent review of this information should include access to the following information:

a. Schiff (2003): although this document indicates that methodological details are provided in another document
(Schiff et al. 2001. Stormwater Toxicity in Chollas Creek and San Diego Bay. Technical Report 340. Southern Coastal Water Research Project), our review of this document and that referenced did not identify the following:

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[1] The poster provided in the record does not identify a conference or date of presentation. Document search identified the document in a list of publications posted to the web by the US Navy: Spatial and Temporal Evolution of Storm Water Plumes Impacting San Diego Bay presented at Estuarine Research Federation Annual Meeting, St. Pete Beach, FL, November 2001. We could not obtain a copy of this reference.

i. While the papers note a digital global positioning system (GPS) was used to record the sampling locations, no table reports location data, and the one figure that is provided is so small and has such limited features, the locations are not legible or precise enough to be replicated.

ii. While Schiff (2001) provides a summary of the toxicity tests, these data only provide statistical measures of means and standard deviations. The raw data is not provided. Significant data are collected concurrent with the bioassay tests. These include test chamber salinity and temperature. Notes to the toxicity test results indicate there were issues with some test chambers, but are not specific and without the data, do not allow for third party review.

b. There is no raw data for the analytical chemistry, specifically the output of the laboratory instrumentation. EPA Contract Laboratory Program (CLP) procedures require analytical results be run and reported with performance duplicates and lab blanks allowing scientists to assess the influence of potential contamination from labs, and the performance of lab equipment, which has repeatedly been demonstrated to be highly variable. CLP procedures were developed to allow verification of procedures, duplication of results and are the industry standard for documenting environmental sample analysis. Without the raw data or laboratory quality control results, it is not possible to evaluate the degree to which chemical analytical data has been appropriately validated, and the accuracy and precision of the results.

c. Chadwick (1999)

i. Chadwick et al. (1999) estimate total annual mass loads and percent contributions historically from different sources, including Chollas Creek, on page 95, sections 6.2 and Tables 29 and 30. The means of estimating historical storm water inputs are not presented. How the volumetric discharges are estimated is not presented. Since these methods are not provided, we cannot independently verify their accuracy, thus preventing the report from independent peer review.

ii. On page 95, section 6.2, and Tables 29 and 30, the report does not provide measures of statistical error. Thus, the uncertainty associated with the provided estimates cannot be evaluated.

d. Katz (2003).

i. The document has a blank cover page with the handwritten notation of "Conference 2003, April 8, 2003, and Katz et al. 2003). But the following page, which is a copy of the actual poster, has no date or indication of where it was presented or published. We are unable to verify that Katz (2003) even exists. Searches of Agricola, Google Scholar, and other databases which list such documents do not result in any findings that such a presentation was made. A poster of the same title is referenced among publications by the U.S. Navy in a now deleted web page (available through Google's cached document archive). Given the

citation is incorrect and unavailable, it further demonstrates our concern that this information has not received independent scientific review.

ii. The ability to evaluate this reference is limited because of the abbreviated discussion of the overall study in this format.

Comment 1.1 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Section 4.7.1.3
DTR Page, Paragraph, and Sentence Number	Page 4-14 (second bulleted paragraph)
Concise Summary of Issue	Schiff (2003) purple sea urchin fertilization test does not support the DTR's statement that Chollas Creek has contributed toxic effects or harmful substances to the site sediments.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 1.1: PURPLE SEA URCHIN FERTILIZATION TESTS (SCHIFF 2003) CITED AT DTR SECTION 4.7.1.3 DO NOT SUPPORT THE CONCLUSION THAT CHOLLAS CREEK HAS CONTRIBUTED TOXIC EFFECTS OR CONSTITUENTS OF CONCERN TO THE SITE SEDIMENTS.

DTR Section 4.7.1.3 (page 4-14) reaches the conclusion that Chollas Creek releases a toxic plume impacting sediments at the Site based on purple sea urchin fertilization tests provided in Schiff (2003). Schiff (2003) (which references Schiff (2001) for detailed methods) notes as follows:

> "This study observed that stormwater plumes emanating from Chollas Creek extended between 0.02 and 2.25 km^2 over San Diego Bay during small to moderately-sized storm events. Plumes were easily distinguished using salinity as a conservative tracer of wet weather inputs. Turbidity was also a good tracer of the plume. ***Stormwater plumes formed relatively thin lenses of 1 to 3 m, floating on top of the more dense bay water.***" (Emphasis added.)

