
Santa Ana Regional Water Quality Control Board

December 1, 2015

Carrie Claytor
GEI Consultants, Inc.
4601 DTC Boulevard, Ste 900
Denver, CO 80237

*Response to the GEI Consultants' (representing the Copper Development Association (CDA))
Memo to the Santa Ana Regional Water Quality Control Board regarding the "Copper TMDL
Scoping Meeting"*

Dear Ms. Claytor:

This letter provides Regional Board staff's response to GEI's comments/concerns stated in your July 22, 2015 letter to the Santa Ana Regional Board regarding the "Copper TMDL Scoping Meeting". We understand that your Memo was prepared on behalf of the Copper Development Association (CDA).

First, we acknowledge the commitment of the CDA in "promoting the proper use of copper materials in sustainable, efficient applications for business, industry and the home" and your efforts in supporting work "to advance the state-of-the-science regarding copper toxicity for over 20 years". The Regional Board strives to ensure that the best available science is employed when establishing regulations such as the Copper (Cu) TMDL.

GEI/CDA comment/concern 1. "Because it represents the most rigorous and up-to-date approach for assessing the potential for risks to marine aquatic life due to copper exposure, CDA would like to urge the SARWCQB to incorporate the saltwater BLM into the Newport Bay TMDL process."

Board Staff Response 1. Regional Board staff agree that the best available science should be, and was, used in developing the revised Cu TMDL and implementation strategies. The saltwater CTR Cu criteria, including the acute and chronic Cu criteria, were derived by USEPA using the best available science.

As you know, the CTR acknowledges that site-specific criteria for certain metals, including Cu, may be appropriate, and provides for the development of a Water Effects Ratio (WER) to justify revisions to the CTR Cu criteria. We are well aware that USEPA is now considering the publication of the Saltwater Copper Biotic Ligand Model (Cu BLM) as another tool that could be employed to determine adjustments to the Cu criteria for a water body. Indeed, Board staff ran the Cu BLM with Cu and DOC data from the Lower Newport Bay Copper/Metals Marina Study (Cu-Metals Marina Study) and found that *when the DOC concentrations were below 1mg/L, the Cu BLM criteria were close to the CTR acute Cu criterion (4.8µg/L); when the DOC concentrations were below 0.5mg/L, the Cu BLM criteria were close to the CTR chronic Cu criterion (3.1µg/L)*. DOC data from Newport Bay, collected by the County of Orange, were also highly variable. A conservative approach is therefore needed to calculate a Cu BLM criterion

that will protect water quality throughout the year. Board staff's use of the Cu BLM to determine Cu BLM criteria confirms the appropriateness of the current CTR chronic Cu criterion (3.1µg/L). USEPA also commented on the appropriateness of the CTR criteria in their statement at the Los Angeles Regional Board hearing for the adoption of the Marina del Rey revised Toxics TMDLs, including Cu. (See Attachment 1).

While our application of the Cu BLM would be conservative and result in the use of a Cu BLM criterion similar to the CTR chronic Cu criterion, the extended compliance schedule proposed for the Cu TMDL allows for revisions of the applicable water quality objectives based on WER studies (or Saltwater Cu BLM criteria determinations if and when the Saltwater Cu BLM is approved by USEPA), should one or more parties elect to pursue WER studies or Cu BLM determinations.

Note that the Metals Impairment Assessment will be released as part of Board staff's Metals TMDLs staff report, which will include a thorough and well documented discussion of the science and reasoning behind this revised Cu TMDL and proposed Non-TMDL Action Plans for other metals, including zinc, mercury, chromium and arsenic.

GEI/CDA comment/concern 2.

"We understand the TMDL process has, in large part, been triggered by surface water and sediment porewater exceedances of the CTR acute and chronic copper water quality standards in Newport Bay, based on the 2007 study conducted by Orange County Coastkeeper"¹.

"•However, the 2007 Coastkeeper [Cu-Metals Marina] study also indicates that no significant toxicity to sensitive species was observed in water and sediment porewater samples collected from Newport Bay during their study."

