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Enclosures  
1-10 on CD**



**DEPARTMENT OF THE NAVY  
COMMANDER NAVY REGION SOUTHWEST  
937 NO. HARBOR DR.  
SAN DIEGO, CALIFORNIA 92132-0058**

IN REPLY REFER TO:  
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May 27, 2009

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

Mr. John Robertus:

SUBJECT: NAVY COMMENTS ON TENTATIVE ORDER NO.R9-2009-0081  
NPDES PERMIT NO.CA0109185, WASTE DISCHARGE  
REQUIREMENTS FOR THE UNITED STATES DEPARTMENT OF THE  
NAVY, NAVAL BASE CORONADO

2009 MAY 27 P 4:32  
SAN DIEGO REGIONAL  
WATER QUALITY  
CONTROL BOARD

The following are Navy comments and supporting documents regarding the subject tentative order for Naval Base Coronado (NBC). These comments address storm water toxicity requirements; thermal, TCDD equivalents, and receiving water limitations; Monitoring and Reporting Program requirements; dilution credits and exceptions for non-storm water discharges; and minor editorial corrections to the order.

### 1. Storm Water Toxicity Requirements

#### Introduction

The Navy has a critical concern with the tentative order's storm water toxicity requirement. The toxicity requirement is inappropriately applied, excessively conservative, ignores toxic affects of area source pollutants, and given its inherent infeasibility to meet could result in upwards of \$300M in compliance costs to construct infrastructure to capture and divert storm water discharges. The following discussion provides the basic scientific facts and information supporting these comments as well as provides a rational alternative for compliance that is protective of San Diego Bay waters without causing undue regulation and cost.

## Toxicity Study Conclusions

The Navy performed a comprehensive, peer reviewed, scientific study of storm water toxicity (Katz et al., 2006), Enclosure (1), that was requested by and presented to the Regional Board. The main conclusions of the study are as follows:

- **Storm water discharges from Navy industrial facilities rarely cause toxicity in bay waters.** There were only two instances of toxicity in over 200 receiving water tests (<1% observed toxicity). It is clear from this very large dataset, collected over the entire range of expected conditions, that storm water from Navy facilities has a negligible toxic impact on San Diego Bay waters. Current Best Management Practices (BMPs) and compliance efforts by the Navy are already meeting the goals of the order to maintain beneficial uses.
- **Toxicity measured in end-of-pipe storm water samples is not predictive of toxic impacts in bay waters.** This result, based on over 300 storm water and receiving water tests, showed that toxicity was almost never found in bay waters regardless of the toxicity level measured in end-of-pipe storm water samples. This is consistent with the EPA's Technical Support Document (TSD) (EPA's Technical Support Document for Water Quality-based Toxics Control, EPA, 1991), Enclosure (2), stating on page 9: "*there is a less likely chance for receiving water impacts to be observed in saltwater systems as predicted by toxicity tests*". It is apparent from the study results that failing an end-of-pipe storm water sample toxicity test is not meaningful with regards to identifying potential bay impacts.
- **Storm water plumes from industrial outfalls are very short-lived, have a limited spatial extent and are very low in magnitude.** The volume of storm water discharged from Navy facilities is sufficiently small that it is observed only in the immediate vicinity of the discharge and is rapidly (<12 hours) assimilated. The low exposure conditions posed by the natural mixing of storm water plumes results in lack of toxic impacts. The use of whole effluent toxicity (WET) testing was intended to evaluate toxicity for large continuous discharge sources, and then, only after mixing with the receiving water was taken into account. This is consistent with EPA's TSD stating on page 11: "*The results, when linked together, clearly show that if toxicity is present after considering dilution, impact will also be*

present" or "Impact from toxics would only be suspected where effluent concentrations after dilution are at or above the toxicity effect concentration". The use of Whole Effluent Toxicity (WET) testing is therefore only appropriate if it is used as intended; that is, that it be conducted on receiving water samples or on end-of-pipe samples adjusted for the magnitude and duration of the discharge.