Thus, the toxicity reported by Schiff (2003) is based on the surface water plume of less than 3 meters that floats above the lower water column and bottom sediments. No evidence or data is provided to demonstrate the chemicals or solids responsible for the observed toxicity in the surface are transported to the deeper portions of the water column and the bottom sediments. In fact, the data collected to evaluate sediment toxicity during the Shipyard Site remedial investigation indicate the toxicity observed at the surface water interface during storm events does not occur in waters and sediments near the bottom of the Site. Of note:

1. Purple Sea Urchin fertilization in waters associated with the bottom sediments of the Site was over 87% in all samples[2]. This is a level significantly above that seen in Schiff (2003), and comparable to the reference samples. This contradicts the DTR's assertions that Chollas Creek is contributing toxic levels of any substance to the Site.
2. Toxicity tests including the urchin fertilization test have been conducted on the Site's sediments and there was no correlation between the chemical concentrations of copper, zinc, or lead, which are the primary constituents found in Chollas Creek waters, and the toxic effects measured.

Comment 1.2 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Section 4.7.1.3
DTR Page, Paragraph, and Sentence Number	Page 4-14 (three bulleted paragraphs)
Concise Summary of Issue	Schiff (2003) plume studies are not supported by data and overstate toxicity in Chollas freshwater plume.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 1.2: THE DTR'S RELIANCE ON SCHIFF (2003) IS MISPLACED, AS THE SCHIFF (2003) PLUME STUDIES ARE NOT SUPPORTED BY ADEQUATE DATA, DO NOT TAKE INTO ACCOUNT THE HYDRODYNAMIC PROCESSES THAT AFFECT THE FATE AND TRANSPORT OF SEDIMENTS FROM CHOLLAS CREEK INTO SAN DEGO BAY, AND THEREFORE OVERSTATE TOXICITY IN THE CHOLLAS FRESHWATER PLUME.

Section 4.7.1.3 of the DTR (page 4-14) relies on Schiff (2003) in support of its conclusions regarding toxicity in the Chollas Creek freshwater plume. Much of the site and observed toxicity is along the shoreline which has significant structural obstructions making this area quiescent with a low likelihood of exposure to the freshwater plumes from Chollas Creek. The Schiff (2003) plume maps (figures 2 through 8) which show temperature, salinity, turbidity (beam attenuation), and toxicity results right up to the shore are likely not based directly on any data collected from these areas (again it is impossible to review since locations are not provided). Nowhere in the text is there mention of the authors having received access to these restricted areas to perform the sampling. We believe the results showing the area of impacts on these figures are extrapolations based on Kriging the extent of the plume. This geostatistical method referred to as Kriging does not take into account advection, dispersion, or transformation. Where hard boundaries exist such as shorelines, Kriging will extrapolate right up to the boundary. However, in theory, advection to a hard boundary is very limited and movement toward a hard boundary tends to be via diffusion,

[2] See Table 18-8, page 18-16 in DTR Volume 2

which is a very slow process compared to advection. Schiff (2003) does not provide data indicating the Chollas freshwater plume extends up to the shoreline. The use of Kriging or other geostatistical methods to predict concentrations beyond the boundaries of sampling is an inappropriate use of the geostatistical method. Geostatistical tools are developed for characterizing data within the sampled area. Such tools have no predictive abilities, and thus should not have been used to determine the area influenced by the surface waters of Chollas Creek.

Comment 1.3 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Section 4.7.1.3
DTR Page, Paragraph, and Sentence Number	Page 4-15 (paragraphs, sentences not numbered)
Concise Summary of Issue	The hydrodynamic model reported in Chadwick (1999) lacks important information regarding fate and transport and therefore may be overstating impacts from Chollas Creek.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 1.3: THE HYDRODYNAMIC MODEL REPORTED IN CHADWICK (1999) LACKS IMPORTANT INFORMATION INFLUENCING FATE AND TRANSPORT AND THEREFORE MAY BE OVERSTATING IMPACTS FROM CHOLLAS CREEK.