Board Staff Response 2. First, it is important to point out that USEPA first promulgated TMDLs for metals, including Cu, in Newport Bay in 2002². These TMDLs were based on USEPA's impairment assessment, which found that the CTR acute and chronic Cu criteria in saltwater were exceeded in both Upper and Lower Newport Bay. (USEPA's finding of impairment in the Bay due to Cu precedes the Cu-Metals Marina Study.)

Currently, Board staff are developing a revised Copper (Cu) TMDL and Non-TMDL Action Plans for zinc (Zn), mercury (Hg), chromium (Cr) and arsenic (As), based on an updated Metals Impairment Assessment that evaluated data from 2002 to 2012. As noted above, the updated Impairment Assessment will be included in the staff report that will support the proposed Cu TMDL and Non-TMDL Action Plans for other metals.

Board staff's updated Impairment Assessment shows that Cu continues to exceed the saltwater CTR acute and chronic Cu criteria. This assessment is based on monitoring data from the County of Orange, in addition to the Cu-Metals Marina Study. Per the State Water Board's 303(d) Listing Policy³, if exceedances of applicable criteria/guidelines are present in water, the water body is considered to be impaired *whether or not toxicity is present in water*. In addition, Cu exceeds the sediment ERM (Effects Range Median) guidelines and sediment toxicity is

¹ Lower Newport Bay Copper/Metals Marina Study (OC Coastkeeper and Candelaria, 2007).

² TMDLs for Toxic Pollutants in San Diego Creek and Newport Bay, USEPA 2002.

present. Note again that both Upper and Lower Newport Bay were first listed as impaired for metals in 1998, and listed explicitly for Cu in 2006⁴, prior to the Cu-Metals Marina Study.

Board staff's impairment assessment and recommendations for metals actions are also based on the comparison of available data to fish tissue guidelines for human health, from the California Office of Environmental Health Hazard Assessment (OEHHA) and USEPA, and fish tissue guidelines for the protection of wildlife (developed from the literature by Board staff and the US Fish and Wildlife Service (USFWS)).

GEI/CDA comment/concern 3.

“•The data summarized in that report¹ also suggest that, were the saltwater BLM used to estimate toxic effect levels, concentrations in Newport Bay would, in fact, not exceed these site-specific predictions most of the time, which is more consistent with the observed toxicity than that suggested by the CTR criteria.
• The saltwater BLM was also able to more accurately predict toxicity than the CTR criteria in the Shelter Island Yacht Basin of San Diego Bay.”

Board Staff Response 3. The GEI/CDA letter does not specify the basis for this assertion. The data from the Cu-Metals Marina Study were run with the Cu BLM and the results do not agree with your conclusion. (See Response 1.)

With respect to the Cu BLM use in Shelter Island (San Diego Bay), the data used to develop the Cu BLM criteria there were limited. In addition, the DOC concentrations were not characterized throughout the year, which is critical to the development of an accurate Cu BLM criterion.

GEI/CDA comment/concern 4.

“Because these field toxicity measurements and BLM results raise significant uncertainties regarding the basis for this TMDL action, we hope the SARWQCB will derive site-specific criteria using a bioavailability-based approach and consider those criteria when making the final determination on what source control measures, if any, are needed to protect aquatic life in Newport Bay.”

Board Staff Response 4. The Saltwater Cu BLM has not yet been published by USEPA; however, as stated in Response 1, the Cu BLM was run by Board staff using Newport data (Copper-Metals Marina Study). When the DOC concentrations were below 0.5mg/L, the Cu BLM criteria were close to the CTR chronic Cu criterion (3.1µg/L). These results confirm the appropriateness of the current CTR chronic Cu criterion (3.1µg/L). As indicated in Response 1, the proposed TMDL includes a compliance schedule that would allow affected parties to conduct a WER (or, if approved, Cu BLM) studies in order to demonstrate the propriety of site-specific objectives. If site-specific objectives were developed and approved, appropriate revisions to the Cu TMDL would be considered.

GEI/CDA comment/concern 5.

⁴ The State Water Board assessed individual metals in Newport Bay in 2006.