- **Copper and zinc are the primary toxicants of concern in the Navy's industrial storm water runoff.** Toxicity Identification Evaluations (TIEs) were conducted as part of the study. Data from the TIEs showed that copper and zinc were the primary cause of acute toxicity in Navy storm water discharges. This is particularly troublesome because significant sources of copper and zinc in storm water discharges are from area sources.

#### Area source pollutants contributing to toxicity

The toxicity requirements fail to recognize that contaminants causing toxicity in storm water discharges are found in all urban areas largely as a result of atmospheric and direct deposition from automobile sources such as brake pads and tire wear. Numerous scientific studies identify the role of automotive sources and other industrial plant generation of these contaminants. For instance, the City of San Diego has recently estimated that these sources provide an overwhelming majority of copper to the Chollas Creek watershed (Weston Solutions, 2009). These contaminants have been shown to routinely cause toxicity in parking lot runoff (Greenstein et al., 2003) including the Regional Board's own parking lot, indicating the ubiquitous nature of problem. With these findings, the City of San Diego has sponsored SB 346 (Kehoe) which would require the design of brake pads to remove contaminants of concern including copper and zinc. The Senate Environmental Quality Committee analysis of this bill, Enclosure (3), noted:

*"Scientific studies have shown that a major source of copper in highly urbanized watersheds is material worn off vehicle brake pads. It is estimated that about one-half of the copper found in run-off is attributed to brake pads."*

*"The ubiquity of copper in the urban environment, and the technical difficulty and impracticality of treating storm water to remove it, means that compliance with copper TMDLs will not be feasible without source reduction of*

*copper. Cost could go into the billions of dollars to remediate if source reduction measures are not taken."*

Further evidence that copper and zinc sources are wide spread comes from the 2006 Air Toxics "Hot Spots" Program Report for San Diego County (August 2007), Enclosure (4). Table 1 of this report lists 451,827 lbs/year of zinc and 90,132 lbs/year of copper emissions from all sources in San Diego. Of this total, 99.0% of zinc and 97.3% of copper comes from mobile, area, and natural emission sources. The remainder, 1.0% for zinc and 2.7% for copper comes from industrial sources.

This offers an explanation why the Regional Board's parking lot and facility continue to fail the same toxicity test applied to the proposed order. Enclosures (5) and (6) provide storm water monitoring results for the Region Board's parking lot.

Unlike the Navy's study referenced above, the Regional Board has not offered scientific based evidence demonstrating that storm water runoff from Navy installations is having an adverse impact on San Diego Bay; nor has the Regional Board provided scientific based findings that, given the amount of contaminants from area sources, and their small particle size, that it is possible/feasible for end of pipe compliance with the storm water toxicity requirements.

In addition, the most recent scientific data show that storm water from all sources, not just Navy outfalls, is a minor source of copper and zinc to San Diego Bay. The most recent mass loading data (Chadwick et al., 2004) show that storm water from all sources accounts for only 7% of the copper loading to the bay. The Navy's storm water contribution is on the order of 10% of the total storm water loading, and is thus a minor fraction (~1%) of the overall Bay budget.

The proposed toxicity standard is not feasible

The Navy has continued to investigate and employ a number of BMPs to reduce the release of toxic contaminants from its activities. Moreover, the Navy and others continue to investigate treatment technologies. Despite these efforts, however, there has been no evidence to date that BMPs or treatment technologies can consistently pass the toxicity requirements proposed in the order. The only demonstrated consistent manner to satisfy the requirement is to divert the storm water flow to the City of San Diego sanitary sewer system. For Navy installations the cost to divert storm water runoff is estimated at over \$300 million. It is not clear that (1) sufficient funds could be available to implement this measure short of major appropriations from Congress, and (2) whether there is sufficient land on installations to build the required

