Section 4.7.1.3 of the DTR relies on Chadwick (1999) as indicating that "the Chollas Creek outflow (plume) to San Diego Bay can introduce pollutants to the Shipyard Sediment Site." Yet the hydrodynamic model presented by Chadwick (1999) is deficient such that it provides insufficient support for the DTR's conclusion about the reach of the Chollas Creek plume. Specifically, this model does not appear to take into account physical obstructions to flow such as ships docked at NASSCO piers 3-6 at the mouth of Chollas Creek, which is a typical situation. Such ships almost (or sometimes do) touch bottom at that location, which creates a physical impediment to flow from Chollas Creek to the Shipyard. The Doppler meters used to calibrate the hydrodynamic model were most likely placed outside of piers and probably could not show the effects of the piers on waters between them. Again, the locations of the Doppler meters are not provided in the report and so it is impossible to review this data. Also this model uses a 100 meter grid which cannot be used to conclude movements of sediments at the scale of Chollas Mouth which is less than 100 m wide. Collectively these issues with the hydrodynamic modeling efforts in the shoreline area indicate model predicted results for this area should not be relied upon for predicting fate and transport from the Chollas Creek mouth area or from the Shipping Channel up toward the shoreline and are likely over-predicting the movement of sediments to the shoreline.

In Chadwick (1999), Section 6.4.2, page 119 describes methods for modeling the creek discharges during storms using a half sine wave function. While the use of a half sine wave may fit the mathematical functions of the tidal model used, it does not match the creek discharges, creek hydrology, or storm functions in the region. Creek discharges from a storm may be significantly longer than one-half tidal cycles and will have several local maxima due to differing rainfall intensities during the storm. This suggests that loading estimates, transport direction and distance of transport could be inaccurately predicted for time steps relevant to tidal cycles from the tidal model used.

Direct data or a well calibrated model that includes all physical influences should be used to make such conclusions. Without either, and direct data being preferred over a mathematical model, it is not reasonable to conclude that Chollas Creek has introduced toxicity and pollutants to the Shipyards Site, which is largely along the shoreline where physical obstructions occur.

Comment 1.4 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Section 4.7.1.3
DTR Page, Paragraph, and Sentence Number	Page 4-15 (paragraphs, sentences not numbered)
Concise Summary of Issue	The measured Chollas Creek discharge data as referenced in Katz (2003) are insufficient to support the conclusion that Chollas Creek discharges have significantly impacted Shipyard sediments.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 1.4: MEASURED CHOLLAS CREEK DISCHARGE DATA AS REFERENCED IN KATZ (2003) ARE INSUFFICIENT FOR DRAWING CONCLUSIONS THAT CHOLLAS DISCHARGES HAVE SIGNIFICANTLY IMPACTED SHIPYARD SEDIMENTS.

According to the DTR's description of the Katz (2003) study (DTR Section 4.7.1.3, page 4-15),[3] the data in Katz (2003) included only one precipitation event over three days and data generated using different collection methods for different areas. The data were extrapolated to derive conclusions as to the proportion of total impacts caused by Chollas Creek stormwater discharge versus stormwater water discharge from NAVSTA. Upstream Chollas Creek stormwater samples were collected by the City of San Diego's contractor from two different tributaries on a flow-weighted basis and then composited into one sample. Stormwater samples from NAVSTA outfalls adjacent to the channel were collected on a time-proportional basis and composited into one sample. Flow weighted sampling pro-

[3] Because the Katz (2003) study cannot be located, the City relies on the DTR's description of its contents.

vides a sample whose concentration represents the event mean concentration. Time proportional sampling does not, unless the flow rate is constant over the period of sampling. Storm flows are not constant. Therefore, the two sampling methodologies are not comparable and conclusions as to the difference (or lack thereof) in concentrations or mass loadings should not be made using this data.

Comment 1.5 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Section 4.7.1.3
DTR Page, Paragraph, and Sentence Number	Page 4-15 (top bulleted paragraph)
Concise Summary of Issue	Purple sea urchin toxicity data presented in Schiff (2001 and 2003) do not provide adequate support for the conclusion that Chollas Creek water contains toxic levels of zinc and copper.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 1.5: PURPLE SEA URCHIN TOXICITY DATA IN SCHIFF (2001 AND 2003) DO NOT PROVIDE ADEQUATE SUPPORT FOR THE CONCLUSION THAT CHOLLAS CREEK WATER CONTAINS TOXIC LEVELS OF ZINC AND COPPER.

