State Water Resources Control Board

To: Gerald W. Bowes, Ph.D., Manager
Office of Research, Planning and Performance

Victoria A. Whitney

From: Victoria A. Whitney, Deputy Director
Division of Water Quality

Date: March 10, 2014

Re: AMENDMENT REQUEST FOR EXTERNAL PEER REVIEW OF PROPOSED AMENDMENTS TO STATEWIDE WATER QUALITY CONTROL PLANS FOR TRASH

This request amends the Feb 25, 2014 request by re-defining expertise requirements for reviewers.

The Division of Water Quality of the State Water Resources Control Board (State Water Board) requests by transmittal of this memo that reviewers be identified and assigned to provide external peer review of the proposed Amendments to Statewide Water Quality Control Plans for Trash (Trash Amendment) per the requirements of Health and Safety Code section 57004.

Currently, 73 water bodies are listed as impaired due to trash. There is a need for statewide consistency in regulation of trash in waters of the state. The State Water Board is proposing a statewide control program to reduce the amount of trash that accumulates in waters of the state, adversely affects beneficial uses and causes nuisance. The Trash Amendments would be adopted into the Inland Surface Water, Enclosed Bays and Estuaries Plan (ISWEBE Plan) and the California Ocean Plan. The proposed Trash Amendments would establish a narrative water quality objective for trash, a prohibition of discharge, and implementation provisions. The implementation focuses on a two track framework to reduce trash from the areas with high rates of trash generation.

We recommend reviewers be solicited with expertise in aquatic or marine ecotoxicology, solid waste/trash management, and wastewater engineering.

The title of the document we request to be reviewed is the "Proposed Amendments to Statewide Water Quality Control Plans for Trash (Trash Amendments)" and the supporting draft Staff Report. Documents will be available via hard copy and CD on Friday March 21, 2014.

A summary of the proposed Trash Amendments is provided in Attachment 1. Scientific issues, assumptions, and conclusions to be addressed by peer reviewers are listed in Attachment 2. The names of participants involved in developing the proposed Trash Amendment are listed in Attachment 3.

If you have further questions, please feel free to contact, Dr. Maria de la Paz Carpio-Obeso, Ocean Unit Chief, at (916) 341-5858 or MarielaPaz.Carpio-Obeso@waterboards.ca.gov, or to Ms. Johanna Weston at (916) 327-8117 or johanna.weston@waterboards.ca.gov.

Summary of the Proposed Amendments to Statewide Water Quality Control Plans for Trash

Summary

The State Water Board is proposing a statewide control program to reduce the amount of trash that accumulates in state waters, adversely affects identified beneficial uses, and causes nuisance. The Trash Amendments would be adopted into the Inland Surface Water, Enclosed Bays and Estuaries (ISWEBE) Plan and the California Ocean Plan. The proposed Trash Amendments include six elements: (1) a water quality objective for trash, (2) a prohibition of discharge, (3) implementation provisions, (4) a time schedule, (5) time extension options, and (6) monitoring and reporting requirements. The water quality objective would be implemented through permits and permit waivers. Permittees would comply with the water quality objective and the prohibition of discharge through a multiple track implementation framework that focuses on reducing trash from the areas with high rates of trash generation.

Rationale

The presence of trash in surface waters, specifically coastal and marine waters, is a prevalent issue in California. According to California's 2008-2010 Integrated Report[1], there are 73 water bodies listed as having impaired water quality due to the presence of large amounts of trash. Trash discarded on land is frequently transported through storm drains and to waterways and the ocean. Aquatic and marine life can be threatened from ingestion, entanglement, and habitat degradation from trash. Trash jeopardizes public health and safety and poses hindrance to recreational, navigational, and commercial activities. Additionally, trash, particularly plastic trash, can serve as a transport medium for pollutants, absorb persistent organic pollutants, and act as a vector for invasive species.