"BLMs have also been developed for other metals and media (such as zinc and nickel in freshwater and copper in soils) and CDA and its other metals association partners would be happy to provide more information if the SARWQCB would find it useful for its work on the non-TMDL action plans or other activities underway."

Board Staff Response 5. USEPA has published a Freshwater BLM. Board staff are not aware of a BLM for copper in soils. In any case, a BLM for copper in soils would not be appropriate to use for sediments.

GEI/CDA comment/concern 6.

"CDA and its contractors would be happy to participate collaboratively with the SARWQCB in any discussions on this matter, either on their own or as part of a stakeholder group, if such a group is formed."

Board Staff Response 6. This offer is acknowledged. To date, a stakeholder group has not been formed to address metals in Newport Bay; however, the proposed implementation plan encourages a collaborative approach to identify and implement control measures.

GEI/CDA comment/concern 7.

"Since the saltwater BLM is not currently publicly available, CDA is also willing to facilitate access to the modeling software and provide training if desired⁸"

Board Staff Response 7. Once again, this offer is acknowledged. As a matter of information, Board staff worked with the creators of the Cu BLM in running the data from Newport Bay. (See Response 1.)

GEI/CDA comment/concern 8.

"Ultimately, use of bioavailability approaches such as the BLM, represents not only the current state of the science, but also the growing state of regulatory practice across the U.S., and in fact the world, for metals in the aquatic environment. We urge the SARWQCB to use the latest scientific and regulatory tools for this important matter that will influence many in the Newport Bay watershed. Thank you for the opportunity to provide these comments."

Board Staff Response 8. Board staff would like to reiterate our commitment to the use of the best available science in our TMDL development. (See Response 1.)

Summary.

- 1) The CTR Copper (Cu) criteria are the applicable water quality criteria for Cu. The saltwater CTR chronic Cu criterion (3.1 µg/L) is a national criterion and is based on species and sites that are reflective of sites throughout the nation, including Newport Bay.
- 2) Board staff agree that utilizing the best available science is critical in establishing appropriate water quality objectives and in developing this Cu TMDL. The proposed revised Cu TMDL employs the best available science.
- 3) The dischargers always have the option of conducting a WER; however, the CTR Cu criteria are legally applicable unless a site-specific criterion is developed and adopted. Accordingly, actions to achieve the CTR Cu criteria are required at this time.

4) The use of the Saltwater Copper Biotic Ligand Model (Cu BLM) was also discussed, and though it has not yet been published by USEPA, Board staff did run the Cu BLM with data from Newport Bay. When the dissolved organic carbon (DOC) concentrations are below 0.5 mg/L, the Cu BLM criteria are close to the CTR chronic Cu criterion of 3.1 µg/L.

5) As Board staff discussed at the July 24, 2015 Regional Board meeting and the two CEQA scoping meetings held on July 23, 2015, our Metals Impairment Assessment (based on data after 2002) demonstrates that Cu concentrations in the Bay continue to exceed the saltwater CTR chronic Cu criterion and the finding of continued impairment of the Bay due to Cu is justified. This Metals Impairment Assessment will be released as part of the draft staff report for the metals TMDLs in the near future.

If you have any further questions/comments or would like to discuss, please contact Linda Candelaria, PhD (RB8-CuTMDL@Waterboards.ca.gov) or Joanne Schneider (jschneider@waterboards.ca.gov).

Sincerely,



Kurt V. Berchtold
Executive Officer
Santa Ana Regional Water Quality Control Board

Attachment 1. Comments from USEPA in LA Regional Board hearing on Marina del Rey Toxics TMDLs on January 6, 2014.

(Comments addressing the appropriateness of the Copper CTR criteria are highlighted in yellow.)

ATTACHMENT 1

MEETING

THE LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

In the Matter of

Regular Board Meeting

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ROOM

700 NORTH ALAMEDA STREET

LOS ANGELES, CALIFORNIA

THURSDAY, JANUARY 6, 2014

9:00 A.M.