Section 4.7.1.3 of the DTR (page 4-15, top bulleted paragraph) relies on Schiff (2003) and the Southern California Coastal Research Project (2001) (hereafter, "Schiff (2001)") studies as support for the conclusion that "in-channel and plume toxicity was primarily due to trace metals including zinc and copper."

However, data quality issues related to copper and zinc toxicity as presented by Schiff (2003) weaken the conclusion drawn that the concentrations of each metal were high enough in the tested samples to account for the observed toxicity. Toxicity test results for the purple sea urchin (*Strongylocentrotus purpuratus*) as reported by Schiff (2001) are interpreted in part on the basis of the calculation of a toxicity unit (TU). The TU is inversely proportional to the median effective concentration (EC50, concentration producing 50% reduction in fertilization). The concentrations of metals in each sample tested were estimated based on the metal concentrations measured in undiluted samples and the estimated reduction in metals concentration based on sample dilution, where appropriate. The other measure of toxicity used in the interpretation of test results is the no observed effect concentration (NOEC).

There are three observations that do not appear to support the conclusions regarding copper toxicity by Schiff (2001 and 2003):

a) The use of an EC50 concentration for copper that lies within the range of observed NOECs

Given the definition of NOEC is a concentration below which no effects are observed, it seems infeasible that an EC50 concentration would occur below a NOEC concentration for a quality data set. However,

Schiff (2001) in Table 2 state their toxicity tests had a NOEC range from 20-44 µg/L and selected the EC50 of 31 µg/L. The authors do not explain why a EC50 value within the range of NOECs found was selected.

b) The failure of one of the copper reference toxicant tests based on variability in the urchin response.

A reference toxicant test is included with each batch of samples evaluated for toxicity as a quality measure to ensure that the test organisms are responding in a typical manner (i.e., that they are not organisms that are too unhealthy and susceptible to toxicity or too robust and insensitive to toxicity). The reference toxicant test can be run with any toxicant that has a record of response at the laboratory with the specific test species. The bioassay lab used by Schiff (2001) consistently used copper as the reference toxicant. In the first reference toxicant test associated with samples collected on January 25, 2000, the reference toxicant test was inconclusive because as stated in the report: "the reference toxicant had high variability precluding the calculation of a copper EC50."

c) The observed range of EC50s from copper reference toxicant tests that did not fail were all above the EC50 chosen by Schiff (2003) and used by the DTR to demonstrate copper as having a toxic influence on the Site.

The range of copper EC50 concentrations reported in Schiff (2001) Appendix A are based on successful reference toxicant tests are: 55 µg/L (February 13, 2000), > 65 µg/L (February 22, 2000), and 40.8 µg/L (March 7, 2000). These test results are all above the EC50 of 31 µg/L used to draw conclusion about sample toxicity in the Schiff (2001) report.

The allegation that Zinc is the primary chemical causing toxicity is suspect. The reported EC50 in Table 2, Schiff (2001) of 29 µg/L is substantially below levels set forth in the California Toxics Rule (CTR; Federal Register Vol. 65, No. 97, Thursday, May 18, 2000) as reproduced below.

Copper criteria in the CTR

Freshwater (µg/L)		Saltwater (µg/L)	
Acute	**Chronic**	**Acute**	**Chronic**
120	120	90	81

The chronic concentration is defined as "the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects". The urchin test is 40 minutes. The fact that 50% of the sea urchins failed to successfully fertilize at concentrations well below zinc concentrations in the CTR, would strongly suggest that something other than zinc is causing the toxic response.

Given the sea urchin test under the conditions used by Schiff (2001) where salinity was adjusted is abnormally sensitive relative to the studies identified in the CTR, the authors should at least discuss alternative hypotheses. For example, the practice of adding salts to freshwater samples to test toxicity with a saltwater species (purple sea urchin fertilization) which would not otherwise occur in such an environment is a source of uncertainty. Reference samples were not collected from an uncontaminated "riverine plume" and then diluted. Therefore the reference

samples are actually not processed exactly the same as the Chollas Creek samples. Any differences resulting from different handling should be considered as plausible influences, particularly given the value of zinc toxicity published in the reports are more than four times below the chronic freshwater CTR.