There is a need for a statewide consistency in regulation of trash in State waters. Regional approaches are not entirely consistent, and there are ongoing trash problems across the state. In the Colorado Basin Region, there is one adopted Total Maximum Daily Load (TMDL) for trash at the New River. In the Los Angeles Region, fifteen TMDLs were adopted for trash, which includes lakes, rivers, estuaries, and the ocean. The San Francisco Regional Water Quality Control Board uses a municipal storm water permit to address trash in 27 surface waters listed as impaired due to trash.

Project Goals

- Amend the California Ocean Plan and the ISWEBE Plan to include the following:
  a. A narrative water quality objective for trash.
  b. A prohibition of discharge of trash and preproduction plastics to waters of the State.
  c. Requirements that permitting authorities require NPDES permitees with permitted storm water discharges to comply with the prohibition of discharge.
     - Track 1: Network of full capture systems in priority land uses.
     - Track 2: Implement a plan of treatment and institutional controls.
  d. A time schedule for compliance based on the effective date of the first implementing permit.

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[1] State Water Board. 2010a. 2010 Integrated Report (Clean Water Act Section 3030(d) List/305(b) Report). Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

e. A framework for monitoring and reporting requirements in the implementing permit.

Methodology

The Trash Amendments propose a narrative water quality objective and prohibition of discharge specific to trash. Storm water transport is a dominant pathway of trash to receiving water bodies. The goal of reducing trash in receiving waters would focus on the areas of high trash generation rates within the jurisdiction of permitted dischargers. Discharges with trash requirements would need to utilize a combination of controls, such as full capture systems[2], institutional controls, and multi-benefit projects. For urban areas, the proposed amendments would focus trash control efforts on priority land uses with the highest rates of trash generation, which consist of high density residential, industrial, commercial, and mixed urban areas, and public transportation stations[3]. Caltrans, as a linear system, differs from a municipality with regard to trash generation. Based on Caltrans studies, the Adopt-A-Highway program, and the Keep California Beautiful program, the significant trash generating areas for Caltrans include areas such as: 1) highway on- and off- ramps in high-density residential, commercial, mixed urban, and industrial land use areas, 2) rest areas and park-and-rides, and 3) state highways in commercial and industrial land use areas.

Specific Expertise Requirements

- Aquatic or Marine Ecotoxicology
  The ecotoxicologist should have expertise in aquatic species and communities and their relationship with the physical environment, as well as the knowledge in the ability of plastics to be transport medium for pollutants and absorb persistent organic pollutants with aquatic environments

- Solid Waste/Trash Management
  The reviewer should have expertise in the relationship between land use and trash generation, prevention, characterization, monitoring and handling of trash, as well as waste minimization

- Wastewater Engineering
  The engineer should have expertise in stormwater and how to protect water quality from discharges of trash.

Three reviewers, at a minimum, will be adequate.

[2] Full capture systems for storm drains are defined in the Trash Amendments as treatment controls that trap all particles 5mm or larger. Each full capture system must be appropriately sized to, and designed to carry at least the same flows as, the corresponding storm drain.

[3] The Trash Amendments specifically define each of these five regulated land uses for purposes of implementation of the water quality objective and the prohibition of discharge; so, these definitions may differ substantially from an MS4's own local definition of those land uses in its ordinances, general plan, etc.

Description of Scientific Conclusions to be Address by Peer Reviewers

The statute mandating external scientific peer review (Health and Safety Code Section 57004) states that the reviewer's responsibility is to determine whether the scientific portion of the proposed rule is based up sound scientific knowledge, methods, and practices.

We request this determination be made for each of the following topics that constitute the scientific portion of the proposed regulatory action. An explanatory statement is provided for each scientific conclusion to focus the review, which includes a reference to the full discussion in the Staff Report.

Reviewers are not limited to addressing only the specific scientific conclusions presented below, and are asked to contemplate the following as well:

(a) In reading the Staff Report for the Trash Amendments, are there any additional scientific assumptions, finding, and conclusions that are part of the scientific basis of the proposed standard not described above? If so, please comment.