Reported by:

Martha L. Nelson

[Comments from USEPA)

MS. LIN: Good afternoon, Chair Stringer and Members of the Board. Thank you for the opportunity to comment today. My name is Cindy Lin and I am USEPA's Region 9's TMDL Coordinator to speak today on the Marina del Rey toxics reconsideration TMDL. First I want to commend your board's effort on meeting your commitment to bringing back TMDLs for reconsideration based on the additional data and analysis by the public and the stakeholders. We know that this takes great effort and resources and is a testament to the commitments you have made to the public at large to bring more information back to review additional -- the TMDLs again.

EPA has reviewed this revised TMDL and finds the TMDL meets the necessary elements of a TMDL as required under Clean Water Act section 303(d). In our review we

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noted the revised TMDL included more extensive and robust data review and analysis, particularly for the front and back basins of Marina del Harbor -- Marina del Rey Harbor. In addition, the revised TMDL looked at multiple lines of evidence which we strongly support, including looking at the sediment, the fish tissue, and the water column. We believe that that will provide more robust information to the impairment assessment. We found the review of the data appropriate and supported additional findings that were reported to you before. This includes the additional load allocations.

Furthermore, we should state that the TMDL included appropriate California Toxics Rule criteria for copper and PCBs, which are the applicable water quality standards for these water bodies. Clean Water Act section 303(c)(2)(B) states that states must adopt numeric criteria

for primary toxic pollutants if it has been shown that the pollutant would impact the beneficial uses negatively. And in this case copper and PCBs are these primary toxic pollutants. And the California Toxics Rule criteria is the applicable standard.

We support the finding of the copper impairment in the water column and sediment from copper-based anti-fouling paints used on boats. We find this specific analysis to be comparable to those conducted for the Shelter Island Yacht

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Basin Copper TMDL in the San Diego region, and also in the Newport Bay region.

EPA supported and approved the Shelter Island TMDL on February 8th, 2006, and also on the Newport Bay TMDL in 2002. Since then, specifically the San Diego Regional Board has worked with the Port of San Diego to come up with reasonable alternatives to meeting the reductions. In fact, we were recently informed that the port have met their interim goals and milestones of reducing pollutant load reductions. Alternative paint -- boat paints were used on the paints -- on many boats in the region.

We've also heard that there are recommendations and suggestions for a site-specific objective, and I wanted to comment on this. Specifically the discussion about a water -- oh. Okay. Let me skip then.

We strongly encourage the board to adopt this TMDL. As stated earlier, we have already seen improvements in similar water body situations. It would be important to begin implementation measures to begin the protection of the beneficial uses and the front and back basins of Marina del Rey Harbor. Thank you.

CHAIR STRINGER: Sorry. Is there anything that you would like to convey to us that got cut off?

MS. LIN: I guess two quick points then.

CHAIR STRINGER: Sure.

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MS. LIN: One is that I know that there is this effort on the copper words. I should just mention that that's a standards change and request that has to go through EPA standards guidance for, you know, water effects ratios. EPA standards guidance for, you know, water effects ratios. So it can't be done along with the TMDL, so that's a separate process.

CHAIR STRINGER: Got it.

MS. LIN: And you've actually -- your board has actually acted on that.

In addition, since 2006 we understood that California wanted to have a statewide effort for copperbased boat paints, but that has not come to fruition. And so we are basically eight years later and we still haven't seen that statewide, you know, guidance or rule of some sort. So we strongly support more specific actions like Marina del Rey Harbor.

Finally, I wanted to mention that EPA actually gave a grant of \$96,000 to the Department of Toxic Substances Control to look at additional alternative boat hull coatings that can be more cost effective and also have good performance. And some of those results are on our website, I want to point to folks. And they basically show that these alternative painting methods, stripping methods and paints are viable. And, in fact, one of the key things I want to mention is that this non-biocide paint, which is

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what was reviewed and evaluated, were much longer lasting, on the order of ten years, compared to your normal copperbased paint which lasts just about two years.

So those are things that are kind of the forefront of technology that we need to move forward on. And so I -- we strongly support the movement of the adoption of this TMDL. We don't believe that the technology is not there yet.

CHAIR STRINGER: Great. Thank you very much.

MS. LIN: Thank you.