Comment 2.0 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Sections 4.4, 4.7.3
DTR Page, Paragraph, and Sentence Number	Pages 4-6, 4-19 (paragraphs and sentences not numbered)
Concise Summary of Issue	The DTR's conclusions that discharges from SW9 have contributed to elevated levels of constituents of concern in shipyard are not supported by adequate data.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 2.0: THE DTR'S CONCLUSIONS THAT DISCHARGES FROM SW9 HAVE CONTRIBUTED TO ELEVATED LEVELS OF CONSTITUENTS OF CONCERN OBSERVED IN SHIPYARD SEDIMENTS ARE NOT SUPPORTED BY ADEQUATE DATA.

The DTR quotes the following allegation from Tentative Cleanup and Abatement Order (TCAO), Finding 4:

> "The City of San Diego also owns and operates a municipal separate storm sewer system (MS4) through which it discharges waste commonly found in urban runoff to San Diego Bay subject to the terms and conditions of a National Pollutant Discharge Elimination System (NPDES) Storm Water Permit. The San Diego Water Board alleges, but the City of San Diego denies, that the City of San Diego has discharged urban storm water containing waste directly to San Diego Bay at the Shipyard Sediment Site. The waste includes metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), total suspended solids, sediment (due to anthropogenic activities), petroleum products, and synthetic organics (pesticides, herbicides, and PCBs) **through its SW4 (located on the BAE Systems leasehold) and SW9 (located on the NASSCO leasehold) MS4 conduit pipes**." (DTR page 4-1 (emphasis added).)

The DTR further alleges:

> "The City of San Diego has caused or permitted the discharge of urban storm water pollutants directly to San Diego Bay at the Shipyard Sediment Site. The pollutants include metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), TSS, sediment (due to anthropogenic activities), petroleum products, and synthetic organics (pesticides, herbicides, and

PCBs) **through its SW4 (located on the BAE Systems leasehold) and SW9 (located on the NASSCO leasehold) MS4 conduit pipes.**" (DTR page 4-6 (emphasis added).)

The DTR states at section 4.7.3:

> "Surface sediment data at NASSCO sample station NA22, which is located near the SW9 storm drain outfall shows elevated concentrations of total high-molecular-weight polynuclear aromatic hydrocarbons (Total HPAHs) at 3600 ug/kg), Dichlorodiphenyltrichloroethane (DDT) at 29.7µg/kg), and Chlordane at 21.1µg/kg. These pollutant levels are indicators of an urban run-off source (Exponent, 2003) and therefore indicate that historical urban runoff discharges occurred from the City via the SW9 outfall.
>
> As described above, the surface sediment data at NASSCO sample station NA22 provides evidence that the City of San Diego MS4 Storm Drain SW9 conveys the HPAHs, DDT, and Chlordane pollutants into the NASSCO leasehold and San Diego Bay at the Shipyard Sediment Site. The urban runoff characteristics of the sediment pollutants at Station NA22 adjacent to the City of San Diego's MS4 Storm Drain SW9 provide evidence that the City has discharged pollutants to the Shipyard Sediment Site, both presently and in the past." (DTR page 4-19.)

Thus, Sections 4.6 and 4.7.3 of the DTR set forth certain conclusions regarding the contents of storm water released through SW9.

Neither of these conclusions is based on reliable data. First, no samples of stormwater have ever been collected from the SW9 storm drain. Second, Section 4.7.3 of the DTR is basing its conclusions entirely on the results of a single sediment sample collected from the Bay at NA-22. Given NA-22's proximity to large ship repair, moorage, and other industrial waterfront operations, the DTR's claims that concentrations of chemicals found at NA-22 can be attributed to SW9 because urban runoff "typically" contains pollutants is inappropriate (RWQCB, 1972, 1994; USEPA, 1974; Pacific Northwest Pollution Prevention Resource Center, 1997; Schafran et al, 1998; Anchor Environmental, 2005; United States Department of Navy (USDN), 2006), Science Applications International Corporation (SAIC), 2007). The toxins in the sediment data are attributable to nearby industrial activity, and there is no basis set forth in the DTR for attributing the pollutant levels to discharges from SW9.