(b) Taken as a whole, is the scientific portion of the Trash Amendments based upon sound scientific knowledge, methods, and practices?

Reviewers should also note that some proposed actions may rely significantly on professional judgment, where available scientific data are not as extensive as desired to support the statutory requirement for absolute scientific rigor. In these situations, the proposed course of action is favored over no action.

The preceding guidance will ensure that reviewers have an opportunity to comment on all aspects of the scientific basis of the propose Board action. At the same time, reviewers also should recognize that the Board has a legal obligation to consider and respond to all feedback on the scientific portions of the proposed rule. Because of this obligation, reviewers are encouraged to focus feedback on the scientific conclusions that are relevant to the central regulatory element being proposed.

1. **Trash threatens public health and safety, reduces aesthetic appeal, degrades aquatic habitats, and endangers wildlife in surface waters.**

   Trash is a pollutant that frequently enters our waterways through a diverse set of sources. Numerous studies, monitoring programs, and clean-up events have documented the presence of trash in streams, river, lakes, estuaries, wetlands, the ocean, and along the beaches. Trash poses health and safety hazards for fishermen, recreational boaters, and children playing on the beaches and in the water. Trash interferes with normal ecosystem functions through dispersal and settlement, which can have immediate and long-term effects on the aquatic habitat. In particular, trash presents a fatal threat through ingestion and entanglement for many aquatic and marine species of invertebrates, fish, seabirds, turtles, and mammals. In addition to ingestion and entanglement, there is a growing body of evidence documenting that trash, specifically microplastics, are a mechanism for the transport of persistent organic pollutants in animal tissues and throughout the food web. For the substantial evidence of the negative impacts of trash to public and wildlife health, a narrative water quality objective for trash should be established and consistently applied to all surface water bodies across California. See Chapters 1.2 and 1.3 in the Staff Report for the Trash Amendments for the scientific assumptions, findings, and conclusions.

2. **Different land uses have different rates of trash generation.**

   Approximately 80 percent of trash in the world's oceans originates from land-based sources. The primary transport mechanism of the land-based trash is through storm water and urban runoff (National Research Council 2008). Studies have determined that land use plays a role in trash generation rates, and permittees with existing trash controls prioritize trash reduction strategies by land use. Thus, land use should be used as part of the compliance strategy to reduce the discharge of trash to waterways and beaches across California. See Chapters 1.2 and 1.3 in the Staff Report for the Trash Amendments for the scientific assumptions, findings, and conclusions.

3. **A full capture system is an effective method for capturing trash greater than 5 mm from entering a surface water body via storm water.**

   The storm water system is a dominant transport pathway for trash to surface water bodies. The Trash Amendments propose the use of full capture systems as a preferred method for controlling trash. A full capture system is a treatment control that traps trash measuring 5 mm or greater, such as cigarette butts, bags (paper and plastic), food wrappers and containers, beverage bottles and cans, and building materials. Full capture systems can include individual catch basin inserts, vortex separation systems, trash nets, and gross solids removal devices. Properly functioning full capture systems should be a feasible method to capture trash in the storm water and divert trash in the areas of high trash generation from the waterways and beaches. See Chapter 5 in the Staff Report for the Trash Amendments for the scientific assumptions, findings, and conclusions.

Names of Participants Involved in Developing the Proposed Trash Amendment

From 2011 to 2013, the State Water Board convened a Statewide Public Working Group to assist staff in the development of the Trash Amendments. The Public Working Group members were selected to represent the diverse set of stakeholders of trash regulations.

Public Advisory Group Members:

- Sean Bothwell, California Coastkeeper Alliance
- Geoff Brosseau, The California Stormwater Quality Association
- Miriam Gordon, Clean Water Action
- Gary Hildebrand, Los Angeles County
- Kirsten James, Heal the Bay
- Scott McGowen, California Department of Transportation
- Charles Moore, Algalita Marine Research Institute
- Tom Reeves, City of Monterey
- Tim Shestek, American Chemistry Council
- Leslie Tamminen, Seventh Generation Advisors