Third, SW9 discharges into the mouth of Chollas Creek. Water leaving SW9 will be subject to the same hydrodynamic forces as water leaving Chollas Creek during a storm event. As noted above (see Comment 1.1), the studies conducted to date do not show that suspended solids from this discharge cause toxicity in shipyard sediments.

Fourth, historically, prior to the year 2000 timeframe, SW9 drained the NASSCO leasehold, which, based on the types and quantities of wastes produced in ship building and repair operations, is likely to have contained significant quantities of chemicals of concern found in Shipyards sediments.

REFERENCES FOR COMMENT 2.0

Anchor Environmental, CA LP. 2005. Site Investigation and Characterization Report for 401 Certification. BAE Systems, Inc. (formerly Southwest Marine, Inc.). Bulkhead Extension and Yard Improvement. Phase II Activities. August.

California Regional Water Quality Control Board San Diego Region, 1972. Wastes Associated with Shipbuilding and Repair Facilities in San Diego Bay. A staff report to the Executive Officer of the San Diego Regional Water Quality Control Board. June.

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Pacific Northwest Pollution Center. 1997. Small shipyards and boatyards in Oregon: environmental issues & P2 opportunities. A Northwest Industry Roundtable Report.

Schafran, G.C., J.G. Winfield, P. Pommerenk, A.O. Akan, L. Mizelle, and T.J. Fox. 1998. Stormwater Collection, treatment, Recycling, and Reuse in a Shipyard. Final Report. NSRP Project N1-96-07. Center for Advanced Ship Repair and Maintenance (CASRM) Old Dominion University Prepared for The National Shipbuilding Research Program NSRP 0536 May 26, 1999. December 31.

Science Applications International Corporation. 2007. Lower Duwamish Waterway Glacier Bay Source Control Area Summary of Existing Information and Identification of Data Gaps. Prepared for Washington State Department of Ecology, Lacey, Washington 98504. June.

USDN. 2006. Final Removal Site Evaluation Report, Installation Restoration Site 13 Naval Station San Diego (Naval Base San Diego) California. Naval Facilities Engineering Command Southwest. September.

United States Environmental Protection Agency (USEPA). 1974. Draft Report to the San Diego Regional Water Quality Control Board on Guidelines for the Control of Shipyard Pollutants. Prepared by Environmental Protection Agency National field Investigations Center – Denver. July 1.

Comment 3.0 to Draft Technical Report for Tentative CAO No. R9-2011-0001

Draft Technical Report for Tentative CAO No. R9-2011-0001	
Date of Submittal	May 26, 2011
DTR Section Number	Sections 4.4, 4.7.2
DTR Page, Paragraph, and Sentence Number	Pages 4-6, 4-16, 4-17, 4-18 (paragraphs and sentences not numbered)
Concise Summary of Issue	There are no data indicating that SW4 has contributed significantly to elevated levels of constituents of concern observed in Shipyard sediments.
Indicate if Issue is Comment, Legal Argument, or Evidence	Comment

COMMENT 3.0: THERE ARE NO DATA INDICATING THAT SW4 HAS CONTRIBUTED SIGNIFICANTLY TO ELEVATED LEVELS OF CONSTITUENTS OF CONCERN OBSERVED IN SHIPYARD SEDIMENTS.

The DTR quotes the following allegation from TCAO, finding 4 the San Diego Water Board alleges that the City of San Diego has, as cited on page 4-1 of the DTR:

> "...The waste [in urban storm water discharges] includes metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), total suspended solids, sediment (due to anthropogenic activities), petroleum products, and synthetic organics (pesticides, herbicides, and PCBs) through its SW4 (located on the BAE Systems leasehold) and SW9 (located on the NASSCO leasehold) MS4 conduit pipes." (DTR, page 4-1.)

The DTR further alleges:

> ".... The pollutants [in urban storm water discharges] include metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc), TSS, sediment (due to anthropogenic activities), petroleum products, and synthetic organics (pesticides, herbicides, and PCBs) through its SW4 (located on the BAE Systems leasehold) and SW9 (located on the NASSCO leasehold) MS4 conduit pipes." (DTR, Section 4.4, page 4-6.)

The DTR section 4.7.2 states:

> ".... Although no monitoring data is available for this outfall (sic SW4), it is highly probable that historical and current discharges from this outfall have discharged heavy metals and organics to San Diego Bay at the Shipyard Sediment Site.
>
> Recent evidence of illicit discharges from the City of San Diego's Storm Drain SW4 into the Shipyard Sediment Site is provided by the results of a recent sampling investigation conducted by the City of San Diego. On October 3, 2005, the City of San Diego . . . obtained evidence of an illegal discharge into the SW4 MS4 catch basin on the north side of Sampson Street between Belt Street and Harbor Drive, approximately 10 feet east of the railroad line.... The results of these [] samples

indicate the presence of both PCBs and PAHs entering and exiting the municipal storm drain system catch basin and resulted in the City of San Diego issuing a Notice of Violation (NOV) to SDG&E." (DTR, section 4.7.2, pages 4-15, 4-16.)

DTR section 4.7.2 further states:

> "The City of San Diego MS4 Storm Drain SW4 discharges into BAE Systems leasehold between Piers 3 and 4. Sample stations from the Detailed Sediment Investigation (Exponent, 2003) in the area of this outfall include SW20 and SW25." (DTR, Section 4.7.2, page 4-17.)

DTR section 4.7.2 further states:

> "Sediment PCB levels, specifically Aroclor-1254 and 1260, and sediment PAH levels reported in the storm water conveyance system (sic: catch basin) are also reported in the bay sediment near the storm water outfalls..." (DTR, Section 4.7.2, page 4-18.)

Thus, Sections 4.6 and 4.7.2 of the DTR set forth certain conclusions regarding the contents of storm water released through SW4. These conclusions are not based on reliable data.

No storm water samples have ever been collected from SW4. The watershed drained by SW4 differs in size and land use from the watershed drained by Chollas Creek. There are no data that would show that Chollas Creek storm water is chemically similar to SW4 storm water. Therefore, it is inappropriate to conclude that SW4 carried the same pollutants to the Shipyard that the Chollas Creek carries to its mouth.

With respect to the catch basin sampling event, following the sampling event in 2005, the catch basin was cleaned out by SDG&E per the requirements in the Notice of Violation issued by the City of San Diego to SDG&E (Zirkle, 2005; TN& Associates, 2006). There are no data showing that SW4 currently has any PCBs in it or that it is currently contributing to pollution of sediments at the Shipyards site.

The presence of chemicals of concern at sediment sampling stations SW20 through SW25 where ship building, ship repair, ship mooring, and ship moving operations took place does not indicate that the chemicals of concern came from SW4 in sufficient quantity to cause the observed concentrations or effects in those sediments. In fact, ship building, ship repair, ship mooring, and ship moving operations have been documented to have historically produced and discharged significant quantities of wastes containing the chemicals of concern found at the Shipyard site (RWQCB, 1972, 1994; USEPA, 1974; Pacific Northwest Pollution Prevention Resource Center, 1997; Schafran et al, 1998; Anchor Environmental, 2005; United States Department of Navy (USDN), 2006), Science Applications International Corporation (SAIC), 2007)

Historically, prior to the year 2000 timeframe, SW4 drained the BAE leasehold. Based on the types and quantities of wastes produced in ship building and repair operations, runoff from the BAE leasehold is likely to have contained significant quantities of chemicals of concern found in Shipyards sediments.

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PROOF OF SERVICE

I am a resident of the State of California, over the age of eighteen years, and not a party to the within action. My business address is: Gordon & Rees LLP 101 W. Broadway, Suite 2000, San Diego, CA 92101. On May 26, 2011, I served the within documents:

Comments to Draft Technical Report for Tentative CAO No. R9-2011-0001

☐ by transmitting via facsimile the document(s) listed above to the fax number(s) set forth below on this date before 5:00 p.m.

☐ by personally delivering the document(s) listed above to the person(s) at the address(es) set forth below.

☐ by placing the document(s) listed above in a sealed envelope with postage thereon fully prepaid, in United States mail in the State of California at San Diego, addressed as set forth below.

☑ By Electronic Mail Service. I caused all of the pages of the above-entitled document(s) to be electronically served on the parties listed below.

SEE ATTACHED SERVICE LISTS

I am readily familiar with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day with postage thereon fully prepaid in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after the date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on May 26, 2011 at San Diego, California.

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